CTE Course Strands and Standards Drafts for approval SY23-24

Updated Strand and Standards are organized by the following Career Clusters.

(These numbered items can be clicked on to navigate through these as needed.)

Cluster: Agriculture, Food & Natural Resources		
Pathway: Agricultural Mechanics System		
Course Code Number	Course Name	Summary
30.01.00.00.030	Agricultural Systems Technology 1	1. Name change: Agricultural Mechanics & Technology 1 2. Changes were made to several standards to clarify specifically what needed to be taught. Small changes were made to grammar and format. 3. Strand 6 Standard 4 changed to, "Understand the operation of small equipment powered by internal combustion engines."
30.01.00.00.040	Agricultural Systems Technology 2	1. Name change: Agricultural Mechanics & Technology 2. 2. Changes were made to several standards to clarify specifically what needed to be taught. Small changes were made to grammar and format. 3. Strand 9, Standard 2, removed "air carbon arc gouging" from the standard. Equipment is expensive to purchase and operate. Not a common practice in the field.
30.01.00.00.001	Advanced Agricultural Mechanics	Changes were made to several standards to clarify specifically what needed to be taught. Small changes were made to grammar and format.
30.01.00.00.020	Agricultural Machinery Technology	No changes were made to the strands.

STRANDS AND STANDARDS

AGRICULTURAL MECHANICS & TECHNOLOGY 1

Learning that works for Utah
CTE®

Course Description

Students will develop knowledge and skills in the application of principles and techniques of power, structural, and technical systems used in the agricultural industry, particularly agricultural production and service. Students will develop basic skills in areas of hot and cold metal work, tool reconditioning, plumbing, painting, bill of materials preparation, small gas engines, and welding. The basic practices associated with soil and water management are included. Safety and proper use of tools and equipment will be emphasized.

Intended Grade Level	9-12
Units of Credit	1.0
Core Code	30.01.00.00.030
Concurrent Enrollment Core Code	N/A
Prerequisite	N/A
Skill Certification Test Number	110
Test Weight	1.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Agriculture (CTE/General)
Endorsement 2	Agriculture Mechanization
Endorsement 3	

STRAND 1

Student will participate in personal and leadership development activities through the FFA.

Standard 1

Student will use communication skills to effectively communicate with others.

- Understand when it is appropriate to listen and to speak.
- Understand and follow verbal and written instructions for classroom and laboratory activities.

Standard 2

Student will effectively use teamwork to respectfully work with others.

- Identify and understand different roles in working with a team

Standard 3

Student will use critical thinking and problem-solving skills

- Analyze the cause of the problem.
- Develop a solution to address the problem.
- Implement the plan.
- Evaluate the effectiveness of the plan.
- Use generally accepted industry standards to analyze, evaluate, troubleshoot and diagnose the challenges associated with a specific repair, maintenance, or fabrication project.

Standard 4

Student will be dependable, reliable, steady, trustworthy and consistent in performance and behavior.

- Set and meet goals on attendance and punctuality.
- Prioritize, plan and manage work to complete assignments and projects on time.

Standard 5

Student will be accountable for results.

- Use an achievement chart for activities and behaviors in class that encourages a personal evaluation of classroom performance.
- File a weekly/bi-weekly written report on progress toward completion of assignments and projects.

Standard 6

Be familiar with the legal requirements and expectations of the course.

- Be familiar with the course disclosure statement and all requirements for successful completion of the course.
- Demonstrate workplace ethics, e.g. fair, honest, disciplined.

STRAND 2

Student will participate in work-based learning activities through the Supervised Agricultural Experience (SAE) Program.

Standard 1

Student will demonstrate employability skills.

- Use a career search network to find career choices.
- Identify appropriate CTE Pathway for selected career choice.
- Write a resume including a list of demonstrated skills.
- Write a letter of application.
- Complete a job application.

- Participate in an actual or simulated job interview.

Standard 2

Student will participate in a work-based learning experience outside the classroom

- Student will plan and implement a Supervised Agricultural Experience Program from at least one of the following areas; ownership/entrepreneurship, placement/internship, research, school-based enterprise, and/or service-learning experiences.

Standard 3

Student will develop a job portfolio specific to their selected work-based learning experience.

- Student will keep a personal record/journal/log of their work-based learning experience; including pictures, financial records, skills learned, hours associated with project, goals, reflection, etc.

STRAND 3

Student will demonstrate appropriate safety practices in agricultural power, structural, and technical systems in laboratory and work settings.

Standard 1

Explain the meaning and importance of safety in agricultural power, structural, and technical systems.

- Define safety and describe why it is important.
- Identify safety hazards, and demonstrate the actions needed to minimize or eliminate risk associated with agricultural power, structural, and technical systems in learning and/or work situations.

Standard 2

Implement safety practices related to agricultural power, structural, and technical systems in learning and work situations.

- Identify, select, and properly use appropriate personal protective equipment (PPE).
- Verify that all equipment is in good operating condition and that appropriate safety devices are in place and working (e.g., guards in place, tool rests adjusted, etc.).
- Maintain neat, well-organized, well-ventilated, and safe work areas.

Standard 3

Identify fire hazard conditions and actions to take in case of fire.

- Explain combustion and identify three conditions necessary for it to occur.
- Describe fire prevention in agricultural power, structural, and technical systems.
- Explain classes of fires and appropriate extinguishers.

Standard 4

Take appropriate actions in an accident or emergency.

- Demonstrate the use of simple first aid in an accident with an injury.
- Locate first-aid kits, and investigate their contents and use in power, structural, and technical systems settings.
- Discuss appropriate safety responses in an accident or emergency.

STRAND 4

Students will plan, construct, and appropriately maintain agricultural structures.

Standard 1

Create and/or use sketches, plans, and specifications for agricultural structures.

- Identify symbols and drawing techniques used in creating sketches and plans.
- Use scale measurement and dimensions with sketches and plans.
- Identify and interpret different views of a construction drawing.
- Develop sketches or plans for an agricultural structure.

Standard 2

Determine materials for agricultural structures.

- Identify types and grades of materials used in constructing agricultural structures, including lumber, plywood, manufactured materials (e.g. particle board and wafer board), roofing, insulation, and doors and windows.
- Identify common fasteners and other devices used in constructing agricultural structures.
- Identify dimensions and sizes of materials and fasteners used in agricultural structures.

Standard 3

Construct a small agricultural structure or project.

- Identify and demonstrate safe and proper use of common tools used in agricultural construction.
- Select materials for a construction project.
- Prepare a bill of materials for a small structure or project, including a cost estimate.
- Measure, mark, and cut materials according to plans for an agricultural structure.
- Assemble an agricultural structure by properly fitting materials and using fasteners.
- Evaluate a completed structure in terms of plans and quality of work.

Standard 4

Select and use appropriate protective coatings, such as paints and preservatives.

- Discuss the importance of properly selecting and using paints and preservatives.
- Identify and use appropriate application methods for coating materials, including surface preparation and safety.
- Maintain painting tools and equipment by proper cleaning, storage, and on-job use.

STRAND 5

Student will demonstrate basic plumbing knowledge and perform simple plumbing skills.

Standard 1

Demonstrate basic plumbing knowledge and skills.

- Distinguish plumbing materials and products (copper, iron, steel, PVC, and PEX).
- Describe the meaning and importance of plumbing systems for air, water, wastes, and other fluid-based materials.
- Identify components of plumbing supply systems and waste systems, including pipe, tubing, valves, faucets, fittings, and fixtures.
- Describe how plumbing system components are sized, and appropriately match sizes to jobs.
- Prepare a bill of materials for a plumbing job.

Standard 2
Perform simple plumbing jobs.
- Identify and select appropriate tools for a plumbing job.
- Measure, cut, fit, and install PVC and/or PEX materials as used in water supply systems.
- Measure, cut, thread, and install iron or steel pipe materials as used in water supply systems.
- Demonstrate the use of sweating\soldering in plumbing applications.
- Repair and maintain plumbing systems.

STRAND 6
Student will select, operate, maintain, and repair small internal combustion engines.

Standard 1
Select and operate internal combustion engines.
- Identify components and systems of internal combustion engines.
- Describe the operation of internal combustion engines by cycle and fuel used.
- Use the operator's manual to operate and maintain an engine properly.
- List and explain criteria to use in selecting an engine.
- Obtain and/or prepare the proper fuel for an internal combustion engine.

Standard 2
Analyze and troubleshoot internal combustion engines.
- Identify the major components of internal combustion engines and the functions of each.
- Explain the meaning of troubleshooting and list the common engine problems identified/solved by troubleshooting.

Standard 3
Maintain internal combustion engines.
- Perform routine maintenance, such as cleaning an engine, changing the oil, and cleaning or replacing the air filter.
- Replace and adjust spark plugs as needed.
- Winterize or otherwise prepare an engine for extended storage.
- Practice environmental responsibility through the proper disposal of engine wastes, such as oil and filters.

Standard 4
Understand the operation of small equipment powered by internal combustion engines.
- Identify safety hazards and practices to follow to assure safe operation with small equipment, including mowers, tillers, blowers, and edgers.
- Explain the meaning and importance of pre-operation inspections, including those of fuel and oil levels, the air system, and the condition of engine components.
- Start and safely operate engine-powered equipment.
- Stop and properly cool down and store engine-powered equipment.

STRAND 7

Students will fabricate with metal.

Standard 1

Explain kinds of metals and their uses.

- Identify kinds of metals by appearance and testing, such as spark testing.
- Classify metals according to characteristics and uses.
- Identify, maintain, recondition, and use tools in hot and cold metal work.

Standard 2

Fabricate with hot and cold metal.

- Select and use appropriate safety practices in metal fabrication.
- Apply cold metal processes in fabrication, including measuring and marking, cutting, bending, tapping and threading, filing and drilling, and riveting.
- Discuss the use of hot metal processes, including annealing, tempering, bending, welding, cutting, and hole punching.

Standard 3

Use shielded metal arc welding (SMAW) processes.

- Set up for SMAW operations on carbon steel.
- Start and restart an arc and backfill at the edge while running a bead on carbon steel.
- Build a weld pad on carbon steel in the flat position.
- Make 1F (flat position-fillet weld) welds on carbon steel.
- Make 2F (horizontal position-fillet weld) welds on carbon steel.
- Make 1G (flat position-groove weld) welds on carbon steel.
- Make 2G (horizontal position-groove weld) welds on carbon steel.

Standard 4

Use manual oxyfuel gas cutting processes.

- Perform safety inspections of equipment and accessories.
- Set up for manual oxyfuel gas cutting operations on carbon steel.
- Perform straight cutting operations on carbon steel.
- Perform shape-cutting operations on carbon steel.
- Perform bevel-cutting operations on carbon steel.
- Pierce a hole through a carbon steel plate.

Standard 5

Use gas metal arc welding (GMAW) processes.

- Set up for GMAW operations on carbon steel.
- Start and restart an arc and backfill at the edge while running a bead on carbon steel.
- Use Short Circuit Transfer welding process to make 1F (flat position-fillet weld) welds on carbon steel.
- Use Short Circuit Transfer welding process to make 2F (horizontal position-fillet weld) welds on carbon steel.
- Use Short Circuit Transfer welding process to make 1G (flat position-groove weld) welds on carbon steel.
- Use Short Circuit Transfer welding process to make 2G (horizontal position-groove weld) welds on carbon steel.

Performance Skills

- File a weekly/bi-weekly written report on progress toward completion of assignments and projects.
- Student will keep a personal record/journal/log of their work-based learning experience; including pictures, financial records, skills learned, hours associated with project, goals, reflection, etc.
- Maintain a neat, well-organized laboratory or shop working area.
- Assemble an agricultural structure by properly fitting materials and using fasteners.
- Perform simple plumbing jobs.
- Start, operate, and shut down an internal combustion engine.
- Use SMAW to make 1G (flat position-groove weld) welds on carbon steel.
- Use GMAW/Short Circuit Transfer welding process to make 1G (flat position-groove weld) welds on carbon steel.
- Use a manual oxy/fuel system to perform straight cutting operations on carbon steel.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
AGRICULTURAL MECHANICS & TECHNOLOGY 2

Learning that works for Utah
CTE®

Course Description

Students will develop knowledge and skills in the application of principles and techniques of power, structural, and technical systems used in the agricultural industry. Emphasis will be on selecting, operating, maintaining, servicing, and using agricultural power units and equipment. The course also includes agricultural uses of concrete and electricity. Safety and the proper use of safe practices will be integrated throughout the instruction. The instructional methods will involve applications of concepts being taught through classroom and laboratory instruction and supervised agricultural experience. Note: This course builds on knowledge and skills developed in Agricultural Systems and Technology.

Intended Grade Level	10-12
Units of Credit	1.0
Core Code	30.01.00.00.040
Concurrent Enrollment Core Code	N/A
Prerequisite	Agriculture Mechanics & Technology 1
Skill Certification Test Number	113
Test Weight	1.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Agriculture (CTE/General)
Endorsement 2	Agriculture Mechanization
Endorsement 3	N/A

STRAND 1

Student will participate in personal and leadership development activities through the FFA.

Standard 1

Student will use communication skills to effectively communicate with others.

- Understand when it is appropriate to listen and to speak.
- Understand and follow verbal and written instructions for classroom and laboratory activities.

Standard 2

Student will effectively use teamwork to respectfully work with others.

- Identify and understand different roles in working with a team

Standard 3

Student will use critical thinking and problem-solving skills

- Analyze the cause of the problem.
- Develop a solution to address the problem.
- Implement the plan.
- Evaluate the effectiveness of the plan.
- Use generally accepted industry standards to analyze, evaluate, troubleshoot and diagnose the challenges associated with a specific repair, maintenance, or fabrication project.

Standard 4

Student will be dependable, reliable, steady, trustworthy and consistent in performance and behavior.

- Set and meet goals on attendance and punctuality.
- Prioritize, plan and manage work to complete assignments and projects on time.

Standard 5

Student will be accountable for results.

- Use an achievement chart for activities and behaviors in class that encourages a personal evaluation of classroom performance.
- File a weekly/bi-weekly written report on progress toward completion of assignments and projects.

Standard 6

Be familiar with the legal requirements and expectations of the course.

- Be familiar with the course disclosure statement and all requirements for successful completion of the course.
- Demonstrate workplace ethics, e.g. fair, honest, disciplined.

STRAND 2

Student will participate in work-based learning activities through the Supervised Agricultural Experience (SAE) Program.

Standard 1

Student will demonstrate employability skills.

- Use a career search network to find career choices.
- Identify appropriate CTE Pathway for selected career choice.
- Write a resume including a list of demonstrated skills.
- Write a letter of application.
- Complete a job application.

- Participate in an actual or simulated job interview.

Standard 2
Student will participate in a work-based learning experience outside the classroom
- Student will plan and implement a Supervised Agricultural Experience Program from at least one of the following areas; ownership/entrepreneurship, placement/internship, research, school-based enterprise, and/or service-learning experiences.

Standard 3
Student will develop a job portfolio specific to their selected work-based learning experience.
- Student will keep a personal record/journal/log of their work-based learning experience; including pictures, financial records, skills learned, hours associated with project, goals, reflection, etc.

STRAND 3
Student will demonstrate appropriate safety practices in agricultural power, structural, and technical systems in laboratory and work settings.

Standard 1
Implement safety practices related to agricultural power, structural, and technical systems in learning and work situations.
- Identify, select, and properly use appropriate personal protective equipment (PPE).
- Verify that all equipment is in good operating condition and that appropriate safety devices are in place and working (e.g., guards in place, tool rests adjusted, etc.).
- Maintain neat, well-organized, well-ventilated, and safe work areas.

Standard 2
Understand and demonstrate safety in agricultural power, structural, and technical systems.
- Identify safety hazards and the actions needed to minimize risk with agricultural power units, machinery, and equipment.
- Identify appropriate safety responses in accidents or emergencies, including the use of first aid and contact of emergency services.
- Properly dispose of waste materials to assure minimum environmental impact.
- Identify the three parts of the fire triangle: fuel, oxygen and heat.

STRAND 4
Students will provide preventive maintenance in the care and operation of internal combustion engines.

Standard 1
Assess the importance of proper preventive maintenance of internal combustion engines.
- Demonstrate proper preventive maintenance to engine life and efficiency of operation.
- Utilize operators' manuals to determine preventive maintenance schedules and practices for specific engines.
- Identify, select, properly use, and maintain tools needed in preventive maintenance of internal combustion engines.

Standard 2
Identify and distinguish the components and systems of internal combustion engines.
- Classify engines by fuel used, kind of ignition, and cycle of operation.

- Explain the functions of engine systems, including air, fuel, exhaust, ignition, lubrication, and cooling.
- Identify the major components or structure of an engine, including engine block, cylinders, pistons, connecting rods, and crankshaft.
- Describe the strokes of a four-stroke-cycle engine, including the role of combustion and heat.

Standard 3

Perform preventive maintenance on engine systems.

- Perform air intake system maintenance on engines, including those with dry element filters, oil foam filters, and oil bath cleaners.
- Perform fuel system maintenance on an engine, including filter replacement.
- Perform lubrication system maintenance on an engine, including selecting and changing oil and replacing the filter.
- Perform ignition system maintenance on an engine, including battery cleaning and hydrometer testing.
- Perform exhaust system maintenance on an engine, including checking for leaks and replacing worn or damaged components.
- Perform cooling system maintenance on liquid- and air-cooled engines.
- Perform electrical system maintenance on engines.

STRAND 5

Students will provide preventive maintenance and repair in the care and operation of power units and implements.

Standard 1

Perform preventive maintenance on power units and implements.

- Clean all components, removing trash, mud, dust, and other dirt by using pressure washing, hand wiping, or other appropriate methods.
- Assess the drive train for maintenance or repair.
- Properly inflate tires.
- Use pneumatic and hands tools to perform maintenance on power units.
- Lubricate the steering system, as appropriate.
- Adjust belts and chains for proper operation.
- Inspect, analyze, and provide appropriate service for the clutch and brakes.
- Perform appropriate service on a hydraulic system, including checking fluid levels and replenishing fluids as needed, checking for leaks, and replacing or tightening faulty fluid conveyance components.
- Adjust covers, shields, and other safety devices.
- Evaluate and service vehicle traction and ballasting as needed.

Standard 2

Perform basic repair on power units and implements.

- Explain the meaning and importance of troubleshooting malfunctions.
- Using the gauges and warning lights on the dashboard diagnose problems, take corrective actions, and test power units and implements following repair.
- Use metal fabrication skills in making selected repairs to power units and implements.

STRAND 6

Students will safely operate basic power units and equipment.

Standard 1

Identify power unit controls and instruments and their functions.

- Locate controls on a power unit, including starter button or key, throttle, clutch, brakes, lights, and others (depending on the unit), and explain and demonstrate their functions.
- Locate instruments on a power unit, including oil pressure gauge, temperature gauge, tachometer, fuel gauge, and others (depending on the unit), and discuss their functions.
- Perform a pre-operation inspection according to the manufacturer's recommendations in the owner's manual.

Standard 2

Identify equipment controls for various agricultural power units and describe their functions.

- Compare and contrast various agricultural power units and equipment.
- Mount or attach equipment to a power unit or tractor following manufacturer's recommendations.
- Operate equipment following safe and approved practices.

STRAND 7

Students will plan and construct with concrete.

Standard 1

Explain the composition and characteristics of concrete.

- Define concrete, and list advantages and disadvantages of its use.
- Identify important agricultural uses of concrete.
- Explain proportions and qualities of ingredients.
- Describe the qualities of properly placed and cured concrete.

Standard 2

Place concrete.

- Identify tools and equipment used in placing concrete.
- Explain the construction and use of forms.
- Calculate the amount of concrete needed for a job.
- Explain the use of reinforcing steel.
- Demonstrate the placing of concrete, including striking off, finishing the surface, and curing.

STRAND 8

Students will plan and install basic electrical wiring systems.

Standard 1

Explain the characteristics and measurement of electricity.

- Describe safety practices with electricity.
- Define electricity and identify the kinds of current (DC and AC) used in agriculture.
- Describe how electricity is measured, including amperage, ohms watt, and volt.
- Discuss voltage drop and its impact on electrical devices.
- Describe the meaning and use of circuits.

Standard 2
Install basic electrical circuits.
- Distinguish between the functions and materials of insulators and conductors.
- Identify and use materials and tools in circuit installation.
- Energize a simple circuit to test its workability.
- Use instruments to test and validate circuits.
- Explain and demonstrate the installation of electrical boxes, splices, and connections.

STRAND 9
Students will fabricate with metal.

Standard 1
Use shielded metal arc welding (SMAW) processes.
- Make 3F (vertical position-butt weld) welds on carbon steel.
- Make 3G (vertical position-groove weld) welds on carbon steel.

Standard 2
Use plasma cutting processes.
- Perform safety inspections of equipment and accessories.
- Set up for and make manual plasma cutting operations on carbon steel.

Standard 3
Use gas metal arc welding (GMAW) processes.
- Use Short Circuit Transfer welding process to make 3F (vertical position-fillet weld) welds on carbon steel.
- Use Short Circuit Transfer welding process to make 3G (vertical position-groove weld) welds on carbon steel.

Standard 4
Student will fabricate a project using metal.
- Develop sketches or plans for the project.
- Select materials for the project.
- Prepare a bill of materials for the project including a cost estimate.
- Measure, mark, and cut materials according to the plans.
- Complete project.
- Evaluate a completed structure in terms of plans and quality of work.

Performance Skills
- File a weekly/bi-weekly written report on progress toward completion of assignments and projects.
- Student will keep a personal record/journal/log of their work-based learning experience; including pictures, financial records, skills learned, hours associated with project, goals, reflection, etc.
- Maintain neat, well-organized, well-ventilated, and safe work areas.
- Perform preventive maintenance on engine systems.
- Use technical manuals in diagnosing problems, taking corrective actions, and testing power units and implements following repair.
- Conduct a pre-operation inspection of a tractor or other agricultural power unit.
- Demonstrate the placing of concrete, including striking off, finishing the surface, and curing.
- Explain and demonstrate the installation of electrical boxes, splices, and connections.
- Students will fabricate a project using metal.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
ADVANCED AGRICULTURAL MECHANICS

Learning that works for Utah
CTE®

Course Description

This capstone course is a part of a pathway sequence of courses in agricultural mechanics. This course prepares individuals for employment in careers that repair, maintain, or restore agricultural machinery and equipment. Because of the rigorous nature of this hands-on course it is recommended that enrollment not exceed 15 students.

Intended Grade Level	11-12
Units of Credit	1.0
Core Code	30.01.00.00.001
Concurrent Enrollment Core Code	N/A
Prerequisite	Agricultural Mechanics & Technology 1 Agricultural Mechanics & Technology 2
Skill Certification Test Number	117
Test Weight	1.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Agriculture (CTE/General)
Endorsement 2	Agriculture Mechanization
Endorsement 3	N/A

STRAND 1

FFA/Personal and Leadership Development; students will understand the importance of workplace skills and will implement and practice these skills in the classroom, laboratory and work-based experiences.

Standard 1

Use communication skills to effectively interact with others.

- Understand when it is appropriate to listen and to speak.
- Understand and follow verbal and written instructions for classroom and laboratory activities.
- Reflect on assigned work and then communicate progress relative to completion.

Standard 2

Effectively use teamwork to respectfully work with others.

- Work with a team to complete assignments and projects.

Standard 3

Use the critical thinking and problem-solving skills; reason, analyze, reflect, evaluate and interpret information to make judgements and decisions to solve problems.

- Use generally accepted industry standards to analyze, evaluate, troubleshoot and diagnose the challenges associated with a specific repair, maintenance, or restoration project.

Standard 4

Be dependable, reliable, steady, trustworthy and consistent in performance and behavior.

- Set and meet goals on attendance and punctuality.
- Prioritize, plan and manage work to complete assignments and projects on time.

Standard 5

Be accountable for results.

- Assure work quality by using industry standards for process, procedure and evaluation.
- File a weekly/bi-weekly written report on progress toward completion of assignments and projects.

Standard 6

Be familiar with the legal requirements and expectations of the course.

- Be familiar with the course disclosure statement and all requirements for successful completion of the course.
- Demonstrate workplace ethics.

Standard 7

Demonstrate employment skills.

- Build a job search network and find job leads.
- Write a resume and create a job portfolio.
- Write a letter of application.
- Complete a job application.
- Participate in an actual or simulated job interview.

Performance Skills

- Set and meet goals on attendance and punctuality.
- File a weekly/bi-weekly written report on progress toward completion of assignments and projects.
- Write a resume and create a job portfolio.

STRAND 2

Student will participate in a Supervised Agricultural Experience (SAE).

Standard 1

Students will participate in an entrepreneurial, paid employment, research or exploratory focused work-based experience outside the classroom.

Standard 2

Students are required to keep a personal record/journal/log of their work-based experience.

Performance Skills

- Keep a personal record/journal/log of their work-based experience.

STRAND 3

Students will work to create a culture of safety.

Standard 1

Complete a student safety pledge (disclosure statement).

Standard 2

Respond to first aid requirements as allowed by school policy.

- Locate first-aid kits and investigate their contents and discuss the use of the items as allowed by school policy.
- Discuss appropriate safety responses in an accident or emergency.
- Demonstrate the use of simple first aid in an accident with an injury.

Standard 3

Follow safe practices.

- Use appropriate PPE (Personal Protective Equipment) at all times.
- Eliminate workplace practices that distract attention and create an unsafe environment; e.g. cell phones and other electronic devices.

Standard 4

Perform housekeeping duties.

- Keep personal workspace clean and work with others to clean and organize community space.

Standard 5

Successfully complete safety tests or demonstrations on equipment use and equipment safety.

- Student will demonstrate an understanding of safe practices with 100% accuracy.

Performance Skills

- Use appropriate PPE (Personal Protective Equipment) at all times.
- Keep personal workspace clean and work with others to clean and organize community space.
- Demonstrate an understanding of safe practices with 100% accuracy.

STRAND 4

Student will design a fabrication project.

Standard 1

Select a project with blueprints for fabrication.

- Analyze the cost effectiveness of the project.

Standard 2

Interpret welding and construction symbols/information.

Standard 3

Develop a project portfolio.

- Drawing
- Bill of materials
- Cut list
- Cost estimates

Standard 4

Prepare a materials order and secure the materials

Standard 5

Develop a production schedule.

- #1 Blueprint
- #2 Bill of materials/cut list
- #3 Cost estimate
- #4 Order material
- #5 Fabricate

Performance Skills

- Develop a project portfolio.
- Develop a production schedule.

STRAND 5

Student will fabricate projects.

Standard 1

Demonstrate proper equipment setup and usage.

Standard 2

Accurately measure and prepare materials for fabrication.

Standard 3

Construct the project according to a plan that meets high quality standards in four areas, including project design, quality of workmanship, attention to detail, and fit and finish.

Performance Skills

- Construct a project.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
AGRICULTURAL MACHINERY TECHNOLOGY

Learning that works for Utah
CTE®

Course Description

This capstone course is a part of a pathway sequence of courses in agricultural mechanics. This course prepares individuals for employment in careers that repair, maintain, or restore agricultural machinery and equipment. Because of the rigorous nature of this hands-on course it is recommended that enrollment not exceed 15 students.

Intended Grade Level	11-12
Units of Credit	1.0
Core Code	30.01.00.00.020
Concurrent Enrollment Core Code	N/A
Prerequisite	Agricultural Mechanics & Technology 1 Agricultural Mechanics &Technology 2
Skill Certification Test Number	114
Test Weight	1.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Agriculture (CTE/General)
Endorsement 2	Agriculture Mechnanization
Endorsement 3	N/A

STRAND 1

FFA/Personal and Leadership Development; students will understand the importance of workplace skills and will implement and practice these skills in the classroom, laboratory and work-based experiences.

Standard 1

Use communication skills to effectively interact with others.

- Understand when it is appropriate to listen and to speak.
- Understand and follow verbal and written instructions for classroom and laboratory activities.
- Reflect on assigned work and then communicate progress relative to completion.

Standard 2

Effectively use teamwork to respectfully work with others.

- Work with a team to complete assignments and projects.

Standard 3

Use the critical thinking and problem-solving skills; reason, analyze, reflect, evaluate and interpret information to make judgements and decisions to solve problems.

- Use generally accepted industry standards to analyze, evaluate, troubleshoot and diagnose the challenges associated with a specific repair, maintenance, or restoration project.

Standard 4

Be dependable, reliable, steady, trustworthy and consistent in performance and behavior.

- Set and meet goals on attendance and punctuality.
- Prioritize, plan and manage work to complete assignments and projects on time.

Standard 5

Be accountable for results.

- Assure work quality by using industry standards for process, procedure and evaluation.
- File a weekly/bi-weekly written report on progress toward completion of assignments and projects.

Standard 6

Be familiar with the legal requirements and expectations of the course.

- Be familiar with the course disclosure statement and all requirement for successful completion of the course.
- Demonstrate workplace ethics.

Standard 7

Demonstrate employment skills.

- Build a job search network and find job leads.
- Write a resume and create a job portfolio.
- Write a letter of application.
- Complete a job application.
- Participate in an actual or simulated job interview.

Performance Skills

- Set and meet goals on attendance and punctuality.
- File a weekly/bi-weekly written report on progress toward completion of assignments and projects.
- Write a resume and create a job portfolio.

STRAND 2

Student will participate in a Supervised Agricultural Experience (SAE).

Standard 1

Students will participate in an entrepreneurial, paid employment, research or exploratory focused work-based experience outside the classroom.

Standard 2

Students are required to keep a personal record/journal/log of their work-based experience.

Performance Skills

- Keep a personal record/journal/log of their work-based experience.

STRAND 3

Students will understand agricultural machinery/equipment safety.

Standard 1

Identification of and safety pertaining to Shear and Cutting Points.

Standard 2

Identification of and safety pertaining to Pinch Points.

Standard 3

Identification of and safety pertaining to Wrap Points.

Standard 4

Identification of and safety pertaining to Free-Wheeling Points.

Standard 5

Identification of and safety pertaining to Pull-in Points.

Standard 6

Identify the appropriate use of the ROPS (Roll-Over Protective Structure) on agricultural machinery.

Standard 7

Discuss the importance of terrain in the operation of agricultural machinery.

Performance Skills

- Identify shear and cutting points, pinch points, wrap points, free-wheeling points, and pull-in points on all types of agricultural machinery.

STRAND 4

Students will work to create a culture of safety.

Standard 1

Complete a student safety pledge (disclosure statement).

Standard 2

Respond to first aid requirements as allowed by school policy.

- Locate first-aid kits and investigate their contents and discuss the use of the items as allowed by school

policy.
- Discuss appropriate safety responses in an accident or emergency.
- Demonstrate the use of simple first aid in an accident with an injury.

Standard 3
Follow safe practices.
- Use appropriate PPE (Personal Protective Equipment) at all times.
- Eliminate workplace practices that distract attention and create an unsafe environment; e.g. cell phones and other electronic devices.

Standard 4
Perform housekeeping duties.
- Keep personal workspace clean and work with others to clean and organize community space.

Standard 5
Successfully complete safety tests or demonstrations on equipment use and equipment safety.
- Student will demonstrate an understanding of safe practices with 100% accuracy.

Performance Skills
- Use appropriate PPE (Personal Protective Equipment) at all times.
- Keep personal workspace clean and work with others to clean and organize community space.
- Demonstrate an understanding of safe practices with 100% accuracy.

STRAND 5
Students will be able to program and operate autonomous systems and technology.

Standard 1
Students will be able to differentiate between different types and functions of autonomous systems.

Standard 2
Students will be able to apply autonomous systems in agricultural applications.

Standard 3
Students will be able to operate autonomous systems in agricultural applications.

Performance Skills
- Program and operate autonomous systems in agricultural application.

STRAND 6
Students will develop a plan to repair/maintain/restore agricultural machinery/equipment.

Standard 1
Select agricultural machinery/equipment for repair/maintenance/restoration.
- Analyze the process to make sure that it is cost affective to repair/maintain or restore the project.

Standard 2
Interpret and analyze manuals, schematics or other resources required for the repair/maintenance/restoration of project.

Standard 3
Develop a written estimate including itemization of parts, labor, time, and total cost.

Standard 4
Prepare a parts list, parts order, and secure the parts.

Standard 5
Develop a production schedule.

Performance Skills
- Develop a written estimate including itemization of parts, labor, time, and total cost.
- Develop a production schedule.

STRAND 7
Students will repair/maintain/restore agricultural machinery/equipment.

Standard 1
Demonstrate proper equipment and tool setup and usage.

Standard 2
Diagnose, troubleshoot, and disassemble as needed.

Standard 3
Clean and evaluate parts for manufacturer specifications.

Standard 4
Reflect on progress, evaluate next steps, and make adjustments relative to completion of project.

Standard 5
Successfully complete the project.

Performance Skills
- Successfully complete the repair/maintenance/restoration of agricultural machinery/equipment.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

Cluster: Architecture & Construction		
Pathway: Interior Design		
Course Code Number	Course Name	Summary
34.01.00.00.010	Interior Design 3	Addition of historical Architects and Interior designers Strand 1 & 2
		Added standard on using client profile to inform design decisions
		Added to strand 5 standard 1 energy efficiency updates to reflect current practices
		Added Strand 6 Standard 1 use of universal design within commercial spaces

STRANDS AND STANDARDS
INTERIOR DESIGN 3

Course Description

This course provides students the opportunity to develop industry skills. Projects are integrated throughout the course to provide students with hands-on application as they explore careers in interior design, historical architects & interior designers, textiles, client profiles, sustainability, and universal design. A coordinated project that allows application of interior design skills in a residential, commercial, or school setting may be a component of this course. Student leadership and competitive events (FCCLA) may be an integral part of the course. Students could incorporate the FCCLA Interior Design star event as a part of this course.

Intended Grade Level	9-12
Units of Credit	0.5 or 1.0
Core Code	34.01.00.00.010
Concurrent Enrollment Core Code	N/A
Prerequisite	Interior Design 1 & 2
Skill Certification Test Number	335
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Family & Consumer Science (CTE/General)
Endorsement 2	CTE License: Interior Design
Endorsement 3	N/A

ADA Compliant: September 2022

STRAND 2

Students explore historically influential Architects & Interior Designers and their contributions to the field.

Standard 1

Identify the contributions of each of the architects below:

- Andrea Palladio-(1508 – 1580) Italian Renaissance – Villa Rotunda
- Antoni Gaudi- (1852-1926) Spanish – Organic – The church of the Sagrada Familia – Casa Mila
- Frank Lloyd Wright- (1867 – 1959) American – Known for Usonian and Prairie Style buildings – Falling Water – Stromquist House, Bountiful Utah.
- Vertner Woodson Tandy (1885 - 1949) African American – Villa LaWaro – Tuskegee Chapel
- Ludwig Mies Van Der Rohe- (1886 – 1969) German / German American – Bauhaus Designer know for International Style buildings – Barcelona Pavilion
- Eileen Gray: (1878 – 1976) - Irish - Architect / Furniture Designer - Smoking Table
- Le Corbusier- (1887 – 1965) Swiss French – (5 points of modern architecture) – Villa Savoy – Notre-Dame du Haut.
- Paul Williams (1894 -1980) African American – First African American registered with the American Institute of Architects. Designed over 2000 homes in Los Angeles.
- Luis Barragon (1902 – 1988) Mexican – Casa Barragon - Casa Gilardi
- Oscar Neimyer (1907 – 2012) Brazilian – National Congress of Brazil, Brasilia.
- Frank Gehry- (1929 -) Canadian American – Deconstructivism – Walt Disney Concert Hall
- Richard Meier- (1934 -) American – White and Porcelain – Combined modern architectural styles – The Getty Center
- Moshe Safdie-(1938 -) Canadian American – Habitat 67 - SLC Library
- Zaha Hadid- (1950 – 2016) Iraqi British – Flowing curvilinear forms contrasting sharp angles - Galaxy Soho, Beijing.

Standard 2

Identify the contributions of each of the interior designers below:

- Elsie de Wolfe: (1859 – 1950) American - Considered to be the first interior designer
- Dorothy Draper: (1889 – 1969) American - Greenbrier hotel
- Billy Baldwin: (1903 -1983) American - Slipper Chair, Designed for high profile clients such as Cole Porter, Jacqueline Kennedy Onassis, and Barbara Hutton.
- Sister Parish: (1910- 1994) American - Decorated the Kennedy White House and for other high profile clients.
- Albert Hadley: (1920 – 2012) American - Know for combining classic and contemporary styles together. : Never less, never more"
- Milo Baughman; (1923 – 2003) American - Modern interior designer and prolific furniture designer. Utah Resident
- David Hicks: (1929- 1998) English - Combined antiques, modern furniture, and bold colors.
- Cecil Hayes: (1945 -) American - Contemporary interior designer
- Marcell Wanders: (1963 -) Dutch - Contemporary interior designer
- Shelia Bridges: (1964 -) American - Contemporary interior designer
- Kelly Wearstler: (1967 –) American - Contemporary interior designer

STRAND 3

Students will explore the difference between a designer and decorator as well as interior design careers.

Standard 1

Research employment/ entrepreneurial opportunities and preparation for interior design careers.

- Interior Design Careers: Interior Designer/Entrepreneur, Lighting Designer, Kitchen and Bath Designer, Hospitality Designer, Healthcare Designer, Aging-inPlace Specialist, Staging Designer, Retail Designer, Institutional Designer, Set and Stage Designer, Retail Sales/ Purchasing Agent.
- http://www.bls.gov, www.onetonline.org, http://www.utahfutures.org

Standard 2

Identify the difference between an Interior Designer and an Interior Decorator.

- Interior design is the art and science of understanding people's behavior in order to create functional spaces within the structures that architects design.
- Decoration is the furnishing or adorning of a space with fashionable or beautiful things.

STRAND 3

Students will apply the concepts of the programming and design development phases through successful application of a client Profile.

Standard 1

Review the meaning of the phrase "form follows function"

- The form should reflect its intended use and fulfill its intended purpose. The first priority in a design is its function, which dictates the shape or form of a design. Example: a chair will be stripped of embellishment or decorative design and will fulfill only the needs of its function.

Standard 2

Students will identify the programming phase (research and decision-making process that identifies the scope of the work to be designed) of the design process. "Programming is problem seeking, design is problem solving."-William Peña

- Assess client's needs through client interview/questionnaire and the creation of an Interior Design Client Profile.
- Research and identify the design constraints (budget, site and/or space constraints).

Standard 3

Students will identify the design development phase (brainstorming, identifying, and researching possible solutions, color concepts, and space planning) of the design process.

- Design and develop possible solutions (appropriate material and textile selection, style and finish selections, color selection and space plan)
  - Textile selection: appearance and tactile quality (touch or hand-the feel), performance, or functional properties, that affect wear-life and durability, safety factors such as flammability, installation and maintenance, quality, cost-initial and lifecycle, client budget
  - Color Selection Factors: Light, Client preference, Space, Trends & Style, Location in the World/ Cultural associations
  - Style and Finish Selection: Finishes include: Walls, ceilings, and floors. Factors in selecting finish selections include visual characteristics, performance characteristics, maintenance, life-cycle evaluation, durability, sustainability, and acoustical properties.
  - Present Concept (presentation board, digital presentation, color board, floor plan)

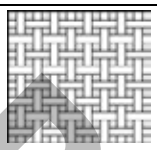
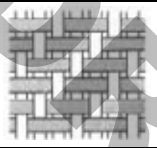
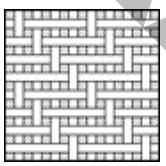
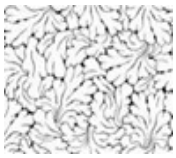
STRAND 4

Students will identify and explain various interior textiles and surface treatments.

Standard 1

Identify characteristics that lead to the selection of textiles.

- Identify natural fibers (cotton, linen, silk, wool) - come from plants or animals.
- Identify manufactured fibers
  - Manufactured - made with chemicals (acrylic, nylon, olefin, polyester)
  - Cellulosic – made from plant material chemically converted to a soluble compound (acetate, rayon)
- Identify basic weaves and finishes (plain, twill, satin, Jacquard, purpose of finishes).

Weave Name	Picture	Description	Characteristics
Plain		Formed by interlacing yarns one over, one under in regular sequence.	Simple, basic weave that wears evenly.
Twill		Formed by "floating" one warp thread over two or three weft threads, then under one. This creates a diagonal wale	Produces a firm, strong fabric with a visible diagonal line.
Satin		Formed by "floating" one warp thread over four or more weft yarns then under one thread. The order of interlacing is staggered so the result is a smooth face with no wales	The floats give satin fabric its sheen.
Jacquard		An intricate, variegated weave made by lifting any number of warp threads and any number of weft threads to create a woven pattern in the fabric	The weaves are created on a Jacquard loom. Creates brocades, tapestries, and damask Used for draperies and upholstery.

Standard 2

Identify the commercial and residential textile standards.

- Colorfastness: Having color that retains its original hue without fading or running
- Flammability Resistance: The ability of a fabric or fiber to reduce fire spread or extinguish a fire.
- Physical Properties: The ability of fabrics to retain their shape, flexibility, and original fiber characteristics is also important to durability.
- Wet and Dry Crocking: Transfer of dye from the surface of a dyed or printed fabric onto another surface by rubbing.
- Abrasion Resistance: This describes the ability of fabric or textile product to resist wear caused by people or objects rubbing against it.

Standard 3

Identify the basic dye methods:

- yarn dyed - add colors to yarns before they are woven into fabrics
- piece dyed - add color to a fabric after it is woven
- solution dyed - adding color to the fiber solution
- printed – design is darker on one side

Performance Skills

Choose a fabric dye/finish that is appropriate for a residential or commercial interior and why you chose that dye/finish for that space/application.

STRAND 5

Students will analyze surface treatments, including sustainability and appropriate selection for use in interior design.

Standard 1

Discuss the relevance of energy efficiency, sustainability and care when specifying products for use in interior design.

- Energy Efficiency: the goal to reduce the amount of energy required to provide products and services.
  - EPA (Environmental Protection Agency) Energy Star program awards companies who have minimized the amount of power or water savings in their dishwashers and refrigerators.
    - Discuss the importance of purchasing products designed for energy efficiency.
  - Sustainability: A way of using resources that does not deplete them; involves a method or practice or way of using materials that has minimal long-term effect on the environment. (Videos from USU Susie)(TED Talk bamboo houses Elora Hardy Magical Houses made of bamboo)
  - The three R's of design are the criteria of sustainable design. Reduce, Reuse and Recycle.

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Standard 2

Evaluate the appropriateness of materials and construction methods for various surface treatments of floors, walls, windows, and doors for use in interior design in a commercial vs. residential setting.

- Questions to think about to decide if a product is sustainable or use for discussion:
  - How are the following produced?
  - Where is the product produced?
  - How does the process affect the environment?
  - How do you dispose of it?
  - How does it perform for its intended use?
    - Durability? Air quality?
- Surfaces to consider:
  - Floors: carpet, wood, tile, vinyl/linoleum, concrete
  - Walls: paint, wallpaper, fabric, wood, tile, brick, concrete, cork, mirror
  - Windows: wood, aluminum, vinyl
    - Single- double- or triple-paned: air between panes provides insulation and can also be filled with argon gas for even better insulation
    - Low-e (low-emissivity) glass in newer thermal windows have a clear coating that keeps heat inside or out depending on season and blocks out ultraviolet rays to reduce fading of interior materials
  - Doors: Made of wood, metal, fiberglass, or combination of these materials
  - Countertops: marble, granite, cultured quartz.

Performance Skills
Students will answer questions pertaining to a sustainable product in Standard 2 for a specific surface for floors, walls, windows, doors, or countertops.

Performance Skills
Students will analyze scenarios of commercial spaces and apply the different textiles that would be most appropriately used in a commercial space (i.e. restaurant, doctor's office, or hotel room).

STRAND 6
Students will identify and explore the use of universal design in a commercial application.

Standard 1
Define Universal Design (Developed by Ron Mace, "Design of products and environments to be usable by all people to the greatest extent possible without adaptation or specialized design")

- The Seven Principles of Universal Design: Equitable Use, Flexibility in Use, Simple and Intuitive, Perceptible Information, Tolerance for Error, Low Physical Effort, Size and Space for Approach and Use.

Standard 2
Define building codes to be considered when designing commercial spaces.

- Doorways (swings)
- Ramps
- Hallways
- Stairs (extra space on commercial stairs)
- Restrooms
- Fire Exits
- Object Protrude
- Path of Travel
- Wheelchair width
- Door Heights

Standard 3
Practice applying the Universal Design principles for transgenerational, aging in place, and (ADA) American Disabilities Act spaces.

- Transgenerational: The design of products, workplaces, health care institutions, and residences so as to allow people to use them functionally regardless of the physical or sensory restrictions that they may develop as they age. http://www.transgenerational.org/viewpoint/transgenerational.htm
- Aging in Place: A term describing the goal of older adults choosing to live longer and independent in their homes rather than moving to retirement facilities; design of such facilities. (If an older adult chooses to remain living in a home of their choice as long as possible, an interior designer will work with them to help maintain or improve their quality of life by making home modifications. Modifications can include increased lighting, additional railings, and accessible switches, grab bars, non-skid flooring, walk-in bathtubs, and flexible shower heads.)
- American Disabilities Act (ADA): The ADA ensures equality for people with disabilities and allows them the same access that others enjoy, including employment, building access, and communication options. (Bathroom fixtures conveniently and safely located with ample room for manipulating a wheelchair. Front loading dishwasher and washer/dryer, revolving shelves, hard/smooth and slip-resistant floor coverings, lever handles wheelchair ramps for easy access into buildings, braille on signs)

Performance Skills
Students design a commercial space applying universal design principles OR students use an existing space and redesign it to apply the universal design principles.

Workplace Skills
Students will develop professional and interpersonal skills needed for success in industry.

- Determine the difference between hard skills and soft skills.
  - Hard Skills: Hard skills are specific, teachable abilities that can be defined and measured
  - Soft Skills: Personal attributes that enable someone to interact effectively and harmoniously with other people.
- Identify soft skills needed in the workplace
  - Professionalism
  - Respect legal requirements/expectations
  - Good communication skills
  - Resourcefulness & creativity
  - Work Ethic

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		

Cluster: Arts, Audio/Visual Technology & Communications		
Pathway: Graphic Design & Communication		
Course Code Number	Course Name	Summary
40.13.00.00.001	Commercial Art 1	All three courses were revised to make them more in line with each other. Strands and standards in all three courses were rearranged so the courses followed a better sequence.
40.13.00.00.020	Commercial Art 2	
40.13.00.00.030	Commercial Art 3	
40.10.00.00.042	Graphic Print Design 1	Revised the entire set of three courses. Went through each course and aligned them so they 100% build upon each other now. They all have the same Strands and added on Standards for each course. Also made a name change to the set of courses.
40.10.00.00.044	Graphic Print Design 2	
40.10.00.00.046	Graphic Print Design 3	
40.10.00.00.048	Screen Print Technology	Just added prerequisite of “Graphic Print Design 1”. Teachers felt Strands & Standards are okay for now.

STRANDS AND STANDARDS
COMMERCIAL ART 1

Learning that works for Utah
CTE®

Course Description

A beginning course in the applied visual arts that focuses on the general principles and techniques for effective visual communication in illustration and/or graphic design. This course prepares individuals in applied art media including drawing, painting, computer graphics, etc.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.13.00.00.001
Concurrent Enrollment Core Code	40.13.00.13.001
Prerequisite	None
Skill Certification Test Number	530
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Commercial Art 1
Endorsement 2	N/A
Endorsement 3	N/A

STRAND 1

Students will be able to understand commercial art job standards.

Standard 1

Demonstrate knowledge of commercial art careers, job standards, professional development, and explore higher education and career opportunities.

- Advertising design
- Art Direction
- Cartooning
- Animation (Character and Concept Design)
- Website design (UI/UX Designer, etc.)
- Graphic design (Branding, Logos, Layout, etc.)
- Illustration

Standard 2

Demonstrate typical standards.

- Identify a target audience – age, gender, culture, education, income, ethnic or religious background, etc.
- Analysis and critique of current styles
- Know how to use appropriate existing material (i.e. references for artwork and stock images)

Standard 3

- Understand the importance of portfolios, such as promoting your own work to a potential employer or client.

Performance Skills

Understand commercial art job standards.

- Demonstrate knowledge of the various kinds of jobs in the commercial art field and focus on local vocational opportunities.
- Understand the importance of portfolios, such as promoting your own work to a potential employer or client.

STRAND 2

Students will be able to understand brainstorming and its purpose in the creative process.

Standard 1

Understand how to research ideas and current trends (color, typography, graphics, etc.) using various resources such as:

- Websites (ex: https://www.commarts.com/)
- Print media
- Retail locations
- Focus groups

Standard 2

Brainstorm ideas and explore composition through the use of thumbnail sketches.

Standard 3

Understand how to give and apply feedback.

Performance Skills

Understand brainstorming and its purpose in the creative process.

- Understand how to research ideas and current trends (color, typography, graphics, etc.) using various resources.
- Brainstorm ideas and explore composition through the use of thumbnail sketches.

STRAND 3

Students will be able to understand and demonstrate proper drawing techniques.

Standard 1

Use strategies to measure correct proportional relationships between paper and objects being drawn.

Standard 2

Demonstrate expertise in drawing objects from observation.

- Understand and demonstrate form and shading (highlight, half-tones, core shadow, reflected light, cast shadow, etc.).
- Understand and demonstrate an ability to draw three-dimensional objects on a two- dimensional picture plane.
- Understand and demonstrate an ability to use overlapping, size, placement, and value to show depth.

Performance Skills

Understand and demonstrate proper drawing techniques.

- Use strategies to measure correct proportional relationships between paper and objects being drawn.
- Demonstrate expertise in drawing objects from observation.

STRAND 4

Students will be able to understand and demonstrate proper typography techniques.

Standard 1

Identify and correctly use type from the following type classifications.

- Serif
- Sans serif
- Script
- Decorative

Standard 2

Know and use typography vocabulary.

- Cap height
- Baseline
- X-height
- Point size
- Upper and lower case
- Ascender and descender
- Regular and boldface
- Condensed and expanded
- Italic and cursive
- Understand the difference between: Font, text, type, and type style
- Understand the difference between: Justified, unjustified, ragged left, and ragged right

- Readability

Performance Skills
Understand and demonstrate proper typography techniques.
- Identify and correctly use type from the different type classifications.
- Know and use the vocabulary of typography.

STRAND 5
Students will be able to understand proper color techniques.

Standard 1
Understand different color theories.
- Light – RGB
- Pigment – RYB
- Print – CMYK

Standard 2
Understand color organization and the color modes.
- Primary colors
- Secondary colors
- Intermediate/tertiary colors
- Neutrals
- Warm and cool colors

Standard 3
Identify color schemes.
- Monochromatic
- Complimentary
- Analogous
- Triadic

Standard 4
Understand values and how to use them in project work.
- Value scale
- Tints
- Tones
- Shades

Standard 5
Understand the properties of color.
- Hue
- Value
- Intensity/saturation
- Transparent vs. Opaque color

Performance Skills
Understand and demonstrate proper color techniques.
- Demonstrate a knowledge of color theory.
- Demonstrate a knowledge of color organization.

- Identify color schemes.
- Demonstrate a working knowledge of values and use them in project work.
- Demonstrate a knowledge of the properties of color.

STRAND 6

Students will be able to understand and demonstrate basic design principles.

Standard 1

Understand, recognize, utilize, and communicate with the elements of design.

- Line
- Shape
- Value
- Form
- Texture
- Color
- Space

Standard 2

Understand, recognize, utilize, and communicate with the principles of design.

- Balance – Symmetrical/Asymmetrical/Radial
- Emphasis/Focal Point
- Rhythm/Repetition/Pattern
- Scale/Proportion
- Unity vs. Variety
- Contrast
- Movement/Directional Forces

Standard 3

Understand the elements of a composition.

- Layout: Spacing, Rule of Thirds, etc.
- Typography: Body Copy, Titles, Headings, etc.
- Graphic Elements: Line, Shape, etc.
- Images: Photograph or Illustrations

Performance Skills

Understand and demonstrate basic design principles.

- Demonstrate an ability to recognize, utilize, and communicate with the elements of design.
- Demonstrate an ability to recognize, utilize, and communicate with the principles of design.
- Uses Elements of Composition in a project.

STRAND 7

Students will be able to demonstrate safe practices.

Standard 1

Identify and use proper safety techniques

- Identify hazardous chemicals and solvents, materials, their proper handling, ventilation, disposal, and safety procedures, if an accident occurs, as applicable in your classroom.
- Safety training as applicable

- Maintain a safe and orderly work area
- Report classroom, environment, or safety equipment, problems, violations to the instructor.

Standard 2

Avoid repetitive stress injuries.

- Good posture
- Keep wrists straight
- Take breaks
- Stretch and strengthen
- Position of monitor, keyboard, and mouse

Performance Skills

Demonstrate safe practices and how to avoid repetitive stress injuries.

STRAND 8

Students will be able to understand and practice copyright laws, ethics and legal issues dealing with photography as identified in United States Code Title 17 Chapter 1 Section 101.

Standard 1

Define copyright.

- Intellectual Property: Original work is protected by US Copyright as soon as created can include audiovisual works, computer programs, pictorial, graphic, and sculptural works, visual art, drama, choreography, and words.
- Creating copyrights by registering with the U.S. Copyright Office through the Library of Congress
- Public domain vs Creative Commons
- Fair Use

Standard 2

Understanding copyright law and practicing ethics.

- Practice ethics and rules governing photojournalism (i.e. Editorial content must not be changed)
- Who owns the copyright: work-for-hire, freelance, in-house, etc.
- Practice correct usage of copyright laws (i.e. the right to reproduce, manipulate,
- distribute, plagiarize or exhibit creator's work outside of fair use provisions).
- Limitations: Time, Portion (Media based usage), Text material, Copying, and Distribution.
- Demonstrate understanding of ethics related to social and legal issues in subject choice (i.e. model releases, image appropriateness, and cultural sensitivity).

Standard 3

Understanding copyright and trademark symbols.

- Understand ®, ©, ™, and watermark

Performance Skills

Create projects that align with the rules that govern intellectual property.

STRAND 9

Students will understand the importance of career readiness skills as it relates to the workplace and outlined in the SkillsUSA Framework – Level 1.

Standard 1

Understand and demonstrate the attitude of cooperation.

- Develop awareness of cultural diversity and equality issues.
- Demonstrate effective communication with others.
- Apply team skills to a group project.
- Identify and apply conflict resolution skills.

Standard 2

Understand and demonstrate the ability of being resourceful and innovative.

- Discover self-motivation techniques and establish short-term goals.
- Measure/modify short-term goals.
- Review a professional journal and develop a three- to five-minute presentation.

Standard 3

Plan for your future career.

- Complete a self-assessment and identify individual learning styles.
- Define future occupations.
- Identify the components of an employment portfolio.
- List proficiency in program competencies.
- Complete a survey for employment opportunities.
- Create a job application.
- Assemble your employment portfolio.
- Employability skills: evaluate program comprehension.

Standard 4

Understand and demonstrate the ability to manage a project.

- Apply team skills to a group project.
- Observe and critique a meeting.
- Demonstrate business meeting skills.
- Explore supervisory and management roles in an organization.
- Identify and apply conflict resolution skills.
- Demonstrate evaluation skills.
- Manage a project and evaluate others.

Workplace Skills

- Communication
- Teamwork
- Dependability
- Legal requirements / expectations

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS

COMMERCIAL ART 2

Learning that works for Utah
CTE®

Course Description

An intermediate course in the applied visual arts that focuses on the general principles and techniques for effective visual communication in illustration and/or graphic design. Instruction includes training in software used in concept design, layout, various techniques, and media.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.13.00.00.020
Concurrent Enrollment Core Code	40.13.00.13.020
Prerequisite	Commercial Art 1
Skill Certification Test Number	532
Test Weight	0.5
License Area of Concentration	
Required Endorsement(s)	
Endorsememt 1	Commercial Art

STRAND 1

Students will be able to demonstrate knowledge of commercial art and advertising professional standards.

Standard 1

Demonstrate knowledge of commercial art careers, job standards, professional development, and explore higher education and career opportunities.

- Advertising design
- Art Direction
- Cartooning
- Animation (Character and Concept Design)
- Website design (UI/UX Designer, etc.)
- Graphic design (Branding, Logos, Layout, etc.)
- Illustration

Standard 2

Explore careers and opportunities in commercial art.

- Salary/hours/working conditions
- Work expectations
- Freelance conditions vs. in-house conditions
- Post-high school education
- Portfolios

Standard 3

Demonstrate an ability to verbally express an idea or concept to a client, pertaining to their product and target audience (example: age, gender, educational level, etc.).

Performance Skills

Understand commercial art job standards.

- Demonstrate knowledge of the various kinds of jobs in the commercial art field and focus on local vocational opportunities.
- Understand the importance of portfolios, such as promoting your own work to a potential employer or client.

STRAND 2

Students will be able to understand and demonstrate knowledge of design principles at an intermediate level.

Standard 1

Understand, recognize, utilize, and communicate with the elements of art.

- Line
- Shape
- Value
- Form
- Texture
- Color
- Space

Standard 2
Understand, recognize, utilize, and communicate with the principles of design.
- Balance – Symmetrical/Asymmetrical/Radial
- Emphasis/Focal Point
- Rhythm/Repetition/Pattern
- Scale/Proportion
- Unity vs. Variety
- Contrast
- Movement/Directional Forces

Standard 3
Understand the elements of a composition
- Layout: Spacing, Rule of Thirds, etc.
- Typography: Body Copy, Titles, Headings, etc.
- Graphic Elements: Line, Shape, etc.
- Images: Photograph or Illustrations

Performance Skills
Understand and demonstrate design principles at an intermediate level.
- Demonstrate an ability to recognize, utilize, and communicate with the elements of design.
- Demonstrate an ability to recognize and utilize, communicate with the principles of design.
- Use Elements of Composition in a project.

STRAND 3
Students will be able to demonstrate layout and composition techniques in diverse media at an intermediate level.

Standard 1
Plan, format, and compose through the use of thumbnail sketches, rough drafts, and final work.

Standard 2
Create illustrations and/or designs to communicate a concept.

Standard 3
Use intermediate composition techniques to combine images and type in one composition using effective visual hierarchy.

Standard 4
Use effective composition and design techniques to create various projects such as:
- Advertisement or poster
- Brochure or multiple page document (demonstrating visual unity)
- Magazine layout
- Others as needed

Standard 5
Identify and use the following layout terminology:
- Body text/body copy
- Readability
- Reverse type

- Columns
- Text boxes/shapes
- Dominance/Focal Point
- Text wrap
- Drop caps
- Type alignment
- Eye flow
- Margins
- Folios
- Bleed
- Headers and footers
- Gutter
- Spread
- Proximity

Performance Skills
Use effective composition and design techniques to create various projects.

STRAND 4
Students will be able to demonstrate the use of color theory at an intermediate level.
Students will be able to understand proper color techniques.

Standard 1
Understand different color modes.
- Light – RGB
- Pigment – RYB
- Print – CMYK

Standard 2
Demonstrate color organization and the color wheel.
- Primary colors
- Secondary colors
- Intermediate/Tertiary colors
- Neutrals
- Warm and Cool colors

Standard 3
Identify color schemes.
- Monochromatic
- Complimentary
- Split-complementary
- Analogous
- Triadic

Standard 4
Understand values and how to use them in project work.
- Value scale
- Tints
- Tones

- Shades

Standard 5

Understand use of color at an advanced level.

- Properties of color: Hue, Value, Intensity/saturation
- Transparent vs. Opaque Color
- Understand aerial/atmospheric perspective (hue, value/contrast/color intensity, object placement, overlapping, and detail)
- Express emotion
- Symbolic, cultural, and visual connotations.

Standard 6

Understand color as used in computer applications.

- Color modes: Bitmap, Grayscale, CMYK, RGB
- Vector vs. Raster.
- Performance Skills
- Demonstrate the use of color theory at an intermediate level.
- Demonstrate knowledge of color organization and the color wheel.
- Demonstrate knowledge of color theory, color schemes, and properties of color.
- Demonstrate the use of atmospheric perspective.
- Demonstrate effective use of color in computer applications

STRAND 5

Students will be able to understand and demonstrate typography techniques at an intermediate level.

Standard 1

Identify and correctly use type from the following type classifications.

- Serif
- Modern Serif
- Slab serif
- Sans serif
- Script
- Decorative

Standard 2

Know and use typography vocabulary.

- Cap
- Baseline
- X-height
- Point size
- Upper and lower case
- Ascender and descender
- Regular and boldface
- Italic and cursive
- Condensed and expanded
- Understand the difference between: Font, text, type, and type style.
- Understand the difference between: Justified, unjustified, ragged left, and ragged right
- Readability

Reverse type

- Counter
- Ligatures

Standard 3

Understand and effectively use Typography in layout and composition.

- Communicate and match mood of the design
- Font pairing in a design
- Pairing with Image (illustration, photograph, etc)
- Size hierarchy
- Limit variety/number of fonts in a design

Performance Skills

Understand and demonstrate effective typography techniques at an intermediate level.
Identify and correctly use type from different type classifications.
Know and use the vocabulary of typography.
Demonstrate effective type pairing.

STRAND 6

Students will demonstrate knowledge of computer technology at an intermediate level.

Standard 1

Demonstrate knowledge of basic computer vocabulary and techniques.

- Constraining proportions
- Cropping
- Resizing/sampling
- Resolution (Minimum: Screen – 72 dpi; Print – 300 dpi)
- Raster vs. vector
- Layers
- Filters
- Paths
- Anchor Point
- Gradient
- Opacity
- Stroke
- Fill

Standard 2

Use appropriate software for job/project completion.

- Page layout: In Design
- Photo manipulation: Photoshop
- Graphics/vector-based illustration: Illustrator

Standard 3

Understand and use fonts appropriately.

- Downloading/Installing fonts
- Understand the copyright laws and ethics (commercial use vs. personal use)

Standard 4
Understand file types and use them appropriately.
- Print/Web applications (TIFF, JPG, PDF, PNG)
- File transfer/sharing (PDF)
- Software specific (.AI, .PSD, .INDD)

Standard 5
Understand and use basic keyboard commands.
- Copy – Control/Command "C"
- Paste – Control/Command "V"
- Undo – Control/Command "Z"
- Other software specific shortcuts

Performance Skills
Demonstrate knowledge of computer technology at an intermediate level.
- Computer vocabulary and skills.
- Use appropriate software for job/project completion.
- Understand file types and use them appropriately.
- Understand and use keyboard shortcuts.

STRAND 7
Students will critique visual works (i.e. illustration, design, advertising, etc.) using appropriate vocabulary.

Standard 1
Critique artistic use of design elements and principles in visual work.

Standard 2
Interpret design strategies of communication in visual work.

Standard 3
Demonstrate an ability to verbally and visually express an advertising campaign to a client using varied professional strategies (PowerPoint, Storyboards, presentation board, etc.).

Performance Skills
Students will critique visual works (i.e. illustration, design, advertising, etc.) using appropriate vocabulary.

STRAND 8
Students will understand the importance of employability and professional work habits.

Standard 1
Demonstrate knowledge of professional work standards.
- Punctuality
- Dependability
- Attendance
- Craftsmanship
- Following directions/workflow
- Workplace behavior

Performance Skills
Students will demonstrate employability and professional work habits.

STRAND 9
Students will be able to demonstrate safe practices.

Standard 1
Identify and use proper safety techniques
- Identify hazardous chemicals and solvents, materials, their proper handling, ventilation, disposal, and safety procedures, if an accident occurs, as applicable in your classroom.
- Safety training as applicable
- Maintain a safe and orderly work area
- Report classroom, environment, or safety equipment, problems, violations to the instructor.

Standard 2
Avoid repetitive stress injuries.
- Good posture
- Keep wrists straight
- Take breaks
- Stretch and strengthen
- Position of monitor, keyboard, and mouse

Performance Skills
Students will demonstrate safe practices and how to avoid repetitive stress injuries.

STRAND 10
Students will be able to understand and practice copyright laws, ethics and legal issues dealing with photography as identified in United States Code Title 17 Chapter 1 Section 101.

Standard 1
Define copyright.
- Intellectual Property: Original work is protected by US Copyright as soon as created can include audiovisual works, computer programs, pictorial, graphic, and sculptural works, visual art, drama, choreography, and words.
- Creating copyrights by registering with the U.S. Copyright Office through the Library of Congress
- Public domain vs Creative Commons
- Fair Use

Standard 2
Understanding copyright law and practicing ethics.
- Practice ethics and rules governing photojournalism (i.e. Editorial content must not be changed)
- Who owns the copyright: work-for-hire, freelance, in-house, etc.
- Practice correct usage of copyright laws (i.e. the right to reproduce, manipulate,
- distribute, plagiarize or exhibit creator's work outside of fair use provisions).
- Limitations: Time, Portion (Media based usage), Text material, Copying, and Distribution.
- Demonstrate understanding of ethics related to social and legal issues in subject choice (i.e. model releases, image appropriateness, and cultural sensitivity).

Standard 3
Understanding copyright and trademark symbols.
- Understand ®, ©, ™, and watermark

Performance Skills
Students will create projects that align with the rules that govern intellectual property.

STRAND 11
Students will understand the importance of career readiness skills as it relates to the workplace and outlined in the SkillsUSA Framework – Level 2.

Standard 1
Understand and demonstrate reliability.
- Determine individual time management skills.
- Explore what's ethical in the workplace or school.
- Demonstrate awareness of government.
- Demonstrate awareness of professional organizations and trade unions.

Standard 2
Understand and demonstrate responsiveness.
- Define the customer.
- Recognize benefits of doing a community service project.
- Demonstrate social etiquette.
- Identify customer expectations.

Standard 3
Understand resiliency.
- Discover self-motivation techniques and establish short-term goals.
- Select characters of a positive image.
- Identify a mentor.

Standard 4
Understand and demonstrate workplace habits.
- Participate in a shadowing activity.
- Explore workplace ethics: codes of conduct.
- Recognize safety issues.
- Perform a skill demonstration.
- Exercise your right to know.

Standard 5
Understand and develop initiative.
- Develop personal financial skills.
- Develop a business plan.
- Investigate entrepreneurship opportunities.

Standard 6
Understand and demonstrate continuous improvement.
- Conduct a worker interview.
- Demonstrate evaluation skills.
- Examine ethics and values in the workplace.

- Develop a working relationship with a mentor.
- Construct a job search network.

Workplace Skills

- Communication
- Teamwork
- Dependability
- Accountability
- Legal requirements/expectations

Skill Certification Test Points by Strand

This will be updated as soon as the Skills Certificate Test is updated.

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
COMMERCIAL ART 3

Course Description

An advanced course in the applied visual arts that focuses on the specific principles and techniques for effective visual communication in illustration and/or graphic design. Instruction includes training in software used in concept design, layout, various techniques, and media. Emphasis will be placed on creating a high-quality portfolio of Commercial Art work.

Intended Grade Level	11-12
Units of Credit	0.5
Core Code	40.13.00.00.030
Concurrent Enrollment Core Code	N/A
Prerequisite	Commercial Art 2
Skill Certification Test Number	534
Test Weight	0.5
License Area of Concentration	
Required Endorsement(s)	
Endorsement 1	Commercial Art

STRAND 1

Students will explore how to create a portfolio for a preferred commercial art career and explore higher education and career opportunities.

Standard 1

Understand potential Commercial Art careers.

- Advertising design
- Art Direction
- Cartooning
- Animation (Character and Concept Design)
- Website design (UI/UX Designer, etc.)
- Graphic design (Branding, Logos, Layout, etc.)
- Illustration

Standard 2

Research Portfolio requirements for Employment and Higher Education opportunities.

Standard 3

Explore careers and opportunities in Commercial Art.

- Salary/hours/working conditions
- Work expectations
- Freelance vs. in-house conditions
- Post-high school education
- Portfolios

Performance Skills

Students will research and present portfolio requirements for a preferred commercial art career and explore higher education and career opportunities.

STRAND 2

Students will understand the design process to create a college and career ready portfolio.

Standard 1

Research and understand the process of portfolio development that demonstrates college and career readiness.

- Personal exploration
- Experience
- Theme and Direction
- Research and development
- Target audience
- Make Connections
- Develop a marketable direction
- Create a cohesive body of work

Standard 2

Understand and use the design process for individual pieces in the portfolio.

- Research
- Thumbnails
- Sketches

- Rough
- Color/value study/comp
- Feedback and Revision
- Final

Performance Skills
Students will demonstrate an understanding of the design process necessary to create a college and career ready portfolio.

STRAND 3
Students will create a cohesive body of work for a college and career ready portfolio.

Standard 1
Demonstrate cohesive work for the portfolio.
- Clear direction or theme of work for a specific path through multiple works of art
- Create works that effectively communicate an idea, concept, or message
- Unified body of work (ie. Similar style, technique, subject, media, etc)

Standard 2
Create multiple pieces of well-crafted work.
- Show ability to brainstorm and think creatively
- Create works that demonstrate developing skills
- Demonstrate advanced knowledge of digital or traditional art making media

Standard 3
Create an Artist Statement addressing the direction and purpose of the portfolio.

Standard 4
Documentation of the purpose and process of individual pieces.

Performance Skills
- Students will create a cohesive body of work for a college and career ready portfolio.
- Create an Artist Statement addressing the direction and purpose of the portfolio.

STRAND 4
Students will be able to understand and demonstrate design principles at an advanced level.

Standard 1
Understand, recognize, utilize, and communicate with the elements of art.
- Line
- Shape
- Value
- Form
- Texture
- Color
- Space

Standard 2
Understand, recognize, utilize, and communicate with the principles of design.
- Balance – Symmetrical/Asymmetrical/Radial
- Emphasis/Focal Point
- Rhythm/Repetition/Pattern
- Scale/Proportion
- Unity vs. Variety
- Contrast
- Movement/Directional Forces

Performance Skills
Understand and demonstrate design principles at an advanced level.
- Demonstrate an ability to recognize, utilize, and communicate with the elements of design.
- Demonstrate an ability to recognize and utilize, communicate with the principles of design.
- Use Elements of Composition in a project.

STRAND 5
Students will be able to demonstrate layout and composition techniques in diverse media at an advanced level.

Standard 1
Plan, format, and compose through the use of thumbnail sketches, rough drafts, and final work.

Standard 2
Create illustrations and/or designs to communicate a concept.

Standard 3
Use advanced composition techniques and effective visual hierarchy.

Standard 4
Identify and use the following layout terminology:
- Body text/body copy
- Readability
- Reverse type
- Columns
- Text boxes/shapes
- Dominance/Focal Point
- Text wrap
- Drop caps
- Type alignment
- Eye flow
- Margins
- Folios
- Bleed
- Headers and footers
- Gutter
- Spread
- Proximity

Performance Skills
Use effective composition and design techniques in portfolio projects.

STRAND 6
Students will be able to demonstrate the use of color theory at an advanced level. Students will be able to demonstrate proper color techniques.

Standard 1
Understand different color modes.
- Light – RGB
- Pigment – RYB
- Print – CMYK

Standard 2
Understand color organization and the color wheel.
- Primary colors
- Secondary colors
- Intermediate/Tertiary colors
- Neutrals
- Warm and Cool colors

Standard 3
Identify color schemes.
- Monochromatic
- Complementary
- Split-complementary
- Analogous
- Triadic

Standard 4
Understand values and how to use them in project work.
- Value scale
- Tints
- Tones
- Shades

Standard 5
Understand use of color at an advanced level.
- Properties of color: Hue, Value, Intensity/saturation
- Transparent vs. Opaque Color
- Understand aerial/atmospheric perspective (hue, value/contrast/color intensity, object placement, overlapping, and detail)
- Express emotion
- Symbolic, cultural, and visual connotations

Standard 6
Understand color as used in computer and print applications.
- Color modes: Bitmap, Grayscale, CMYK, RGB
- Vector vs. Raster

- Spot Color
- Pantone Colors

Performance Skills

- Demonstrate the use of color theory at an advanced level in portfolio pieces.
- Demonstrate knowledge of color organization and the color wheel.
- Demonstrate knowledge of color theory, color schemes, and properties of color.

STRAND 7

Students will demonstrate a knowledge and use of technology when building a digital portfolio.

Standard 1

Demonstrate knowledge of technology and techniques in digital portfolio.

- Tools and shortcuts
- Use of Color theory
- Vector vs raster qualities and advantages for digital portfolio

Standard 2

Understand correct digitization methods of non-digital media.

- Scanner
- Digital photo

Standard 3

Understand file types and use them appropriately.

- Print/Web applications (TIFF, JPG, PDF, PNG)
- File transfer/sharing (PDF)
- Software specific (.AI, .PSD, .INDD)

Standard 4

Use appropriate software for design communication and implementation for job/project completion.

Standard 5

Digital backup and file transfer methods.

- Why a personal digital archive is important.
- Cloud: Dropbox, Google Drive, OneDrive, etc.
- Physical: flash/USB memory, hard drive, SSD, etc.

Standard 6

Understand the importance of a professional web presence

- Social Media portfolio profile (i.e.: Instagram, Behance, Vero, TikTok, etc.)
- Website presence (i.e.: Square, WordPress, Wix, Weebly, etc.)

Performance Skills

Students will demonstrate a knowledge and use of technology when building a digital portfolio.

STRAND 8

Students will be able to understand and practice copyright laws, ethics and legal issues dealing with photography as identified in United States Code Title 17 Chapter 1 Section 101.

Standard 1

Define copyright.

- Intellectual Property: Original work is protected by US Copyright as soon as created can include audiovisual works, computer programs, pictorial, graphic, and sculptural works, visual art, drama, choreography, and words.
- Creating copyrights by registering with the U.S. Copyright Office through the Library of Congress
- Public domain vs Creative Commons
- Fair Use

Standard 2

Understanding copyright law and practicing ethics.

- Practice ethics and rules governing photojournalism (i.e.: Editorial content must not be changed)
- Who owns the copyright: work-for-hire, freelance, in-house, etc
- Practice correct usage of copyright laws (i.e.: the right to reproduce, manipulate, distribute, plagiarize, or exhibit creator's work outside of fair use provisions)
- Limitations: Time, Portion (Media based usage), Text material, Copying, and Distribution
- Demonstrate understanding of ethics related to social and legal issues in subject choice (i.e.: model releases, image appropriateness, and cultural sensitivity)

Standard 3

Understanding copyright and trademark symbols.

- Understand ®, ©, ™, and watermark

Performance Skills

Create projects that align with the rules that govern intellectual property.

STRAND 9

Students will understand the importance of career readiness skills as it relates to the workplace and outlined in the SkillsUSA Framework – Level 3.

Standard 1

Understand and develop collaboration skills.

- Develop a working relationship with a mentor.
- Apply supervisory skills.
- Manage a project and evaluate others.

Standard 2

Understand and demonstrate change management skills.

- Evaluate your career and training goals.
- Identify and apply conflict resolution skills.
- Illustrate an organizational structure.
- Plan and implement a leadership project.

Standard 3

Understand how customer service applies to the workplace.

- Serve as a volunteer in the community.
- Examine workplace ethics: the role of values in making decisions.
- Understand the cost of customer service.
- Develop customer service skills.
- Maximize customer service skills.

Standard 4

Understand and demonstrate career readiness.

- Market your career choice.
- Research resume writing.
- Demonstrate interviewing skills.
- Predict employment trends.
- Re-evaluate career goals and establish long-term goals.
- Construct a job search network.
- Evaluate professional competencies.
- Analyze your entry-level job skills.
- Design and present a lesson plan on an aspect of your careerchoice.
- Write an article for a professional journal in your career area.
- Refine your employment portfolio.

Workplace Skills

- Communication
- Problem Solving
- Teamwork
- Dependability
- Accountability
- Legal requirements/expectations

Skill Certificate Test Points by Strand

This will be updated as soon as the Skills Certificate Test is updated.

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS

GRAPHIC PRINT DESIGN 1

Learning that works for Utah
CTE®

Course Description

This course prepares individuals to apply technical knowledge in the areas of design & layout, related computer and software, safety, printing processes, finishing & binding, and professional skills. The course includes instruction in printing, printing equipment and operation, computer hardware and software, digital imaging, print preparation, and electronic prepress.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.10.00.00.042
Concurrent Enrollment Core Code	40.10.00.13.042
Prerequisite	None
Skill Certification Test Number	562
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Production Graphics

STRAND 1: Overview

Students will be able to understand the history and current state of the graphics/printing industry.

Standard 1

Define design and its role in graphic communications.

- Identify print markets and types of print businesses.
- Explore printing technologies.
- Understand the role and range of substrates available.

STRAND 2: Safe Practices

Students will be able to understand and demonstrate safe practices that are applicable to lab/studio and production equipment at your school.

Standard 1

List safety rules involving chemicals and flammable liquids.

- Read, comprehend, and follow instructions on warning labels.
- List the steps to be taken in case of injury in the lab.
- Identify locations and safety equipment (e.g. first aid kit, eye wash station, MSDS, flammables cabinet)
- Follow proper safety procedures and dress code when operating equipment.
- Demonstrate common sense when working with others.

Performance Skills

- Pass a general lab safety test.

STRAND 3: Design Process

Graphic Design provides a place for students to explore new ideas, take appropriate risks, creatively problem solve, collaborate, develop aesthetic awareness, explore the world, and to express oneself.

Standard 1

- **Create** – conceptualize, generate, develop and organize artistic ideas. Refine through persistence, reflection, and evaluation.
- **Present/Produce** – analyze, interpret, and select artistic work. Develop techniques and concepts to refine work and express meaning through presentation.
- **Respond** – perceive, analyze, interpret, articulate, and evaluate work and process.
- **Connect** – synthesize and relate knowledge with personal meaning relating to societal, cultural, and historical context to deepen understanding.

Standard 2

Students will understand the design process.

- Understand the process of planning a document.
- Research your project (audience, purpose, timeline, page arrangement, and production method)
- Brainstorming / Differential thinking
- Creating thumbnail / sketches
- Use feedback to inform revisions and changes to work.

Standard 3

Students will understand the elements of art.

- Identify and utilize the following elements of art: line, shape, value, texture, color, space (incl. positive

and negative), and form.

Standard 4

Students will understand the principles of design.

- Identify and utilize the following principles of design: balance (formal/symmetrical, informal/asymmetrical), contrast, emphasis, movement, and unity.

Performance Skills

Students will be able to use planning, elements of art, and principles of design to compose a print design.

STRAND 4: Color Theory

Students will understand color theory.

Standard 1

- Understand the proper use of color in publications.
- Understand the difference between the two basic color modes CMYK and RGB
- Create variations of color using tint/shade, patterns, gradients, and opacity.

Standard 2

Develop a basic understanding of the color wheel

- Recognize and apply the following color properties: hue, saturation, and value (tint and shade)
- Recognize color schemes (complementary, analogous, monochromatic (grayscale), and triadic, tetradic)
- Understand that colors are used to communicate a mood or message using different colors that are associated with different meanings
- Recognize and apply symbolism/emotions in color (i.e. warm and cool colors).

Performance Skills

- Students will use color to communicate a mood or message in a print project.

STRAND 5: Typography

Students will understand principles of typography.

Standard 1

Identify typeface classifications and their uses. (Serif, Sans-serif, Script, Decorative - see https://fonts.adobe.com/fonts

Standard 2

Fonts are grouped together in families and given a family name (i.e. Arial, Garamond)

- Utilize the three basic categories of type styles (normal, bold, italic)
- Apply typeface design (serif, sans-serif, script, decorative)
- Install fonts using Adobe fonts and fonts downloaded from other websites
- Describe the anatomy of type (baseline, ascenders, descenders, serifs, x-height, etc.).
- Understand point size.

Performance Skills

Students will create a print project demonstrating knowledge of typography.

STRAND 6: Vector Graphics

Students will understand and create vector graphics

Standard 1

- Know basic operations of tools, panels, and menus in a drawing/illustration application (i.e. Adobe Illustrator, Corel Draw, Inkscape, Affinity Designer, etc.).
- Become familiar with user interface, preferences, and settings in an illustration program.
- Understanding basic keystroke and shortcut keys for illustration application.
- Understand the advantages and disadvantages of vector images.

Standard 2

- Understand, create, and manipulate vector graphics.
- Operate drawing tools to create and manipulate paths (lines and bezier curves) using anchor points, direction handles
- Identify vector graphic formats and their appropriate use (e.g., PDF, Al, EPS, SVG, etc.)
- Understand the different selection tools (i.e. selection, direct selection, magic wand, etc.).
- Understand and apply stroke, fill (solid and gradient), and opacity
- Understand and create layers.
- Perform grouping and ungrouping of objects.
- Transform objects while constraining proportions
- Use type tools
- Use basic shape tools to create a design.
- Understand final output formats when exporting images for project requirements (compression, resolution) outside a vector illustration program.

Performance Skills

Students will create a vector image to be used in a production project.

STRAND 7: Raster Graphics

Students will understand and edit raster images.

Standard 1

- Know basic operations of tools, panels, and menus in a painting/photo editing application (i.e. Adobe Photoshop, GIMP, Affinity Photo, etc.)
- Become familiar with user interface, preferences, and settings in an painting/photo editing application
- Understanding basic keystroke and shortcut keys for painting/photo editing application.
- Understand the advantages and disadvantages of raster images.

Standard 2

Define, create, manipulate, and appropriately use bitmap (pixel based) raster graphics.

- Identify raster graphic formats and their appropriate use (e.g., JPG/JPEG, GIF, TIFF, BMP, PSD, PNG, RAW, etc.)
- Acquire image assets (i.e. scan, digital camera, internet search, stock sources, etc.)
- Import/export images for project requirements (i.e.: compression, 72 ppi (web) vs. 300 ppi (print) resolution)
- Understand the following concepts: image resolution, size, and resampling.
- Understand destructive vs. non-destructive editing in a painting/photo editing application.
- Crop, resize, straighten, and transform an image. Scale a raster image using the proper settings in order

to maintain the appropriate resolution for print or digital media.
- Understand the use of selection tools (i.e. marquee, magic wand, lasso, etc.).
- Understand the use of layers, layer masks, adjustment layers. Use adjustment layers to color correct an image.
- Understand transparent image backgrounds and formats that support transparency (i.e., PNG, GIF).
- Identify line artwork, continuous tone in both grayscale and color, and halftone.
- Understand filters and effects.
- Understand how to perform photo repairs and retouching (i.e. healing brush, clone stamp, content-aware, etc.).
- Operate painting and drawing tools.
- Understand the use of type tool in painting/photo editing application.

Performance Skills
Students will create a raster graphic using multiple layers and a variety of tools to be used in a production project.

STRAND 8: Project Management
Students will understand project management and collaboration.

Standard 1
- Understand and practice project management skills.
- Practice asset and file management using folders and naming conventions.
- Understand file size and storage/back-ups.

Standard 2
- Develop an awareness of digital and collaborative technologies.
- Explore collaborating technologies (i.e.: Google Drive, Dropbox, Zoom, FTP, WeTransfer, etc.)

Standard 3
- Understand links and how to correct broken links in documents

STRAND 9: Print Production
Students will understand print production concepts.

Standard 1
- Classify the digital printing processes (inkjet, laser, large format, dye sublimation, direct- to-garment, etc.)
- Understand the benefits of digital printing.
- Identify digital printing media.

Performance Skills
Students will print a product using a digital printing process.

STRAND 10: SkillsUSA – Level 1

Students will understand the importance of career readiness skills as it relates to the workplace and outlined in the SkillsUSA Framework – Level 1.

Standard 1

- Understand and demonstrate the attitude of cooperation.
- Develop awareness of cultural diversity and equality issues.
- Demonstrate effective communication with others.
- Apply team skills to a group project.
- Identify and apply conflict resolution skills.

Standard 2

- Understand and demonstrate the ability of being resourceful and innovative.
- Discover self-motivation techniques and establish short-term goals.
- Measure/modify short-term goals.
- Review a professional journal and develop a three- to five-minute presentation.

Standard 3

- Plan for your future career.
- Complete a self-assessment and identify individual learning styles.
- Define future occupations.
- Identify the components of an employment portfolio. List proficiency in program competencies.
- Complete a survey for employment opportunities.
- Create a job application.
- Assemble your employment portfolio.
- Employability skills: evaluate program comprehension.

Standard 4

- Understand and demonstrate the ability to manage a project.
- Apply team skills to a group project.
- Observe and critique a meeting.
- Demonstrate business meeting skills.
- Explore supervisory and management roles in an organization.
- Identify and apply conflict resolution skills.
- Demonstrate evaluation skills.
- Manage a project and evaluate others.

Performance Skills

- Attend a SkillsUSA (or other CTSO) meeting at your school.

Workplace Skills

- Communication
- Teamwork
- Customer service
- Dependability
- Legal requirements / expectations
- Digital citizenship (i.e., file management including standard file naming conventions, storage sizes (kb, mb, gb, tb, etc.), saving documents when not to the cloud, exporting files to portable/permanent storage, responsible/work-appropriate use of computer resources, etc.)
- Media literacy

- Understand construction and purposes of media messages
- Evaluate information critically and competently
- Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media
- Understand the difference between royalty-free and copyrighted images and text
- Understand the process of obtaining and citing permission for copyrighted works
- See Title 17 United States Code -Section 107 Limitation of exclusive rights: Fair use

Skill Certificate Test Points by Strand

Updated skills certificate test will be posted soon!

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS

GRAPHIC PRINT DESIGN 2

Learning that works for Utah
CTE®

Course Description

This course builds upon the students' knowledge and skills learned and practiced in Graphic Print Design 1. You will notice the Strands & Standards are closely aligned and continue to build. Students will create, produce, and reproduce visual graphics that communicate to an audience. They will develop knowledge and skills relative to the graphic design & printing industries. Students will apply effective principles and techniques to project designs, print various projects for themselves and/or customers, and receive an over-view of the publishing and print industries on a commercial level

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.10.00.00.044
Concurrent Enrollment Core Code	40.10.00.00.044
Prerequisite	Graphic Print Design 1
Skill Certification Test Number	564 Optional Industry Certifications: 996 - Adobe Photoshop 997 - Adobe Illustrator
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Production Graphics
Endorsement 2	N/A
Endorsement 3	N/A

STRAND 1

Overview

Students will be able to understand the history and current state of the graphics/printing industry.

Standard 1

- Define design and its role in graphic communications.
- Identify print markets and types of print businesses.
- Explore printing technologies.
- Define substrate and select the appropriate substrate for a project.

STRAND 2

Safe Practices

Students will be able to understand and demonstrate safe practices that are applicable to lab/studio and production equipment at your school.

Standard 1

- List safety rules involving chemicals and flammable liquids.
- Read, comprehend, and follow instructions on warning labels.
- List the steps to be taken in case of injury in the lab.
- Identify locations and safety equipment (e.g. first aid kit, eye wash station, MSDS, flammables cabinet)
- Follow proper safety procedures and dress code when operating equipment.
- Demonstrate common sense when working with others.

Performance Skills

- Pass a general lab safety test.

STRAND 3

Design Process

Graphic Design provides a place for students to explore new ideas, take appropriate risks, creatively problem solve, collaborate, develop aesthetic awareness, explore the world, and to express oneself.

Standard 1

- **Create** – conceptualize, generate, develop and organize artistic ideas. Refine through persistence, reflection, and evaluation.
- **Present/Produce** – analyze, interpret, and select artistic work. Develop techniques and concepts to refine work and express meaning through presentation.
- **Respond** – perceive, analyze, interpret, articulate, and evaluate work and process.
- **Connect** – synthesize and relate knowledge with personal meaning relating to societal, cultural, and historical context to deepen understanding.

Standard 2

Students will understand the design process.

- Understand the process of planning a document.
- Research your project (audience, purpose, timeline, page arrangement, and production method)
- Brainstorming / Differential thinking
- Creating thumbnail / sketches
- Use feedback to inform revisions and changes to work.

Standard 3
Students will understand the elements of art.
- Identify and utilize the following elements of art: line, shape, value, texture, color, space (incl. positive and negative), and form.

Standard 4
Students will understand the principles of design.
- Identify and utilize the following principles of design: balance (formal/symmetrical, informal/ asymmetrical), contrast, emphasis, movement, and unity.

Standard 5
- Define layout elements (body text, display text, illustration and white space).
- Understand Visual Hierarchy – the organization of design assets (color/contrast, scale, & grouping) on the page through which the viewer's eye is guided in the order of intended importance.
- Demonstrate proper use of rulers, guides, margins, columns, gutters, and rows, bleeds.
- Know basic paper sizes and orientations (i.e. letter and tabloid) and understand document output specifications for custom size documents.
- Measure linear dimensions in inches (to 1/16" accuracy), points, and millimeters, using both fraction and decimal formats appropriately.
- Understand difference between output size and finished size when setting up your document.

Standard 6
Students will understand and demonstrate principles of pre-media (pre-press).
- Collect project information from client (client brief).
- Create mock-up/comp(s) based on client specifications.
- Review mockup(s) with client (hard-proof).
- Perform proofing, revision, approval process (soft-proof/PDF).

Performance Skills
- Students will be able to use planning, elements of art, and principles of design to compose a print design.

STRAND 4
Color Theory
Students will know and apply color theory.

Standard 1
- Understand the proper use of color in publications.
- Recognize and apply the appropriate color modes for web-based graphics and printed graphics. (RGB and CMYK)
- Create variations of color using tint, patterns, gradients, and opacity
- Understand how Bit Depth affects color availability (i.e. 8-bit, 16-bit, 32-bit).

Standard 2
- Demonstrate understanding of the color wheel
- Recognize and apply the following color properties: hue, saturation, and value (tint and shade)
- Recognize and apply color schemes (complementary, analogous, monochromatic (grayscale), and triadic, tetradic)
- Effectively use color to communicate a mood or message that is associated with different meanings.

- Recognize and apply symbolism/emotions in color (i.e. warm and cool colors).

Performance Skills

- Students will use color to communicate a mood or message in a print project.

STRAND 5

Typography

Students will know and apply principles of typography.

Standard 1

- Identify typeface classifications and their uses. (Serif, Sans-serif, Script, Decorative - see https://fonts.adobe.com/fonts

Standard 2

- Fonts are grouped together in families and given a family name (i.e. Arial, Garamond)
- Utilize the three basic categories of type styles (normal, bold, italic)
- Apply typeface design (serif, sans-serif, script, decorative)
- Install fonts using Adobe fonts and fonts downloaded from other websites
- Describe the anatomy of type (baseline, ascenders, descenders, serifs, x-height, etc.).
- Understand the measurement of type using points.
- Demonstrate correct conversion of point to inches.

Standard 3

- Apply copyfitting techniques (leading, kerning, tracking, alignment, point size)
- Apply basic text alignment (left, right, centered, and justified)
- Describe why it would be necessary to create outlines on fonts within a project file.

Performance Skills

- Students will create a print design using proper typography concepts.

STRAND 6

Vector Graphics

Students will know and apply the correct uses of vector graphics.

Standard 1

- Know basic operations of tools, panels, and menus in a drawing/illustration application (i.e. Adobe Illustrator, Corel Draw, Inkscape, Affinity Designer, etc.).
- Become familiar with user interface, preferences, and settings in an illustration program. Change illustration software defaults for project needs.
- Utilize basic keystroke and shortcut keys for illustration application.
- Know and apply the correct uses of vector images in design and production projects.

Standard 2

- Create or trace a drawing/photograph with use of the pen tool.
- Operate drawing tools to create and manipulate paths (lines and bezier curves) using anchor points, direction handles
- Know and apply the proper use of vector graphic formats and save to the appropriate forms. (e.g., PDF, AI, EPS, SVG, etc.)
- Utilize appropriate selection tools (i.e. selection, direct selection, magic wand, etc.).

- Define and apply stroke, fill (solid and gradient), and opacity
- Create and manage layers, sublayers, and groups.
- Perform grouping and ungrouping of objects using shortcuts and sublayers.
- Transform objects while constraining proportions, solve ratio and percent equations when resizing images.
- Explore different tools to manipulate type (rotated, type on a path, expanded, effects, tints, and fills, etc.).
- Create a design using basic shapes and use of transforming tools (i.e. shape tool, shapebuilder, pathfinder, transform, etc.).
- Know and apply final output formats when exporting images for project requirements (compression, resolution) outside a vector illustration program.
- Comprehend process and spot colors.

Performance Skills

- Students will create a vector image to be used in a production project.

STRAND 7

Raster Graphics

Students will understand and edit raster images.

Standard 1

- Know basic operations of tools, panels, and menus in a painting/photo editing application (i.e. Adobe Photoshop, GIMP, Affinity Photo, etc.)
- Become familiar with user interface, preferences, and settings in an illustration program. Change painting/photo editing application defaults for project needs.
- Utilize basic keystroke and shortcut keys for painting/photo editing application.
- Know and apply correct uses of raster images in design and production projects.

Standard 2

Define, create, manipulate, and appropriately use bitmap (pixel based) raster graphics.

- Identify raster graphic formats and their appropriate use (e.g., JPG/JPEG, GIF, TIFF, BMP, PSD, PNG, RAW, etc.)
- Acquire image assets (i.e. scan, digital camera, internet search, stock sources, etc.)
- Import/export images for project requirements (i.e.: compression, 72 ppi (web) vs. 300 ppi (print) resolution)
- Know and apply the following concepts: image resolution, size, and resampling.
- Know and apply different destructive vs. non-destructive editing techniques in a painting/photo editing application.
- Crop, resize, straighten, and transform an image. Scale a raster image using the proper settings in order to maintain the appropriate resolution for print or digital media.
- Know and apply selection tools (i.e. marquee, magic wand, lasso, etc.).
- Understand the use of layers, layer masks, adjustment layers. Use adjustment layers to color correct an image.
- Know and apply transparent image backgrounds and appropriate formats that support transparency (i.e., PNG, GIF).
- Identify line artwork, continuous tone in both grayscale and color, and halftone.
- Know and apply filters and effects.
- Know and apply tools for photo repairs and retouching (i.e. healing brush, clone stamp, content-aware,

etc.).
- Operate painting and drawing tools. Create color and gradient swatches.
- Know and apply the use of type tool and type effects within a painting/photo editing application.

Performance Skills
- Students will create a raster graphic using multiple layers and a variety of tools to be used in a production project.

STRAND 8
Page Layout (Software)
Students will be able to understand and demonstrate use of page layout software.

Standard 1
- Know basic operations of tools, panels, and menus in a page layout application. (i.e. Adobe InDesign, Quark Express, Affinity Publisher, etc.)
- Become familiar with user interface, preferences, and settings in an page layout program. Change page layout software defaults for project needs.
- Utilize basic keystroke and shortcut keys for page layout application.
- Know and apply correct uses for a page layout application when creating production projects.

Standard 2
- Import a graphic image and/or text from an existing file into an InDesign publication.
- Demonstrate the procedure for cropping and resizing frame for digital images.
- Design and produce a document designating appropriate margins, guides, columns, and gutters.
- Define bleeds marks, crop marks, and registration marks.
- Design and produce a document using the type tool, designating appropriate fonts, styles, indents, tabs.
- Create a single page layout for printing (i.e. poster, flyer, notepad, etc.)
- Create a front-to-back page layout for printing. (i.e. postcard, brochure, announcement, etc.)

Performance Skills
- Students will create a page layout project using skills from the standards above for print production.

STRAND 9
Project Management
Students will understand project management and collaboration.

Standard 1
- Understand and practice project management skills.
- Practice asset and file management using folders and naming conventions.
- Understand file size and storage/back-ups.

Standard 2
- Develop an awareness of digital and collaborative technologies.
- Explore collaborating technologies (i.e.: Google Drive, Dropbox, Zoom, FTP, WeTransfer, etc.)

Standard 3
- Understand links and how to correct broken links in documents
- Describe the reason for packaging a file using graphic design software.

Standard 4

- Export a Portable Document Format (PDF) that can be used for proof and approval.
- Correctly format and send a file electronically to a specified location.
- Understand digital publishing technology.

STRAND 10

Print Production

Students will understand print production concepts.

Standard 1

- Students will be able to understand and demonstrate printing processes.
- Classify the major printing processes (relief, lithography, screen, gravure, and digital).
- Identify products produced by each of the major printing processes.
- Identify other graphics communication processes (i.e. vinyl, engraving, embroidery, etc.).
- Describe major contributions in the history of printing.

Performance Skills

- Students will print a product using a digital printing process.

STRAND 11

SkillsUSA – Level 2

Students will understand the importance of career readiness skills as it relates to the workplace and outlined in the SkillsUSA Framework – Level 2.

Standard 1

- Understand and demonstrate reliability.
- Determine individual time management skills.
- Explore what's ethical in the workplace or school.
- Demonstrate awareness of government.
- Demonstrate awareness of professional organizations and trade unions.

Standard 2

- Understand and demonstrate responsiveness.
- Define the customer.
- Recognize benefits of doing a community service project.
- Demonstrate social etiquette.
- Identify customer expectations.

Standard 3

- Understand resiliency.
- Discover self-motivation techniques and establish short-term goals. • Select characters
- of a positive image.
- Identify a mentor.

Standard 4

- Understand and demonstrate workplace habits.
- Participate in a shadowing activity.
- Explore workplace ethics: codes of conduct. Recognize safety issues.

- Perform a skill demonstration. Exercise your right to know.

Standard 5

- Understand and develop initiative.
- Develop personal financial skills.
- Develop a business plan.
- Investigate entrepreneurship opportunities.

Standard 6

- Understand and demonstrate continuous improvement.
- Conduct a worker interview.
- Demonstrate evaluation skills.
- Examine ethics and values in the workplace.
- Develop a working relationship with a mentor.
- Construct a job search network.

Performance Skills

- Join SkillsUSA (or other CTSO) chapter at your school.

Workplace Skills

- Communication
- Teamwork
- Customer service
- Dependability
- Legal requirements / expectations
- Digital citizenship (i.e., file management including standard file naming conventions, storage sizes (kb, mb, gb, tb, etc.), saving documents when not to the cloud, exporting files to portable/permanent storage, responsible/work-appropriate use of computer resources, etc.)
- Media literacy
- Understand construction and purposes of media messages
- Evaluate information critically and competently
- Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media
- Understand the difference between royalty-free and copyrighted images and text
- Understand the process of obtaining and citing permission for copyrighted works
- See Title 17 United States Code -Section 107 Limitation of exclusive rights: Fair use

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS

GRAPHIC PRINT DESIGN 3

Learning that works for Utah CTE®

Course Description

This course builds upon the students' knowledge and skills learned and practiced in Graphic Print Design 1 and 2. You will notice the Strands & Standards are closely aligned and continue to build. Students will create and produce digital print projects that communicates and promotes graphic communication. They will develop knowledge and skills relative to the graphic design & printing industries. This course includes instruction and hands-on experiences in design and layout.

Intended Grade Level	10-12
Units of Credit	1.0
Core Code	40.10.00.00.046
Concurrent Enrollment Core Code	40.10.00.13.046
Prerequisite	Graphic Print Design 2
Skill Certification Test Number	567 Optional Industry Certifications: #996 – Adobe Photoshop #997 – Adobe Illustrator #930 – Adobe InDesign
Test Weight	1.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Production Graphics

STRAND 1: Overview

Students will be able to understand the history and current state of the graphics/printing industry.

Standard 1

- Define design and its role in graphic communications.
- Identify print markets and types of print businesses.
- Explore printing technologies.
- Define substrate and select the appropriate substrate for a project.

Standard 2

- Identify the capabilities, advantages, and disadvantages of software programs used in digital print design.
- Select appropriate software for given print job.
- Understand the concept of the image carrier for the major printing process..

STRAND 2: Safe Practices

Students will be able to understand and demonstrate safe practices that are applicable to lab/studio and production equipment at your school.

Standard 1

- List safety rules involving chemicals and flammable liquids.
- Read, comprehend, and follow instructions on warning labels.
- List the steps to be taken in case of injury in the lab.
- Identify locations and safety equipment (e.g. first aid kit, eye wash station, MSDS, flammables cabinet)
- Follow proper safety procedures and dress code when operating equipment.
- Demonstrate common sense when working with others.
- Performance Skills
- Pass a general lab safety test.

STRAND 3: Design Process

Graphic Design provides a place for students to explore new ideas, take appropriate risks, creatively problem solve, collaborate, develop aesthetic awareness, explore the world, and to express oneself.

Standard 1

Create – conceptualize, generate, develop and organize artistic ideas. Refine through persistence, reflection, and evaluation.
Present/Produce – analyze, interpret, and select artistic work. Develop techniques and concepts to refine work and express meaning through presentation.
Respond – perceive, analyze, interpret, articulate, and evaluate work and process.
Connect – synthesize and relate knowledge with personal meaning relating to societal, cultural, and historical context to deepen understanding.

Standard 2

Students will demonstrate competency in the design process.

- Understand the process of planning a document.
- Research your project (audience, purpose, timeline, page arrangement, and production method)
- Brainstorming / Differential thinking
- Creating thumbnail / sketches

- Use feedback to inform revisions and changes to work.

Standard 3
Students will understand the elements of art.
- Identify and utilize the following elements of art: line, shape, value, texture, color, space (incl. positive and negative), and form.

Standard 4
Students will understand the principles of design.
- Identify and utilize the following principles of design: balance (formal/symmetrical, informal/asymmetrical), contrast, emphasis, movement, and unity.

Standard 5
- Create a design using layout elements (body text, display text, illustration and white space).
- Demonstrate proper use of Visual Hierarchy – the organization of design assets (color/contrast, scale, & grouping) on the page through which the viewer's eye is guided in the order of intended importance.
- Demonstrate proper use of rulers, guides, margins, columns, gutters, and rows, bleeds.
- Know basic paper sizes and orientations (i.e. letter and tabloid) and understand document output specifications for custom size documents.
- Measure linear dimensions in inches (to 1/16" accuracy), points, and millimeters, using both fraction and decimal formats appropriately.
- Understand difference between output size and finished size when setting up your document.

Standard 6
Students will understand and demonstrate principles of pre-media (pre-press).
- Collect project information from client (client brief).
- Create mock-up/comp(s) based on client specifications.
- Review mockup(s) with client (hard-proof).
- Perform proofing, revision, approval process (soft-proof/PDF).

Standard 7
Students will understand and practice print production workflow.
- Perform job cost/estimation. Calculate material required for a given set of specifications.
- Read job ticket/specifications.
- Generate an invoice. Calculate financial discounts/markups/fees.
- Determine appropriate production method(s) and cost-effectiveness based on quantities.
- Calculate surface area to determine required substrate size.
- Identify substrates and their appropriate production methods.
- Design a package or point of purchase display.

Performance Skills
Students will be able to use planning, elements of art, and principles of design to compose a print design.

STRAND 4: Color Theory
Students will demonstrate competency of color theory in design projects.

Standard 1
- Understand the proper use of color in publications.
- Understand the difference between the two basic color modes CMYK and RGB

- Create variations of color using tint/shade, patterns, gradients, and opacity.

Understand how Bit Depth affects color availability (i.e. 8-bit, 16-bit, 32-bit)

Standard 2

- Demonstrate understanding of the color wheel
- Recognize and apply the following color properties: hue, saturation, and value (tint and shade)
- Recognize and apply color schemes (complementary, analogous, monochromatic (grayscale), and triadic, tetradic)
- Effectively use color to communicate a mood or message that are associated with different meanings
- Recognize and apply symbolism/emotions in color (i.e. warm and cool colors).
- Performance Skills
- Students will use color to communicate a mood or message in a print project.

STRAND 5: Typography

Students will demonstrate principles of typography when designing graphic projects.

Standard 1

Identify typeface classifications and their uses. (Serif, Sans-serif, Script, Decorative - see https://fonts.adobe.com/fonts

Standard 2

- Fonts are grouped together in families and given a family name (i.e. Arial, Garamond)
- Utilize the three basic categories of type styles (normal, bold, italic)
- Apply typeface design (serif, sans-serif, script, decorative)
- Install fonts using Adobe fonts and fonts downloaded from other websites
- Describe the anatomy of type (baseline, ascenders, descenders, serifs, x-height, etc.).
- Identify caps, lowercase, uppercase, small caps, dingbats, symbols, and ligatures.
- Measure type size and line weight in points.

Standard 3

- Apply copyfitting techniques (leading, kerning, tracking, alignment, point size)
- Apply basic text alignment (left, right, centered, and justified)
- Describe why it would be necessary to create outlines instead of embedding fonts within a PDF.
- Describe the difference between a TrueType Font (TTF) and OpenType font (OTF) file.

Performance Skills

Demonstrate proper typography concepts in a cohesive print design.

STRAND 6: Vector Graphics

Students will demonstrate the correct uses of vector graphics.

Standard 1

- Demonstrate a functional knowledge of keyboard shortcuts/menus/tools and procedures for their use in a digital illustration program.
- Demonstrate understanding of user interface, preferences, and settings in an illustration program. Change illustration software defaults for project needs. Create a custom workspace and be able to reset software to default settings.
- Demonstrate proficiency using keystroke and shortcut keys for illustration application.

- Demonstrate the correct uses of vector images in design and production projects.

Standard 2

- Create an original drawing with use of the pen tool.
- Operate drawing tools to create and manipulate paths (lines and bezier curves) using anchor points, direction handles
- Demonstrate the proper use of vector graphic formats and save to the appropriate formats (e.g., PDF, AI, EPS, SVG, etc.)
- Demonstrate the use of selection tools (i.e. selection, direct selection, magic wand, etc.).
- Demonstrate the proper use of stroke, fill (solid and gradient), and opacity
- Demonstrate mastery of layers, sublayers, and groups.
- Perform grouping and ungrouping of objects using shortcuts and sublayers.
- Transform objects while constraining proportions, Solve ratio and percent equations when resizing images.
- Use the appropriate graphics program to create a design or logo using manipulated type (rotated, type on a path, expanded, effects, tints and fills, etc.).
- Create a design using basic shapes and use of transforming tools (i.e. shape tool, shapebuilder, pathfinder, transform, etc.).
- Demonstrate mastery in final output formats when exporting images for project requirements (compression, resolution) outside a vector illustration program.
- Create a spot color illustration or logo using Pantone Matching System® (PMS) or other color matching system, and view or print separations.
- Define trapping and where it should be used..

Performance Skills

Students will create a vector image to be used in a production project.

STRAND 7: Raster Graphics

Students will demonstrate correct use of raster images.

Standard 1

- Know basic operations of tools, panels, and menus in a painting/photo editing application (i.e. Adobe Photoshop, GIMP, Affinity Photo, etc.)
- Demonstrate understanding of user interface, preferences, and settings in an painting/photo editing application. Change painting/photo editing application defaults for project needs. Create a custom workspace, and be able to reset software to default settings.
- Demonstrate proficiency using keystroke and shortcut keys for painting/photo editing application.
- Demonstrate the correct uses of raster images in design and production projects.

Standard 2

- Define, create, manipulate, and appropriately use bitmap (pixel based) raster graphics.
- Identify raster graphic formats and their appropriate use (e.g., JPG/JPEG, GIF, TIFF, BMP, PSD, PNG, RAW, etc.)
- Acquire image assets (i.e. scan, digital camera, internet search, stock sources, etc.)
- Import/export images for project requirements (i.e.: compression, 72 ppi (web) vs. 300 ppi (print) resolution)
- Utilize and explain the following concepts: image resolution, size, and resampling.
- Demonstrate proficiency in several different destructive vs. non-destructive editing techniques in a painting/photo editing application. Select the most appropriate option for your project.

- Crop, resize, straighten, and transform an image. Scale a raster image using the proper settings in order to maintain the appropriate resolution for print or digital media.
- Demonstrate mastery in the use of selection tools (i.e. marquee, magic wand, lasso, etc.).
- Understand the use of layers, layer masks, adjustment layers. Use adjustment layers to color correct an image.
- Demonstrate proper use of transparent image backgrounds and appropriate formats that support transparency (i.e., PNG, GIF).
- Identify line artwork, continuous tone in both grayscale and color, and halftone.
- Demonstrate proficiency using filters and effects.
- Demonstrate mastery performing photo repairs and retouching (i.e. healing brush, clone stamp, content-aware, etc.).
- Operate painting and drawing tools. Create color and gradient swatches.
- Demonstrate the use of type tool and type effects within a painting/photo editing application. Explain the advantages and disadvantages of creating type within a raster program vs. vector software.
- Performance Skills
- Students will create a raster graphic using multiple layers and a variety of tools to be used in a production project.

STRAND 8: Page Layout (Software)

Students will be able to understand and demonstrate use of page layout software.

Standard 1

- Know basic operations of tools, panels, and menus in a page layout application. (i.e. Adobe InDesign, Quark Express, Affinity Publisher, etc.)
- Demonstrate understanding of user interface, preferences, and settings in a page layout program. Change page layout software defaults for project needs. Create a custom workspace and be able to reset software to default settings.
- Demonstrate proficiency using keystroke and shortcut keys for page layout application.
- Demonstrate the correct uses for a page layout application when creating production projects.

Standard 2

- Import a graphic image and/or text from an existing file into an InDesign publication.
- Demonstrate the procedure for cropping and resizing frame for digital images, and utilize the frame fitting options in the properties panel.
- Design and produce a document designating appropriate margins, guides, columns, and gutters.
- Design and produce a document using spot color and process color.
- Format text using columns, flowing text to multiple text boxes, and tables.
- Utilize character styles, paragraph styles, object styles, and table styles on a page layout project.
- Incorporate tints, reverse type, and manipulated type for effect into a page layout project.
- Demonstrate use of proofreading (i.e. digital dictionary, spell checker, automatic hyphenation, etc.).
- Create a computer-generated layout incorporating appropriate marks (i.e. register marks, trim marks, bleed marks, fold lines, die lines, etc.) for printing with the intent of performing a finishing/binding process.
- Create an imposition for a single design to maximize paper use (i.e. 2-UP, 4-UP, etc.) using page layout software that will be cut/trimmed after printing.
- Define dummy, imposition, and signature.
- Create a multi-page layout using master pages for output/printing
- Create an imposition for a multiple page document using page layout software.

Performance Skills
Students will create a page layout project using skills from the standards above for print production.

STRAND 9: Project Management
Students will understand project management and collaboration.

Standard 1
- Understand and practice project management skills.
- Practice asset and file management using folders and naming conventions.
- Understand file size and storage/back-ups.

Standard 2
- Develop an awareness of digital and collaborative technologies.
- Explore collaborating technologies (i.e.: Google Drive, Dropbox, Zoom, FTP, WeTransfer, etc.)

Standard 3
- Understand links and how to correct broken links in documents.
- Create a package file of a design project using graphic design software.

Standard 4
- Export a Portable Document Format (PDF) that can be used for proof and approval.
- Correctly format and send a file electronically to a specified location.
- Create a document and publish digitally. Send a link to this document to a specified recipient and adjust document privileges appropriately.

STRAND 10: Print Production & Finishing
Students will understand print production and finishing concepts.

Standard 1
- Students will understand the advantages and disadvantages of each major printing process and be able to select the appropriate printing process for a print job.
- Create a print-ready PDF including printer marks, bleeds, and page information.
- Define knockout, overprint, trap, bleed, and slug.
- Output a digital print using two different ICC profiles.
- RIP a file for print/output.

Standard 2
- Define finishing.
- Identify finishing processes.
- Define binding.
- Identify binding processes.

Performance Skills
Students will finish or bind a product after printing using a major printing process.

STRAND 11: SkillsUSA – Level 3

Students will understand the importance of career readiness skills as it relates to the workplace and outlined in the SkillsUSA Framework – Level 3.

Standard 1

- Understand and develop collaboration skills.
- Develop a working relationship with a mentor. • Apply supervisory skills.
- Manage a project and evaluate others..

Standard 2

- Understand and demonstrate change management skills.
- Evaluate your career and training goals.
- Identify and apply conflict resolution skills.
- Illustrate an organizational structure.
- Plan and implement a leadership project.

Standard 3

- Understand how customer service applies to the workplace.
- Serve as a volunteer in the community.
- Examine workplace ethics: the role of values in making decisions.
- Understand the cost of customer service.
- Develop customer service skills.
- Maximize customer service skills.

Standard 4

- Understand and demonstrate career readiness.
- Market your career choice.
- Research resume writing.
- Demonstrate interviewing skills.
- Predict employment trends.
- Re-evaluate career goals and establish long-term goals.
- Construct a job search network.
- Evaluate professional competencies.
- Analyze your entry-level job skills.
- Design and present a lesson plan on an aspect of your career choice.
- Write an article for a professional journal in your career area.
- Refine your employment portfolio.

Performance Skills

- Participate in a Utah SkillsUSA (or other CTSO) competition representing your school.

Workplace Skills

- Communication
- Teamwork
- Customer service
- Dependability
- Legal requirements / expectations
- Digital citizenship (i.e., file management including standard file naming conventions, storage sizes (kb, mb, gb, tb, etc.), saving documents when not to the cloud, exporting files to portable/permanent storage, responsible/work-appropriate use of computer resources, etc.)

- Media literacy
- Understand construction and purposes of media messages
- Evaluate information critically and competently
- Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media
- Understand the difference between royalty-free and copyrighted images and text
- Understand the process of obtaining and citing permission for copyrighted works
- See Title 17 United States Code -Section 107 Limitation of exclusive rights: Fair use

Skill Certificate Test Points by Strand

Updated skills certificate test will be posted soon!

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
SCREEN PRINTING TECHNOLOGY

Learning that works for Utah
CTE®

Course Description

This course is designed to provide students with the knowledge to create, produce and reproduce visual graphics that communicate to an audience. Develop the knowledge and skills relative to the graphic design & screen-printing industries. Includes instruction and hands-on experiences in design & layout, digital prep of designs, and multiple color printing processes on various substrates. Provides an overview of the screen-printing and print making industries on the commercial level. Instruction includes the use of industry standard graphics software with the Adobe Creative Cloud applications.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.10.00.00.048
Concurrent Enrollment Core Code	40.10.00.13.048
Prerequisite	Graphic Print Design 1
Skill Certification Test Number	566
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Graphics/Printing Technology

STRAND 1

Students will be able to understand the introduction to the graphics/screen printing industry.

Standard 1

Define graphic communications.

Standard 2

Define screen printing and identify products produced.

Standard 3

List in order the technical production flow from idea to finished product.

Standard 4

Identify alternative decorating methods (i.e. heat transfer, dye sublimation, pad printing, discharge, direct-to-garment, etc.).

Standard 5

Comprehend basic screen-printing technology and equipment (i.e. automatic, manual, dryers, exposure units, etc.).

Standard 6

Define substrate.

STRAND 2

Students will be able to understand and demonstrate safe practices.

Standard 1

List safety rules involving chemicals and flammable liquids.

Standard 2

Read, comprehend and follow instructions on warning labels.

Standard 3

List the steps to be taken in case of injury in the lab.

Standard 4

Identify locations of first aid kit, eye wash station, MSDS, and safety equipment.

Standard 5

Follow proper safety procedures and dress code when operating equipment.

Standard 6

Demonstrate common sense when working with others.

Standard 7

Pass general lab safety test.

STRAND 3

Students will be able to understand and demonstrate design processes.

Standard 1
Understand the design process (thumbnails, rough, comp, etc.).

Standard 2
Define the principles and elements of design.

Standard 3
Identify typeface classifications and their uses.

Standard 4
Describe the anatomy of type (baseline, ascenders, descenders, serifs, etc.).

Standard 5
Understand point size, leading, and alignment.

Standard 6
Create a design for printing, applying the design process.

STRAND 4

Students will be able to understand and demonstrate computer skills.

Standard 1
Identify software interface features (i.e. panels, menus, dialog boxes).

Standard 2
Select appropriate software types (i.e. word processing, page layout, paint, draw) and related applications.

Standard 3
Compare the difference between raster and vector images.

Standard 4
Identify the difference between spot colors and process colors.

Standard 5
Define input and output devices (i.e. scanner, digital camera, laser printer, imagesetter, dye sublimation).

Standard 6
Identify and determine appropriate file formats.

Standard 7
Identify and determine appropriate uses of the registration swatch.

Standard 8
Identify registration marks.

Standard 9
Install fonts.

Standard 10
Demonstrate appropriate file storage and management.

Standard 11
Perform basic math skills.

Standard 12
Output film positive(s).

Standard 13
Output color separations.

Standard 14
Digitally produce line art.

Standard 15
Demonstrate adherence to copyright and trademark laws.

STRAND 5
Students will be able to understand and demonstrate digital illustrations.

Standard 1
Demonstrate operation of tools, panels, preferences, and menus in an illustration application (i.e. Illustrator).

Standard 2
Demonstrate the use of selection tools (i.e. selection, direct selection, magic wand, etc.)

Standard 3
Understand the advantages and disadvantages of vector images.

Standard 4
Comprehend process and spot colors.

Standard 5
Solve ratio and percent equations.

Standard 6
Define trapping.

Standard 7
Measure linear dimensions in inches and fractions of an inch to 1/16”.

Standard 8
Perform fraction to decimal conversions.

Standard 9
Create or trace a drawing/photograph with use of the pen tool.

Standard 10
Edit a vector image, modifying anchor points and paths.

STRAND 6

Students will be able to understand and demonstrate screen prep and stencil systems.

Standard 1
Identify screen fabric classifications, mesh count, and frame types.

Standard 2
Identify stencil types (i.e. hand-cut, indirect, direct, capillary stencils, liquid).

Standard 3
Apply and use a direct emulsion stencil after degreasing.

Standard 4
Identify the image and non-image area on an image carrier.

Standard 5
Understand variables that effects print size (platen, screen frame, substrate, stencil, film).

Standard 6
Demonstrate proper registration techniques when exposing screens.

Standard 7
Identify image and non-image areas on a screen-printing stencil.

Standard 8
Properly block out screen for printing.

STRAND 7

Students will be able to understand and demonstrate screen printing production.

Standard 1
Identify squeegee durometer, blades, and handles.

Standard 2
Demonstrate proper registration techniques when screen printing.

Standard 3
Demonstrate correct printing placement and print quality.

Standard 4
Choose appropriate type ink type for the substrate (i.e. plastisol, water-based, enamel/acrylic).

Standard 5
Identify substrates used in the screen-printing process.

Standard 6
Prepare ink and apply to screen.

Standard 7
Set appropriate off contact to control image quality (snap-off).

Standard 8
Demonstrate correct squeegee technique during printing.

Standard 9
Identify variables that affect print quality (Screen tension, mesh, squeegee durometer, ink, etc.).

Standard 10
Dry or cure printed objects using appropriate equipment.

Standard 11
Produce a printed single-color screen print.

Standard 12
Produce a printed multiple color screen print.

Standard 13
Calculate production costs for given job specifications.
Understand and demonstrate screen printing production.

- Identify squeegee durometer, blades, and handles.
- Demonstrate proper registration techniques when screen printing.
- Demonstrate correct printing placement and print quality.
- Choose appropriate type ink type for the substrate (i.e. plastisol, water-based, enamel/acrylic).
- Identify substrates used in the screen-printing process.
- Prepare ink and apply to screen.
- Set appropriate off contact to control image quality (snap-off).
- Demonstrate correct squeegee technique during printing.
- Identify variables that affect print quality (Screen tension, mesh, squeegee durometer, ink, etc.).
- Dry or cure printed objects using appropriate equipment.
- Produce a printed single color screen print.
- Produce a printed multiple color screen print.
- Calculate production costs for given job specifications.

STRAND 8
Students will be able to understand and demonstrate screen reclaiming/cleanup.

Standard 1
Demonstrate proper ink cleanup after printing.

Standard 2
Demonstrate proper stencil removal.

Standard 3
Properly reclaim (remove stencil and dehaze) a screen.

Standard 4
Thoroughly clean entire work area (i.e. equipment, squeegee, screen, tables, etc.).

Standard 5
Inspect and verify screen conditioning after reclaiming.

STRAND 9

Students will understand the importance of career readiness skills as it relates to the workplace and outlined in the SkillsUSA Framework – Level 1.

Standard 1

Understand and demonstrate the attitude of cooperation.

- Develop awareness of cultural diversity and equality issues.
- Demonstrate effective communication with others.
- Apply team skills to a group project.
- Identify and apply conflict resolution skills.

Standard 2

Understand and demonstrate the ability of being resourceful and innovative.

- Discover self-motivation techniques and establish short-term goals.
- Measure/modify short-term goals.
- Review a professional journal and develop a three- to five-minute presentation.

Standard 3

Plan for your future career.

- Complete a self-assessment and identify individual learning styles.
- Define future occupations.
- Identify the components of an employment portfolio.
- List proficiency in program competencies.
- Complete a survey for employment opportunities.
- Create a job application.
- Assemble your employment portfolio.
- Employability skills: evaluate program comprehension.

Standard 4

Understand and demonstrate the ability to manage a project.

- Apply team skills to a group project.
- Observe and critique a meeting.
- Demonstrate business meeting skills.
- Explore supervisory and management roles in anorganization.
- Identify and apply conflict resolution skills.
- Demonstrate evaluation skills.
- Manage a project and evaluate others.

Performance Skills

1. Understand and demonstrate safe practices.
   - Pass general lab safety test.
2. Understand and demonstrate design processes.
   - Create a design for printing, applying the designprocess.
3. Understand and demonstrate computer skills.
   - Output film positive(s).
   - Output color separations.
   - Digitally produce line art.
   - Demonstrate adherence to copyright and trademark laws.
4. Understand and demonstrate digital illustrations.

- Create or trace a drawing/photograph with use of the pen tool.
- Edit a vector image, modifying anchor points and paths.

5. Understand and demonstrate screen prep and stencil systems.
   - Properly block out screen for printing.
6. Understand and demonstrate printing processes.
   - Print a product.
7. Understand and demonstrate screen reclaiming/cleanup.
   - Thoroughly clean entire work area (i.e. equipment, squeegee, screen, tables, etc.).
   - Inspect and verify screen conditioning after reclaiming.

Skill Certificate Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

Cluster: Business, Finance & Marketing		
Pathway: Accounting & Finance		
Course Code Number	Course Name	Summary
32.02.00.00.030	Investing & Wealth Management	A new course for the Finance Pathway focused on Careers in Investing and financial management of clients' money and not personal finance, such as GFL; Strands include, Investing Basics, Risk Management, Equity Investments (Stocks), Bonds, Investment packages and portfolios, Mutual Funds, and Career opportunities through, certificates, tech colleges and USHE partners
Pathway: Business Administration		
32.02.00.00.130	Business Law	Reorganized and replaced some of the performance skill options with ones that are more student-friendly. Added a new performance skill. Added new formatting changes and definitions to help new teachers.
32.02.00.00.140	Business Management	Reorganized the Strands and Standards to place a greater emphasis on Economics and combined two strands into one. Changed the format and added definitions to key terms and concepts. In general, streamlined and shortened the course so that teachers in rural areas that use the trimester system can get through the material.
Pathway: Marketing		
37.01.00.00.025	Customer Service	Changed the formatting to include definitions inside the strands and standards. Added examples of how segmentation translates into different customer expectations that match the segmentation description. Included suggestions from Weber State sales college.
32.02.00.00.220	Entrepreneurship	Changes the Formatting to include definitions of the key terms and concepts. Added a new finance section to the strands and standards.

STRANDS AND STANDARDS
INVESTING & WEALTH MANAGEMENT

Learning that works for Utah
CTE®

Course Description

This Investing and wealth management course is designed to teach students the basics of investing and finance. Strands will cover compound interest, risk analysis, financial statements analysis, asset valuation, financial markets, stock valuations, working capital management, investment vehicles and emerging trends in investing. Students will also be encouraged to explore the accounting and finance pathway and the many career opportunities in investing and finance management

Intended Grade Level	10-12
Units of Credit	.50
Core Code	N/A
Concurrent Enrollment Core Code	N/A
Prerequisite	None
Skill Certification Test Number	N/A
Test Weight	.50
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Business, Finance & Marketing (CTE/General)
Endorsement 2	Business, Finance & Marketing Essentials
Endorsement 3	N/A

STRAND 1

Investing Basics- Students will understand the importance of these foundational financial principles and be able to use these concepts to evaluate financial scenarios.

Standard 1

Explain and define the **Time Value of Money**, Money can grow only if it is invested over time and earns a positive return. Include how it applies to investments.

- Compare and contrast Simple vs Compound Interest and how to calculate it.
  - **Interest**: Money paid regularly at a particular rate.
  - **Simple Interest**: is calculated using only the principal amount.
    - **principal X interest rate X time**
  - **Compound interest**: is calculated using the principal amount, PLUS the interest that has accumulated over previous periods.
    - **p X [(1 + interest rate)n − 1]**

  where:
    - **p = principal**
    - **n = number of compounding periods**
  - Share examples of when it is used in investing such as Saving, Money Market account, and Certificate of Deposit (CD).
- Define asset allocation and Diversification and provide examples of why these concepts are important to investing.
  - **Asset allocation**: dividing your investments among different assets types, such as stocks, bonds, and cash.
  - **Diversification**: the practice of spreading your investments across multiple assets to minimize your exposure to risk of loss.

Standard 2

Discuss the variables that influence the riskiness of an investment.

- Variables that affect earnings
  - **Market Risk (Systematic)**: Price fluctuations due to overall market or market segment volatility, cannot be mitigated through diversification.
  - **Company Risk (Non-Systematic)**: a company-specific risk associated with a particular investment that can be mitigated through diversification.
  - **Liquidity Risk**: Risk that a security will be difficult to sell in a timely manner or without taking a loss or paying a penalty
  - **Opportunity Cost**: refers to gains you could have attained by choosing a different investment. EX: buy stock A, and it grows 10%, but stock B grew at 15%. Net opportunity cost is 5%.
- **PEST Analysis**
  - **Political**
  - **Economical**
  - **Social**
  - **Technical**
- Fraudulent investments:
  - Common Saying: If it looks too good to be true then it probably is.
    - Ex. Bernie Madoff

Performance Skill: (choose one)

- Calculate the growth rate of $10,000 if invested over the last 10 years with two different investments.
- Research and compare two different investments and what the result would be today. What risks were involved with each investment. Students will write a paragraph describing which one would you choose and why?

STRAND 2

Equities- Students will be able to identify what an equity investment is and evaluate the performance of these investments using common analysis tools.

Standard 1

Stocks A form of investment that represents partial ownership in a company

- **Common Stock**
  - Classifications of stock: Authorized, Issued, Treasury, Outstanding
  - Rights of Shareholders: Voting, Ownership, Transfer of Ownership, Protection Against Dilution, Inspection of Financial Documents, Dividends. How do they affect the value of the stock? How are they paid? (Declaration Date, Ex-Date, Record Date, Payment Date)
  - **Stock Splits** - Effects on Stock Price
- **Preferred Stock**
  - Owners have higher priority than common stockholders and usually pay dividends.

Standard 2 - Stock analysis

Define, calculate and apply the terms and concepts below as they relate to analyzing stock performance

- Part of a Stock table
  - **Ticker symbol**: an abbreviation used to uniquely identify publicly traded shares of a particular stock on a particular stock market.
  - **EPS**: (Earnings Per Share) a company's net profit divided by the number of common shares it has outstanding. Resulting number serves as an indicator of a company's profitability.
  - **P/E Ratio**: the ratio for valuing a company that measures its current share price relative to its EPS. Stock price divided by earnings per share.
  - **Beta**: is a measure of the volatility—or systematic risk—of a security or portfolio compared to the market as a whole.
  - **Dividend Yield**: how much a company pays out in dividends each year relative to its stock price.
- Forms of Return:
  - **Capital Gains**: Profits gained from the sale of stock.
  - **Dividends**: A distribution of profits by a corporation to its owners.
- Identify the basic components of common financial statements
  - Income Statement: Revenues & Expenses
  - Balance Sheet: Assets, Liabilities, & Owner's Equity

Standard 3

Explore the types of markets and identify the acronyms that are commonly used.

- **Stock Exchange Markets**: New York Stock Exchange (NYSE), NYSE America, NASDAQ
  - **Stock Indexes**: A collection of stocks meant to represent the market or a portion of it.
    - Ex. Dow Jones Industrial Average, NASDAQ, S&P 500
  - Trade Types
    - **Market Order**: an order to buy or sell a stock at the best available current price
    - Short Selling: Selling stocks before you purchase them with the hope of buying them at a lower

price before the delivery time.
- Limit Order: Selling at or below a specified price. Buying at or above a specified price.
- Stop Order: typically placed to limit a loss or protect a profit

Performance Skill: (Choose one)
- Have students select stocks, or a group of stocks that they would invest in over the term or trimester. Students should monitor the stocks performance and evaluate how well they performed over time.
- Have students select stocks through a stock investment simulation and evaluate the performance of the stocks over a period of time.

STRAND 3

Bonds (Debt)- Students will be able to identify bonds and their earning potential in an investment portfolio.

Standard 1

Bonds: Loan obligation where the issuer is borrowing funds that must be repaid with interest to the investor.
- Issuers: U.S. Government, Agencies of the U.S. Government, Municipal Governments, and Corporations

Standard 2

Discuss and describe **Bond Types**, their uses and origin.
- **Corporate Bonds**: A debt issued by a company in order to raise money.
- **Government Bonds**: Debt issued by the government in order to raise money for special projects that benefit the community, state or nation. T-Bills, Treasury Notes, Treasury Bonds, Treasury Inflation Protection Securities (TIPS), Zero Coupon Bonds, U.S. Government Bonds
  - Government Agency Bonds - Education Agency Bonds, Farming Agency Bonds, Housing Agency Bonds
  - Municipal Bonds: Issued by city, county and state governments these bonds are exempt from federal taxation

Standard 3

Define common terms used in **Bond Valuation**.
- **Par Value**: Also known as the principal, is the amount the issuer will repay to the investor at maturity with interest
- **Maturity**: The length of time from issuance until issuer is scheduled repayment. On the maturity date the par value is paid to the investor, known as “return of principal”, as well as the last interest payment.
- **Coupon**: annualized rate of interest based on the par value
  - Methods of Payment:
    - Periodic Interest Payments (usually every 6 months)
    - Interest Paid at Maturity with Principal (Zero Coupon Bonds)

Standard 4

Identify the different levels of **Bond Risk**
- Which types of bonds have the least risk to the most risk: Treasury Bonds to Junk Bonds
- Bond Ratings - Moody’s & S&P
- Investment Bond:
- BoSpeculative Bond:

Ratings for LONG TERM Debt Securities			
Moody's	S&P's		Grade Level
Aaa	AAA		Investment
Aa	AA		
A	A		
Baa	BBB		
Ba	BB		Speculative
B	B		
Caa	CCC		
Ca	CC		
D	C	D	

Ratings for SHORT TERM Debt Securities			
Municipal Notes	Commercial Paper		Grade Level
MIG-1	A1	P1	Investment
MIG-2	A2	P2	
MIG-3	A3	P3	
SG	B	NP	Speculative
B	C		

STRAND 4

Packaged Products- Students will understand the different types of funds and the benefits of owning each.

Standard 1

Examine **Mutual Funds**: a type of investment made up of a pool of money collected from many investors to invest in securities like stocks, bonds, money markets, and other assets.

- Fund Types
  - **Growth**: composed of stocks with the potential to rapidly grow in value
  - **Income**: composed of stocks expected to pay regular income (dividends)
  - **Growth & Income**: composed of a mix of growth and income stocks
  - **Sector Fund**: composed of stocks from one sector or industry
  - **Balanced**: composed of a mix of stocks and bonds
  - **Asset Allocation**: composed of a mix of stocks, bonds, & money markets
  - **Index**: composed of stocks that seek to mirror a market index and match its performance
  - **Life Cycle or Target Date**: pre-determined asset mix that is adjusted to meet an investment objective by a target date and are commonly used in retirement accounts
- Discuss the Characteristics of **Mutual Funds**
  - Managed by an Investment Company and Fund Manager
  - The investments within the fund are constantly changing
  - Continuous primary offering (Sold & Redeemed by investment company)
  - Only trade once a day after the market closes
  - **Prospectus** (required by law) a document detailing the investment objectives and strategies of a particular investment as well as the finer points of the fund's past performance, managers and financial information.
- Explain how the pricing of Mutual Funds is determined by the NAV. This represents a funds per share market value.
  - **Net Asset Value** (NAV) = (Assets - Liabilities) / # Shares
  - Price determined at the end of each day after market closing
  - Mutual Fund Fees
    - **Expense Ratio**: The cost of owning a mutual fund or ETF

Standard 2

Exchange Traded Funds (ETFs): is a basket of securities that trades on an exchange just like a stock. ETFs can contain all types of investments, including stocks, commodities, or bonds; some offer U.S.-only holdings, while others are international.

- Management
  - Track the performance of an index (most)

- Investments are selected by a Fund Manager
- Once issued the investments are fixed and do not change
- ETF share trade like a stock

- ETF Fees
  - Lower (than index MFs) expense ratios
  - Commissions on transactions
  - Can be purchased on margin
  - Can be shorted

Performance Skill:
Students will evaluate different mutual funds and match them to an investor's risk tolerance level.

STRAND 5
Emerging investment trends- Students will explore current trends in investing and other investment vehicles used to grow wealth.

Standard 1
Identify the types of collectable items that people can invest in. Explain why value may increase or decrease over time. Examples of collectables as an investment: Art, Sneakers, NFTs, Lego, baseball cards, Pokemon cards

Standard 2
Define Cryptocurrency and identify some of the more common forms

- **Cryptocurrency**: a digital currency in which transactions are verified and records maintained by a decentralized system using cryptography, rather than by a centralized authority.
- Explain how these currencies operate differently than other investments or monies. There are no companies, government or underlying assets that guarantee the value of these currencies. The value is created through the blockchain process and the supply and demand in the trade market.
  - Etherium
  - BitCoin
  - DogeCoin

Standard 3
Define **REIT**: is a company that owns, and in most cases operates, income-producing real estate. REITs own many types of commercial real estate, including office and apartment buildings, warehouses, hospitals, shopping centers, hotels and commercial forests.

Performance Skill
Students will compare and contrast two different emerging investments and discuss the advantages and disadvantages.

STRAND 6
Finance and investing Careers and the Accounting & Finance Pathway-Students will identify the courses that will help them to be a pathway completer as well as potential careers in investing and finances.

Standard 1
Accounting & Finance Pathway

- Identify the “Explorer” courses offered at your school
- Identify the “Concentrator” courses taught at you school

- Identify the "Completer" course for the Accounting and Finance Pathway

Standard 2

Certifications, Licenses, and Degrees in Investing and Finance
In-house training from finance and investing companies to sponsor the professional exams. An Individual cannot take without a sponsor through a brokerage and it requires continuous re-licensing.

- **Certifications and Licenses**
  - Explore the various Investor/advisor exams (Example Series 6, 7, 9 and 10)
  - CFP: Certified Financial Planner
  - CFA: Certified Financial Accountant
- **Degrees Available**
  - Most State colleges offer a Bachelors in Finance, Accounting, Economics, and Business This is usually required to be hired in this field.
  - SLCC offers Accounting, Business, Financial Services
  - U of U Minor in Advanced Financial Analysis

Standard 3

Careers in Investing and Finance

- Explore current job postings in this field to introduce students to the fact that this is a high wage high demand field. There are many options that are available based on different strengths.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		

STRANDS AND STANDARDS

BUSINESS LAW

Learning that works for Utah
CTE®

Students will gain an understanding of the law as it relates to them currently and the implications of the law in their future lives as well as the lives of their family and friends. They will also work to gain an understanding of basic legal vocabulary.

The course will include an understanding of the court system at the local, state, and national level. Students will gain an understanding of contract law, their rights and responsibilities as citizens, utilization of financial transactions, employment and agency relationships, and the understanding of the regulations governing different types of business organizations

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	32.02.00.00.130
Concurrent Enrollment Core Code	N/A
Prerequisite	None
Skill Certification Test Number	240
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Business & Marketing (CTE/ General)
Endorsement 2	Business & Marketing Essentials
Endorsement 3	

STRAND 1

Origins of Law - Students will analyze the relationship between ethics and the law and explain the origin of today's law.

Standard 1

Identify **unethical conduct** as behavior that conflicts with society's values, but isn't necessarily illegal and **illegal conduct** as conduct that disobeys society's laws and has legal penalties for the disobedience of the law.

Compare various ethical theories and explain their influence on the creation of today's laws, including

- **Ethics**: Moral principles that govern a person's behavior or the conduct of an activity.
- **The Golden Rule**: The ethical principle of treating others as one wants to be treated.
- **The Greatest Good Principle**: A theory that promotes the greatest amount of good for the greatest number of people.
- **Duty-based Ethics**: Seen as a series of rules which it is our moral duty to follow.

Standard 2

Describe both the state and federal constitutions impact on laws. Identify sources of today's law:

- **Common law**: Part of English law that is derived from judicial precedent rather than statutes. Adopted and modified separately by the different states of the US and by the federal government.
- **Statutory law**: Statutory law consists of the laws passed by the legislative bodies.
- **Court decisions/Case law**: Court-made decisions rather than law based on constitutions, statutes, or regulations.
- **Administrative law**: **(regulations)** The body of law created by specialized agencies and departments of the government.
    - FDA, OSHA, FCC, EPA

Standard 3

Discuss the Constitution including the **Bill of Rights** as it relates to business, such as in commercial speech. **Commercial Speech doctrine**: False or misleading advertising, as well as advertising of unlawful goods, receives no 1st Amendment protection.
Cover the following amendments from the **Bill of Rights**

- **Amendment 1**: Freedom of Speech
- **Amendment 5**: Due process of law
    - Due Process: Right to a grand jury, no double jeopardy, no self-incrimination, the right to due process.
- **Amendment 6**: Additional protections for the accused
- **Amendment 7**: Right to a jury trial

Performance Skill

Students will demonstrate understanding of the origins of business law through exploring one of the following activities.

- Have students evaluate an ethical scenario from either the FBLA Ethics case study for the year or the DECA Business Law & Ethics Team Decision making role play.

Or

- Demonstrate how they would respond to an ethical dilemma using a case study or role play from DECA or FBLA's ethical competition.

STRAND 2

The Court System - Students will be able to explain the role and function of the court system on the local, state, and national levels.

Standard 1

Explain the structure and function of the **federal** and **state court systems**.

- **Federal Courts**: District, Appellate, Supreme Court
- **State Courts**: Justice/Trial, District, Courts of Appeal, State Supreme Court, Juvenile Court
- **Jurisdiction**: A court's power to hear a case and to make a judgment.

Standard 2

Identify the types of cases heard in each of the federal and state courts and the difference between **original** and **appellate jurisdiction**.

Federal Cases heard involve:

- The Constitution
- Laws passed by Congress
- Patent and Copyright Cases
- Bankruptcy Cases
- Cases involving citizens of different states greater than $75,000

Original Jurisdiction: The authority of a court to hear a case for the first time.

Appellate Jurisdiction: The authority of a higher court to review a lower court's decision.

- No new evidence is required to reach a verdict

Judicial Review - The power of the Supreme Court to determine whether laws are in accordance with the constitution.

Precedent - Once a court has ruled in favor of an individual case, that case becomes part of a family of cases that support similar cases in the future and establishes a precedent. (When lower courts must follow the decisions of an upper court)

Standard 3

Compare and contrast the **juvenile** and **adult court systems**.

Performance Skills (Choose Two)

Students will demonstrate an understanding of the court systems through on of the following activities.

- Analyze supreme court decisions relating to current social and legal issues and create a presentation to show competency of the judicial review process.
- Analyze a resolved, current (within 10 years) business law case from a source other than a textbook. Create a report that summarizes the case.
- Create an infographic to illustrate a court system. Federal, State, or Juvenile
- Examine a case that has been decided, create a case brief on the decision made, and identify the rule of law and analysis used to arrive at the decision. (FIRAC - Facts, Rule of Law, Issue, Analysis/Application, Conclusion)

STRAND 3

Procedural Law - Students will understand the important role of procedural law in our legal system.

Standard 1

Explain the advantages and disadvantages of Alternate Dispute Resolution methods as a procedure for settling

disputes outside of the courtroom including the following;

- **Negotiation**: A non-binding attempt to reach an agreement on matters in a dispute through spokespersons, often an attorney or a 3rd party.
- **Mediation**: Settling a dispute through non-binding, active participation of a third party (mediator) who works to find points of agreement and make those in conflict agree on a fair result.
- **Arbitration**: (Binding or Non-Binding) A private trial before a hired judge. May be binding or non-binding.
- **Litigation**: The process of taking a case to court

Standard 2

Identify the various parties involved in a court trial (judge, attorneys, **plaintiff/prosecutor**, defendant, juries (**petit** and **grand**), paralegal, and court reporter).

Standard 3

Compare and contrast the steps in a civil lawsuit with the steps in a criminal prosecution. Determine the difference between the burden of proof in civil cases as the **preponderance of the evidence** and criminal cases as **beyond a reasonable doubt**.

Steps in a Civil Lawsuit

- Complaint
  - Answer
- Methods of Discovery
  - Depositions
  - Requests for Admissions
  - Mental/Physical Examinations
  - Interrogatories
- Pretrial Hearing
- Trial
- Judgment

Steps in a Criminal Lawsuit

- Grand Jury (Federal level in Utah)
- Arrest
- Arraignment
  - (Bail is Set)
- Jury Selection - Voir Dire
- Trial
- Verdict/Sentence

Standard 4

Understand the Statute of Limitations as the maximum time after an event when legal proceedings may be filed. It relates to both criminal and civil law. For details refer to the Utah Code. https://le.utah.gov/xcode/code.html

Performance Skills (Complete One)

- Participate in a mock trial by doing the following
  - Actively participate in a mock trial by preparing for and acting your assigned part.
  - Understand the setup and expectations of behavior in a courtroom.
  - Understand the procedures of a trial (e.g. opening/closing arguments, objections, examination, judgment/verdict).

OR

- Analyze a live or prerecorded court session by doing the following
  - Identify the law classification (criminal or civil case).
  - Identify the issue and question of law/facts in dispute.
  - List the material facts, parties involved (defendant, plaintiff, witnesses), principles of law used to arrive at a decision, damages sought.
  - Report on a decision made and identify the principle(s) of law used to arrive at the decision.

STRAND 4

Criminal and Tort Law - Students will demonstrate an understanding of criminal and civil law as related to business.

Standard 1

Define and identify the different categories of Business Crimes

Business crimes

- **Felony**: A crime sufficiently serious to be punishable by death or a term in state or federal prison, as distinguished from a misdemeanor which is only punishable by confinement to county or local jail and/or a fine.
- **Misdemeanor**: A lesser crime punishable by a fine and/or county jail time for up to one year.
- **Infraction**: Infractions are also not punishable by jail time. In Utah, an infraction can be punished by a fine not exceeding $750.

Penalties

- **Restitution**: The returning to the proper owner property or the monetary value of loss. Sometimes restitution is made part of a judgment in negligence and/or contract cases.
- **Fine**: A monetary charge imposed upon individuals who have been convicted of a crime or a lesser offense.
- **Imprisonment**: Being detained in a secured facility for a certain period of time.

Standard 2

Identify the different types of business crimes as traditional and cybercrimes. Define the following with examples for each category.

Traditional Business Crimes

Include: Forgery, Embezzlement, Fraud, Larceny by False Pretenses, Perjury, Conspiracy, Extortion, and Bribery.

Emerging Cyber Crimes

Such as Phishing, Ransomware, Identity Theft, Cyberpiracy, Cyber Vandalism

Standard 3

Understand defenses to criminal charges (e.g., insanity and entrapment).

Standard 4

Identify where actions or failure to act falls under business tort law, including negligence, strict liability, defamation, and invasion of privacy.

Negligence:

- **Duty of Care**: A requirement that a person act (or not act) toward others and the public with the watchfulness, attention, caution, and prudence that a reasonable person in the circumstances would use.
- **Breach of Duty**: A failure to do one's duty

- Proximate Cause: A causal link between the breach of duty and damages suffered.
- Actual Damage: Any harm done to a person by the acts or omissions of another. Injury may include physical injury, monetary damages, as well as damage to reputation or dignity or loss of a legal right.

Strict Products Liability: Automatic responsibility (without having to prove negligence) for damages due to dangerous products, such as explosives, wild animals, poisonous snakes, or assault weapons.

Defamation: The act of making untrue statements about another that causes damage.

- **Libel**: A published false statement.
- **Slander**: An oral false statement.

Invasion of privacy: The intrusion into the personal life of another without consent.

Standard 5

Identify and define the most common **defenses in a civil action** in cases of negligence.

- **Assumption of Risk**: Taking a chance in a potentially dangerous situation.
- **Contributory Negligence**: The doctrine that if damages were caused in part by the plaintiff's actions, the injured party would not be entitled to collect any damages (money) from the defendant.
- **Comparative Negligence**: A rule of law applied in accident cases to determine responsibility and damages based on the level of negligence of every party.

Standard 6

Describe the remedies available in civil law

- **Punitive**: Damages awarded in a lawsuit as a punishment and example to others for malicious, evil, or particularly fraudulent acts.
- **Compensatory**: Damages recovered in payment for actual injury or economic loss
- **Injunction**: A writ (order) issued by a court ordering someone to act or prohibit an action.

STRAND 5

Contract Law - Students will demonstrate an understanding of contract law including the elements and legal considerations of a contract.

Standard 1

Describe how to form and discharge a contract.

- **Offer**: A specific proposal to enter into an agreement with another.
- **Acceptance**: Expression of willingness to be bound, such as a handshake, signature, or "yes."
- **Genuine Agreement**: A "meeting of the minds" as to the terms of the contract.
- **Consideration**: A "bargained for" promise, such as money, property, services, or agreement not to act.
- **Capacity**: The competence to enter into an agreement. Issues include: mental competency, intoxication, language barriers, and minors.
- **Legality**: The consideration must be legally enforceable.

Standard 2

Identify the classifications of contracts

- **Express**: An exchange of promises in which the terms by which the parties agree to be bound are declared either orally or in writing, or a combination of both, at the time it is made.
- **Implied**: A contract that is found to exist even when its terms are not explicitly stated.
- **Bilateral**: A contract in which both parties exchange promises to perform.
- **Unilateral**: A contract created by an offer that can only be accepted by performance.
- **Verbal**: Agreed to via spoken communication, but not written down

- **Written**: An agreement between two parties that can be printed or digital.

Standard 3

Understand and describe the different ways a contract can be discharged or terminated

- **Performance**: The parties perform their duties. This is the primary way contracts are discharged.
- **Assignment**: Transferring of rights and/or benefits under a contract.
- **Delegation**: Transfers the duty for performing a particular contractual obligation to another party.
- **Rescission**: The parties agree to walk away as if the contract never occurred, including any consideration exchanged is returned to each party.
- **Accord and Satisfaction**: The parties accept new consideration to discharge a preexisting duty between them and the subsequent performance **(satisfaction)** of that agreement.
- **Novation**: An agreement to substitute a new party for an existing one.
- **Impossibility of Performance**: Changes that make the contract impossible to perform, such as the death of a party or the destruction of subject matter.

Standard 4

Define breach of contract, legal remedies, and defenses to a claim of breach.

- **Breach of Contract**: When one party in a contract fails to deliver according to the terms of the agreement.
- **Legal Remedies**: Court enforcement of a legal right.
  - **Damages**: The sum of money imposed for a breach of some duty or violation of a contractual right. There are two types of damages: compensatory and punitive.
  - **Specific Performance**: The remedy for breach that requires a party to fully perform according to the terms of the contract.
  - **Restitution**: Returning to the proper owner property or the monetary value of loss.
- **Defenses to Breach of Contract**
  - **Fraud**: When a person actively misrepresents or conceals a material fact.
  - **Non-disclosure**: Failure to reveal or disclose information.
  - **Negligent Misrepresentation**: An unintentional false statement of a material fact made without reasonable care.
  - **Mistake**: An incorrect belief, at contracting, that certain facts are true. May be bi-lateral or unilateral.
  - **Duress**: The act of using threats or psychological pressure to force someone to behave in a way that is contrary to their wishes.
  - **Undue Influence**: When a more powerful party exerts its influence over a less powerful party in order to achieve its desired outcome.

Standard 5

Identify contracts that should be in writing under the **Statute of Frauds**.

- Marriage
- Year
- Land
- Executor
- Goods over $500
- Surety/Guarantor

Performance Skills

Students will analyze a contract or a contractual relationship.

- Are all the elements of a contract present?
- Do any potential defenses to the contract exist?
- Does the Statute of Frauds require the contract to be in writing?

STRAND 6

Consumer Laws - Students will understand and compare and contrast sales and consumer laws to better understand the role of consumer rights.

Standard 1

Describe and differentiate the following consumer laws:

- **Uniform Commercial Code** (UCC): A set of laws intended to govern commercial transactions involving the sales of goods throughout the U.S.
  - **Shipping Contract:** Ownership of goods and risk of loss passes at the point of shipment.
  - **Destination Contract**: Ownership of goods and risk of loss passes at the destination.
- **Securities and Exchange Act of 1934**: Enacted to govern securities transactions on the secondary market to ensure an environment of fairness and investor confidence. Enforced by the SEC.

Standard 2

Differentiate and define the types of property covered in consumer laws.

- **Goods**: All things that are movable at the time of entering the contract, including unborn animals and growing crops.
- **Services**: Any intangible action provided to meet consumers' expectations, such as medical services, legal aid services, architectural services, and automobile services.
- **Real Property**: Land, water, and minerals in the earth; airspace above the land; and things permanently attached to the land.

Standard 3

Explain the two types of warranties for sale of goods (expressed and implied).

- **Expressed Warranty**: An agreement by a seller to provide a remedy for a faulty product, component, or service within a specified time period after it was purchased.
- **Implied Warranty**: A warranty implied by law for all products that the product is fit (meets expectations) for either a specific purpose (warranty of fitness) or for the general purposes of the particular good (warranty of merchantability).

Standard 4

Identify and explain consumer protection laws like the Consumer Product Safety Act and define unfair and deceptive practices.

- **Consumer Product Safety Act**: CPSC works to reduce the risk of injuries and deaths from consumer products by issuing and enforcing mandatory standards; banning consumer products if no standard would adequately protect the public and obtaining the recall of products and arranging for their repair, replacement, or a refund.
- **Bait and Switch**: When a seller creates an attractive, but disingenuous offer to sell a particular service or product that they do not actually intend to ever sell, including digital fraud.
- **Price Fixing**: An agreement between business competitors or between manufacturers, wholesalers, and retailers to raise, fix, or otherwise maintain prices.
- **The Cooling-Off Rule**: A Federal Trade Commission (FTC) rule that allows you to cancel a contract within a few days (usually three days) after signing it.

STRAND 7

Employment Law - Students will analyze the importance of employment law as it relates to the conduct of business.

Standard 1

Identify and define the distinction between each of the following employment opportunities

- **Employee**: An individual who works under the supervision or control of an employer.
- **Independent Contractor**: An individual who works independently of an employer. A non-employee.
- **Employment at Will**: An employment agreement that may be terminated either by employer or employee at any time, with or without justification.

Standard 2

Discuss the importance of employee rights during the following employment scenarios.
Job Interviews: Address what can/cannot be asked during the interview, such as religion, age, and medical issues.

- **Drug Testing**: Discuss typical employment issues, such as random vs. reasonable suspicion testing and written policies.
- **Background Checks**: Discuss the scope of background checks, such as employment history, education, financial, DMV, criminal records, and social media use.
- **Laws Affecting Minors**: Address the Fair Labor Standards Act as it applies to work hours, overtime,
- **Justified/Unjustified Discrimination Laws**: Include the protected classes under the Equal Employment Opportunity Act and the Americans with Disabilities Act.
- **Safety Measures**: Discuss generally the employer's responsibilities under the Occupational Safety and Health Act.

Performance Skills (Complete One)

Students will complete one of the consumer or employment performance skills.

- Explore a recent product recall that was issued by the CPSC. Give a brief description of the product and the actual injuries from the products.

OR

- Conduct a mock job interview. Design questions that stay within the legal rights of potential employees.

STRAND 8

Protecting Business Assets - Students will understand the importance of protecting your business and personal assets.

Standard 1

Identify the liability protection provided by the different forms of business organizations

- **Sole Proprietorship**: A sole proprietorship is the simplest and most common structure chosen to start a business. It is owned and run by one individual with no distinction between the business and you, the owner. The owner is entitled to all profits and is responsible for all your business's debts, losses and liabilities.
- **Partnership**: is an arrangement between two or more people to oversee business operations and share its profits and liabilities.
- **Corporation**: is legally a separate and distinct entity from its owners. Corporations possess many of the same legal rights and responsibilities as individuals.It has limited liability, which means that its shareholders are not personally responsible for the company's debts.it may be created by an individual

or a group of people with a shared goal.

- **Limited Liability Company (LLC)**: is a business structure in the U.S. that protects its owners from personal responsibility for its debts or liabilities. Limited liability companies are hybrid entities that combine the characteristics of a corporation with those of a partnership or sole proprietorship.

Standard 2

Discuss the critical differences between the following methods of protecting creative and intellectual property.

- **Copyright**: The exclusive legal right to reproduce, publish, sell, or distribute the matter and form of something.
- **Patent**: is a legal right to an invention given to a person or entity without interference from others who wish to replicate, use, or sell it
- **Trademark**:The term trademark refers to a recognizable insignia, phrase, word, or symbol that denotes a specific product and legally differentiates it from all other products of its kind.
- **Economic Espionage Act**: It makes the theft or misappropriation of trade secrets a criminal offense. It is unique in that it is the first federal law to broadly define and severely punish such misappropriation and theft.

Skills Certification Test points by Strand (2022 version)

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
BUSINESS MANAGEMENT

Learning that works for Utah
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Course Description

This Business Management course seeks to develop sound management concepts within students, as management plays a role in any future employment opportunity. Students are able to analyze, synthesize, and evaluate data from the other functional areas of business (e.g., marketing, finance, and production/operation). Effective management requires decision-making abilities, long-range planning knowledge, human relations expertise, and motivational skills. Students learn the four basic functions of management: planning, organizing, leading, and controlling.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	32.02.00.00.140
Concurrent Enrollment Core Code	32.02.00.13.140
Prerequisite	None
Skill Certification Test Number	230
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Business & Marketing (CTE/ General)
Endorsement 2	Business & Marketing Essentials
Endorsement 3	

STRAND 1

Role of Business Management & Economics - Students will understand the role of Business management and the economic concepts that affect the business decision-making process.

Standard 1

Students will understand that a country's economy is based on its ability to satisfy it's people's wants and needs.

- An economy needs to answer these **3 basic economic questions**.
  - What to produce?
  - How to produce goods and services?
  - How to distribute goods and services? Online or Brick & Mortar
- Compare and contrast between the **3 main economic systems**.

Command: an economy in which production, investment, prices, and incomes are determined centrally by a government.
Market: an economic system in which production and prices are determined by unrestricted competition between privately owned businesses.
Mixed: an economic system combining private and public enterprise.

Standard 2

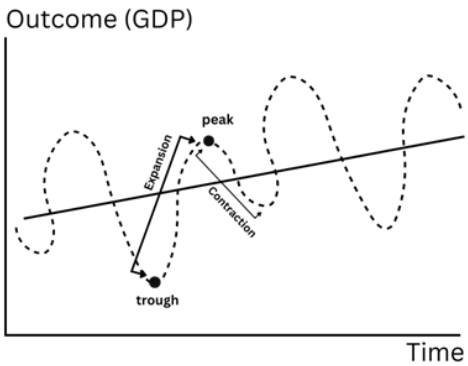
Describe the law of supply and the law of demand

- Illustrate the **supply** and **demand curves** and define supply and demand
  - **Supply**: the amount of a good or service offered for sale.
  - **Demand**: the desire of purchasers, consumers, clients, employers, etc., for a particular commodity, service, or other item.
- Describe the interrelationship between cost and price and profit. (ie. Price - Cost = Profit)
  - As cost goes up so does price and the opposite is always true
- Explain how Equilibrium, Surplus & Shortage relate
- How supply and demand affect price

Standard 3

Understand basic economic terms that affect businesses decision-making.
Describe how business satisfies wants and needs in a free market society.

- Understand what scarcity is: the state of being scarce or in short supply; shortage.
- Understand what opportunity cost is: the loss of potential gain from other alternatives when one alternative is chosen.
- Understand the concept of the business life cycle as it correlates with the economy (depression, inflation, recession, expansion)



Standard 4

Understand economic factors as they apply to international business:

- Balance/Restriction of Trade
  - **Imports**: bring (goods or services) into a country from abroad for sale.
  - **Exports**: send (goods or services) to another country for sale.
  - **Tariff**: a tax or duty to be paid on a particular class of imports or exports.
  - **Embargo**: an official ban on trade or other commercial activity with a particular country.
  - **Sanction**: a threatened penalty for disobeying a law or rule.
- Describe the concepts of **import and export**.

Performance Skills

Apply the economic concepts above toward the creation of a business plan.

Your potential business must do the following:

- Identify a market problem
- Identify a market solution that shows demand
- Answers the 3 economic questions
  - What to produce?
  - How to produce goods and services?
  - How to distribute goods and services?

STRAND 2 - The four functions of management

Planning and Organizing Functions - Students will be introduced to the four functions of management beginning with the planning and organizing functions.

Standard 1

Identify the four functions of management

- **Planning** - Determining a course of action
- **Organizing** - Coordinating activities and resources
- **Leading** - Managing, motivating and directing
- **Controlling** - Monitoring and evaluating

Standard 2

Students will plan the most effective course of action for setting an organization's goals and deciding how to achieve them.

- Understand the importance and purpose of a business plan for managerial success and capital resource allocation.

Standard 3

Distinguish between strategic (long-term) and operational (short-term) planning.

- Identify examples of strategic planning
  - SWOT analysis: and analysis of internal Strengths, Weaknesses, Opportunities and Threats
  - PEST analysis: Political, Economic, Socio-Cultural, Technological
- Identify examples of operational planning by explaining how each planning tool is utilized in the business decision-making process:
  - Budgets
  - Calendars & Schedules
  - Policies & Procedures

Standard 4

Identify and explain the business decision-making process:

- DECIDE
  - Define goal
  - Establish criteria
  - Choose good options
  - Identify pros & cons
  - Decide the most logical option for the situation
  - Evaluate results

Standard 5

Business Ownership Legal Structure - Compare and contrast business ownership legal structures specifically relating to tax & insurance liabilities, and profit distribution. Provide examples for each basic forms of ownership:

- Sole Proprietorship
- Partnership
- Corporation
  - LLC (Limited Liability Corporation)
  - S-Corporation
  - C-Corporation
- Identify characteristics, advantages, disadvantages and examples of a **Franchise Agreement**.

Standard 6

Differentiate between management structures (**centralized and decentralized**)

- Identify **types of organizational structures** and how they are utilized within a business:
  - Line
  - Line and Staff
  - Matrix
  - Team

Standard 7

Describe the importance of a vision statement with broad goals that are (long-term), **mission statement**, objectives (short-term).

Vision Statement - Broad, lasting and an inspirational message that communicates the purpose of the business to all stakeholders

Mission Statement - Short specific statement which is adaptable to the current purpose and direction

Performance Skills (Choose at least one)

For your business complete and include the following information in your business management (also called business description) section of your business plan

- Write your business mission and vision statements (to be included in your Executive Summary Section)
- Describe your legal form of ownership (S-corp, Partnership, etc..) and why you chose this form
- Provide your Organizational Chart (Who answers to whom)
  - Identify key personnel titles and roles

STRAND 3

Leading Function - Students will identify and describe how to influence members of the organization to work

together effectively.

Standard 1
Identify, compare, and contrast different leadership styles:
- Autocratic: relating to a ruler who has absolute power.
- Democratic: relating to or supporting democracy or its principles.
- Laissez-faire: attitude of letting things take their own course, without interfering.

Standard 2
Identify effective leaders and their leadership qualities in the current business industry.
- Explore effective leadership qualities which include:
  - Honesty (high standards of integrity)
  - Judgment (consider fact carefully & gather new information)
  - Objectivity (no bias—look at all sides of a problem)
  - Initiative (ambition and persistence in reaching goals)
  - Dependability (follow through on commitments)
  - Cooperation (work well with others)
  - Courage (able to make unpopular decisions)
  - Confidence (trust own judgment)
  - Stability (not highly emotional, solve problems and reduce conflicts)
  - Understanding (understand people, encourage others to share opinions)

Standard 3
Compare and contrast management and motivational theories:
- **Theories: X, Y, and Z**
- **Herzberg's Theory**
- **Maslow's Hierarchy of Needs**

Standard 4
Describe techniques managers use to motivate individual employees:
- Goal Setting
- Job Advancement
- Cross-training
- Empowerment
- Self-direction

STRAND 4
Controlling Function - Students will evaluate organizational activities and determine a plan of action.

Standard 1
Evaluate and determine alternative actions when goals are not being met (changing goals or changing strategies). Review the DECIDE process of the business decision making process (Strand 2).

Standard 2
Identify the four steps used in the process of controlling operations within a business:
- Set standards
- Measure performance

- Analyze performance
- Take corrective action

Standard 3

Identify the major factors in operations management:

- **TQM (total quality management)** - a system of management based on the principle that every staff member must be committed to maintaining high standards of work in every aspect of a company's operations.
- **Lean:** The main purpose of Lean management is creating value to the customer by optimizing resources. Lean management is a method of managing and organising work with the aim of improving a company's performance, particularly the quality and profitability of its production processes.
- **Supply chain management:** management of the flow of goods and services and includes all processes that transform raw materials into final products.

Standard 4

Explain management responsibilities as a means of controlling your business outcomes:

- Recruiting
- Hiring
- Training
- Appraising
- Firing, Terminating, Dismissing

STRAND 5

Financial Information - Students will analyze and understand the importance of financial information in the business decision-making process.

Standard 1

Identify and define basic financial terms used in business:

- **Asset** - something of value that is owned
- **Liability**- something of value that is owed to a creditor
- **Owner's Equity** - The difference between assets and liabilities
  - Assets - Liabilities = Equity
  - Assets = Liabilities + Equity
- **Revenue** - All money coming in from the sale of goods or services
- **Expense** - the cost required for something; the money spent on something.

Standard 2

Analyze basic financial statements used in business:

- **Income Statement** (Assets, Liabilities, Equity)
- **Balance Sheet** (Revenue, Expenses)
- **Cash Flow Statement** (Inflows and outflows of cash)

Standard 3

Analyze and interpret data that appears on financial statements used in making management decisions:

- Return on Investment: (Revenue- Cost) / Cost
- Break Even Point: Total Cost = Total Revenue

*Add graphic

Standard 4

Identify and explore sources of financing to start and operate a business.

- Personal Savings (Bootstrapping)
- Angel Investor
- Bank Loans
- SBA Loans
- Crowdsourcing

- Venture Capital

Standard 5

Understand compensation and benefits in your ability to manage an effective business and to attract the essential workers to reach your business goals.

- Wage, Salary and Commision
- Insurance (disability, long-term, medical, dental)
- Retirement
- Vacation
- PTO (paid time off)

Performance Skill

- Identify needed qualifications for each of your key employees in your organization.
- Create at least 3 job descriptions for the future personnel you are intending to hire.
- Determine 3 evaluation criteria for each job description to determine if you are meeting your business goals.

OR

Performance Skills (Choose One)

- Choose a financial statement (income statement, balance sheet, cash flow statement) and create a projected one for your business plan.
- Create compensation and benefit packages you plan to offer your key employees.

STRAND 6

Marketing - Students will understand how marketing affects business decisions.

Standard

Identify and understand the four P's of the **marketing mix**:

- **Product** - possibly the most important, can be a good, and service.
- **Price** - amount of money requested or exchanged for a product, should cover expenses and allow for a profit
- **Place** - activities involved in getting a product or service to the end user, may include: shipping, ordering processing, inventory storage, and stocking of goods. Describe that place can be both a physical location or online site.
- **Promotion** - process of communication with customers and potential customers to inform, persuade, and remind about products, their price, and where they can be purchased

Standard 2

Research markets to determine what the customer values:

- Target Markets and Market Segmentation
  - Demographics; Who? (Personal characteristics such as Age, Gender, Income Level, Education Level, Race, Ethnicity)
  - Geographics/Location; Where? (Segmentation based on where people live such as Natural or Political Boundaries, Climate, Cultural influences, and Customs)
  - Psychographics/Interests; Why? (Involves grouping people with similar lifestyles, as well as shared attitudes, values, and opinions such as Activities, Attitudes, Personality & Values)
  - Behavioral; How? (Looking at the benefits desired by consumers such as shopping patterns, usage rate, benefits--and not just the physical characteristics of a product)

STRAND 7

Ethics, Social Responsibility, and Legal Regulations - Students will understand and identify ethics, social responsibility, and legal aspects that regulate business.

Standard 1

Explain the overall nature of corporate social responsibility

- Philanthropy
- Human Rights
- Environmental Impact and Sustainability

Understand the purpose of a business code of ethics.

Standard 2

Describe how employee rights affects the workplace:

- Child Labor
- Drug Testing
- Right-to-privacy
- Sexual Harassment
- Whistle Blowing

Understand the purpose of a business code of conduct.

Standard 4

Identify and describe government agencies that regulate business:

- OSHA (Occupational Safety and Health Administration)
- EEOC (Equal Employment Opportunity Commission)
- FTC (Federal Trade Commission)
- FDA (Food and Drug Administration)
- HIPAA (Health Insurance Portability and Accountability Act)
- FERPA (Family Educational Rights and Privacy Act)
- FLSA (Fair Labor Standards Act)
- ADA (Americans with Disabilities Act)

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
CUSTOMER SERVICE

Learning that works for Utah
CTE®

Course Description

The focus of this course is for students to gain an understanding of the skills, aptitudes, and thought processes necessary to achieve customer satisfaction and loyalty in a variety of settings. Students will learn and develop customer service strategies as well as the skills and abilities necessary for working with customers; this will include helping customers to make decisions as well as resolving concerns and issues that may arise. Students taking Customer Service should have the opportunity to participate in DECA or FBLA. These CTSOs are state approved for all Business, Finance and marketing courses.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	37.01.00.00.025
Concurrent Enrollment Core Code	37.01.00.13.025
Prerequisite	N/A
Skill Certification Test Number	403
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Business & Marketing (CTE/General)
Endorsement 2	Business & Marketing Essentials
Endorsement 3	N/A

STRAND 1

Customer Service - Students will explore job opportunities in client and sales representative careers.

Standard 1

Determine the necessary education, training, experience, and potential salaries of this job outlook.

- Discuss career opportunities in your local area that are available in a service industry. That is both high demand and high wage.
- Define the following terms and concepts
  - **Customer Service**: the assistance and advice provided by a company to those people who buy or use its products or services.
  - **CX/Customer Experience**: is the internal and subjective response customers have to any direct or indirect contact with a company.
  - **Client Care**: is the process of looking after customers to best ensure their satisfaction and delightful interaction with a business
  - **Account/Client Representative**: is someone who is responsible for customer or client accounts.
  - **Customer-Focused Organization**: a business that operates completely around their relationships with clients and client satisfaction. Decisions are made based more around the needs and wants of customers, rather than technical or sales operations.
- Discuss how customer service is expanding through emerging opportunities in different industries.
  - **Subscription Based Industries**: Stitch Fix, Hellofresh, Spotify, Birchbox
  - **Convenience and Delivery Industries**: In-store pickup, curbside pickup, ordering online or through an app. Examples (DoorDash, Uber, Postmates)
  - **Call and Chat Centers**
  - **Retail**: selling goods to the public both through a physical store, online, apps, or through social media platforms.
    - **Omnichannel Retailing**: defined as an approach to sales that focus on providing seamless customer experience whether the client is shopping online from a mobile device, a laptop or in a brick-and-mortar store
  - **Wholesale**: Business to Business sales
  - **Service Industries**: beauty, medical, hospitality and tourism, lodging and recreation, and sports/ entertainment

Standard 2

Students will understand customer satisfaction; what it is and how it can be measured from both customer and company perspectives.

- Discuss and Define the following:
  - **Customer Satisfaction**: a measurement that determines how happy customers are with a company's products, services, and capabilities.
  - **Customer Perspective**: Customers are always looking for opportunities to improve their situation. Often they value three main ideas: speed, quality and price.
  - **Company Perspective**: Companies are always looking to maximize profits and maintain repeat business while ensuring customer satisfaction.

Performance Skills

- Use critical thinking to complete a job exploration project. Choose a client or customer care career and include all of the following: education, salary, training and/or experience.

STRAND 2

Target Market - Students will identify and understand how to determine the target market for a variety of sales and service industries.

Standard 1

Identify and explain the importance of a **customer profile** defined as a detailed description of your current customers.

- Explain how customer profiles help to determine a specific industry or organization's target market.
- Discuss how customer profiles are used to decide where to spend your promotional dollars.
- Identify and explain how a **customer profile can** help obtain new customers or retain existing customers

- Describe how organizations use a customer profile through market segmentation.
  - **Demographic**: Who? (Personal characteristics such as Age, Gender, Income Level, Education Level, Race, Ethnicity)
  - **Psychographics/Interests**: Why? (Involves grouping people with similar lifestyles, as well as shared attitudes, values, and opinions such as Activities, Attitudes, Personality & Values)
  - **Geographics/Location**: Where? (Segmentation based on where people live such as Natural or Political Boundaries, Climate, Cultural influences, and Customs)
  - **Behavioral**: How? (Looking at the benefits desired by consumers such as shopping patterns, usage rate, benefits--and not just the physical characteristics of a product)
- Discuss **customer expectations** based on the market segmentation. Here are the starting points of discussion for each market segmentation.
  - **Demographic**: High income customers would expect a higher quality product
  - **Psychographic**: Conservative customers will expect that a company supports conservative causes both politically in their company culture.
  - **Geographic**: Customs of an area would be respected in all communications while building customer rapport.
  - **Behavioral**: Loyal customers might expect more out of an experience.
- Identify the processes used in **client prospecting**
  1. Research your Leads
  2. Qualify your leads
  3. Identify your leads
  4. Prioritize your decision maker
  5. Reach out and schedule a meeting with the decision maker
- Discuss and identify key components of **omni-channel customer service**.
  - Chat box, delivery, in person, online, social media, and word of mouth through reviews online and in-person.

Performance Skills

Use problem solving skills to define the ideal customer profile. Solve a business problem through exploring a DECA or FBLA role play or use a case study from a recent current event.

STRAND 3

Customer Service Soft Skills - Students will discover & develop critical aptitudes and "soft skills" in sales and service careers.

Standard 1

Identify and discuss customer service traits and behaviors needed to provide excellent customer service.

- **Follow directions** from employers to provide relevant information from company policies. Employees should always advocate the employer's interest.
- **Communicate clearly** and provide step by step instructions if a customer involved solution is required.
- **Ask meaningful questions** and focus on solutions that both the customer and your employer can agree on.
- **Represent professionalism** on and off the job. Use appropriate language and customer-centered vocabulary. Keep emotions in check.
- Provide a timely and accurate response to all customer questions.

Standard 2

Identify and discuss **empathy** and **professionalism** needed in effective customer service.

- Discuss ways to show **empathy**, the action of understanding, being sensitive, and vicariously experiencing the feelings, thoughts, and experiences of another.
  - Show respect for the customer by giving them your undivided attention, listening carefully, acknowledge customers' questions and concerns through **active listening skills**. **(See following standard)**
  - Build a relationship of trust through related experiences and showing sincere appreciation for the customers concerns.
- Clearly illustrate the soft skill of **professionalism** including;
  - Clean and well-kept attire appropriate for the specific work environment.
  - Easy distinction between employees and customers.
  - Confidence and poise.
  - Positive and helpful attitude.

Standard 3

Discuss **effective communication skills** to ensure a positive customer service experience.

Describe the importance of language in effective communication skills.

- Explain that **verbal skills** are important in building credibility and to convey product knowledge to customers

  Verbal skills used to build credibility:
  - Limit filler words that make you seem like you are trying to remember facts or details. (Ex. uh, um, like, and y'know)
  - Voice Inflection: a manner of speaking in which the loudness or pitch or tone of the voice is modified
  - Pronounce words correctly and avoid made-up words such as Irregardless, anyways, towards, search up, supposably, and Should of.
  - Appropriate word choice (i.e. avoiding slang, jargon, non- positive words such as can't, won't, wouldn't, no)
  - Compare denotation v. connotation. Words that have a different literal definition, versus their figurative meaning.

Explain both negative and positive examples of **Non-Verbal skills** in customer service communication.

Eye Contact

- Negative - avoiding your customer or looking outside your sales space

- Positive - looking back to your customer's face and at your products

Facial Expressions and Smiling

- Negative -closed, firm or expressionless mouth, eating or chewing gum while communicating
- Positive -smiling or relaxed mouth

Body Language and Posture

- Negative -slouching, shoulders turned away
- Positive -standing upright, inclining the body forward

Proxemic Distances

- Intimate: 0-2 feet, spouse, family,
- Personal: 2-4 feet, friends
- Social: 4-12 feet, acquaintances
- Public: 12 feet, strangers

Gestures

- Negative-closed arms, dismissive hand gestures, hands folded to the chest or near the face
- Positive- open arms, nodding the head, hands moving freely, relaxed, touching the product

Standard 4

Explain that **listening skills** are the most needed yet underused skill for effective communication in customer service.

Define the following and explain in detail with examples from customer service situations.

- **Active listening** in customer service
  - **Pay attention** through eye contact and body language
  - **Show that you're listening** through facial expressions and gestures such as head nodding and leaning forward.
  - **Provide feedback** by repeating back what you heard in your own words and by asking clarifying questions.
  - **Defer judgment**, be patient and do not interrupt the customer.
  - **Respond appropriately** by keeping your emotions level and voice calm. Provide accurate and quick information on how the conflict will be resolved.
- **Passive Listening**: listening without responding to the speaker. Example during a lecture or a keynote speaker where interaction is not expected.
- Negative Listening
  - Pseudolistening-Putting on a facade when it comes to actual listening. Faking like you're listening when in reality you've got other things on your mind.
  - Selective Listening-Having a bias for or against a person, or a topic, that makes you selective in what you retain. People pay attention to things they find interesting, ignore things we do not.
  - Superficial Listening-Paying attention to details not relevant to the situation. Missing the larger message that a person is saying
  - Defensive Listening-Already planning what you will be saying to someone before they've finished speaking. Becoming a "one-upper" and having a cognitive response made up before they finish.
  - Disruptive Listening-Constantly interrupting people while they are speaking. Going out of your way verbally/nonverball to show someone that you're not listening to them.

Listening v. Retaining. Explain the difference between listening and retaining information to be able to recall and deliver in the future.

Performance Skills

- Participate in a listening self-assessment. Create a list of terms or ideas on a product or service that students need to memorize and retell without cues or notes.
- Practice customer service communication skills by participating in an individual or team role play from

DECA or FBLA that has a customer service scenario.

STRAND 4

Customer Rapport and Personal Inventory - Students will Identify skills to build customer rapport: the ability to develop and maintain a positive relationship with a client or customer.

Standard 1

Describe the steps to building customer rapport

1. **Opening**: greeting by acknowledging the customer quickly with a friendly demeanor
2. **Discovery**: questioning through active listening
3. **Resolution**: through clarifying, paraphrasing, and summarizing
4. **Ownership**: employee empowerment by clearly defining what the employee is allowed and limited to do in resolving issues. Employees own the process of finding solutions.

Standard 2

Explore and understand the aptitudes needed in the customer service process.

- Personality traits and aptitude
  - Explain the idea of personality tests and how they are used as means of filtering personalities that may not be well suited to customer service.

Standard 3

Describe the importance of customer service aptitudes and traits in demonstrating product knowledge

- Assess how certain aptitudes may hinder or encourage an employee's ability to develop a strong base of product/service knowledge.
- Identify common online KPIs (Key Performance Indicators) to measure customers satisfaction. (Cstat, testimonials, Net promoter Rating, Customer Service Reviews)

Performance Skills

- Complete a free customer service aptitude test online (Preferably the Big 5 aptitude test). Have students create a SMART goal for improving their score in an area where they may need improvement.

STRAND 5

Omnichannel Resources - Students will understand omnichannel resources, an approach to sales that focus on providing seamless customer experience whether the client is shopping online from a mobile device, a laptop or in a brick-and-mortar store used to enhance customer experiences.

Standard 1

Students will identify resources to communicate with customers.

- Identify tools to communicate with customers and the effectiveness of these tools in different industries.
  - Phone: inbound, outbound, notification, and text messaging
  - Electronic: e-mail, surveys, online rating/reviews, and chatbots
  - Print Mediums: flyers, catalogs, postcards, and billboards
  - Broadcast: TV, radio, and video platforms
  - Digital Marketing Platforms/ Social Media sites: in app ads, push notifications, online review, and payment methods
  - Other methods of communication

Standard 2

Students will understand the use of **CRM** as it relates to the customer service experience.

- Define CRM: Customer Relationship Management System is a technology for managing all your company's relationships and interactions with customers and potential customers.
- Share example and research current CRM platforms
  - What customer service features do they provide
  - How do these features translate into a better customer experience
  - Explain how CRM systems contribute to an organization's productivity

Standard 3

Students will understand the **impact confidentiality** has on reputation and goodwill in customer service.

- Identify reasons for customers to expect privacy in a variety of service settings (ex. health, service, travel/tourism, and sports/entertainment)
- Investigate the need for security measures to protect information gathered and maintained by companies.
  - Protection of personnel records
  - Protection of business records
  - Protection of customer information
  - Internal (leaking information) and external (hacking) threats

STRAND 6

Customer Satisfaction - Students will evaluate, develop, and measure customer loyalty and customer satisfaction.

Standard 1

Define and explain the importance of customer satisfaction, loyalty, and the need to be able to calculate customer lifetime value.

- **Customer Satisfaction**: a measurement that determines how happy customers are with a company's products, services, and capabilities.
- **Customer Loyalty**: an ongoing emotional relationship between you and your customer, manifesting itself by how willing a customer is to engage with and repeatedly purchase from you versus your competitors.
  - **Customer Lifetime Value (CLV)** - The total revenue earned by the entire relationship (including future purchases) with a customer.

Standard 2

Identify reasons a company would utilize resources to enhance customer experiences

- Identify ways a company could increase/decrease sales by customers experiencing positive/negative interaction.
  - Word-of-mouth, customer loyalty, referrals, **goodwill** (the value found in your company's good name and recognition value), poor reviews, forums, rate of use
- Describe the benefits and ethical implementation of using a "secret shopper" program to ensure the quality of customer service provided.

Standard 3

Improving customer satisfaction.

- Identify and understand the implementation and use of common **loyalty program**s.
  - Points for purchase
  - Tiered rewards
  - Memberships (free and paid)
  - Humanitarian causes (donation of money or goods to a charity/cause for customer purchase)
  - Partnering with other companies/causes
  - Games/sweepstakes (both purchase and no purchase necessary)

Performance Skills

- Students should select a company from an industry he/she is interested in. Research and evaluate a current customer service program for selected companies and suggest changes to increase clarity, efficiency of employees or achievement of customer service goals.
- Students will analyze a case study that asks them to problem solve a negative customer service interaction. Case studies can be found in either DECA or FBLA resources.

STRAND 7

Pathways, Post Secondary, and Careers in Customer Service - Students will understand the opportunities to graduate as a pathway completer, the post secondary programs and Career opportunities in Customer Service.

Standard 1

BFM Pathways

Standard 2

Post Secondary Programs

Standard 3

Careers in Customer service

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
ENTREPRENEURSHIP

Learning that works for Utah
CTE®

Course Description

Students will gain an understanding of the marketing and management principles necessary to start and operate their own business. They will develop an awareness of the opportunities for small business ownership and develop the planning skills needed to open a small business. Students will become aware of the traits and characteristics of successful entrepreneurs.

Students will gain an awareness of knowledge needed in research, planning and regulations affecting the small business and the means of financing a small business. They will understand the specific strategies of business management and marketing and the economic role of the entrepreneur in the market system. Entrepreneurship is designed for students enrolled in business and marketing education, and/or other courses, who have an interest in developing the skills, attitudes, and knowledge necessary for successful entrepreneurs.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	32.02.00.00.220
Concurrent Enrollment Core Code	32.02.00.13.220
Prerequisite	N/A
Skill Certification Test Number	451
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Business & Marketing (CTE/General)
Endorsement 2	Business & Marketing Essentials
Endorsement 3	N/A

STRAND 1

Students will identify the role and characteristics of an entrepreneur.

Standard 1

Students will explore the role of the entrepreneur within the economy.

- Define and differentiate between an
  - **Entrepreneur**: An individual who undertakes to start and run their own business with the intention of making a profit.
  - **Entrepreneurship**: Activity of setting up a business, taking on financial risks in the pursuit of profit.
  - **Intrapreneur**: Valued labor trait where an individual behaves like an entrepreneur to solve problems within an organization.
- Identify the characteristics and ethics involved in entrepreneurship
  - Common characteristics:
    - Hard Working
    - Risk Taker
    - Inquisitive
    - Goal & Action Oriented
    - Creative
- Understand the **risk and rewards** associated with entrepreneurship
  - Explore the risks and rewards within the entrepreneurial venture. Cover the following categories.
    - Financial
    - Career
    - Family/Social
    - Liability
    - Satisfaction
  - Explore the importance of failure within the entrepreneurial venture.
    - Growth Mindset to learn from each failure and grow from it

Performance Skills

Students will use critical thinking to explore the advantages and disadvantages of being an entrepreneur. They will identify characteristics of successful entrepreneurs through a report, SMART goal, or presentation.

STRAND 2

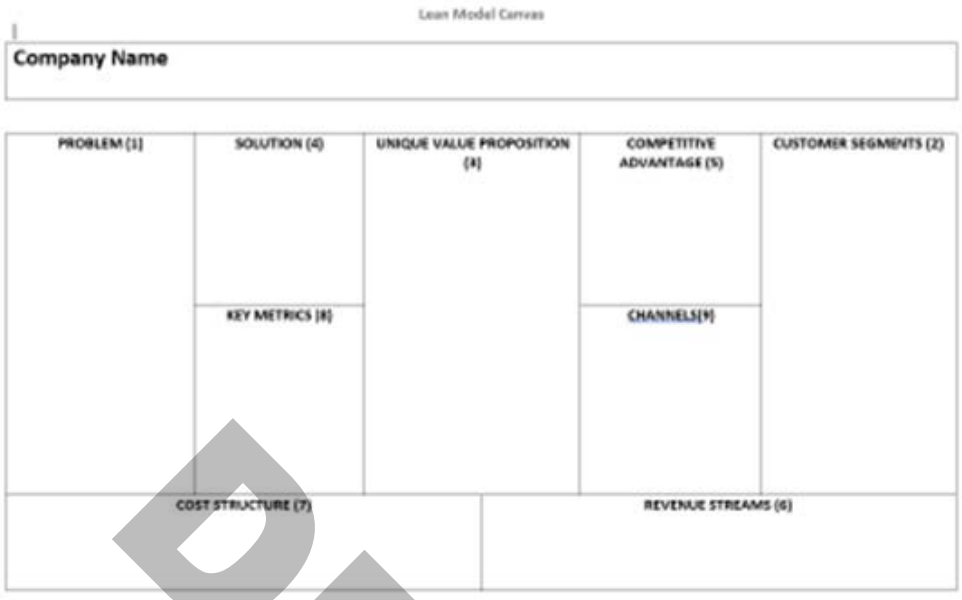
Lean Canvas Model: Students explore the Lean Canvas model or the use of a business plan to understand the impact that they have on the success of an entrepreneurial venture.

Standard 1

Students will understand idea generation through innovation and problem solving.

- Identify problems and create solutions in order to address consumers' needs/wants. The solution can be a product, service or idea.
- Identify problems to address needs and/or wants by using various methods of idea generation (e.g. identifying trends, brainstorming, brain writing, market research).
- **Explore trends** in entrepreneurship including:
  - emerging technologies
  - social entrepreneurship
  - green entrepreneurship
- Understand the importance of **pivoting** to solve entrepreneurial problems.
  - Opportunities that are created from problems

- Adaptability to internal and external factors (e.g supply chain, global economy, competition, and emerging technologies)



Standard 2

Students will understand how to **solve your customers'** needs and wants and identify what distinguishes a product/service from the competition while taking into the consideration the following factors

- **Minimum Viable Product (MVP)**: Version of a product with just enough features to be usable by early customers who can then provide feedback for future product development
- **Unique Value Proposition (UVP)**: Clear statement that describes the benefit of your offer, how you solve your customer's needs and what distinguishes you from the competition .
- **Competitive Advantage**: Factors that put a company in a favorable or superior business position in comparison to its rivals.

Performance Skills

Students will complete these areas of the Lean Canvas model.

- Problem
- Unique Value Proposition
- Solution
- Competitive Advantage

STRAND 3

Economics Impact of Entrepreneurs: Students will understand how economic concepts affect decision making in an entrepreneurial venture.

Standard 1

Students will explore the **role of entrepreneurship** as a factor of production within the economy.

- Discuss why entrepreneurship is beneficial to the economy (local, national, global).
- Understand the government's role and effect in entrepreneurship within the **free market system**. (regulations, taxes, subsidies, as a consumer).

Standard 2

Students will understand basic economic terminology.

- **Scarcity**: Unlimited wants and needs and limited resources to satisfy those wants and needs.
- **Determinants of Supply**:
  - Cost and Price of a product
  - Availability of resources
  - Price related or substitute goods and services
- **Determinants of Demand**:
  - Price of goods and services
  - Income level of consumers
  - Preferences of consumers
  - Consumer expectations
- **Opportunity Cost**: the loss of potential gain from alternatives when one alternative is chosen
- **Profit Motive**: motivation to operate so as to maximize profits. The ultimate goal of a business is to make money.
- **Import**: Goods or services bought into one country that was produced in another.
- **Export**: Goods and services that are produced in one country then purchased and sent to another country.

Performance Skills (Choose one)

Students will determine one of the following:

- Cost Analysis for a product or service
- Break-Even Analysis for a product or service
- Price Markup or Margin Analysis for a product or service

STRAND 4

Marketing for Entrepreneurs: Students will understand how marketing affects an entrepreneurial venture.

Standard 1

Students will understand the marketing functions.

- Identify the elements of the **marketing mix** as it pertains to Entrepreneurship.
  - **Product** - possibly the most important, can be a good, and service.
  - **Price** - amount of money requested or exchanged for a product, should cover expenses and allow for a profit
  - **Place** - activities involved in getting a product or service to the end user, may include: shipping, ordering processing, inventory storage, and stocking of goods. Describe that place can be both a physical location or online site.
  - **Promotion** - process of communication with customers and potential customers to inform, persuade, and remind about products, their price, and where they can be purchased
  - Explain how each component of the marketing mix contributes to successful marketing.
- Analyze the advantages and disadvantages of possible locations for businesses
  - **Brick-and-mortar stores**: a business that operates conventionally rather than over the internet
  - **E-commerce**: internet commerce, refers to the buying and selling of goods or services using the internet, and the transfer of money and data to execute these transactions
  - **Service industry** including; Curbside pick-up, Delivery, Subscription-based services
  - **Emerging trends** in location decisions such as; commercial kitchens, delivery-only businesses, pop-up stores, shared workspaces, and incubators
- Understand the **distribution channels** available to effectively reach your customers.

- Explain the consumer's experience through **omni-channel** defined as an approach to sales that focus on providing seamless customer experience whether the client is shopping online from a mobile device, a laptop or in a brick-and-mortar store.
- Explore market segmentation methods and the importance of determining your entrepreneurial venture's target market.
  - **Demographics**; Who? (Personal characteristics such as age, gender, income level, education level, race, and ethnicity)
  - **Geographics/Location**; Where? (Segmentation based on where people live such as natural or political boundaries, climate, cultural influences, and customs)
  - **Psychographics/Interests**; Why? (Involves grouping people with similar lifestyles, as well as shared attitudes, values, and opinions such as activities, attitudes, personality and values.)
  - **Behavioral**; How? (Looking at the benefits desired by consumers such as shopping patterns, usage rate, benefits--and not just the physical characteristics of a product)

Standard 2

Students will explore marketing strategies in relation to their entrepreneurial venture.

- Discuss the importance of building a **brand** and creating a brand image
- Discuss the importance of **market planning** and **market research**
- Discuss the importance of a company's online presence and digital marketing.

Performance Skills

Students will complete these areas of the Lean Canvas model.

- Customer Segments
- Key Metrics
- Channels

STRAND 5

Financial Concepts & Tools: Students will understand financial concepts and tools used by entrepreneurs in making business decisions.

Standard 1

Students will examine **financial concepts and types of funding** used to operate a business.

- **Project expenses**
  - **Start-up costs**: all costs incurred to start a business including the research, business licensing, website development, equipment, business logo and signage and more.
  - **Variable costs**: Costs that fluctuate based on units of production.
  - **Fixed costs**: Costs that stay consistent from month to month, such as rent, utilities, fees. Non production related expenses.
  - **Operational expenses include**: income, net profit, gross profit, and break-even point.
  - **Working capital**: represents a company's ability to pay its current liabilities with its current assets
- Discuss the **profit formula**: Revenue - Cost = Profit
- Describe common funding sources and identify the advantages and disadvantages of different types of financing options for entrepreneurs. Compare and contrast **debt and equity financing**.
- Debt Financing
  - **Angel investors**: family and friends
  - **Venture capitalists**: is a form of private equity and a type of financing that investors provide to startup companies and small businesses that are believed to have long-term growth potential
  - **Crowdfunding**: Methods of funding new business ideas and products that relies on receiving small

contributions from many supporters.
    - **Lines of credit**: is a form of a flexible, direct loan between a financial institution—usually a bank—and an individual or business.
    - **Small business loan**: gives you access to capital so you can invest it into your business. The funds can be used for many different purposes including working capital or improvements.
- Equity financing
    - **Bootstrapping**: founding and running a company using only personal finances or operating revenue
- Describe entrepreneurship mentoring trends and entrepreneurship contests (e.g., boom start-up, incubators, business plan/pitch contests).
- Understand the importance of **pitching** in the fundraising process. Defined as a presentation by one or more people to an investor or group of investors, though it can also be an email, letter, or even an impromptu conversation during an elevator ride.

Standard 2

Students will understand how entrepreneurs utilize business records. Define Pro-Forma: Projected revenue and sources of revenue

- Identify and explain common financial statements
    - **Income statements**: a financial statement that analyzes the assets, liabilities, and Equity of a business.
    - **Profit and loss statements**: summarizes the revenues, costs, and expenses incurred during a specified period, usually a quarter or fiscal year.
    - **Balance sheets**: a financial statement that covers revenue and expenses for a period of time.
- Understand the importance of sales and budget forecasting in business planning.

Performance Skills

Students will complete these areas of the Lean Canvas model.

- Revenue Streams
- Cost Structure

AND (Complete at least one of the following)

- Calculate break-even point.
- Create a financial statement.
- Compare and contrast various payment systems.
- Use a spreadsheet tool (What-If analysis) for modeling, projections, and forecasting.

STRAND 6

Management Principles: Students will understand the role of management principles in an entrepreneurial venture.

Standard 1

Students will discuss the importance of goal setting for an entrepreneurial venture

- **Vision Statement** a broad, lasting and an inspirational message that communicates the purpose of the business to all stakeholders
- **Mission Statement** a short specific statement which is adaptable to the current purpose and direction.

Performance Skills

Students will complete one of the following:

- Create a mission statement and vision statement.

STRAND 7

Business Ownership: Students will analyze how forms of business ownership, government regulations, and legal regulations affect entrepreneurial ventures.

Standard 1

Students will compare and contrast the advantages and disadvantages of the different types of business ownership.

- **sole proprietorship**: A sole proprietorship is the simplest and most common structure chosen to start a business. It is owned and run by one individual with no distinction between the business and you, the owner. The owner is entitled to all profits and is responsible for all your business's debts, losses and liabilities.
- **partnership**: is an arrangement between two or more people to oversee business operations and share its profits and liabilities.
- **corporation**: is legally a separate and distinct entity from its owners. Corporations possess many of the same legal rights and responsibilities as individuals.It has limited liability, which means that its shareholders are not personally responsible for the company's debts.it may be created by an individual or a group of people with a shared goal.
- **Limited Liability Company (LLC)**: is a business structure in the U.S. that protects its owners from personal responsibility for its debts or liabilities. Limited liability companies are hybrid entities that combine the characteristics of a corporation with those of a partnership or sole proprietorship.
- **Non-profit**: does not earn profits for their owners. All of the money earned by or donated to a non-profit organization is used in pursuing the organization's objectives and keeping it running.
- Identify organizations that support entrepreneurs (SBDC, **SBA**, SCORE, GOED)

Standard 2

Students will understand government and legal regulations that affect entrepreneurial ventures.

- **Identify and define the essential licenses** and permits that a small business must obtain to begin operations.
- **Business license**: allows the holder to engage in business activities within the local jurisdiction.
- **EIN/FEIN**: employer identification number (EIN) refers to a unique identifier that is assigned to a business entity
- **Name registry**: There are four different ways to register your business name. Each way of registering your name serves a different purpose, and some may be legally required depending on your business structure and location.
  - Entity name protects you at a state level
  - Trademark protects you at a federal level
  - Doing business as (DBA) doesn't give legal protection, could be legally required
  - Domain name protects your business website address
- **Sales tax I.D**: a number provided to you by your state tax authority after you register with them to collect taxes
- **Occupational/professional license**: any and all appropriate licensure, registration or certification required by a governmental entity in order for a person to perform professional services
- **Food handlers permits**: must obtain a permit from a local health department before they are allowed to handle food which will be served to the general public.
- Identify taxes businesses pay (income, sales, property, payroll).
- Identify ways of protecting ideas and inventions
- **Copyright**: protects creators of original material from unauthorized duplication or use.
- **Patent**: provides the inventor exclusive rights to the patented process, design, or invention for a certain period in exchange for a complete disclosure of the invention.

- **Trademark**: is an easily recognizable symbol, phrase, or word that denotes a specific product.

Performance Skills (Choose one)

Students will use their knowledge and skill learned throughout the Entrepreneurship course to complete one of the following:

- Create a business/promotion plan (FBLA and/or DECA).
- Create an innovation business plan.
- Create a start-up business plan.
- Social entrepreneurship project.
- Create and share a presentation of how you or your team met the Entrepreneurship Performance Objective.
- Compare and contrast the advantages and disadvantages of buying an existing business, starting a new business, starting a partnership, purchasing a franchise.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

Cluster: Computer Science & Information Technology		
Pathway: Information Technology Systems		
Course Code Number	Course Name	Summary
35.02.00.00.042	Cloud Computing 1	Teacher reviewed and industry review. No changes made as still aligns with the AWS Cloud Practitioner Certification. Just updated dates.
35.02.00.00.043	Cloud Computing 2	
35.02.00.00.080	Intro to GIS	Teachers liked and industry partners loved the Strand & Standards as they are written now. No changes made. Just updated dates.
35.02.00.00.090	GIS Remote Sensing	
Pathway: Programming & Software Development		
35.02.00.00.003	Creative Coding	Revised Strand 1 and 2. Removed Strand 3 and 4 altogether. Focus is now more on game development.
35.02.00.00.004	Intro to Python 1	Updates to the operators, modifiers, functions, added a new standard to include the importance of comment in your code.
35.02.00.00.006	Intro to Python 2	Took lists out and incorporated the into the other S & S.
35.02.00.00.048	Mobile Dev Fundamentals	Removed all reference to old window phones technology, Visual Studio, and ASP.NET. Removed Motion API due to no longer valid technology.
Pathway: Web Development		
35.02.00.00.060	Web Development 1	Took our all reference to old technology and added new methods of web development. Added specific reference to W3Schools. Highlighted more about comments in coding practice. We took all five main courses in the Web Dev Pathways and aligned them, so they focus on designers, developers, and project based. This will give students the opportunity to decide if they want to focus on a certain aspect of web development or just continue to learn the programing side of it. We also updated two names of courses to reflect this update. Web Dev Advanced (new name) and Web Dev Projects (new name) had total overhauls. Please review the S & S as they are all pretty much new or reincorporated into other areas.
35.02.00.00.065	Web Development 2	
35.02.00.00.067	Web Development Advanced	
35.02.00.00.055	Web Development Projects	
35.02.00.00.012	UX/UI & Quality Assurances	Added a prerequisite of “Web Dev 2”. Also had teacher and industry review. Strand & Standards are still strong and 100% relevant to the industry.

STRANDS AND STANDARDS
CLOUD COMPUTING 1

Course Description

The Cloud Computing 1 course is an exploration of cloud computing. Students will begin to prepare themselves to sit for cloud computing professional certifications. In this course, students explore cloud computing services, applications, technologies and use cases (Case-Base Learning). Students dive deeply into cloud computing best practices and learn how cloud computing helps users develop a global infrastructure while also developing and inventing innovative technologies.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	35.02.00.00.042
Concurrent Enrollment Core Code	35.02.00.13.042
Prerequisite	Any basic computer science or information technology course.
Skill Certification Test Number	891
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Information Technology Systems
Endorsement 2	OR Cybersecurity
Endorsement 3	OR Programming and Software Development
Endorsement 4	OR Web Development

STRAND 1

Cloud Structure and Features

The student defines cloud computing and its impacts and benefits and compares the major services offered by cloud computing providers.

Standard 1

Global Infrastructure

Students will review the basics of cloud computing. Including the impacts and benefits of computing in the cloud. The student will be introduced to services offered by cloud computing providers.

- Define cloud computing as the on-demand delivery of IT resources via the internet with pay-as-you-go pricing and its impacts
- Benefits of cloud computing vs. on-premise computing
    - Pay less to start up, pay more as business grows
    - Computing power and storage scales fit current needs
    - The role of virtualization in cloud computing
    - Adding new resources is fast and easy
    - Cloud providers maintain, secure, and run the computers and facilities for cloud services
    - Ease of use, flexibility
- Introduction to types of cloud computing
    - IaaS
    - PaaS
    - SaaS
- History of cloud computing

Standard 2

Structures of the Cloud

Students will dive deep into the three different types of cloud services, the geographical layout of cloud services through regions, availability zones, and edge locations.

- Recognize and compare the types of cloud computing
    - IaaS (Infrastructure as a Service)
    - PaaS (Platform as a Service)
    - SaaS (Software as a Service)
- Explain the purpose of regions, availability zones, and edge locations
    - Regions
        - 20 public and 5 non-public
    - Availability zones
        - Independent data centers
    - Edge locations
        - Nearest point to the consumer

Performance Skills

- Students will be able to generate a cloud service usage plan for a business case study; describing how each of the services could be used to improve the business.
- Students will be able to explain the purpose of a region, availability zone, and edge locations.

STRAND 2

Storing and Sharing Content in the Cloud
The student demonstrates how to store and share content in the cloud.

Standard 1

Cloud Computing Services / Consoles
Students will be introduced to common features and functions of commonly used cloud services. They will access and navigate commonly used services in cloud computing consoles.

- Data storage services
  - S3
  - EBS
- Database systems
  - RDS
  - Redshift
  - DynamoDB
- Cloud monitoring services
  - CloudTrail
  - CloudWatch

Standard 2

Virtual Servers
Students will understand an EC2 instance and how to use it to host a website and the purpose of access keys, Domain Name Systems, and Virtual Private Clouds.

- Explain how a S3 bucket and EC2 instance interact to allow for website hosting
- Types of websites
  - Static – A website that does not change based on user interactions
  - Dynamic – A website that changes based on user interactions
- Functions of a domain name system (DNS)
- Implement reservations to ensure instances keep assigned IP addresses
- Understand a virtual private cloud and its uses

Standard 3

Content Delivery
Students will learn about content delivery networks and understand why it is important to have one.

- Benefits and uses of a content delivery network, such as CloudFront
- Understand edge locations

Standard 4

Virtual Storage

Identify the different types of cloud data storage and the benefits of each. (Ex: Object Storage, File Storage, and Block Storage)

Students will understand Elastic Block Storage (EBS) and compare it to S3. Storage tiers will be introduced.

- EBS volume types:
  - General Purpose SSD
  - Provisioned IOPS SSD
  - Throughput Optimized HDD
  - Cold HDD
- Categories of volume types
  - SSD
  - HDD
- Benefits and features of EBS
  - Data Availability
  - Date Persistence
  - Data Encryption
  - Snapshots

Performance Skills

- Students will configure web content distributed via edge locations and attach it to a website.
- Students will create a block storage volume and attach it to a virtual computing instance that hosts a simple website.

STRAND 3

Securing and Monitoring in the Cloud

Apply cloud security best practices in relation to identity and access management (IAM), including best practices, roles, users, policies, and security groups.

Standard 1

Security I

Students will get an overview of cloud security in relation to Identity and Access Management (IAM). They will understand basic information on best practices, roles/users/policies, and security groups.

- Understand identity and access management (IAM) and its best practices.
  - Lock away your account root user access keys
  - Create individual IAM users
  - Use groups to assign permissions to IAM users
  - Grant least privilege
  - Review IAM permissions

        - Configure a strong password policy for your users
        - Enable multi-factor authentication (MFA)
        - Use roles to delegate permissions
        - Do not share access keys
        - Rotate credentials regularly
        - Remove unnecessary credentials
        - Use policy conditions for extra security
        - Monitor activity in your account
    - Analyze the cultural and societal impacts of cloud security
    - Differentiate among a role, user, groups, and policy in cloud security
        - Role: An IAM identity that you can create in your account that has specific permissions.
        - User: An entity that you create to represent the person or application that uses it to interact with.
        - Group: A collection of IAM users, allowing you to specify permissions for multiple users.
        - Policy: An object that, when associated with an identity or resource, defines its permissions.
    - Use a process to resolve vulnerabilities in a web server

Standard 2

Security II

The student will analyze the cultural and societal impacts of cloud security and be able to determine whether security best practices are being followed.

- Understand the areas of security that must be addressed for cloud computing:
    - Data
    - Privileges
    - Infrastructure
    - Assessment
- Understand the difference between infrastructure and assessment
    - Attacks on infrastructure and network access
- Recognize types of attacks and prevention techniques
    - DDoS
    - AWS Web Application Firewall, AWS Inspector, etc. for prevention
- Understand the process to resolve vulnerabilities in a web server
- Understand how security can impact society, determine best practiced, and make recommendations to fix security lapses

Standard 3

Monitoring the Cloud

Students will explore the tools used to keep track of activities in the cloud and their relation to costs. Monitoring, logging, and reporting will be reviewed.

- A monitoring and observability service that provides data and insights to monitor applications (for example: Amazon CloudWatch)
- A service that logs, continuously monitors, and retains account activity related to actions across infrastructure (for example: Amazon CloudTrail)
- A service that monitors and records resource configurations (for example: AWS Config)
- A managed messaging service for system-to-system and app-to-person communication (for example: Amazon SNS)

Performance Skills

- Students will determine whether security best practices are being followed and recommend steps to fix any security lapses.
- Students will be able to compare monitoring services and identify the best cloud security for any given scenario.
- Students will write a compliance program for an organization.

STRAND 4

Data Management

The student will understand the differences in databases and when to use them, the benefits of caching data, and how to build a virtual cloud (VPC).

Standard 1

Elastic Load Balancers and Databases

Students will learn about Relational Database Service (RDS) and data warehousing.

- Database Warehousing
- Database and Database Systems
    - Types of Relational Database Systems (for example: Amazon Aurora, Amazon RDS)
    - Types of Non-Relational Database Systems (for example: DynamoDB)
- Processing
    - Online transactional processing
    - Online analytical processing

Standard 2

Databases

Students will learn the purpose of elasticache services and benefits of caching data.

- Understand Elastic Load Balancing: performance, features, and benefits.
- Data Caching Services (for example: AWS Elasticache)
    - Explain the benefits of caching data, some could include:

- Improved performance
- Reduced costs
- Predictable performance
- Lower latency

Standard 3

Elastic Beanstalk and Cloud Formation
Students will understand the purpose of Elastic Beanstalk and Cloud Formation.

- Elastic Beanstalk (EBS) – its uses and benefits.
- Understand the benefits of elasticity including:
  - Automating best practices
  - Scaling infrastructure
  - Manage multiple resources including third party and private resources

Performance Skills

- Students will create an application using a Platform as a Service (PaaS) and
- Students will us a template Infrastructure as code (IaC) tool to build a virtual private cloud (VPC).

STRAND 5

Managing and Optimizing Cloud Features
The student describes the landscape of emerging technologies in the cloud.

Standard 1

Emerging Technologies in the Cloud
Students will research emerging technologies in the cloud with a focus on machine learning and its impacts on society, business, and technology.

- Supervised Machine Learning starts with training data that includes the desired output to adjust the machine learning algorithm. There are two categories:
  - Classification – examine an input and choose a response among specific preset choices
  - Regression – trained to assign value to input
- Unsupervised Machine Learning
- Semisupervised Machine Learning starts with training data that does not include the desired output, and can examine input and group related items together into groups called clusters
- Reinforcement Machine Learning uses a model to provide positive feedback (reward) the desired behavior and discovers errors
- The impacts of machine learning on society, business, and technology
- Examine the range of emerging technologies in society and in the cloud computing environment.

Standard 2

Billing and Support

Students will assess value propositions of using cloud technology using calculator tools.

- Understand the tiered support services and prices of a cloud calculating service, including:
  - Free tier – no cost, used for learning, and provides no technical support
  - Developer tier - next level up (ex: $29/month), used for experimenting, technical email support
  - Business tier – next level up (ex: $100/month), used for production, email, chat and phone support
  - Enterprise tier – highest level (ex: $15,000/month), used for mission critical workloads, email, chat, phone, support, and a dedicated technical account manager
- Identify cloud services that can analyze and protect data and manage networks
- Understand the benefits of public cloud deployment for a startup company (ex: no upfront capital, east of understanding, etc.)

Standard 3

Key Cloud Features

Students will explore services related to protecting data and managing networks. Blockchains will also be explored.

- A serverless, interactive query service to query data and analyze big data using standard SQL (for example: Amazon Athena)
- A fully managed data security and privacy service (for example: Amazon Macie)
- Blockchains – what they are, how are they used, ~~and~~ its benefits~~.~~, and its potential risks
  - Blockchain is a way to manage an open distributed ledger or transactions
  - Blockchain is a growing list of records
  - Blockchain is new and true risks may not be fully understood yet

Standard 4

Optimizing the Cloud with Kits

- Explain the infrastructure of cloud development kits or services
- Explain the benefits and constraints

Performance Skills

- Student will use a software development framework to model and provision a cloud application.

STRAND 6

Skills for Career Development

Standard 1

Students will demonstrate positive workplace behaviors that enhance employability and job advancement such as regular attendance, promptness, attention to proper attire, maintenance of a clean and safe work environment, appropriate voice, and pride in work.

Standard 2

Students will demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, listening attentively to speakers, and willingness to learn new knowledge and skills.

Standard 3

Students will employ effective reading and writing skills; solve problems and think critically; and demonstrate leadership skills and function effectively as a team member.

Workplace Skills

- Communication
- Problem Solving
- Teamwork,
- Critical Thinking
- Dependability
- Accountability
- Legal requirements/expectations

Skill Certificate Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Cloud Computing 1	891	5	9	8	3	5	0					30	28

Relationship to the AWS Certified Cloud Practitioner Exam

If a candidate completes Cloud Computing 1 and Cloud Computing 2, they will be prepared to take the AWS Certified Cloud Practitioner Exam. These Strands & Standards align with a portion of the industry certification.

STRANDS AND STANDARDS
CLOUD COMPUTING 2

Learning that works for Utah
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Course Description

The Cloud Computing 2 course is a natural extension of the concepts learned in Cloud Computing 1. Students will continue to prepare themselves to sit for cloud computing professional certifications. This course expands on basic cloud computing principles and concepts including programming, networking, cybersecurity, hardware, software, data storage, data collection, and the impacts of computing. This advanced course will take students from conceptual understanding of these principles to real-world cloud applications across multiple industries.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	35.02.00.00.043
Concurrent Enrollment Core Code	35.02.00.13.043
Prerequisite	Cloud Computing 1
Skill Certification Test Number	892 or 9405 (AWS Cloud Practitioner Certification)
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Information Technology Systems
Endorsement 2	Cybersecurity
Endorsement 3	Programming & Software Development
Endorsement 4	Web Development

STRAND 1

Managing Efficiency and Security

The student resolves common security alerts, diagrams instance states and transitions, and explains how to choose the most cost-efficient instance type

Standard 1

Security Models

This module will give students an introduction to the shared security model as it relates to the three main cloud services. They will understand the responsibilities of the client and cloud service for patching, Operating System updates, and data security using the Shared Responsibility Model.

- Understand the Shared Responsibility Security Model
  - Responsibilities of the customer (for example: customer data, network configuration, applications, IAM, and other responsibilities of security IN the cloud)
  - Responsibilities of the cloud service provider (for example: software, regions, hardware, and security OF the cloud)
  - Understand the difference between Type I and Type II hypervisors
- Determine the security responsibility for cloud services
  - Prioritize a company's security needs, evaluate the risk, and understand the vulnerabilities
  - Understand the Principle of Least Privilege (PoLP) as the concept that the least number of permissions is to be applied to a user
    - Where it can be applied, for example:
      - a user can search (READ)
      - add (WRITE)
      - delete (DELETE)
      - modify (WRITE and/or DELETE
    - To whom does it apply to, for example:
      - end users
      - systems
      - processes
      - networks
      - databases
      - applications
- Analyze how the shared security model accounts for common threats to the cloud computing model.

Standard 2

Shared Security

Students will be introduced to security assessment services and how to resolve any alerts.

- Understand the use of a security assessment service
- Understand the results of a security assessment service, including the five categories: cost, optimization, fault tolerance, performance, service limits, and security
- List the steps required to resolve an automated security alert

Standard 3

Cloud Services and Instance States

Students will manage instances from launch through termination. Instance lifecycle and transition between states will be introduced.

- Describe the six instance states and predict the instance state, for example: pending, running, stopping, stopped, shutting down, and terminated
- Understand which type of virtualization instance can run inside an OS

- Indicate instance usage billing for each instance state
  - On-Demand Instances – billed when used with no long-term commitment
  - Reserved Instances – purchased in advanced for a discount, you pay for the entire term regardless of actual use
  - Spot Instances – an unused instance that is available at a discount, available for use when available, good for workloads that can be processed at any time
- Understand the differences between rebooting, stopping, hibernating, and terminating your instance
- Understand Audit Logs

Performance Skills

- List the steps required to resolve an automated security alert
- Determine the most optimal billing option for instances for a company
- Diagram the transitions between instance states from launch to termination
- Determine the most appropriate instance state for a given situation

STRAND 2

Creating Cloud Environments to Scale
The student will differentiate between dynamic and static websites.

Standard 1

Dynamic Web Servers I
Students will compare static and dynamic websites

- Compare static and dynamic website
  - Understand the features of each
    - Dynamic websites change with user interaction
    - Static websites do not change with user interaction
- Understand the process of setting up a static website
- Types of dynamic websites
  - Built on Content Management Software (CMS)
  - Built from scratch

Standard 2

Dynamic Web Servers II
Students will launch and create a dynamic server

- Understand the purpose of a content delivery network (CDN)
- Understand how a CDN relates to speed of a website and edge locations (for example: websites using a CDN have faster speeds as data is cached at edge locations, closer to end-users)

Standard 3

Serverless Computing
A cloud service that runs code in response to events and automatically manages the computing resources required by that code.

- Understand how to create a serverless compute function using a serverless compute console
- Know the instance lifecycle
- Understand the chargeback model as it applies to the costs of IT services, hardware, or software
- Understand purchasing options for instances and usage billing, for example: Pending, Stopped, Shutting-down, Terminated = Not billed, Running = billed
- Understand the transitions between instance states:

Standard 4

Auto Scaling in Cloud Environments

Student will learn about the functions of auto scaling and create an auto scaling group.

- Describe the three main functions of auto scaling
  - Monitor the health of running instances
  - Replace impaired instances automatically
  - Balance capacity across availability zones
- Understand a launch template
- Understand an auto scaling group
- Know how to create a plan for monitoring an auto scaling instance or group
- Understand how to enable syslog forwarding to centrally monitor cloud environments

Performance Skills

- Create a content delivery network distribution to increase the speed of a website
- Students will launch a dynamic web server
- Create a launch template and an auto scaling group
- Develop a plan for monitoring an auto scaling instance or group

STRAND 3

Managing Cloud Resources: Big Data and Cryptocurrency Students will learn the benefits and risks of using big data.

Standard 1

Big Data

Introduce the student to the concept of big data and the difference from traditional types of data.

- Define big data and the “three V’s”
  - Volume
  - Variety
  - Velocity
  - Veracity and Value (other commonly used “V” descriptors)
- Evaluate the pros and cons of big data
- Ethical and legal issues related to big data

Standard 2

Big Data Processing Cycle

Students will learn the big data processing cycle, its activities and challenges of each phase.

- Understand various types of data
- Identify the types of cloud migration and conversion methods
- Understand various types of processing methods
- Identify the different RAID levels for data storage
- Understand high availability functionality
- Understand various types of quality challenges
- Understand various types of analysis techniques
- Big Data Processing Cycle phases
  - Collect
  - Store
  - Process & Analyze
  - Consume & Visualize

- Understand the types of data storage
  - Big data storage – architecture that collects and manages large data sets and enables real-time data analytics
  - Nonrelational databases – a database that does not use rows and columns found in traditional database systems
  - Data warehouses – central stores of integrated data from one or more sources
  - Data lake – repository of data stored in its raw format

Standard 3

Blockchain and Cryptocurrency

Students will learn how blockchains are created and maintained to support immutability and validity. They will also be introduced to cryptocurrency technologies.

- Understand blockchain and how they function in the cloud
- Explain how blockchain ensures the validity an immutability of transactions in the cloud
- Understand the pros and cons of blockchain busines applications
- Understand cryptographic hash
- Understand cryptocurrencies

Performance Skills

- Student will be able to access and manage big data from the cloud
- Student will understand the complete big data ecosystem

STRAND 4

Emerging Technology

Standard 1

Artificial Intelligence Capabilities and Impacts

Students will learn about the back end of artificial intelligence (AI).

- Recognize capabilities of artificial intelligence (ex: image and video analysis, natural language, personalized recommendations, virtual assistants, and forecasting)
- Understand how AI can enhance the customer experience
- Analyze the ethical implementation of artificial intelligence

Standard 2

Machine Learning

Students will learn how machine learning can be applied to solving problems.

- Explain machine learning and how it can help address a need or problem
- Understand procedures in machine learning and applications used to create ML programming
- Machine leaning capabilities:
  - Recommendations
  - Forecasting
  - Recognition

Standard 3

Internet of Things

Students will learn how cloud technology facilitates the Internet of Things (IoT)

- Understand the Internet of Things as the network of common, everyday devices embedded with sensors and communication technologies for sending and receiving data over the internet
- Types of IoT
  - Industrial – building applications for predictive quality and maintenance and to remotely monitor operations
  - Home/consumer – building connected home applications for home automation, home security and monitoring, and home networking
  - Commercial/municipal – applications for traffic monitoring, public safety, and health monitoring
- Explain the relationship between cloud technology and the Internet of Things
- Evaluate security and privacy concerns with the increasing IoT usage

Performance Skills

- Student will explore AI services and determine which type of AI product would address a particular issue – some examples could be:
  - Amazon Comprehend: discover insights and relationships in text
  - Amazon Forecast: increase forecast accuracy using machine learnings
  - Amazon Lex: build voice and text chatbots
  - Amazon Personalize: build real-time recommendations into your applications
  - Amazon Polly: turn text into lifelike speech
  - Amazon Rekognition: analyze image and video
  - Amazon Textract: extract text and data from documents
  - Amazon Translate: translate texts with higher accuracy
  - Amazon Transcribe: translate audio files to text
- Students will create a machine learning algorithm
- Student will create a connection to IoT devices

STRAND 5

Skills for Career Development

Standard 1

Students will demonstrate positive workplace behaviors that enhance employability and job advancement such as regular attendance, promptness, attention to proper attire, maintenance of a clean and safe work environment, appropriate voice, and pride in work.

Standard 2

Students will demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, listening attentively to speakers, and willingness to learn new knowledge and skills.

Standard 3

Students will employ effective reading and writing skills; solve problems and think critically; and demonstrate leadership skills and function effectively as a team member.

Workplace Skills

- Communication
- Problem Solving
- Teamwork,
- Critical Thinking
- Dependability
- Accountability
- Legal requirements/expectations

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

Relationship to the AWS Certified Cloud Practitioner Exam

If a candidate completes Cloud Computing 1 and Cloud Computing 2, they will be prepared to take the AWS Certified Cloud Practitioner Exam. These Strands & Standards align with a portion of the industry certification.

Domain	% of Exam
Domain 1: Cloud Concepts	26%
Domain 2: Security and Compliance	25%
Domain 3: Technology	33%
Domain 4: Billing and Practice	16%
Total	**100%**

STRANDS AND STANDARDS
CREATIVE CODING

Learning that works for Utah
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Course Description

Creative Coding through Games is a first-semester course for introduction to programming for the early secondary grades. The course is designed to attract and reach a broad and diverse range of students, including those who may have never considered programming. Students learn how to code by working in a real software development environment to design and program games. Learning to code by creating real products, students discover how to make amazing things and have an impact on their world.

Intended Grade Level	6-8
Units of Credit	0.5
Core Code	35.02.00.00.003
Concurrent Enrollment Core Code	N/A
Prerequisite	N/A
Skill Certification Test Number	N/A
Test Weight	N/A
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	No Endorsement Required
Endorsement 2	N/A
Endorsement 3	N/A

STRAND 1

Design

Standard 1

Problem Solving Process

Students will demonstrate knowledge of the four steps of the problem solving process

1. Define Problem
2. Prepare Solution
3. Try Solution
4. Reflect on Outcome

Standard 2

Algorithms

Students deconstruct a task into an algorithm (simple steps).

Students write an algorithm as pseudocode.

Standard 3

Development Process

Students demonstrate knowledge of the development process

1. Planning
2. Designing
3. Build
4. Test
5. Publish

Performance Skills

Students will deconstruct a task as an algorithm and write it in pseudocode.

STRAND 2

Game Development

Standard 1

Game Concepts

Student will explore genres of computer games

- action, adventure, role-playing (RPG), simulation, strategy, hybrid

Students will demonstrate knowledge of player perspectives

- First Person, Third Person, Top-Down, 2D, 3D

Students will demonstrate knowledge of the elements of a computer game

- characters, storyline, strategy, danger, rewards

Students will regularly include #comments for the purpose of explaining, organizing, instructing, and ascribing.

Standard 2

Sprites

Students will define a sprite and identify the types of sprites used in a game.

- character, background, text
- static, animated
- player/hero, enemy, obstacles, projectiles, food, rewards Students will create unique variables for each sprite

Students will apply gaming coordinate system knowledge to intentionally position sprites

Students will demonstrate knowledge of sprite properties by controlling them with arguments in the code. (i.e. size, color, position)

Standard 3
Motion
Students will use loops to code iterations in a game. (i.e. spinning, shrinking, growing, positioning)
Students will write code to control a sprite's velocity, acceleration or gravity.
Students will create a sprite animation and use it in a game (i.e. frame by frame, looping)

Standard 4
Control
Students will code events to allow the user to interact with a game. (i.e. mouse click, keystroke) Students will code conditionals to create collision events (i.e. score, lives)
Students will incorporate user input in a game (i.e. guessing a number, choosing an adventure, madlibs)

Standard 5
Randomization
Students will write code to randomize behaviors in a game. (i.e. sprite images, position, color and size)
Students will control randomization with ranges in code.

Standard 6
Enhancements
Students will create and call functions to customize a game. Students will write code to enhance the user experience

- creative openers/endings
- backgrounds (static/scrolling)
- timer
- sound/music

Standard 7
Game Creation
Students will participate independently or collaboratively in the development of a computer game that incorporates a development process and applies concepts learned throughout the course.

Performance Skills
Students will develop and code a game.

Possible Resources:
https://arcade.makecode.com
https://education.minecraft.net/en-us
https://code.org/
https://makecode.microbit.org/
https://www.robolink.com/
www.adafruit.com

Workplace Skills
Communication, Problem Solving, Teamwork, Critical Thinking

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS

INTRODUCTION TO GEOGRAPHICAL INFORMATION SYSTEMS

Learning that works for Utah
CTE®

Course Description

This course introduces fundamental concepts of geographical information systems (GIS) and the major functionality contained within professional GIS software. In course exercises, you will follow the GIS analytical process and work with a variety of tools to solve realistic problems. This course emphasizes practical GIS software skills.

Intended Grade Level	9-12
Units of Credit	0.5
Core Code	35.02.00.00.080
Concurrent Enrollment Core Code	None
Prerequisite	None
Skill Certification Test Number	Coming soon
Test Weight	00
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Information Technology Systems
Endorsement 2	CAD Architectural Design
Endorsement 3	N/A

STRAND 1

Understand basic concepts of GIS and how it is used for decision making.

Standard 1

Understand the big picture in GIS.

- Describe the difference between paper, digital, and GISmaps.
- List the three functions of a GIS.
- Identify one use of GIS in the past or present.
- Define GIS.
- Describe the geographic approach to solving problems.
- List four components of a feature.
- Explain the relationship between features and layers.
- Explain how scale on a GIS map is different from scale on a paper map.

STRAND 2

Collect geo-spatial data

Standard 1

Locate and collect data from different sources for a geo-spatial system or project.

- Import geo-spatial data from a CD or files on a local server.
- Locate and download geo-spatial data from local government resources.
- Locate and download geo-spatial data from FIS companies.
- Locate and download geo-spatial data from federal government resources.

Standard 2

Understand and use a GPS to locate and collect data for a geo-spatial system or project.

- Demonstrate an understanding of the components and functioning of a GPS.
- Use a handheld GPS receiver to collect data.
- Identify the limitations of the data collected with a GPS receiver.
- Import data from a GPS receiver.
- Manipulate data from a GPS receiver for use in a GIS application.

STRAND 3

Work with a GIS map to find features of interest, analyze patterns, and derive useful information.

Standard 1

Get started with GIS software, explore GIS maps, and use GIS to solve problems.

- Explore a GIS map to get information about map features.
- Add geographic data to a map.
- Describe the structure of a GIS map.
- Explain how a GIS represents real-world objects.
- Change the way features are drawn on a map.
- Access feature information in different ways. Describe spatial relationships of map features.
- Describe how GIS can be used to solve problems.

STRAND 4

Classify, symbolize, and label map features to support data visualization and interpretation.

Standard 1

Work with map symbols and labels, create symbol features based on attributes, classify data, and map density and proportion.

- Choose symbols for point, line, and polygon features.
- Modify symbol properties such as color, size, and outline.
- Label map features using an attribute and by adding text.
- Symbolize features to show type, rank, or amount.
- Group features into classes and apply symbols to each class.
- Compare different methods of grouping features into classes.
- Correct visual distortion caused by differences in area.
- Show proportional amounts on a map by normalizing data.
- Symbolize features to show density.

Standard 2

Reference data to real locations, understand coordinate systems, work with map projections.

- Name two types of coordinate systems.
- Identify components for each type of coordinate system.
- Assign coordinate system information to a dataset.
- Set display units for a data frame and measure distances on a map.
- Explain what a map projection is.
- List the major categories of map projections.
- List spatial properties that may be distorted when different map projections are applied.
- Change the map projection for a data frame and describe its effects.

STRAND 5

Create and edit geographic data to accurately represent real world objects.

Standard 1

Understand and use geographic data to accurately represent real-world objects.

- List three shapes used in vector data.
- Identify two ways that vector and raster data are different.
- Explain the difference between a feature class and a layer.
- Describe the relationship between features and records.

Standard 2

Organize geographic data, explore geographic data, organize data into a geodatabase.

- Describe two common data models used to represent geographic data.
- List different geographic data formats.
- Determine the data source of a layer in ArcMap.
- Identify data formats in ArcCatalog.
- Create a geodatabase.
- Add data from different formats to ageodatabase.

Standard 3

Create and edit data, editing feature shapes, edit feature attributes, create new features and attributes.

- Describe the steps in the editing process.

- Move and delete features.
- Edit the shapes of line and polygon features.
- Describe different ways to edit feature attributes.
- Create new features by digitizing.
- Create new point features from x, y coordinates.

Standard 4

Understand how remote sensing is used as a geo-spatial technology.

- Understand remote sensing & aerial photography
- Understand remote sensing & satellite imagery
- Identify features from satellite imagery
- Use data from remote sensing

STRAND 6

Perform spatial analysis using queries, geoprocessing tools, and models.

Standard 1

Analyze geographic data.

- List the three components of an attribute query.
- List the four types of relationships you can analyze with location query.
- Define buffer and give an example of when it is used.
- Define overlay and give an example of when it is used.
- List the five steps in the geographic inquiry process.
- Apply all five steps of the geographic inquiry process to solve a problem withGIS.

Standard 2

Use the GIS analytical process, ask questions and get answers, examine and present the results.

- List the steps in a GIS analysis.
- Interpret an analysis plan that includes GIS tools, criteria, and workflow.
- Extend a layer attribute table by joining another table to it.
- Create and modify a selected set of features using a series of attribute and location queries.
- Explain the difference between attribute and location queries.
- Examine analysis results through maps, tables, and reports.
- Generate a report that presents the results of an analysis.

Standard 3

Work with geoprocessing and modeling tools, work with geoprocessing tools, creating and using models.

- Explain what geoprocessing is.
- Choose the appropriate geoprocessing tool for a task.
- Describe what a model is and how to use one.
- List some advantages of using a model.
- Create, modify, and run a model.

STRAND 7

Design high-quality maps and reports to share analysis results with others.

Standard 1

Understanding Geographic Data

- Explain what a thematic map is.
- Describe the difference between category and quantity attributes.
- Recognize the difference between graduated colors and graduated symbols.
- Describe the purpose of a map layout.

Standard 2

Design maps with GIS software, work with map layouts, create a presentation map.

- Understand and apply basic cartographic design principles.
- List elements that can be included on a map.
- Create a map layout.
- Create and modify a map legend.
- Add and modify decorative map elements.
- Convert feature labels to annotation.
- Apply a template to design a map layout.

STRAND 8

Explore careers in the geo-spatial industry.

Standard 1

Develops and uses workplace skills and behaviors

- Works independently.
- Communicates effectively and appropriately.
- Preforms reliably and responsibly.
- Works with other effectively and respectfully.
- Is punctual and follows directions.
- Works cooperatively.
- Takes initiative.
- Responds appropriately to constructive criticism.

Standard 2

Explore careers in the geo-spatial field.

- Identify careers that use geo-spatial skills.
- Identify education and/or certifications needed to work in a geo-spatial field.
- Identify geo-spatial professional organizations

STRAND 9

Create a Geo-spatial Project.

Standard 1

Identify, plan, complete, and publish a local geo-spatial project.

- Identify a local geo-spatial project
- Determine the time, scope, and resources needed for theproject
- Plan a data inventory
- Acquire data, organize, manage, and maintain data files.
- Analyze, interpret, and model the information
- Create Maps
- Communicate, publish, and present the project.

Performance Skills

- Expand content knowledge of geospatial concepts and location analytics.
- Read, create, and edit geographical data.
- Gain the skills necessary in today's tech-centric industry.

Workplace Skills

The following workplace skills should be discussed, taught, and re-enforced in the course:

- Communication
- Critical Thinking
- Dependability
- Accountability
- Legal requirements/expectations

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS

GIS REMOTE SENSING

Learning that works for Utah
CTE®

Course Description

This course is designed to introduce remote sensing of the environment through digital image processing (photography, multispectral scanning and microwave imagery) from airplane, satellite (Landsat), and manned-spacecraft data. The goal is to develop an understanding of inventorying, mapping, and monitoring earth resources through the measurement, analysis and interpretation of electromagnetic energy emanating from features of interest. Image interpretation, practical applications in earth science, and use of remotely sensed data in geographic information systems (GIS).

Intended Grade Level	9-12
Units of Credit	0.5
Core Code	35.02.00.00.090
Concurrent Enrollment Core Code	None
Prerequisite	Introduction to GIS
Skill Certification Test Number	Pending
Test Weight	0.0
License Area of Concentration	CTE and/or Secondary Education
Required Endorsement(s)	
Endorsement 1	Information Technology Systems
Endorsement 2	CAD Architectural Design
Endorsement 3	N/A

STRAND 1

Understand Basic Concepts of Remote Sensing.

Standard 1

Understand the big picture context of observing Earth with space-based instruments.

- Tell why people use satellites to study the Earth.
- Describe aspects of the Earth that can be observed using Earth observing satellites.
- Clarify the comparative values of high, moderate and coarse resolution for studying the Earth.
- Identify some of the ways people use one kind of satellite system, Landsat, for decision making in the domains of agriculture, climate, disasters, ecosystems and biodiversity, energy, forestry, urban planning, and/or water monitoring and management.

Standard 2

Explain elementary science and technology of remote sensing observations.

- Explain how remote sensing uses our knowledge of the electromagnetic spectrum.
  - Explain wavelength and wavelength range.
  - Explain how different kinds of surfaces interact with light.
  - Show where infrared light appears on the electromagnetic spectrum.
  - Explain the meaning of "spectral signature."
  - Define "pixel."
  - Define "digital image."
  - Define spatial resolution.
  - Describe the polar orbit of Landsat.
- Describe characteristics of passive and active remote sensing systems (such as multispectral, LiDAR and Radar).
- Describe the difference between paper, digital, and Geographic Information System (GIS) and remote sensing maps.

STRAND 2

Collect Remote Sensing Data.

Standard 1

- Locate and download a Landsat scene from one of the two U.S. Geological Survey websites, Global Visualization Viewer (GloVIS) or Earth Explorer.
- Name one or more sources of free Landsat data.
- Using either GloVIS or Earth Explorer, identify the scene of interest.
- Give details about the scene based on the metadata
- Determine optimal dates for download.
- Download scene.
- Open scene in visible and false color band combinations using ImageJ (no cost) or Photoshop.
- Optimize image quality.

STRAND 3

Landsat Satellite Images - Find Features of Interest and Analyze Patterns.

Standard 1

Become familiar with Landsat satellite images.

- Identify land cover types (vegetation, water bodies, cities, suburbs, roads) in a satellite image.

- Identify ecosystems in a satellite image (forest, desert, wetland, and glacier).
- Identify specific cities, mountain ranges, islands, rivers, lakes, and other geographic landmarks in a satellite image.
- Find indications of disease or drought in a forest or agricultural area.
- Find evidence of a current or recent fire.

Standard 2
Quantify changes in land cover time using printed images.

STRAND 4
Use Remote Sensing Analysis Software (ImageJ).

Standard 1
Download and become familiar with basic tools of ImageJ software.
- Become familiar with basic ImageJ toolbar.
- Understand pixel coordinates and values.
- Create and animate an image stack in order to compare the images.

Standard 2
Identify two ways that vector and raster data are different.

Standard 3
Quantify observations of digital images by making distance and area measurements in ImageJ.
- Spatially calibrate digital images (set the scale).
- Add a scale bar.
- Make area measurements.
- Perform image classification techniques such as supervised and unsupervised classification on remotely sensed data. [Do if possible with ImageJ; can be done with MultiSpec, also free.]

STRAND 5
Explore Careers in Remote Sensing.

Standard 1
Describe at least three careers that employ remote sensing.

Standard 2
Identify education needed to work in a remote sensing field at an introductory, intermediate, and advanced levels.

Standard 3
Identify remote sensing professional organizations and explain how participation in their conferences might support development of a specific career.

STRAND 6

Create a Remote Sensing Project.

Standard 1

Identify, plan, complete, and publish a local geo-spatial project.

- Identify a local problem to be solved.
- Compile background information on the project.
- Determine the time, scope, and resources needed for the project.
- Draft a workflow document.
- Plan a data inventory.
- Acquire data, organize, manage, and maintain data files.
- Analyze and interpret the information.
- Describe accuracy assessments (field data collection, other data collection) required for quality assurance.
- Finalize workflow document.
- Publish and present the project.

Performance Skills

- Expand content knowledge of geospatial concepts and location analytics.
- Create a full remote sensing project.
- Gain the skills necessary in today's tech-centric industry.

Workplace Skills

- Communication
- Critical Thinking
- Dependability
- Accountability
- Legal Requirements / Expectations

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
PYTHON 1, INTRODUCTION

Learning that works for Utah
CTE®

Course Description

Python is a language with a simple syntax, and a powerful set of libraries. It is an interpreted language, with a rich programming environment, including a robust debugger and profiler. While it is easy for beginners to learn, it is widely used in many scientific areas for data exploration. This course is an introduction to the Python programming language for students without prior programming experience.

Intended Grade Level	7-8
Units of Credit	0.5
Core Code	35.02.00.00.004
Concurrent Enrollment Core Code	N/A
Prerequisite	Recommended: Creative Coding
Skill Certification Test Number	N/A
Test Weight	N/A
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Introduction to Computer Science
Endorsement 2	Program & Software Development
Endorsement 3	Web Development
Endorsement 4	Information Technology Systems
Endorsement 5	BAM - CTE/General or Basic or Lvl 2

STRAND 1

Python Basics

Standard 1

Basics

Students will understand the history of programming languages.

Students will understand the different levels of programming languages:

- Binary
- Assembly
- Compiled
- Interpreted

Students will use an editor/IDE (Integrated Development Environment) to compile and run programs Students will always use best practices to coding tasks

- Sequencing algorithms
- Indenting
- Eliminating redundancy
- Commenting
- Naming conventions

Standard 2

Variable & Data Types

Students will demonstrate the ability to use variables in a program.

Students will demonstrate the use of different data types.

- Integer
- Float
- String
- Boolean

Students will use appropriate naming conventions

- Snake case (first_name)

Students will give descriptive names to variables

Standard 3

Operators

Students will use arithmetic operators in a program (+, -, *, /)

Students will demonstrate the use of order of operations

- Parentheses Excuse My Dear Aunt Sally (PEMDAS)

Students understand the single equal sign performs an assignment

Students understand the += and the -= operators are used for incrementing and decrementing

Standard 4

Errors

Students will identify errors and debug a program

Students will identify the three types of errors:

- Syntax
- Logic
- Runtime

Standard 5
Input and Output Functions
Students will demonstrate the use of input and print functions
- input()
- print()

Students will demonstrate the use of formatting methods
- Concatenation
- Type Casting
  - Integer
  - Float
  - String

Standard 6
Documentation
Students will document code by adding #comments to each program
- Explain code
  - Function
  - List
- Make code more readable
- Attribution

Performance Skills
- Use a programing editor to write working code
- Demonstrate the use of variables with different data types
- Demonstrate the use of input & output formatting methods
- Demonstrate the use of #comments

STRAND 2
Conditionals

Standard 1
Operators
Students will understand the conditional logic of >, <, >=, <=, ==, != operators when comparing

Standard 2
If Statements
The student will control flow with an if statement in a program

Standard 3
Elif Statements
The student will control flow with an Elif statement in a program

Standard 4
Else Statements
The student will control flow with an Else statement in a program

Performance Skills
- Understand conditional logic
- Understand and use If, Elif, and Else statement

STRAND 3

Loops

Standard 1

Students will use loops (iteration) to efficiently repeat code
Students will know which type of loop to use in a program

- For loop
- Nested loops
  - Indentation conventions

Standard 2

Students will use a range in a loop
Students will design a loop with a range so they iterate the correct number of times

Standard 3

Students will use variables in the argument of a loop

Standard 4

Students will use incrementing and decrementing (+=. -=) in the body of a loop

Performance Skills

- Students will use a range in a loop
- Students will use variables in the argument of a loop
- Students will use nested loops

STRAND 4

Functions

Standard 1

Students will understand the difference between pre-defined and user-defined functions
Students will understand the purpose of using functions for eliminating redundancy and reusability

Standard 2

Students will create user-defined functions

- Students will use appropriate naming conventions
  - Snake case (first_name)
- Students will give descriptive names
- Students will understand that a user-defined function will perform a single task
- Students will use one or more parameters in a function definition

Standard 3

Students will call (use) functions

- Students will be able to call a function with arguments

Performance Skills

- Students will be able to create and call a function with a parameter

STRANDS AND STANDARDS
PYTHON 2, INTRODUCTION

Course Description

Python is a language with a simple syntax, and a powerful set of libraries. It is an interpreted language, with a rich programming environment, including a robust debugger and profiler. While it is easy for beginners to learn, it is widely used in many scientific areas for data exploration.

Intended Grade Level	7-8
Units of Credit	0.5
Core Code	35.02.00.00.006
Concurrent Enrollment Core Code	N/A
Prerequisite	Introduction to Python 1
Skill Certification Test Number	N/A
Test Weight	N/A
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Introduction to Computer Science
Endorsement 2	Programming & Software Development
Endorsement 3	Web Development
Endorsement 4	Information Technology Systems
Endorsement 5	BAM - CTE/General or Basic or Lvl 2

STRAND 1

Lists (Arrays)

Standard 1

Students will identify when to use a list
Student will create a list with strings and numeric values
Access a particular element in a list by using an index

Standard 2

Students will use the list methods to manipulate their lists

- .append(), .pop(), and .insert()
- .extend(), +, .reverse(), and .sort()
- .join(), split()

Standard 3

Students will use a for loop with "in"

- For example:
  - fruits = ["apple", "banana", "cherry"]
  - for x in fruits: print (x)

Students will use a for loop with range()

- For example:
  - for x in range (4) print (x)

Performance Skills

- use a variety of list methods
- use a for loop with "in"
- use a for loop with range()

STRAND 2

Indexes

Standard 1

Students will understand an index

- The first index location is zero

Standard 2

Understand how a string is indexed
Work with string characters by index

Standard 3

Students will slice a string into substrings
Students will slice a list into sub lists

Performance Skills

- Find the location of an element in a list
- Slice a string into substrings
- Slice a list in to sub lists

STRAND 3

Working with Files

Standard 1

Students will be able to:

- Import files into Jupyter notebooks by using the curl command.
- Read a local file in memory.
- Use .read() to read a specific number of characters.

Standard 2

Students will be able to:

- Use .readlines() to read text from files as a list of lines.
- Use .close() to free system resources.

Standard 3

Students will be able to:

- Use .readline() to read data from a file one line at a time.
- Use .strip() to remove newline characters and other whitespaces.

Standard 4

Students will be able to:

- Use .seek() to set file read and write locations.
- Use file append mode.

Standard 5

Students will be able to:

- Use .write() to write to a file
- Use file append mode to append to a file

Performance Skills

- Use .read() to read a specific number of characters.
- Use .readlines() to read data from file as a list of lines.
- Use .readline() to read data from file a line at a time.
- Use .strip() to remove newline characters.
- Use .write() to write data to a new local file.
- Use .seek() to set file read or write location.
- Use file append mode.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
MOBILE DEVELOPMENT FUNDAMENTALS

Learning that works for Utah
CTE®

Course Description

This course is designed to teach skills to develop apps for phones, tablets, and other devices that run on a variety of operating system. Students will learn core mobile development skills. Before taking this course, students should have solid foundational knowledge of one or more the following topics: HTML5, SQLite, CSS, Javascript, Swift, Java, and other phone operating system tools.

Intended Grade Level	9-12
Units of Credit	0.5
Core Code	35.02.00.00.048
Concurrent Enrollment Core Code	N/A
Prerequisite	Computer Programming, Computer Science Principles, Web Development
Skill Certification Test Number	850
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Web Development
Endorsement 2	Porgramming & Software Development
Endorsement 3	N/A

STRAND 1

Introduction to mobile devices

Standard 1

History of mobile technologies

- Describe how mobile technologies came to be
- Describe the current major mobile platforms
- Describe the effects upcoming mobile platforms may have on mobile technologies

Standard 2

Understand physical capabilities of the mobile device

- Identify the different device sensors
- Describe and define the camera capabilities
- Identify different built-in hardware

Standard 3

Plan for physical interactions with the mobile device.

- Describe and define the differences among devices
- Describe and define features, APIs, number of touchpoints, and networking
- Account for screen size/real estate when planning layout

STRAND 2

Design and development methodologies

Standard 1

Implement project management: Student will be able to implement project management methodologies to streamline workflow.

- Create and analog or digital prototype version of their app
- Work in a team
- Utilize project management skills
- Develop a concept with considerations for plan, cost, and time
- Develop a design document detailing the problem the app solves and its core competencies

Standard 2

Creation

- Create appropriate art and text
- Develop audio for the application
- Write and comment code appropriately
- Create application animations

STRAND 3

Develop mobile applications

Standard 1

Develop programming skills

- Begin to think like a programmer
- Understand why your app uses its language(s) for development
- Learn the basic tools necessary for programming

- Variables
- Methods
- Control structures
- Data structures
- User input
- Object-oriented programming (OOP);
- Build and run an application

Standard 2

Code for mobile applications

- Evaluate code
- Identify code errors
- Identify code to use to meet requirements
- Distinguish among programming languages and programs (e.g. Java, Javascript, HTML5, CSS, Swift, AppInventor, Kotlin, etc.)

Standard 3

Manage the application lifecycle

- Preserve application state information and handle activate/deactivate functions
- Create a responsive application with feedback in response to user actions

Standard 4

Understand mobile device APIs

- Understand mapping/geolocation APIs, forms, and media APIs
- Describe and define manipulation events (user input)

Standard 5

Understand mobile device controls

- Use phone controls
- Arrange content appropriately
- Display collections of items
- Build custom controls
- Describe and define notification types and uses
- Use tasks and choosers to enhance application functionality

Standard 6

Build the user interface

- Create layout with appropriate design principles
- Design with system theme, accent color
- Design appropriate screen orientation options
- Design graphic layering (transparency, borders, resizing)
- Design the user experience to be clean, focused, and using UI standards and guidelines
- Integrate images and media in an application

STRAND 4

Design for deployment

Standard 1

Understand how to publish for mobile devices

- Describe and define marketplace submission rules;
- Describe and define mobile design concepts (for example, metro, button sizing, spacing).

Standard 2

Use the principles of user interface design

- Design and Organize the User Interface.
- Design should make simple common tasks easy.
- Options and materials for tasks visible without distracting the user
- Design should provide methods for feedback examples actions, changes of state or conditions, errors, in language familiar to users
- Design should be flexible and tolerant accounting for user mistakes.
- Design should maintain consistency reducing the need for users to rethink and remember.

Standard 3

Work with developer tools

- Use an appropriate IDE
- Create the deployment package and deploy the application (optional, suggested for more advanced students)
- Configure a test environment
- Test and debug mobile applications

STRAND 5

Students will be familiar with careers in mobile technologies and application development

Standard 1

Students will develop career awareness related to working in mobile apps

- Identify personal interests and abilities related to mobile applications, such as:
- Identify personal creative talents
- Identify organizational and leadership skills
- Identify special interest areas
- Investigate career opportunities, trends, and requirements related to mobile application jobs
- Survey educational opportunities (e.g. non-traditional) to determine programs, degrees and training availability to improve job prospects
- Develop employability competencies/characteristics: responsibility, dependability, ethics, respect, and cooperation
- Achieve high standards of personal performance with a positive work ethic and attitude

Standard 2

Industry Guides

- Teachers will encourage individuals who work in mobile application technologies to come and interact with students

Performance Skills

Students will be able to properly identify the differences of an app developed on different system platforms.

Workplace Skills

Communication, Problem Solving, Teamwork, Critical Thinking, Dependability, Accountability

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS

UX/UI AND QUALITY ASSURANCES

Learning that works for Utah
CTE®

Course Description

In this course, you will start learning methods and skills involved in designing interactive systems. The course covers the design process from the initial formulation of a design problem to creation of initial design representations like scenarios, personas, and story boards that concretize findings about user needs discovered through formative work. The course work involves practical work on a design problem that you will choose during the course.

User Experience and User Interface (UX/UI) is a course designed to encourage a more diverse set of students to learn tech skills. UX/UI is an attempt to show students how important learning to research, plan, design, create, and code are by empowering them to build their own tech products. This course teaches students how to turn ideas into real products using design, story board, coding, and prototyping while using data analysis, human behavior, and consistent design practices. Throughout the course students will work in teams, experiencing different industry roles found within a career of UX/UI, from idea generator and project manager to developer and tester. The course culminates in a final working technical prototype that teams will present to an audience of end users, investors, and other potential interested parties.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	35.02.00.00.012
Concurrent Enrollment Core Code	35.02.00.13.012
Prerequisite	Web Development 2
Skill Certification Test Number	Pending
Test Weight	
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Cybersecurity
Endorsement 2	Programming & Software Development
Endorsement 3	Web Development

STRAND 1

In this unit, students will pitch product ideas and form teams based on individual skills and similar interests. Teams will start functioning like real-world industry teams and learn how to manage work collectively using SCRUM. Teams will learn how to use products to collaborate and communicate ideas effectively. Students will learn how to develop products for a targeted customer base to solve specific customer needs. They will learn the fundamentals of UI design, then design and wireframe a static webpage with information about their team. At the end of the sprint, teams will do their first team retrospectives and status update presentations to the class.

Standard 1

What is UX/UI

- Generate interest and excitement around the idea of working in teams to develop a prototype, product, and other technological concepts.
- Inspire students to begin thinking like startup founders
- Lead students to understand the role and power of technology in today's world

Standard 2

Intro to Web Apps

- Define what an app is
- Give students a high-level understanding of different types of software applications
- Lead students to think deeper about how software helps solve problems
- Promote collaboration in the classroom

Standard 3

Pitch the idea for initial feedback

- Practice pitching in front of other students
- Learn what to include in an effective pitch
- Begin thinking about a product idea to pitch

Standard 4

Intro to Project Management

- Understand the requirements of the team project
- Learn how industry professionals manage work in a fast-paced environment
- Set up scrum boards to track progress for the remainder of the course

Standard 5

Understanding Your Customer

- Understand team customer segments at a deeper level
- Conduct research to better understand the market
- Learn how to create customer personas

Standard 6

User Requirements

- Create user requirements specifications for products

Standard 7

Intro to Design

- Recognize and evaluate user experiences in products they already use
- Appreciate the importance of good user interface design

- Understand the process of developing a user experience based on iterations and customer engagement

STRAND 2

WWW, Internet, HTML/CSS

Standard 1

WWW, Internet, HTML/CSS

- Explain how the Internet and the World Wide Web work
- Introduce students to the technology behind building websites
- Introduce students to the technology behind building websites and the role of web developers
- Introduce students to HTML and the role of HTML in the development of web pages
- Apply HTML and CSS to create a webpage
- Build on HTML and CSS skills
- Apply additional HTML and CSS elements to webpages
- Understand CSS and the role of CSS in the development of web pages

Standard 2

Understand the purpose and benefits of version control

- Setup Git and understand the basics

Standard 3

Build a Team Site

- Students collaborate to write code for their webpages
- Students apply HTML and CSS concepts to a team project
- Communicate progress, successes, and setbacks as teams

STRAND 3

Making Your UX Design Interactive

Standard 1

Intro to JavaScript

- Introduce JavaScript and how it used
- Learn a few basic JavaScript commands
- Create a simple webpage using JavaScript

Standard 2

Variables in JavaScript

- Introduce variables and uses
- Learn about variable scope
- Create a simple webpage using JavaScript

Standard 3

Input in JavaScript

- Review variables
- Learn how to gather input from the user
- Use input in programs

Standard 4
Functions in JavaScript
- Review if statements
- Learn how to create a custom function
- Use input in programs

Standard 5
Conditionals in JavaScript
- Review functions
- Learn syntax for conditionals
- Use if statements in programs

Standard 6
Team Status Presentations
- Communicate progress, successes, and setbacks as a team
- Share the project with peers and describe ways that the team used JavaScript to create interactive elements

STRAND 4
Making your UI Design/Prototype Functional
In this Strand, students will learn how to build the back end of their web apps, so that they can store and retrieve data. They'll learn the basics of Node.js, which will allow them to write JavaScript code for their server. They'll set up a database and write code to handle requests for data. At the end of this Strand, teams will have functional UI Designs/Prototypes that use real data.

Standard 1
Intro to the Back End/Web Server
- Understand the need for a back end/web server when creating web applications
- Understand the role servers play in web applications
- Explore how to use Node.js and Express to create and run a simple server
- Quick Definitions
  - **Back end**: The code that the server runs to handle application logic and requests for webpages.
  - **Front end**: The code that the web browser runs to display webpages. Consists of HTML, CSS and JavaScript code.
  - **Static webpage**: A webpage that does not have an associated back-end application and does not contain any dynamic information.
  - **Web application**: A client-server application where the client (front-end) runs in a web browser, and the back end runs on a web server.
  - **Web server**: Stores web applications and associated web pages and handles requests to process and deliver those pages to clients.

Standard 2
Intro to HTTP and Routes
- Understand the basic HTTP request types and their uses
- Practice defining routes in Node.js

Standard 3

Storing App Data

- Understand the purpose and uses of databases
- Practice creating and accessing databases using SQLite and Node.js

Standard 4

Writing Database Queries

- Students will learn how to write database queries
- Create databases in SQLite
- Create and populate tables
- Define SQL queries
- Modify and delete data

STRAND 5

UX Feedback

Standard 1

Collecting and Interpreting Data

- Visually communicate with data to team members
- A/B Testing
- Observation, Understanding, and Analysis of data and method of collection
- Quantitative Research benefits and limitations
- Qualitative Research benefits and limitations

Performance Skills

- Students should be competent in Adobe XD software.
- Student should understand team collaboration with fellow SME, clients, and stakeholders.

Workplace Skills

- Communication
- Dependability
- Accountabilit

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
WEB DEVELOPMENT 1

Learning that works for Utah
CTE®

Course Description

Web Development 1 is a course designed to guide students in a project-based environment in the development of up-to-date concepts and skills that are used in the development of today's websites. Students will learn the fundamentals of how the Internet works. They will learn and use the basic building blocks of the World Wide Web: HTML5 coding and Cascading Style Sheets (CSS). Students follow the steps to create a website by planning, designing, developing, deploying, and maintaining of the website projects. Students will learn and use different scripting technologies to create more dynamic and interactive websites. They will learn what it takes for a career in web development as they complete projects and create their own website(s).

Intended Grade Level	9-12
Units of Credit	0.5
Core Code	35.02.00.00.060
Concurrent Enrollment Core Code	35.02.00.13.060
Prerequisite	None
Skill Certification Test Number	893, 943, 992, 993, 994, 9940
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Web Development
Endorsement 2	Multimedia
Endorsement 3	Programming & Software Development

STRAND 1

Digital Citizenship: Students will understand the basic principles of copyright, AUP, and ethical behavior. (Suggested time proportion 5%)

Standard 1

Demonstrate knowledge of standard copyright rules.

- Understand copyright for original creations.
- Understand the creative commons license.
- Understand when to obtain permission for non-original work.

Standard 2

Identify the use and purpose of acceptable use policy (AUP).

- Understand the AUP for your school.

Standard 3

Understand ethical behavior as it relates to an AUP, Intellectual Property, Netiquette, Respecting Privacy, Anti-Spamming Laws, etc.

Performance Skills

- Understand copyright as it applies to you.
- Understand a basic AUP agreement.

STRAND 2

Fundamentals of HTML5: Students will create a multi-page website using good coding practice (Such as those found in W3Schools.) (Suggested time proportion 40%)

Standard 1

Demonstrate knowledge required to develop an HTML document.

- Code the foundation for a webpage. Include the element tags DOCTYPE, html, head, title, and body.
- Structure the page using semantic and structural elements such as: header, nav, main, section, article, aside, footer, div, etc.
- Use meta tags for page documentation.
- Use appropriate comments.

Standard 2

Explain appropriate file structure and naming conventions.

- Use logical file structure to build websites.
- Incorporate appropriate naming conventions for website files.

Standard 3

Use the DOCTYPE Declaration.

- Develop pages using the DOCTYPE declaration.

Standard 4

Code a website with appropriate HTML structure and according to W3C standards that can be validated.

- Demonstrate best practice by consistently using lowercase text for all element names.
- Properly nest elements.
- Use quotes on attribute values.

Standard 5

Demonstrate the use of input elements and attributes.

- Create pages with tags and attributes at the block level. (html, head, body, style, header, nav, main, section, footer, div)
- Create pages with tags and attributes at the inline level. (DOCTYPE, title, h1, h2, h6, p, br, meta, etc.)
- Code a website with text formatting, links, images, lists, tables (tabular data), etc.
- Relative Links are relative to the directory of the website. (images/photo.jpg)
- Absolute links are the exact location on the internet and contain a protocol. (http, https, ftp)
- Code special characters such as: © " < > & —.
- Demonstrate the use of HTML forms, buttons, text fields, checkboxes, and radio buttons. (Form does not need to submit to an actual database or email.)

Performance Skills

Students will code a website with:

- HTML5 semantic tags (header, footer, section, article, nav, aside)
- Meta tags
- Use special characters
- Hyperlink(s) and Email link(s)
- Table(s) with tabular data (not used for layout)
- Image link
- Lists
- Form elements

STRAND 3

Cascading Style Sheets (CSS): Students will format websites using CSS. (Suggested time proportion 35%)

Standard 1

Apply CSS to your website.

- Apply CSS to an element using an inline style. (An inline style may be used to apply a unique style for a single element.)
- Apply CSS to a webpage using an internal style. (Internal style rules may be used to uniquely style a single page.)
- Apply CSS to a website using an external stylesheet. (Best Coding Practice - One file changes the entire website.)

Standard 2

Apply essential syntax & CSS box model.

- Add style rule, declaration, selector, property value pair. Use correct css syntax :
  Example of a style rule.

  CSS Box Model

Standard 3

Students will format websites using CSS

- Modify background properties such as: color and image.
- Modify font properties such as: font-family, size, and color.
- Link to and use an online font. (i.e.: Google Fonts, Adobe Fonts, etc.)
- Modify margin and padding size around elements.
- Code id & class tags within HTML
- Within CSS use id & class tags to modify a HTML elements.
- Implement an id selector to modify a single element on the page.
  - Unique id tags are only used one time per page
  - "classes" can be used one or more times per page
- Implement selectors pseudo class elements (i.e.: a:link, a:visited, a:active a:hover)
- Use appropriate comments throughout your CSS

Standard 4

Format page layout using CSS.

- Use width, height, or auto to adjust the size.
- Use CSS Grid to layout the websites.

Performance Skills

Students will be able to make the following changes to a website:

- Background image(s) or Background color
- Import graphics (jpeg/gif/png/svg)
- Font changes (color, size, style)
- Original CSS3 animation (optional)

STRAND 4

Site Planning: Students will plan, design, implement, and maintain website(s). (Suggested time proportion 10%)

Standard 1

Analyze Project requirements.

- Identify the purpose and audience for a website.
- Identify basic principles of website usability, readability, and accessibility.
  - Usability: Cross browser compatibility.
  - Readability: contrast, size, font, and color.
  - Accessibility standards that address the needs of people with visual and motor impairments, such as using alt tags, strong instead of bold, etc.
- Identify and follow steps in the website planning and development process.

Standard 2

Users are the focus of all design.

- Plan a website by using sketches, wireframes, or site maps.
- Design elements are easy to access, understand, and use.
- Keep the interface simple, create consistency, use common UI elements, placement in page layout, strategically use color and texture, use typography to help increase scannability, legibility and readability, and inform your users of location, actions, or errors.

Standard 3
Code and design a minimum three-page website. (This is integrated into every Strand.)

Performance Skills
Students will be able to:
- Build a mock-up, sketch, or wireframe of a website
- Check for cross browser compatibility, readability, and accessibility

STRAND 5
The student will create and prepare images to integrate with website designs, using image editing software. (Suggested time proportion 5%)

Standard 1
Open, edit, and save an image for effective use on your website.
- Crop and resize various images.
- Optimize an image. (Resize and change resolution for optimal load time.)
- Enhance an image.

Standard 2
- Incorporate a logo and header into webpage.
- Incorporate images into a website.

Performance Skills
Students will be able to:
- Add an enhanced image to your website.
- Optimize an image for quick loading on a website.

STRAND 6
Exploration & Preparation for Careers in Web Development: Students will explore careers in web development and prepare a portfolio of projects created.
(Suggested time proportion 5%)

Standard 1
Explore IT web development careers.
- Identify job roles in the Information Technology (IT) industry as they apply to web development.
- Understand the responsibilities, tasks, and skills each job requires.
- UI designer, UX designer, front-end web developer, back-end web developer, and full stack developer.

Workplace Skills
The following workplace skills should be discussed, taught, and re-enforced in the course:
- Communication
- Teamwork
- Critical and Creative Thinking
- Problem Solving
- Dependability
- Legal requirements / expectations

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

Vocabulary

Strand 1 - Digital Citizenship	
Creative Commons	A Creative Commons license is one of several public copyright licenses that enable the free distribution of an otherwise copyrighted “work”.
AUP	(Acceptable Use Policy) A set of rules that define the way in which a network may be used.
Intellectual Property	Work that is the result of creativity to which one has rights and may apply for a copyright.
Netiquette	The correct or acceptable way of communicating on the Internet.
Anti-Spamming Laws	Commercial email messages clearly identifies that it is an advertisement, provides notice to the recipient of the ability to opt-out from further commercial email messages, and lists a valid address for a sender.
Privacy Laws	Information privacy laws or data protection laws prohibit the disclosure or misuse of information about private individuals.

Strand 2 - HTML	
HTML	Hypertext Markup Language. The coding scheme used to format text for use on the World Wide Web.
Semantic Elements	Clearly describes its meaning to both the browser and the developer. Example <footer>
Non-Semantic Elements	Tells nothing about its content. Example , , etc.
Validation (W3C)	Validating a website is the process of ensuring that the pages on the website conform to the norms or standards defined by various organizations
Elements	Is everything from the start tag to the end tag
Attributes	Attributes provide additional information about an element. Example name/value pairs like: name="value"
Tags	The HTML from < > the entire element and attribute combination.
Block Level Elements	Start on a new line and can contain other code
Inline Level Elements	Does not start on a new line and only takes up as much width as necessary
Relative Links	URLs that reference files on the same server within the same directory (folder). Does not contain a protocol (http, https, ftp, etc.)
Absolute Links	Complete internet address that takes one to the exact directory or file of a website. Starts with a protocol (http: https: ftp: etc.) example: http://www.businessdictionary.com/definition/absolute-URL.html

Strand 2 - HTML	
Meta Elements	An HTML code that resides in the head section of a webpage and includes information about the page, such as keywords, and descriptions.
Character Entities (Special Characters)	Are used to display reserved characters in HTML. Example &
Keywords	Are words or phrases that describe content. They can be used as metadata to describe images, text documents, database records, and webpages.
Viewport	The viewport is the user's visible area of a webpage. It varies with the device - it will be smaller on a mobile phone than on a computer screen.

Strand 3 - CSS	
CSS	Used to control a website's text color, background colors, borders, spacing, headers, links and positioning of elements.
Inline Style	Used to apply a unique style for a single element
Internal Style	Used to uniquely style a single page
External Style	Best coding Practice |One file changes the entire website
Cascade Order	Controls which rule applies when there is a conflict. Inline, internal, external
Best Coding Practice	Are a set of informal rules set by the development community

Strand 4 - Site Planning	
Usability	Assesses how easy user interfaces are to use. The word "usability" also refers to methods for improving ease-of-use during the design process.
Readability	The ease with which a person can understand a passage of text. The complexity of your content, as well as the typographic elements used on your site.
Accessibility	Is the inclusive practice of ensuring there are no barriers that prevent interaction with, or access to, websites on the World Wide Web by people with physical disabilities, situational disabilities, and socio-economic restrictions on bandwidth and speed.
Cross Browser Compatibility	If your website is not tested and debugged on different platforms and browsers, it won't work the same on all of them.
Wireframe	A visual prototype of a webpage that focuses on content, layout, and behavior.
UI (User Interface)	They add interactivity to a user interface, providing touchpoints for the user as they navigate the website. Examples: buttons, scrollbars, menu items and checkboxes
Site Map	A list of pages of a website.

Strand 5 - Image Editing	
Image Resolution	To optimize an image so that it will run at its utmost capacity in terms of speed and efficiency.
Metadata	The detail an image holds. The term applies to raster digital images, film images, and other types of images. Higher resolution means more image detail. Image resolution can be measured in various ways.

Strand 6 - Careers	
UX (User Experience) Developer	UX Designers are primarily concerned with how the product feels. Designers who consider all the visual, interactive elements of a product interface—including buttons, icons, spacing, typography, color schemes, and responsive design.
UI (User Interface) Developer	UI Designers are particular about how the product is laid out. Designers who develop the interaction between the user and a website- including prototypes, wireframes, and testing.
Front End Web Developer	Developer who uses HTML, CSS, and JavaScript to develop websites.
Back End Web Developer	Developer who uses dynamic content, databases, and PHP to develop websites.

Code List			
<!DOCTYPE html>	HTML5 Doctype	<a>	Inserts a link
<html></html>	Indicates the beginning and end of an HTML document.	 	Breaks a line of text at the point where the tag appears.
<title></title>	Indicates the beginning and end of the title; the title does not display in the body of the webpage but displays on the title bar of the browser.	<img>	Inserts an image
<head></head>	Indicates the beginning and end of a section of the document used for the title and other document header information.		For Italics for best accessibility
<body></body>	Indicates the beginning and end of the webpage body.		For Bold text and increased accessibility
<header></header>	The <header> element represents a container for introductory content.		
<footer></footer>	The <footer> tag defines a footer for a document or section. A <footer> element typically contains: authorship information, copyright information, contact information,	**Special Characters (Character Entities)**	
<main></main>	The <main> tag defines the main content of the page		A non-breaking space is a space that will not break into a new line.

Code List			
<main></main>	The <main> tag defines the main content of the page		A non-breaking space is a space that will not break into a new line.
<section></section>	The <section> tag defines sections in a document, such as chapters, headers, footers, or any other sections of the document.	©	©
<article></article>	The <article> tag specifies independent, self- contained content. An article should make sense on its own and it should be possible to distribute it independently from the rest of the site. Potential sources for the <article> element: Forum post, Blog post, News story, or Comment.	&quote;	"
<nav></nav>	The <nav> tag defines a set of navigation links.	<	<
<aside></aside>	The <aside> tag defines some content aside from the content it is placed in. The aside content should be related to the surrounding content.	&gt:	>
	Defines a division/section	&	&
	Largest Heading	—	-
		CSS	
		Background Attributes	Color & Image
		Font Attributes	type, size, and color
	Smallest Heading	Border Attributes	width, style, and color
	Paragraph	ID	Used 1 time per page
	Indicates that the item that follows the tag is an item within a list.	Class	Used multiple times per page
	Indicates the beginning and end of an ordered list.	a:link	Unvisited link
	Indicates the beginning and end of an unordered (bulleted) list.	a:visited	Visited link
<table></table>	Inserts a table with data. Not to be used to format the page.	a:active	Selected Link
<td></td>	Table Data	a:hover	Selects links on mouse over
<tr></tr>	Table Row		
<th></th>	Table Header		
<hr>	Inserts a horizontal line.		

STRANDS AND STANDARDS

WEB DEVELOPMENT 2

Learning that works for Utah
CTE®

Course Description

Web Development 2 is a course designed to build on previous content knowledge and skills learned in Web Development 1. Students will expand on the fundamentals of how the Internet works. They will learn and use the basic building blocks of the World Wide Web: HTML5 coding, Cascading Style Sheets (CSS), and JavaScript. They follow the steps to create a more robust website by planning, designing, developing, deploying, and maintaining of the website projects. Students will learn and use different scripting technologies to create more dynamic and interactive websites.

In this course you will use and build upon all the skills you have learned in Web Dev 1.

Intended Grade Level	9-12
Units of Credit	0.5
Core Code	35.02.00.00.065
Concurrent Enrollment Core Code	35.02.00.13.065
Prerequisite	Web Development 1
Skill Certification Test Number	894, 993, 9451, 9454
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Web Development
Endorsement 2	Programming & Software Development

STRAND 1

Fundamentals of HTML5: Students will create a muti-page website using good coding practice. (Such as those found in W3Schools.) (Suggested time proportion 20%)

Standard 1

Use advanced HTML5 elements to create website.

- Add SVG images (i.e.: image map, icons, logos, etc.)
  - You can use original images or use a library of SVG images.
- Code HTML forms on websites (i.e.: radio, checkbox, text field, text area, field set, dropdown lists, legend, etc.)
- Submit Button (Students need to code the button, but it will not submit without access to a server)
  - GET - good for non-secure data & has a limited number of characters
  - POST - secure and no size limitations
  - Understand the action that will run on the server on the form submit button. (PHP file)
- Code iframes or add the canvas element on a website
- Incorporate JavaScript on a webpage
  - In-line
  - Internal
  - External JS

Performance Skills

Students will be able to code advanced HTML5 elements to create a website.

STRAND 2

Cascading Style Sheets (CSS): Students will style websites using CSS. (Suggested time proportion 35%)

Standard 1

Understand the use of various CSS selectors.

- Understand the cascade order for browser default, inline, internal, and external style sheet
- Code element selections to modify HTML elements (tag, ID, & classes)
- Code contextual selectors to modify nested elements (i.e.: footer nav {}, header ul {}, etc.)
- Code pseudo class selectors (i.e.: a: link, a:visited, a:active a:hover)
- Code pseudo element selectors Here are some examples:
  - ::after{clear:both}
  - p::first-line{color: #00FF00;}
  - etc.

Standard 2

- Format page layout with advanced CSS.
- Use grids, flexbox, or a combination for page layouts
- Use width, height, or auto to adjust the size of the elements
- Code navigation bars
- Use text align, margin, and padding
- Use float to position elements

Standard 3

- Build responsive websites.
- Media queries
- SVG & picture elements

- Responsive text size - using rem, vh, and vw in css
- Responsive navigation bar
- Introduce the concept of frameworks like: BootStrap, JQuery, Vue.js, Nodejs, etc.

Standard 4

Code animation and graphics with advanced CSS.

- Buttons. (i.e.: rounded, colored, etc.)
- Image overlay hover. (i.e.: Fade-in, slide-out, etc.)
- Image slider or carousel

STRAND 3

Site Planning and Design: Students will plan, design, implement, and maintain website(s). (Suggested time proportion 10%)

Standard 1

Create a website plan and pitch for a client.

- Identify basic principles of website usability, readability, and accessibility
- Plan a website by using sketches, website hierarchy, wireframe, or a site map
- Communicate with others (such as peers and clients) about design and content plans
- Produce website designs that work on various devices and browser versions/configurations
- Plan, communicate, or present a client's website before, during or after website development

Standard 2

Create content for website.

- Create and prepare 2D images. .gif, .png, .jpg, .svg
- Prepare rich media, such as, video, sound, or animation
- Identify when to use various image and digital media file formats
- Optimize images for web content, such as resize, resolution, compress, thumbnails
- Understand the use of favicons
- Identify how to avoid violating copyright rules
- Demonstrate the use of semantic elements such as: audio, video, and figure

Standard 3

Uploading and maintaining a site.
Understand and be able to describe the capabilities of web servers

- FTP pages to a web server (*Optional if security allows.)
- Differentiate between types of IP addresses
- Describe a static IP address
- Describe a Dynamic IP address
- Differentiate between ipv4 and ipv6
- Conduct basic technical tests such as validating the website (W3C compliant), accessibility, SEO, etc.
- Present webpages to others for quality assurances (QA) such as team members and clients for feedback and evaluation on technical merits and usability
- Identify methods for collecting site feedback, such as using counters, feedback forums, Google Analytics, Google Webmaster Tools
- Provide site maintenance using bug reports, backups, and promotion
- Document all aspects of website maintenance
- Identify internet protocols: http, https, ftp

Standard 4
Work as a team to create a website.
- Use good oral and written communication skills as a team member

STRAND 4
JavaScript has become an essential web technology along with HTML and CSS, as most browsers implement JavaScript. Students will understand basic JavaScript in front-end and back-end development, mobile app development, desktop app development, and game development. (Suggested time proportion 30%)

Standard 1
Intro to JavaScript
- Introduce JavaScript and how it is used in web development
- Include some simple JavaScript in your website.

Standard 2
Functions in JavaScript
- Introduce functions
- Create custom functions – for example: function myFunction() {alert("Hello World!");}

Standard 3
Variables in JavaScript
- Introduce variables and uses – for example:
  var name = prompt("Enter you name: ");
  alert("Your name is" + name);

Standard 4
Input in JavaScript
Learn how to gather input from the user
Store user input into a variable

STRAND 5
Comprehensive website. (Suggested time proportion 5%)

Standard 1
Build an interactive response website

Standard 2
Participate in a CTSO, Utah Digital Media Arts Festival, or competition

Overall Performance Skills
Students must be able to:
- Create and validate website HTML
- Create and validate website CSS

Workplace Skills
The following workplace skills should be discussed, taught, and re-enforced in the course:
- Communication
- Teamwork
- Critical and Creative Thinking

- Problem Solving
- Dependability
- Legal requirements / expectations

Skill Certificate Test Points by Strand

This will be updated once the Skills Certificate Test is revised.

Test Name	Test #	Number of Test Points by										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

Vocabulary

Strand 1 - Digital Citizenship	
Creative Commons	A Creative Commons license is one of several public copyright licenses that enable the free distribution of an otherwise copyrighted “work”.
AUP	(Acceptable Use Policy) A set of rules that define the way in which a network may be used.
Intellectual Property	Work that is the result of creativity to which one has rights and may apply for a copyright.
Netiquette	The correct or acceptable way of communicating on the Internet.
Anti-Spamming Laws	Commercial email messages clearly identifies that it is an advertisement, provides notice to the recipient of the ability to opt-out from further commercial email messages, and lists a valid address for a sender.
Privacy Laws	Information privacy laws or data protection laws prohibit the disclosure or misuse of information about private individuals.

Strand 2 - HTML	
HTML	Hypertext Markup Language. The coding scheme used to format text for use on the World Wide Web.
Semantic Elements	Clearly describes its meaning to both the browser and the developer. Example <footer>
Non-Semantic Elements	Tells nothing about its content. Example , , etc.
Validation (W3C)	Validating a website is the process of ensuring that the pages on the website conform to the norms or standards defined by various organizations
Elements	Is everything from the start tag to the end tag
Attributes	Attributes provide additional information about an element. Example name/value pairs like: name="value"
Tags	The HTML from < > the entire element and attribute combination.
Block Level Elements	Start on a new line and can contain other code
Inline Level Elements	Does not start on a new line and only takes up as much width as necessary
Relative Links	URLs that reference files on the same server within the same directory (folder). Does not contain a protocol (http, https, ftp, etc.)
Absolute Links	Complete internet address that takes one to the exact directory or file of a website. Starts with a protocol (http: https: ftp: etc.) example: http://www.businessdictionary.com/definition/absolute-URL.html

Strand 2 - HTML	
Meta Elements	An HTML code that resides in the head section of a webpage and includes information about the page, such as keywords, and descriptions.
Character Entities (Special Characters)	Are used to display reserved characters in HTML. Example &
Keywords	Are words or phrases that describe content. They can be used as metadata to describe images, text documents, database records, and webpages.
Viewport	The viewport is the user's visible area of a webpage. It varies with the device - it will be smaller on a mobile phone than on a computer screen.

Strand 3 - CSS	
CSS	Used to control a website's text color, background colors, borders, spacing, headers, links and positioning of elements.
Inline Style	Used to apply a unique style for a single element
Internal Style	Used to uniquely style a single page
External Style	Best coding Practice |One file changes the entire website
Cascade Order	Controls which rule applies when there is a conflict. Inline, internal, external
Best Coding Practice	Are a set of informal rules set by the development community

Strand 4 - Site Planning	
Usability	Assesses how easy user interfaces are to use. The word "usability" also refers to methods for improving ease-of-use during the design process.
Readability	The ease with which a person can understand a passage of text. The complexity of your content, as well as the typographic elements used on your site.
Accessibility	Is the inclusive practice of ensuring there are no barriers that prevent interaction with, or access to, websites on the World Wide Web by people with physical disabilities, situational disabilities, and socio-economic restrictions on bandwidth and speed.
Cross Browser Compatibility	If your website is not tested and debugged on different platforms and browsers, it won't work the same on all of them.
Wireframe	A visual prototype of a webpage that focuses on content, layout, and behavior.
UI (User Interface)	They add interactivity to a user interface, providing touchpoints for the user as they navigate the website. Examples: buttons, scrollbars, menu items and checkboxes
Site Map	A list of pages of a website.

Strand 5 - Image Editing	
Image Resolution	To optimize an image so that it will run at its utmost capacity in terms of speed and efficiency.
Metadata	The detail an image holds. The term applies to raster digital images, film images, and other types of images. Higher resolution means more image detail. Image resolution can be measured in various ways.

Strand 6 - Careers	
UX (User Experience) Developer	UX Designers are primarily concerned with how the product feels. Designers who consider all the visual, interactive elements of a product interface—including buttons, icons, spacing, typography, color schemes, and responsive design.
UI (User Interface) Developer	UI Designers are particular about how the product is laid out. Designers who develop the interaction between the user and a website- including prototypes, wireframes, and testing.
Front End Web Developer	Developer who uses HTML, CSS, and JavaScript to develop websites.
Back End Web Developer	Developer who uses dynamic content, databases, and PHP to develop websites.

Code List			
<!DOCTYPE html>	HTML5 Doctype	<a>	Inserts a link
<html></html>	Indicates the beginning and end of an HTML document.	 	Breaks a line of text at the point where the tag appears.
<title></title>	Indicates the beginning and end of the title; the title does not display in the body of the webpage but displays on the title bar of the browser.	<img>	Inserts an image
<head></head>	Indicates the beginning and end of a section of the document used for the title and other document header information.		For Italics for best accessibility
<body></body>	Indicates the beginning and end of the webpage body.		For Bold text and increased accessibility
<header></header>	The <header> element represents a container for introductory content.		
<footer></footer>	The <footer> tag defines a footer for a document or section. A <footer> element typically contains: authorship information, copyright information, contact information,	**Special Characters (Character Entities)**	
<main></main>	The <main> tag defines the main content of the page		A non-breaking space is a space that will not break into a new line.

Code List			
<main></main>	The <main> tag defines the main content of the page		A non-breaking space is a space that will not break into a new line.
<section></section>	The <section> tag defines sections in a document, such as chapters, headers, footers, or any other sections of the document.	©	©
<article></article>	The <article> tag specifies independent, self- contained content. An article should make sense on its own and it should be possible to distribute it independently from the rest of the site. Potential sources for the <article> element: Forum post, Blog post, News story, or Comment.	&quote;	"
<nav></nav>	The <nav> tag defines a set of navigation links.	<	<
<aside></aside>	The <aside> tag defines some content aside from the content it is placed in. The aside content should be related to the surrounding content.	&gt:	>
	Defines a division/section	&	&
	Largest Heading	—	-
		CSS	
		Background Attributes	Color & Image
		Font Attributes	type, size, and color
	Smallest Heading	Border Attributes	width, style, and color
	Paragraph	ID	Used 1 time per page
	Indicates that the item that follows the tag is an item within a list.	Class	Used multiple times per page
	Indicates the beginning and end of an ordered list.	a:link	Unvisited link
	Indicates the beginning and end of an unordered (bulleted) list.	a:visited	Visited link
<table></table>	Inserts a table with data. Not to be used to format the page.	a:active	Selected Link
<td></td>	Table Data	a:hover	Selects links on mouse over
<tr></tr>	Table Row		
<th></th>	Table Header		
<hr>	Inserts a horizontal line.		

STRANDS AND STANDARDS
WEB DEVELOPMENT ADVANCED

Learning that works for Utah
CTE®

Course Description

Web Development Advanced is a course designed to guide students in a project-based environment in the development of today's websites. Some concepts for discovery and mastery include: Front-end, PHP, Database, and Development Environment & Tools. Students will be introduced to 2D and 3D animation.

In this course you will use and build upon all the skills you have learned in Web Dev 1 and Web Dev 2.

Intended Grade Level	10-12
Units of Credit	1.0
Core Code	35.02.00.00.067
Concurrent Enrollment Core Code	35.02.00.13.067
Prerequisite	Web Development 2 or Web Development Projects
Skill Certification Test Number	9921
Test Weight	1.0
License Type	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Web Development OR
Endorsement 2	Programming & Software Development

STRAND 1

Advanced Skills for Front-end Developers

Standard 1

Search Engine Optimization (SEO) Code to a priority one Strand.

- Create a sitemap
- Understand the steps to submitting the site map to a browser
- Read a robots.txt file to determine which pages the web crawler should not crawl.
- Title element should accurately describe each page with a brief but descriptive wording. <title> should be unique on every webpage of a website.
- Use meta description tag on pages that interest and inform the users of the page content. Keep length of the descriptions easy to display by the search engine.
- Use heading tags like you are writing an outline for the webpage.
- Use brief but descriptive link text.
- Understand linking and link backs.
- Images should be optimized and include alt text.
- Use browser guidelines to create optimized pages using only white hat methods.

Standard 2

Webmaster tools

- Understand how to search queries.
- Understand how to prioritize design and navigation based on top pages.
- Create and submit an XML sitemap for your website.
- Understand how to use the security feature for hacked website and malware.

Standard 3

Understand the Purpose of nameservers to Domain Names

- Explain the steps to directing a name server to an IP address.
- Explain the steps to directing the name server on a shared server.

Standard 4

Understand the function of analytics for website development and web services decision making.

- Explain how to make a verified analytics account.
- Understand how to track the incoming data from your analytics.
- Insert the code for analytics tracking into an HTML page.

Standard 5

FTP file transmission protocol. (optional)

- Students should upload a website to a server
- Students should understand the FTP protocol and Strand port number (20).

Standard 6

Understand appropriate file structure and naming conventions for teamwork purposes

- Use logical file structure to build websites.
- Incorporate appropriate file naming for a website.

Standard 7

Introduce Agile/Scrum project management tools to help the team with software methodology.

STRAND 2

Fundamentals of Advanced HTML5

Standard 1

Use form control attributes

- Demonstrate the ability to code number, date, time, calendar, and range.
- Create a form that can connect and submit to a database.
- Demonstrate the ability to code <datalist>, <keygen>, and <output>.

Standard 2

Use Advanced HTML5 elements.

- Demonstrate the ability to code: <address><button><details>, <dialog>,
- <progress>, and <svg>.
- Use Responsive Web design to form websites for tablets and mobile devices.
- Use a framework

Standard 3

Forms

- Input Types: color, date, datetime, datetime-local, email, month, number, range, search, tel, time, url, and week.
- Input Attributes: autocomplete, autofocus, form, formaction, formenctype, formmethod, formnovalidate, formtarget, list, min and max, multiple, pattern (regexp), placeholder, required, and step.
- Code a form that can submit to a server.

Standard 4

Syntaxes for attributes.

- Understand the four different syntaxes for attributes. Empty, unquoted, double quoted, and single quoted.
- Use good coding practice to create well-formed pages.

Standard 5

Understand and use APIs.

- Understand HTML Geolocation
- Understand HTML Drag and Drop
- Understand HTML Local Storage. Use Local storage as a replacement for cookies.
- Understand HTML Application Cache
- Understand HTML Web Workers
- Understand HTML SSE

Standard 6

Use version control in projects.

- Utilize tools like Git/Github, Tortoise SVN, ect.

STRAND 3

Advanced Cascading Style Sheets (CSS3)

Standard 1

Apply CSS3.

- Add border border-radius and border-image.
- Add background-size, background-origin, background-image and background- clip.
- Add linear-gradient and radial-gradients.
- Add text-shadow and box-shadow.
- Add text properties: text-overflow, word-wrap, and word-break.
- Web based fonts:
- rem - root element
- vw - Relative to 1% of the width of the viewport*
- em - Relative to the font-size of the element (2em means 2 times the size of the current font)
- % - Relative to the parent element

Standard 2

Transitions

- Implement transition, transition-delay, transition-duration, transition-property, and transition-timing-function.

Standard 3

CSS3 Animations

- Use @keyframes and animation to create animations on your website.
- Use animation-delay property for the start of an animation
- Use animation-timing-function property with the following values:ease(this is default), linear, ease-in, ease-out, ease-in-out, and cubic-bezier(n,n,n,n).

Standard 4

CSS3 User interface

- Add resize
- Add outline-offset
- Understand user interface properties: ox-sizing, nav-down, nav-index, nav-left, nav- right, nav-up, outline-offset, and resize.

Standard 5

Use version control in projects.

- Utilize tools like Git/Github, Tortoise SVN, ect.

STRAND 4

Database Technology

Standard 1

Understand Database Technology used in Web Development.

- Understand when to use a database.
- Connect website to database
- Connect form submit button to database

Standard 2

Understand how to build and use a database

- Understand how mySQL can execute queries against a database,
- retrieve data from a database
- insert records in a database
- update records in a database
- delete records from a database
- create new databases
- create new tables in a database
- set permissions on tables, procedures, and views

STRAND 5

Java Script: Students will code using JavaScript.

Standard 1

Code using JavaScript.

- Add interactivity to your website using JavaScript.
- Utilize JavaScript libraries to add interactivity to your website.
- Use JavaScript to change HTML5 content.
- Use JavaScript to change HTML5 attributes.
- Use JavaScript to change HTML5 styles.
- Use JavaScript to validate HTML5 form data.
- Code an object in JavaScript for use on a website.
- Code an event handler using JavaScript.

STRAND 6

PHP: Students will understand and use PHP programming.

Standard 1

Understand PHP programming.

- Understand PHP can generate dynamic page content
- Code using proper php syntax
- Code using the “echo” and print ()function
- Understand variable names are case sensitive
- PHP can send and receive cookies
- PHP can be used to control user-access

Standard 2

PHP variables

- Understand local and global variables.
- Understand the following data types: String, Integer, Float, Boolean, Array, Object, NULL, and Resource.

STRAND 7

Introduction to UX/UI and website development

Standard 1

UX Understand the purpose and audience for a website.

- Using a project management method prepare for producing a website. Agile or scrum is the recommended method adopted.
- Identify a Journey Map, Competitive Analysis, and a user persona.
- Research and Present information for a website project using information gathered using a Journey Map, Competitive Analysis, and User Persona.

Standard 2

UX Ideate

- Identify User Flow, Low and High fidelity mockup, Wireframe, and Prototype.
- Plan a website based on user flow based on the following questions
- Who is the user?
- What is the goal?
- What steps do the users need to take to reach the goal? (finding information, buying a product, or connecting digitally)
- Create a mock-up for a website
- Create a low fidelity mock-up for a website.
- Create a high fidelity mock-up for a website for the client.
- Create a wireframe for a website for the developer to use to code the website.
- Create a Prototype for a website.
- Communicate with others (such as peers and clients) about design and content plans.
- Produce website designs that work on various devices and browser versions/configurations.
- Plan, communicate, or present a client's website before, during or after website
- development.

Standard 3

Create a Style Guide or an Interface Inventory

- Include color scheme
- Typography- Headings, subheadings, lists, and text.
- Images-logo, icons, and images
- Create content for website.
- Create and prepare graphic elements: <svg> and <canvas>.
- Prepare media elements using the: <audio>, <embed>, <source>, <track> and
- <video> and the supported file types.
- Optimize images for web content. Utilize vector images.
- Insert navigation bars, rollover images, or buttons.
- Add a favicon to a website

Standard 4

Uploading and maintaining a site.

- Understand and be able to describe the capabilities of web servers.
- Upload pages to a web server.
- Conduct basic technical tests such as validating the website (wc3 compliant), accessibility, SEO, etc.
- Identify methods for collecting site feedback, such as using analytics, comments, feedback, forums, Google Analytics, Google Webmaster Tools, etc.
- Provide site maintenance using bug reports, backups, and broken link detection.
- Document all aspects of website maintenance.
- Present web pages to others for quality assurances (QA) such as team members and clients for feedback and evaluation on technical merits and usability.

- Understand and be able to describe the capabilities of web servers.

STRAND 8

Exploration & Preparation for Careers in Web Development: Students will explore careers in Web Development and prepare a portfolio of projects created.

Standard 1

Explore IT Web Development careers.

- Identify job roles in the Information Technology (IT) industry as they apply to web development.
- Understand the responsibilities, tasks, and skills each job requires.

Standard 2

Create a responsive database driven website that uses HTML, CSS, JavaScript, and PHP

Standard 3

Create a student portfolio.

- Prepare an online portfolio of projects developed in the class.
- Prepare an online resume with references.
- Research the current job postings.
- Compare current skills to the skills required to be hired.
- Research Freelance Web Design.
- Develop a marketing plan for a web design business.

Skill Certificate Test Points by Strand

Coming Soon.

STRANDS AND STANDARDS
WEB DEVELOPMENT PROJECTS

Learning that works for Utah
CTE®

Course Description

Web Development Projects is a course designed to teach the process of User Interface (UI), User Experience (UX), and Information Architecture (IA) for the design section. Advanced coursework in HTML, CSS, and JS. The focus of the course is the design and development of web based products. Web Development Projects is an advanced course within the Web Development pathway. These skills can prepare students for entry-level positions and other occupational/educational goals.

Intended Grade Level	10-12
Units of Credit	1.0
Core Code	35.02.00.00.055
Concurrent Enrollment Core Code	35.02.00.13.055
Prerequisite	Web Development 2 or Web Development Advanced
Skill Certification Test Number	Industry Certifications: 992, 993, 994, 9921, 9454
Test Weight	1.0
License Type	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Web Development OR
Endorsement 2	Cybersecurity OR
Endorsement 3	Programming and Software Development

STRAND 1

Students will use and enhance skills learned in Web Development 1, 2 or Advanced.

Standard 1

Apply skills learned in Web Development 1 and Web Development 2 or Web Development Advanced.

- Use UX/UI Design Standards for project planning and design
- Code HTML, CSS, and JS using a variety of advanced techniques
- Create Web Based Applications for Mobile Devices
- Maintain and improve websites, games, and apps for school clients

Standard 2

Review and apply principles and elements of visual design.

- Utilize visual design elements in all interactive projects
- Apply concepts of color theory in designing and coding web-based projects
- Utilize image composition in projects

Standard 3

Follow their AUP, Fair Use guidelines, and copyright law.

- Follow and adhere to the school's Acceptable Use Policy
- Understand when copyrighted material can be used under Fair Use guidelines
- Understand and adhere to all applicable copyright laws

STRAND 2

Students will create a Mobile App using HTML, CSS, and JS and be introduced to beginning App Development using Web Based API's.

Standard 1

Design and development methodologies.

- Describe and define features, number of touchpoints, and networking
- Identify ways to save energy
- Use a minimum of one API in application: Geolocation, Forms, History, or Storage
- Create a Style Guide or an Interface Inventory
- Create prototype version of their app
- Work in a team
- Utilize project management skills
- Develop a concept with considerations for plan, cost, and time
- Develop a design document detailing the problem the app solves
- Implement project management: Student will be able to implement project management methodologies to streamline workflow. Agile, Scrum, Kaban, etc.

Standard 2

Build the App.

- Create a splash Screen and icon
- Develop audio for the application
- Write and comment code appropriately
- Create application animations

Performance Skills
Students will publish the App to a physical device or to an App Store (optional)

STRAND 3
Students will learn and follow the process of planning, designing, evaluating, revising, and publishing Web Development projects

Standard 1
Planning.
- Conceptualize ideas and do the initial planning for a project
- Write a project proposal including objectives, goals, overview of the project, costs, timeline, etc. Define the specs for the project (target users, technology needed, signoffs needed, etc.)
- Create a development schedule, team member assignments, and review options for the project Create a wireframe for the project flow, directories, naming conventions, and navigation
- Get approval for any copyright material that will be used
- Plan your user interface using design standards
- Make any revisions needed and get approvals for the project

Standard 2
- Create and development of the content for the project.
- Create a project prototype (working model) and make any needed revisions
- Create and organize the Web Development objects needed for the project with appropriate naming conventions
- Add any scripting or programming needed
- Follow copyright and fair use guidelines
- Monitor time and cost progress of the project
- Test the project, check for quality assurance, and make any revisions need
- Get client approval and check off

Standard 5
Publish the Project.
- Design images/animations required for publishing and distribution
- Write needed documentation for the user
- Set a launch date
- Provide plan for continued maintenance of the project
- Publish/launch the Web Based Project

STRAND 4
Students will know how to develop a Website or Web Based Game or App.

Standard 1
Understand different roles for those who work as members of a Web Development project team.
- Explore personal interests and abilities related to working in the web development industry
- Identify Development talents (i.e., programming, problem solving, algorithmic thinking, etc.) Identify Design Talents (i.e. UX, UI, IA, Animation, 3D JS, ect.)
- Identify organizational and leadership skills
- Explore aptitude for innovation and creativity

- Work and collaborate as an interactive project team member or as an individual
- Identify and understand Web Development team roles: User Interface (UI),User Experience (UX), Information Architecture (IA), Front End Web Developer, Back End Web Developer, Full Stack Web Developer, Programmer, Web Development Designer, Web Development Developer, Web Designer Specialist, etc.
- Explore courses needed for completion of the Web Development Pathway
- Explore careers and training opportunities, trends, and requirements for different roles in Web Development

STRAND 5

Students will create an interactive Web Development portfolio which showcases a student's projects, work, and skills. Projects included can be created individually or as a team member.

Standard 1

Plan a portfolio showcasing projects completed in all Web Development courses.

- Use the process for planning and designing interactive projects
- Include examples of the planning, design, coding, and publishing process
- Use version Control Software to Produce the portfolio (Git, Github, Tortoise svn, etc.)

Standard 2

Create a web development portfolio including the following elements with strict adherence to copyright and fair use guidelines:

- Add: Project Designs (Mockups, WireFrames, and UX/UI/IA Plans)
- Include: Original HTML, CSS, and JS Code
- Include finished projects (individual and/or group)
- Add other awards, contest projects, etc. (optional)
- Include your resume

STRAND 6

Students will participate in a work-based learning experience and/or student competition.

Standard 1

Participate in a work-based learning experience.

- Take a field trip to a software or web design business
- Complete a job shadow in a Web Development career
- Intern at a Web Development business
- Listen to an industry or post-secondary guest speaker
- Work for a Web Development company or as a freelance Web Developer

Standard 2

Participate in a Web Development student competition. (Optional)

- Enter a school, district, or state level Web Development contest
- Prepare and submit an entry for the Digital Media Arts Festival
- Enter and compete in a CTSO competition in a Web Development area
- FBLA, FFA, FCCLA, SkillsUSA, or TSA all have web development contests

Overall Performance Skill

Students will use the Strands & Standards in this course to create a web-based product and final online portfolio.

Workplace Skills

Workplace Skills taught:

- Communication
- Teamwork
- Dependability
- Legal requirements / expectations

Skill Certificate Test Points by Strand

*Coming Soon!

Cluster: Education & Training		
Pathway: Pre-K: Early Childhood Education		
Course Code Number	Course Name	Summary
34.01.00.00.020	Child Development	Changed from parenting to caregiving to reflect the industry needs and viewpoint
		Changed structure of course to reflect domains of development rather than ages
		Added Strand 3 standard 13 implication of post-partum
		Changed Strand 4 Standard 5 shaken baby syndrome to abusive head trauma to reflect industry definitions
		Added Strand 4 standard 8 child safety and car seat use
		Added strand 5 Standard 3 Proximodistal and Cephalocaudal definitions to reflect industry terms
		Added Strand 6 Standard 1 foundational cognitive developmental theorists (Piaget, Vygotsky)
		Added Strand 7 Standard 1 Erickson theory of psychosocial development
34.01.00.00.040	Early Childhood Education 1	Added strand 2 standard 1 Parten's stages of play
		Changed structure of course to reflect domains of development rather than ages
		Added Strand 3 standard 1 Establishing partnerships with families in an early childhood classroom
		Added Strand 5 techniques and guidelines for observations within an early childhood education classroom
		Added Strand 7 introduction to writing a lesson plan
34.01.00.00.045	Early Childhood Education 2	Added strand 1 using observations in an early childhood education setting to inform educational decisions
		Changed structure of the course to separate each area of learning into individual strands (strands 4 -11)
34.01.00.00.050	Early Childhood Education 3	Changed the preservice training to reflect changes to Utah childcare licensing
		Added opportunity for students to earn childcare pre-service training certification
		Changed Strand 2 Standard 2 shaken baby syndrome to abusive head trauma to reflect industry definitions
		Added Strand 4 Standard & 2 using i-messages with children
Pathway: K-12: Teaching as a Profession		
39.02.00.00.003	Teaching as a Profession 3	1. Updated lesson plan design to HQI. 2. Updated UETS to new version. 3. Updated multiculturism and dimensions of diversity.

STRANDS AND STANDARDS
CHILD DEVELOPMENT

Course Description

Students will understand the aspects of child growth and development, positive guidance techniques, and child-related issues. Learning activities, observation techniques, and lab experiences in working with young children may be included. Birth to 11 years old.

NOTE: By Utah State law, parental or guardian consent is required for a student to participate in human sexuality instruction. State policy states that instruction includes the importance of marriage and the family, abstinence from sexual activity before marriage, and fidelity after marriage. Consult the local school district on its policy regarding the teaching of human sexuality and district approved instructional materials.

Intended Grade Level	9-12
Units of Credit	0.5
Core Code	34.01.00.00.020
Concurrent Enrollment Core Code	34.01.00.13.020
Prerequisite	None
Skill Certification Test Number	000
Test Weight	0.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Family & Consumer Science (CTE/General)
Endorsement 2	Early Childhood Education
Endorsement 3	N/A

STRAND 1

Students will evaluate caregiving & societal roles and responsibilities.

Standard 1

Recognize the characteristics and responsibilities of caregiving.

- Identify the importance of childhood.
  - Impact of childhood experiences now and on the future https://www.youtube.com/watch?v=95ovIJ3dsNk&ab_channel=TED

Standard 2

Evaluate the needs and rights of parents and children in the Early Childhood Education classroom. ~~according to the united nations convention of the right of the child~~

- ~~Obligation of a caregiver to treat children with dignity and respect~~
- ~~https://www.unicef.org/media/56661/file~~

Standard 3

Evaluate how society impacts childhood experiences.

- Discuss access to healthcare, services, clean food & water, outdoor play, and safety
- ~~https://www.gse.harvard.edu/news/uk/15/10/tipping-scales~~

Performance Skill

Evaluate your community, does your community meet the needs of every child.

Standard 4

- Evaluate factors to consider in determining personal preparedness for child caregiving including career choices and parenting.
  - Emotional, financial, social, physical, education, social support.
- Evaluate the demands and rewards of child caregiving.
- Identify coping skills that caregivers can utilize to manage the demands of caregiving.

Performance Skill

Identify a childhood or caregiver need that may arise, research a caregiving resource that fills the need identified. Strong caregivers reach for outside resources, understanding that they can not do everything themselves.

Performance Skill

Complete FCCLA Step One https://www.uen.org/cte/facs_cabinet/facs_cabinet10.shtml

STRAND 2

Standard 1

Define child development and the domains of development.

- The process by which a child changes or remain stable over time
- The three domain of development are:
  - Biological/Physical
  - Cognitive/Intellectual
  - Social/Emotional
- All domains of child development are important; each domain both supports and is supported by the others.

- Generalizations of developmental stages can be identified but variations of cultural experience and

individual differences must be considered.
https://www.naeyc.org/resources/position-statements/dap/principles

STRAND 3

Students will identify characteristics of genetic & environmental influences on a developing fetus, pregnancy, prenatal care and development, and childbirth.

Standard 1

Identify genetic and environmental factors influencing birth defects and prenatal development.

- Analyze the influence and effects of genetics/heredity
  - Genes carry inherited traits which pass on physical characteristics from one generation to another
  - Each sperm and ovum cell contributes 23 chromosomes.
  - 23 pairs of chromosomes are in a fertilized ovum which equals a total of 46 chromosomes
  - Chromosome variations determine the sex: Male = XY and Female = XX
  - Epigenetics: The study of how your behaviors and environment can cause changes that affect the way your genes work. https://www.cdc.gov/genomics/disease/epigenetics.htm
- Define types of genetic interaction patterns.
  - Dominant-recessive
- Stronger genes are known as dominant and need only one to pass on the characteristic
  - Dominant traits include dark hair, dark eyes
  - Recessive traits include blond hair, blue eyes
- Weaker genes are known as recessive and need two to pass on the characteristic
- Recessive genes will only produce a trait when it is transmitted by both parents at the same time
  - X-linked
- Traits that are only carried on the x-chromosome (i.e., color blindness, hemophilia)
- Carrier - someone who has the trait in the DNA but does not display the trait.
  - Additive
- Combined effects of two or more genes. (i.e., skin color, hair color, height , eye color (may work with dominant/recessive patterns) https://www.biologyonline.com/dictionary/additive-genes
- Specify lifestyle factors that minimize birth defects https://www.cdc.gov/ncbddd/birthdefects/prevention.html
- Health risks for the mother and baby tend to increase if the mother is over age 35
- Teen pregnancy increases risks for high blood pressure, lack of prenatal care, preterm birth, and low birthweight
- Seek early and continual medical attention/prenatal care
- Explain the role of prenatal testing in the detection of birth defects
  - Ultrasound- utilizes sound waves to detect the health and development of the fetus
  - Amniocentesis – inserting a needle through the abdominal wall and into the uterus and withdrawing some amniotic fluid to detect birth defects
- Maintain a proper diet; the placenta does not transfer essential nutrients to the fetus if a woman is undernourished
  - Folic acid in the prevention neural tube defects including Spina Bifida
- Avoid teratogens (factors known to cause birth defects)
  - Infectious Diseases: viruses, STIs
    - Diseases and infections (including STIs) the mother may have can be transferred or influence the development of the fetus
  - Maternal health: unmanaged diabetes, stress
  - Environment/drugs: medication, alcohol, nicotine, pollution, radiation/x-ray, illegal drugs

    - Fetal alcohol syndrome is a birth defect caused by alcohol consumption during pregnancy
    - Slow the fetal growth, cause low birth weight babies, varying levels of mental retardation, malformations, etc.
    - Only use over the counter and prescribed medication under a doctor's care
    - Damage may occur during the first weeks of pregnancy before a woman realizes she is pregnant
- Identify genetic and environmental factors influencing birth defects.
    - Genetic (i.e., Down's Syndrome, congenital heart defects)
    - Environmental (i.e., Fetal alcohol syndrome (FAS), STD/STI related, drug influenced defects)
    - Combination of Genetic and Environmental (i.e., cleft lip/palate, neural tube defects, cerebral palsy)
- Define genetic counseling and its advantages.
    - Genetic counselors analyze genetic tests and inform and advise individuals and families on their risk for inheriting certain diseases

Standard 2

Identify the parts and functions of the female and male reproductive systems.

- Parts and functions of the female reproductive system.
    - Ovum (egg) - the female reproductive cell, which, after fertilization, becomes a zygote
    - Ovaries - The female reproductive glands in which ovum are produced; the ovaries are in the pelvis, one on each side of the uterus
    - Fallopian tubes - two long, slender ducts in the female abdomen that transport ovum from the ovary to the uterus; fertilization must take place in the fallopian tubes
    - Uterus – Hollow, pear-shaped organ that expands during pregnancy to hold the growing fetus and contracts during labor to deliver the child
    - Endometrium lining - functions as the lining for the uterus. During the phase of the menstrual cycle, the endometrium thickens in preparation to accept a fertilized ovum. If an ovum was not fertilized, then the thickened lining is expelled during menstruation
    - Cervix - The lower, narrow portion of the uterus that allows the expulsion of the endometrium lining, the entry of sperm and dilates during labor
    - Vagina - the muscular tube leading from the external genitals to the cervix of the uterus in women, also known as the birth canal during labor
    - Perineum - The surface area between the anus and the vagina

Standard 3

Identify the parts and functions of the male reproductive system

- Sperm- male reproductive cell
- Scrotum- the external pouch that contains the testicles and epididymis
- Penis- The male organ in which semen and urine exit the body
- Testicles- Two sex glands that produce the male reproductive cells called sperm and the male hormone testosterone
- Epididymis- The place where sperm are stored until they ripen and mature
- Urethra- The passageway to transfer urine or semen outside the body
- Accessory Glands (Cowper's Gland and Prostate Gland)- Provide fluid that lubricate the duct system and nourish the sperm
- Vas Deferens- The passageway carrying the sperm from the epididymis to the seminal vesicles
- Seminal Vesicle- Produces a sticky, sugary fluid to nourish the sperm

Standard 4

Identify common risk factors and treatments of infertility

- Failure to ovulate, age, stress, eating disorders, alcohol use, STIs, low sperm count, exposure to

environmental toxins, maternal weight, radiation therapy or other cancer treatments.
- Hormonal medications, artificial insemination, advanced reproduction technologies; In Vitro Fertilization (IVF).

Standard 5

Explain the characteristics of pregnancy.

- Explain ovulation and conception
  - Eggs or ovum are released from the ovaries during ovulation to begin the menstrual cycle
  - Only one sperm may penetrate and fertilize an ovum
  - The fertilized ovum (zygote) implants into the endometrium lining within the uterus
- Identify the early signs and symptoms of pregnancy
  - Tender breasts, nausea, vomiting, menstrual period stops, frequent urination, fatigue, etc.
- Identify common discomforts occurring during pregnancy
  - Mood swings, fatigue, trouble breathing, swollen ankles, feet, and hands, etc.
- Identify potential pregnancy complications
  - Rh factor, toxemia/pre-eclampsia, gestational diabetes, placenta previa, etc.
  - Low-birth weight is when the weight of the fetus is under 5.5 lbs. at birth
- Often leads to low oxygen levels, trouble staying warm, trouble feeding and gaining weight, breathing problems, etc.
  - Preterm birth takes place more than three weeks before the baby is due — in other words, after less than 37 weeks of pregnancy, which usually lasts about 40 weeks
  - Miscarriage or spontaneous abortion is any pregnancy loss that takes place before the 20th week (5th month) in pregnancy
  - Stillbirth is the birth of an infant that has died in the womb after having survived through at least the first 20 weeks of pregnancy

Standard 6

Identify characteristics of prenatal development.

- Outline the stages occurring during prenatal development
  - Prenatal development is the development of the baby before it is born
  - The prenatal period lasts 40 weeks
  - Zygote (fertilized ovum) is the developing baby in the first two weeks of pregnancy
  - Embryo is the stage during the 3rd through the 8th week of development
  - Fetus is the developing baby after the 8th week until delivery
- Define and discuss prenatal terminology
  - Umbilical cord- the connection between the fetus and the placenta that passes oxygen and nutrients from the mother to the child and returns waste products back to the mother
  - Placenta- an organ attached to the endometrium lining that filters and transfers nutrients and oxygen to the fetus
  - Amniotic fluid- guards against jolts, keeps the fetus at a constant temperature, keeps the fetus from adhering to the endometrium lining
  - Amniotic sac- a very strong, clean and transparent membrane sac that surrounds the fetus and holds the amniotic fluid. It is broken to allow the baby to be delivered
  - Womb/Uterus – the uterus is called a womb when a fetus is growing inside of it.
  - Birth canal/vaginal canal- vagina is called the birth or vaginal canal during the delivery of the fetus.

Standard 7

Identify the prenatal development occurring during each trimester

- First trimester

- The most critical and greatest time of risk and vulnerability for birth defects depending on what the mother does or does not do during the pregnancy i.e.: taking drugs/medication
- Signs and symptoms of pregnancy are more likely to occur
- Most of the physical development occurs (every physical feature and vital organs form heart beats and brain waves begin, etc.)
- There is small maternal weight gain

- Second Trimester
  - Quickening (slight fetal movements felt by the mother) occurs usually during the 5th month
  - Increased organ development
  - Physically the easiest trimester on the mom
- Third trimester
  - Physically the most demanding time for the pregnancy mom due to discomforts of pregnancy
  - Lanugo (fine hair) and vernix (waxy substance) both covering the fetus' body begins to disappear
  - Fetus gains a protective fatty layer
  - Fetus grows and gains weight rapidly – 5-6 lbs.
  - Builds antibodies the last month
  - Lightening (the dropping movement of the baby into Mom's pelvic region in a head-down position in preparation for delivery) occurs in the last few weeks of pregnancy
- Discuss multiple births.
  - Identical twins develop when one ovum is fertilized by a sperm and then splits into two or more
  - Fraternal twins develop when more than one separate ovum each are fertilized by a sperm
  - Conjoined twins develop when the fertilized cells (identical twins) do not completely split apart before developing

Standard 8

List the events in the childbirth process.

- Define childbirth terms
  - Labor: Regular contractions of the uterus that result in dilation and effacement of the cervix.
  - Amniotic Sac: breaks, or is broken, releasing amniotic fluid. Often referred to as the water breaking.
  - Effacement: This refers to the thinning of the cervix in preparation for birth and is expressed in percentages.
  - Dilation: The extent to which the cervix has opened in preparation for childbirth. It is measured in centimeters, with full dilation being 10 centimeters.
  - Fontanels: Soft spots between the unfused sections of the baby's skull. These allow the baby's head to compress slightly during passage through the birth canal and allow for rapid growth after birth.
  - Contraction: The regular tightening of the uterus working to push the baby down the birth canal.
  - Delivery: is the process of the fetus being expelled from the uterus.

Standard 9

Outline the three stages of labor.

- Dilation - The first stage of labor
  - Usually the longest stage of labor while the cervix dilates from 0-10 cm and becomes effaced
  - Contractions begin to dilate the cervix. These become longer, stronger, and closer together
- Expulsion - Second stage of labor
  - Is the birth of the baby
  - Crowning is when the baby's head has passed through the birth canal and the top or "crown" stays visible at the vaginal opening without slipping back inside
  - The purpose of contractions during this stage is to push the baby out of the uterus.
- Afterbirth - Third stage of labor

- Is when the afterbirth, consisting of the amniotic sac, placenta, and umbilical cord is expelled
- Usually lasts anywhere from five to 20 minutes or more. Mild contractions that last about a minute each will help separate the placenta from the uterine wall and move it through the birth canal

Standard 10

Discuss delivery options.

- Vaginal-delivered through the vaginal opening
- Cesarean-surgery performed so the baby can be delivered through an incision made in the abdominal wall and uterus
- Anesthesia
  - Natural: childbirth without any medication
  - Epidural: medication given to relieve pain during labor and delivery, that is injected into a space within the expecting mother's spinal cord region that numbs from the abdomen or pelvis downward.
- Obstetrician: doctor trained to deliver the baby
  - Midwife: registered nurse with additional training as a midwife or a person with formal training in childbirth without a nursing degree who delivers infants and provides prenatal and postpartum care

Standard 11

Describe possible complications that may occur during childbirth

- Delivery position of the fetus (normal and desired is head first and face down)
- Reasons for performing a C-section: The position of the baby, the umbilical cord wrapping around the baby's neck, problems with the fetal heart rate, the fetus is under stress, the mother is in danger, etc.

Standard 12

Explain the Apgar test

- Apgar test is done at one minute and then again five minutes after delivery
- Tests for the newborn's ability to adapt to and thrive in life outside of the uterus
- The medical team is observing the neonates (newborns) heart rate, breathing, muscle tone, response to stimulation and skin color

Standard 13

Discuss implications of postpartum and resources available to the parents.
https://www.postpartum.net/get-help/help-for-dads/

- Define postpartum: the first six weeks after giving birth.
- Discuss postpartum depression and anxiety.
- Discuss the signs and coping methods for postpartum depression.
- Identify resources available to the parents after childbirth .

https://wic.utah.gov/wp-content/uploads/sites/30/2020/03/PPD_Sunshine_English.pdf

Performance Skills

Identify at least four critical components of prenatal care (nutrition, folic acid, drugs, alcohol, tobacco, medical care, etc.) and explain the effects of each component (good or bad) on the developing fetus.

STRAND 4

Students will explain the growth, development, and care of the neonate (newborn).

Standard 1

Describe the growth and development of the neonate (newborn zero to 1 month).

- Identify the physical characteristics of the neonate
  - Weight: average birth weight of a full term healthy baby is 7-8 pounds and 20 inches in length. After birth, babies usually experience a slight weight loss
  - Head: the baby's head may be elongated or misshapen as a result of his journey through the birth canal. The baby's head may appear too large for its body. The head is 1/4th of the baby's total size.
  - A child's brain can triple in size during the first two years of life, due to this growth the fontanels allow expansion.
  - Umbilical Cord Stump: The cord stump will dry out and fall off.

Standard 2

Identify the physical characteristics of the newborn's senses.

- Hearing:
  - Hearing develops in the womb and the fetus responds to sound. After birth, the baby will turn its head to a familiar voice.
- Sight:
  - Newborns see best 8 to 12 inches from their face.
  - A newborn's eye muscles are weak at birth; a newborn's eyes look cross-eyed.
  - During the first week newborns see in shades of grey or contrasts (light and dark shadows) vs. the whole color spectrum.
- Smell and Taste:
  - Newborns can taste and smell at birth.
  - Smell is a neonate's best developed sense.
- Muscle Control:
  - A newborn enters the world with little physical control.
  - They can't hold their heads up on their own, their neck and head must be supported.

Standard 3

Discuss a neonate's behavior and meeting a newborn's needs.

- A newborn baby will probably spend a lot of time sleeping or eating.
- Crying is a response to an unpleasant stimulus. A baby's needs should be met consistently.
- Neonates are fed on demand through breast-feeding or bottle-feeding; both have their pros and cons to identify and consider.

Standard 4

Identify common newborn reflexes.

- Reflexes: survival skills for the newborn and a way for the physician to check the functioning of the baby's neurological system
  - Rooting- when the baby's cheek is stroked, the baby will turn towards the side of his/her face that was stroked.
  - Moro (startle)- stimulated when there is loud noise or sudden movement such as when the arms are held and then suddenly released. It causes the baby to throw their legs and arms out with clenched fists.
  - Babinski- when the sole of the foot is stroked from heel to front the toes will fan out.
  - Grasping- when an item is placed in the palm of the hand, the baby's fingers will grab around it.

Standard 5

Describe causes, prevention, and consequences for infant Abusive Head Trauma(AHT).

- Abusive head trauma (AHT), including shaken baby syndrome, is a severe form of child abuse that results in brain injury.
  - It is caused by violent shaking and/or with blunt impact.
    - The resulting injury can cause bleeding around the brain or on the inside back layer of the eyes.
    - AHT often happens when a parent or caregiver becomes angry or frustrated because of a child's crying.
- Abusive head trauma is preventable by responding to infant crying appropriately.
  - Examine ways to cope with crying.
  - Techniques for soothing an infant: Touch, Motion, Sound.
  - If your coping threshold (how much a person can take of something) for crying is reached and there is no one around to relieve you by taking the baby, put the crying baby down in its crib, close the door, and go do something to relieve the stress (i.e. dance to loud music, vacuum, watch TV, etc.) Checking on the baby every 5-10 minutes.
  - Nearly all victims of AHT suffer serious, long-term health consequences. Examples include:
    - Vision problems
    - Developmental delays
    - Physical disabilities
    - Hearing loss
- At least one of every four babies who experience AHT dies from this form of child abuse.

Standard 6

Describe sudden infant death syndrome (SIDS) and prevention strategies.

- SIDS is the sudden, unexplained death of an apparently healthy child in their sleep (often under 1 years old)
- Having the child sleep on its back is a recommended WAY TO REDUCE THE RISK OF SIDS (you cannot really prevent SIDS, just reduce the risk). Also, not sleeping with soft bedding, pillows, or stuffed animals and avoiding smoking and second-hand smoke both during and after pregnancy
  - Pair with tummy time.
- The safest place for a baby to sleep is in their own crib.
  - Room sharing: sleeping with infant in the room
  - Bed sharing: sleeping with infant in the same bed
  - Recognize the dangers of an infant sleeping in a car seat

Standard 7

Identify health and wellness considerations for children.

- Identify signs and symptoms of childhood illnesses.
- Fever, lack of energy, difficulty breathing, persistent cough, severe headache and dizziness, prolonged diarrhea, constipation, or vomiting, and anything else that is not typical of the child.
- Summarize basic information about childhood immunizations.
  - Communicable diseases are diseases that can be passed from one person to another i.e.: chicken pox
  - Immunizations can prevent and protect from communicable diseases
  - The person is given a shot, or other form, (vaccination) of a weakened small amount of the disease so that the body might build up a resistance to it.

Standard 8

Identify safety considerations for children.

- Explore leading causes of accidental childhood deaths and childproofing.
- Discuss the importance of car seats.
  - Know current state seatbelt and car seat laws concerning children of all ages.
  - Children under 12 should not sit in a seat where there is an airbag, even if the car can manually turn off the airbag.
  - The safest place for a car seat is in the center of the back seat of the car.
  - Never leave a child alone in the car.

STRAND 5

Explore the biological/physical growth of children.

- Each of the domains of growth are interconnected and have implications that affect each other.
  - NAEYC #2 https://www.naeyc.org/resources/position-statements/dap/principles

Standard 1

Identify the physical stages of brain growth.

- Stages
  - Prenatal: Formation of the nervous system begins within days of conception as networks of neural connections before most women know that they are pregnant.
  - Birth: 25% of adult weight and volume.
    - The sensory region of the brain develops first, followed by the motor regions, and then higher cognitive functions.
  - Year 1: doubles in first year, to 75% of adult weight and volume.
  - 2-6 years: Increases to 90% of adult weight, but this does not mean their brains are 90% finished.
    - A 4-5 year old can only sometimes control their impulses and still need support from adults because the parts of the brain that control impulses are still developing. The brain doesn't finish developing until well into the third decade of life.
    - Electrical impulses begin to travel faster and faster, but children's brains still tend to process experiences slower than adult brains.
- Brain development is a result of biology and experiences.
  - Cells that fire together, wire together. Meaning the more often a certain neural pathway is stimulated, the stronger that neural pathway becomes.
    - When we learn something new, and we practice what we have learned, we are creating synaptic connections, shaping how the neurons in our brain connect and communicate.
  - Sensitive periods and plasticity: Just as plastic can be molded, brain networks can be changed. Some networks can be more easily changed during specific periods of development. (https://www.youtube.com/watch?v=M89VFIk4D-s)
    - Life experiences such as consistent relationships or learning something new and practicing what we have learned, we are shaping how the neurons in our brain connect and communicate.
    - Even though we may not remember experiences that happened very early in life, these experiences may still have a profound influence on the architecture of the brain and how young children experience and respond to future experiences.

Standard 2

Motor skills are the coordinated movements of body parts.

- Fine Motor Skills/ Small muscles (like the hands and fingers)
- Gross Motor Skills/ Large muscles (like legs and arms)

Standard 3

Describe the growth and development of children.

- Children develop in a similar sequence to each other at their own pace.
- Proximodistal: Motor development proceeds from near to far (The infant needs to move their arm before they can move fingers)
- Cephalocaudal: Motor development proceeds from head to foot (The infant needs to hold their head up before they can crawl)

Standard 4

Describe the physical characteristics and skills of infant (0-12months).

- Infants triple their birth weight in the first year.
- An infant's length increases by one-half by the end of the first year
- Most children follow a natural physical development sequence: lift their head, roll over, crawl (which some children skip), cruise, and then walking; in their own time.
- Tummy-time is key to all areas of a child's development.

Standard 5

Describe the physical characteristics and skills of a toddler (1-3 years).

- Growth tends to slow down as the child gets older, but there is rapid growth in the arms and legs
- Toddlers generally walk and run with their feet further apart than an adult's
- A toddler is curious and wants to be independent so create a safe environment for them to explore
  - Toys should not have any small parts
- Identify gross and fine motor skill activities during the toddler stage.
- As a toddler's motor skills increase they attain self-help skills: tasks that the child can do on their own. i.e.: feeding and dressing themselves.

Standard 6

Describe the physical characteristics and skills of early childhood (3-6 years).

- Physical growth continues to slow down.
- Bodies become straighter and slimmer and the stomach flattens. The neck becomes longer, and the legs lengthen and grow straighter and firmer.
- Identify the progression of gross and fine motor skill activities during the early childhood stage.

Standard 7

Discuss the role of nutrition in physical development

- A child's nutrition affects the health, development, and function of their whole body.
- Follow the guidelines set forth by the Food and Drug Administration. (www.choosemyplate.gov) https://www.healthychildren.org/English/Pages/default.aspx
- Identify consequences of poor nutrition (dental care, growth potential, childhood obesity & diabetes other chronic diseases)
- https://www.cdc.gov/nutrition/about-nutrition/why-it-matters.html#:~:text=Vitamin%20and%20mineral%20malnutrition%20impacts,heart%20disease%2C%20and%20some%20cancers

Standard 8

Discuss readiness for appropriate toileting practices.

- Toilet learning should begin when the child is emotionally AND physically ready.
- Treat accidents objectively to avoid feelings of shame and doubt.
- If the child fights toilet learning or is consistently struggling, stop and try again at a later time.

STRAND 6

Explore the cognitive growth of children.

- Cognitive development: how children think, explore, and figure things out. The development of knowledge, skills, problem solving and dispositions which help children think about and understand the world around them.

Standard 1

Explore two foundational cognitive development theorists.

- Discuss Jean Piaget's theory of cognitive development.
  - Sensorimotor Stage: Ages birth-2 years old. Children learn through their senses and motor skills.
    - A stimulating sensory environment promotes brain development and learning that is critical for brain development in ages 0-3.
      - New experiences develop neural pathways, promoting brain growth.
      - Negative experiences can damage or alter neural development.
    - Object permanence: The realization that objects (including people) still exist when they can no longer be seen, touched, or heard.
  - Preoperational stage: Ages 2-7 years old. Children think in terms of their own activities and what they perceive now. Children learn through imaginative & symbolic play and continue to view the world in an egocentric manner. Beginning to identify symbols and that symbols have meaning.
    - Understands terms that are concrete (things that can be experienced through senses), such as ball, truck, and dog, but struggles with abstract terms such as respect, love, etc.
    - Egocentric: tendency to think about the world entirely from their own perspective.
  - Concrete Operational Stage: Ages 7- 11 years old. Begin to think logically about concrete events.
    - Begin to understand the concept of conservation. Example: that the amount of liquid in a short, wide, cup is equal to that in tall, skinny glass.
    - Thinking becomes more logical and organized, but still very concrete
    - Begin using inductive logic, or reasoning from specific information to a general principle.
- Discuss Lev Vygotsky's sociocultural theory of cognitive development.
  - Acknowledged the roles that curiosity and active involvement play in learning, but placed greater emphasis on society and culture.
  - Each person's thinking is shaped by others around them. People do not develop in isolation.
- Compare and contrast theorists Piaget and Vygotsky
  - Piaget felt that development is largely fueled from within, while Vygotsky believed that external factors (such as culture) and people (such as parents, caregivers, and peers) play a more significant role.

Standard 2

Explore language development in children.

- Language development is the process by which children come to understand and communicate language during early childhood.
- Effective language development is critical to a child's ability to function in society.
  - Promotes social interaction
  - Improves cognitive development
  - Aides self expression
  - Enhances literacy
  - Improves self-esteem
- Speaking to children is crucial to developing language skills.
  - The more interaction a child has with speech, language, and communication the more prepared they are for learning.

- Explore the stages of language development.
  - First words are often names of familiar objects or people.
  - Holophrases: single words used to express a complete meaningful thought.
- Examine ways to encourage language development.
  - Reading to a child is important for language and cognitive development.
  - Listen and respond when a child is communicating with you.
  - Model correct speech.

Standard 3

Explore the importance of play for children.

- Play is universal throughout the world.
  - Play comes naturally for children
- Play strengthens all developmental domains
  - Physically develops motor skills promote health
  - Social-emotionally learn to communicate and cooperate
  - Cognitively develop problem-solving skills and explore new roles
- Explore types of play
  - Rough-and-tumble: play that seems to be rough but there is no intent to harm.
  - Sociodramatic: pretend play where children act out various roles.
- Discuss the appropriate selection of toys for children.
  - Age appropriate
  - Appropriate for the level of development
  - Engage as many senses as possible at one time
  - Multiple open-ended uses
  - Safe for children to use.

Performance Skills

Explore activities that develop language in children.

STRAND 7

Explore the social and emotional development of children.

- The child's experience, expression, and management of emotions and the ability to establish positive and rewarding relationships with others.

Standard 1

Explore Erik Erikson's theory of psychosocial development.

- Describe trust vs. mistrust
  - Stage begins at birth until around 18 months. Infant learns basic trust, if the world is a secure place where their basic needs are met consistently.
  - If social interaction inspires trust then they feel confident in exploring their world.
  - Critical event at this stage is feeding.
- Describe autonomy vs. shame and doubt
  - Stage begins around 18 months to around 36 months
  - In this stage toddlers either succeed or fail in gaining a sense of personal control over their actions and their bodies.
  - Autonomy: independence, wanting to be able to do things for one's self.
  - Toddlers show autonomy through:
    - Temper Tantrums- a release of violent anger or frustration exhibited by screaming, kicking,

crying, etc.
    - Difficulty sharing
    - Developing self help skills
  - Self-awareness
    - Realization that the child is an individual whose body, mind, and actions are separate from those of the people
  - Critical event at this stage is toilet learning
- Describe initiative vs. guilt
  - Stage begins around 3 years old to 5 years old
  - Critical events at this stage is using new skills in play.
  - initiative is the motivation to accomplish more and make decisions on their own.
  - Children develop initiative or self-confidence through opportunities to perform well, internal satisfaction means more than praise, and need to experience more success than failure.
  - High self-esteem will help children develop self-control.
  - Having imaginary friends is common, normal, and shows good social and emotional skills. If the child does not play with real friends, then this could be a concern.
  - Four-year olds are more able and willing to share with others
  - The preschooler is gaining stronger inner self-control and self-management of emotions and can begin to relate to other's emotions
  - They are peer oriented and realize that having friends outside of their family is fun
- Describe industry vs. inferiority
  - Stage begins around 6 years old to 11 years old
  - Critical event at this stage is schooling.
  - Industry is exhibiting confidence and mastering new skills.
  - Judging themselves if they are industrious or inferior, competent or incompetent, productive or useless, winners or losers.
  - Self-pride depends on their own accomplishments and the perceptions of others, especially peers.

Standard 2

Explore the importance of attachment.

- Lifelong attachment develops when a caregiver consistently responds to an infant's needs. This sets the stage for healthy relationships and emotional development throughout life.
- Bonding is the intense attachment that develops between caregivers and baby. It makes caregivers want to shower the baby with love, affection, and protection. Bonding gives motivation to get up in the middle of the night to attend to the baby's needs.
- Define Attachment Theory: Caregivers who are available and responsive to an infant's needs allow the child to develop a sense of security. The infant learns that the caregiver is dependable, which creates a secure base for the child to then explore the world.
- Secure attachment: A relationship where the infant obtains both comfort and confidence from the presence of his/her caregiver.
  - If the child's basic needs are not met, loving, caring, stable attachments may not develop, which could result in an attachment disorder.
  - Poor attachment can result in delayed development in all domains.

Standard 3

Describe how moral development occurs in children.

- Moral Development: The process of learning to base one's behavior on beliefs about what is right and wrong.
- Being a good example (modeling) is the best way to teach moral development to children

Discuss how to teach moral behavior to the preschooler.

- Preschoolers are beginning to understand the reasons behind the rules and develop a conscience (inner sense of right and wrong), which guides their behavior and helps them to make proper judgments
- The caregiver has a responsibility to teach and help a child develop moral behavior. They can be a good role model of it, set clear standards of behavior, respond to inappropriate behavior and talk about them in private, and continue to show love despite the misbehavior

Standard 4

Discuss fears as they relate to children.

- Children under 4 have a harder time separating fact from fantasy. They have real fears, but also imaginary ones, like monsters.
- Preschoolers begin to differentiate between reality and fantasy or make believe
- Stranger anxiety: fear of unfamiliar people, usually expressed by crying
- Separation anxiety: the fear of being away from parents, familiar caregivers, or the normal environment. Develops as early as 6-7 months, but intensifies between 12-18 months.
- Some fears are useful to keep children from dangerous situations.

Identify ways to help children cope with fears.

- Accept the fear
- Let the child express the fear without ridicule
- Help the child face the fear (read books, talking, role play)
- Take action to deal with the source of the fear
- Give support and reassurance

STRAND 8

Identify parenting styles and impacts on the child.

Standard 1

Identify parenting styles and impacts on the child.

- Authoritarian: limits without freedom
  - High behavioral standards, parent/child communication is low, rigid rules, strict punishment, behavior must be obeyed without question.
  - Children are obedient but not happy, feel guilty or depressed, sometimes rebel, have increased behavior problems.
- Permissive: freedom without limits
  - Indulgent parents, little discipline, guidance, control, or expectations, highly nurturing and caring
  - Children lack self-control and emotional regulation, immature, dependent on parents as adults.
- Authoritative/Democratic: freedom within limits
  - Set limits and enforce rules but are flexible and listen to their children
  - Children are successful and happy, generous
- Neglectful/uninvolved: Detached
  - Ignore children and their behavior, do not know or care about children's lives
  - Children are immature, sad, lonely, and at risk of injury and abuse, emotionally withdrawn, learn to provide for themselves

Standard 2

Analyze appropriate positive guidance techniques.

- Explain reasons for children's behavior.
  - Normal behavior for the child's age

- Natural curiosity
- They do not know any better
- To get attention
- To get power
- For revenge
- Feeling inadequate or incapable
- The need to feel that they belong

Standard 3

Discuss methods to positively influence a child's behavior

- Positive statements
  - Clearly stating what the child IS expected to do instead of TELLING THEM WHAT NOT TO DO. i.e.: "Walk in the house" vs. "Don't run in the house."
  - When giving directions, get down on the child's eye level to talk with them
  - To encourage a child to complete a task, tell them what needs to be done in short and simple steps (2 or 3 max) and then go and help them get started
- Redirection
  - Substituting unacceptable or dangerous behavior for acceptable behavior by helping the child to pay attention to or focus on something else that is equally or more appealing
  - Children up to two years old can easily be distracted to change their behavior like playing with a toy instead of the electrical outlet
  - Some behaviors just need to be redirected to an appropriate place such as having a child jump on a trampoline instead of on the bed
- Reverse attention
  - Attention is a powerful reinforcement to guide children in a positive or negative direction
  - Ignore the negative behavior when possible and reinforce the positive behavior
- Positive reinforcement
  - Positive reinforcement is a great motivator and modifies behavior
- Limited choices
  - Give children opportunities to make choices within the caregiver's limits
  - Limit the number of options provided and be careful of the choices you give by making sure that you can really stand by it
  - When children can make their own choices, even if it is within your limits, they not only get practice in making decisions, but they feel in control of the situation and are more willing to do what was asked

Discuss strategies for the caregiver to guide children through stressful situations

- Identify and discuss challenging situations which can cause stress in a child's life
  - Including disabilities, new siblings, starting school, grief, death, divorce, illness, moving, etc.
- Describe childhood feelings dealing with challenging situations and identify coping strategies
  - Children can usually understand what is going on
  - Children need to be told the truth of the issue in a calm and reassuring way
  - They may not need to know all of the details, but enough that their imagination will not run away with false information
  - Children need to talk about their feelings
  - Children tend to need more help and support through issues than adults
  - Sometimes support may need to come from a professional.
  - Continue to take care of the child by providing daily exercise or movement, eating nutritiously, having leisure time, enjoying hobbies, adequate sleep, relaxation methods, talking about feelings, etc.

STRAND 9

List and define the types of abuse

Standard 1

Define abuse.

- Child abuse is anything that intentionally is aimed to hurt or harm a child
- Most child abuse is done by people the child knows and trusts

Standard 2

Identify possible causes of abuse

- The adult was abused as a child.
- The adult lacks knowledge of discipline strategies or appropriate child expectations.
- The adult is stressed and takes this out on the child.
- Children with physical and mental disabilities are at risk for abuse.
- Teens parents, immature parents, single parents.
- Caregiver is impaired by alcohol, drugs and/or mental illness.
- Stress caused by living in poverty.

Standard 3

Identify types of abuse

- Emotional and verbal abuse – rejecting children, belittling them, humiliating them, blaming them or constantly scolding them, particularly for problems beyond their control, etc.
- Physical abuse- intentionally causing injury to a child such as hitting, shaking, burning, biting, etc.
- Sexual abuse- includes any inappropriate sexual behavior with a child in touching and non-touching forms; which includes touching, taking photographs, or inappropriate discussions, etc.
- Neglect abuse- can be both physical and emotional. Intentionally failing to provide for a child's basic needs; which include food, water, shelter, clothing, love attention, medical, etc.

Standard 4

Discuss reporting procedures for abuse

- Utah is a mandated reporting state. It is required by law to report any known or suspected maltreatment
- All reports are kept anonymous
- To report contact child protective services or the local law enforcement

Performance Skills

Evaluate three age-appropriate activities for infants and explain how each activity stimulates the infant's development (physical, social, emotional, cognitive).

STRAND 5

Evaluate three age-appropriate activities for toddlers and explain how each activity stimulates the toddler's development (physical, social, emotional, cognitive).

Evaluate three age-appropriate activities for preschoolers and explain how each activity stimulates the preschooler's development (physical, social, emotional, cognitive).

STRAND 6

Evaluate positive guidance techniques to resolve behavior challenges for each stage of development (infants, toddlers, and preschoolers)

Workplace Skills

Students will develop professional and interpersonal skills needed for success in industry.

- Determine the difference between hard skills and soft skills.
  - Hard Skills: Hard skills are specific, teachable abilities that can be defined and measured
  - Soft Skills: Personal attributes that enable someone to interact effectively and harmoniously with other people.
- Identify soft skills needed in the workplace
  - Professionalism
  - Respect legal requirements/expectations
  - Good communication skills
  - Resourcefulness & creativity
  - Work Ethic

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		

STRANDS AND STANDARDS
EARLY CHILDHOOD EDUCATION 1

Course Description

This semester course introduces students to child-related careers and the Child Development Associate Credential (CDA). Instruction is given regarding developmentally appropriate practices (DAP) and curriculum and facility design for young children. Early Childhood Education lab training may be a part of the course. This course will strengthen comprehension of concepts and standards outlined in Science, Technology, Engineering and Math (STEM) education.

Student leadership and competitive events (FCCLA) may be integrated into this course. Previous completion of the Child Development course is REQUIRED.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	34.01.00.00.040
Concurrent Enrollment Core Code	34.01.00.13.040
Prerequisite	Child Development
Skill Certification Test Number	325
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Family Consumer Science (CTE/General)
Endorsement 2	CTE License: Child Development / Early Childhood Education
Endorsement 3	N/A

STRAND 1

Identify the types of training and careers in the early childhood education industry.

Standard 1

Identify the advantages of obtaining the Child Development Associate (CDA) credential

- Requirements for obtaining the Child Development Associate Credential (CDA)
  - 120 hours of professional education
  - 480 hours of work experience
  - CDA professional portfolio
  - CDA observation with a Professional Development specialist (PD specialist)
  - CDA exam
- Advantages for obtaining the CDA
  - Advance your career
  - Meet job requirements
  - Higher wage opportunities may be available

Standard 2

Identify the advantages of receiving your associate and/or bachelor's degree.

Standard 3

Identify the career options in the early childhood field. Ex: Child life specialist, child care center worker, elementary teacher/specialist, Headstart teacher/director, education coach, entrepreneur etc…

STRAND 2

Students will identify Developmentally Appropriate Practices (DAP).

Standard 1

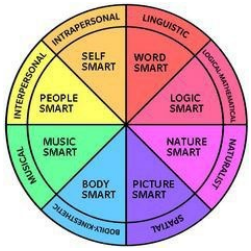
Identify developmentally appropriate (DAP) activities for young children.

- Define developmentally appropriate practices (DAP)
  - Methods that promote each child's optimal development and learning through a strengths-based, play-based approach to joyful, engaged learning.
- NAEYC- National Association for the Education of Young Children
  - Developmentally appropriate practice is designed to meet children "where they are, both as individuals and as part of a group"
- 3 Core Considerations of DAP (see: naeyc.org)
  - Commonality in children's development and learning
  - Individuality reflecting each child's unique characteristics
  - Context in which development and learning occur
- Nine Principles of child development and learning(see: naeyc.org)
  1. Development is affected by biological and environmental factors
     a. Serve and return- the two-way warm, responsive interaction between the child and the caregiver.
  2. All domains of development are important and support others
  3. Play is essential and promotes learning
     a. Concrete, sensory, & pretend experiences
     b. Roles of the teacher in play
        i. Play partner- participates in the play
        ii. Play facilitator- makes suggestions, asks questions, & supports social interactions in the play

iii. Follow the child's lead

- Mildred Parten's Six Stages of Play
  - Unoccupied- Children are relatively still and their play appears scattered. Allows children to practice manipulating materials, mastering their self-control and learning about the world.
  - Solitary- Children entertain themselves without any other social involvement. They can explore freely, master new personal skills like motor or cognitive skills, and prepare themselves to play with others
  - Onlooker- Children who sit back and engagingly watch other children playing, but do not join in. Children learn about the social rules of play and relationships; they explore different ways of playing or using materials and they learn about the world.
  - Parallel- Children play next to each other but are not really interacting together. It's like a warm up exercise—children work side by side on the same activity, practicing skills and learning new methods to engage together.
  - Associative- children begin to be more interested in the other players. They can start to use their newfound social skills to engage with other children or adults during an activity or exploration.
  - Cooperative- Children play cooperatively, adopt group goals, establish rules for play. Cooperation is an advanced skill that children need support to learn.

4. Variations in culture, experience, and individuals must be considered
   a. Individually/culturally appropriate
   b. Support children's strengths and abilities(capability, potential or capacity)
   c. Development in learning occur at varying rates from child to child and uneven rates across different areas for each child
5. Children are active learners from birth, creating meaning from their experiences
   a. Children learn through active exploration and are complex thinkers
   b. Active vs. passive learning
      i. Active learning- being actively involved and engaged in the learning by doing, seeing and thinking; it is handson and active
      ii. Passive learning- sitting and listening without interaction with others, the instructor or manipulative objects (ex. puppet show)
6. The environment can increase children's motivation to learn
   a. A sense of belonging requires both psychological and physical safety
   b. Connections with home and community help children to feel psychologically safe
   c. Encourage each child's sense of agency
7. Children learn in an integrated fashion that cuts across academic areas
   a. Theory of Multiple Intelligences, Howard Gardner



8. Children need to be challenged just beyond their level of mastery
   a. Social Development Theory, Lev Vygotsky (Zone of Proximal Development)
9. Technology and media can be valuable when used responsibly.
   a. Effective uses of technology and media by children are active, hands on, engaging and impowering.

b. Expands children's access to knowledge and skills
c. Should not replace real hands on experiences

Standard 2

Explore the types learning strategies for children.

- Child-directed or Child-initiated- a child decides what to do, the idea and the materials to use, the adult supports learning by following their lead
- Teacher directed- a teacher decides what to do and how to do it (i.e. circle time, teaching a new game, teacher directed steps, routines, etc.)
- Open-ended questions- asking questions that require more than a yes or no answer, this is the ideal. Use the 5 W's (who, what, where, when, why and how) to begin a question so children can answer with more description.
- Close-ended questions- questions that require only a "yes" or "no" response. These limit or end conversations, discussions and learning. Not an effective method unless it is followed by an open-ended question.

STRAND 3

Students will support social and emotional development.

Standard 1

Students will develop a positive, supportive and responsive relationship with each child

- Appreciate and show empathy for each child
  - Use observations to understand each child
  - Create experiences that support their sense of belonging
  - Value the child's temperament
    - Temperament: how children approach, react to, and relate to the world around them
  - Support children in taking pride in their own individual and cultural identity
  - Promote a child's sense of self and help them flourish
    - Provide learning experiences that honor children's perspectives, culture, and experiences
    - Identity: Roles, behaviors and attributes that we assign ourselves
    - Self-esteem: Perception of your own self-worth and value
    - Personal power: Growth mindset vs. fixed mindset
    - Optimism: the belief that good things will happen to you and negative events are temporary setbacks to overcome
    - Resiliency: Ability to withstand, recover from, and adjust to set backs or change
- Guide children in expressing their feelings
  - Model respect and empathy for each child.
  - Teach children "feeling" words (happy, sad, excited, disappointed, etc.) and associate the name with a way they feel so they can articulate the feeling instead of acting out
  - Give permission to have all feelings, even negative and allow children to not feel ashamed
  - Give time, space and the means to work through their feelings; model calmness when discussing and dealing with feelings
  - Active listening: Adult listens thoughtfully and carefully to a child does not offer solutions, does not criticize.
    - Reflectively recognizes and accepts the child's thoughts and feelings. Repeat back to the child what they are feeling and saying.
- Establish positive relationships and partnerships with families
  - Develop a cooperative and collaborative relationship with families where you both make the

interest of the child your focus
- Build in opportunities to learn about each family's unique background and culture.
- A partnership with families contributes to school success and provides a stable presence for the child
- Create partnerships by:
  - Include pictures of families in the center
  - Encourage family participation in the center
  - Communicate with families by providing regular information concerning center business or happenings
  - Hold parent-teacher conferences to discuss the child and center
  - Maintain confidentiality of any information families share

Standard 2

Students will guide children to acquire the social skills necessary to work effectively in the group.

- Encourage successful social interactions
  - Develop a positive relationship with each child
  - Establish expectations for how children relate to others by:
    - Talking and listening to the child respectively
    - Being sensitive to children's feelings
    - Validating children's efforts, accomplishments, and progress not intellect
    - Let them know you care about, appreciate, and value them unconditionally
    - Help children understand social rules, playing cooperatively, and contributing to a learning community
    - When communicating with children, staff and families state positive information before negative information
- Build prosocial skills
  - Teach, support and facilitate prosocial skills (compassion, empathy, sympathy, positive interactions, respect and support)
  - Help children put feelings into words
  - Read books that allow you to discuss characters, feelings and actions
  - Help children interpret facial expressions in media and in others
- Help children resolve conflict
  - Teach and model effective ways to resolve conflicts independently
  - Teach children how to communicate wants and needs
  - Help children see that a conflict is a shared problem that can be solved by seeing, listening to and understanding both points of view and finding a solution that everyone can agree upon

STRAND 4

Explore the positive guidance techniques for preschoolers.

Standard 1

- Define positive guidance, discipline, and punishment
- Positive Guidance: consistent ways of supporting children to identify express and regulate emotions, communicate needs with others, develop deep and trusting relationships.
- Discipline: to teach a behavior by instruction and exercise in accordance with rules of conduct.
  - Discipline should be firm, fair and friendly.
- Punishment: A penalty inflicted for wrongdoing, a crime or offense. Physical or verbal attacks. Might

teach obedience to authority (out of fear), but not self-control, which enhances self-respect. May restrain a child temporarily, but it does not teach self-discipline. Demeans the child and negatively affects the relationship.

- Distinguish between punishment and discipline/guidance techniques
- Self-discipline is the overall goal of guidance and discipline. The ability for the child or person to direct their own behavior and not to be directed upon

Standard 2

All children's behavior is a form of communication. Review common reasons for children's behaviors. (Child Development)

- To be heard, understood, or validated
- Common behavior for the child's development
- Natural curiosity
- They do not know any better
- To get attention
- To get power
- For revenge
- Feeling inadequate or incapable
- The need to feel that they belong

Standard 3

Discuss reasons and guidelines for setting expectations

- Setting expectations with children means setting a guideline for behavior.
- State your expectations clearly and firmly, discuss limits in advance, use consequences as a form of discipline when expectations are not met, give the child explanations for your expectations and then listen to what they have to say about it.

Standard 4

Discuss guidelines for using positive guidance techniques

- Respond to aggressive behavior in nonaggressive ways. i.e.: When responding to a 2-year-old having a temper tantrum, if the caregiver remains calm and nonaggressive, then the situation becomes deescalated and can be resolved quicker. If the child is going to harm themselves or someone else remove them from the situation
- Adjust the environment so that items that might be a potential problem are placed out of sight
- Positive statements
  - Clearly stating what the child IS expected to do instead of TELLING THEM WHAT NOT TO DO. i.e.: "Walk in the house" vs. "Don't run in the house."
  - When giving directions, get down on the child's eye level to talk with them
  - To encourage a child to complete a task, tell them what needs to be done in short and simple steps (2 or 3 max) and then go and help them get started
- Redirection
  - Substituting unacceptable or dangerous behavior for acceptable behavior by helping the child to pay attention to or focus on something else that is equally or more appealing
  - Children up to two years old can easily be distracted to change their behavior like playing with a toy instead of the electrical outlet
  - Some behaviors just need to be redirected to an appropriate place such as having a child jump on a trampoline instead of on the bed
- Reverse attention
  - Attention is a powerful reinforcement to guide children in a positive or negative direction
  - Ignore the negative behavior when possible and reinforce the positive behavior
- Positive reinforcement

    - Great motivator and modifies behavior
    - Acknowledge positive behaviors and effort
    - Ex: sticker chart, reward system, praise etc.
- Limited choices
    - Give children opportunities to make choices within the caregiver's limits
    - Limit the number of options provided and be careful of the choices you give by making sure that you can really stand by it
    - When children can make their own choices, even if it is within your limits, they not only get practice in making decisions, but they feel in control of the situation and are more willing to do what was asked
- Time Away/Cool down area
    - An area or time away where a child can calm down

STRAND 5

Incorporate observation techniques and guidelines while studying children and developing strategies to meet their needs.

Standard 1

Examine the purposes of observing children

- Observation - Watching children with the clear goal of studying or understanding.
- Understand the child and their experience in the classroom.
- Learn how to respond and interact with children.
- Identify how best to challenge and support the children.
- Develop realistic curriculum and goals.

Performace Skills

Practice observing, interpreting and reflecting on observations of children. (Video or in person)

STRAND 6

Identify signs of child abuse.

- Provider shall ensure that no child is subjected to physical, emotional, or sexual abuse while in care
- Utah law requires any person who has reason to believe that a child has been subjected to abuse, neglect, or dependency to immediately to notify the nearest office of Child and Family Services, a peace officer, or a law enforcement agency.
- Any person who witnesses or suspects that a child has been subjected to abuse, neglect, or exploitation shall immediately notify Child Protective Services or law enforcement
- Inform parents, children and those who interact with the children of the center's behavioral expectations and how any misbehavior will be handled
- Individuals who interact with the children shall guide children's behavior by using positive reinforcement, redirection and by setting clear limits that promote children's ability to become self-disciplined Caregivers shall use gentle, passive restraint with children only when it is needed to stop children from injuring themselves or others, or from destroying property
- Interactions with the children shall not include: restraining a child's movement by binding, tying, or any other form of restraint that exceeds gentle, passive restraint

STRAND 7

Identify the components of a lesson plan.

- Lesson Plan- A description of the activity that includes goals and procedure
- Objective- The overall goals that children may learn, know and/or do.
- Standard- concise written descriptions of what students are expected to know and be able to do at a specific stage of their education. Age 3-5: https://www.schools.utah.gov/file/2f5c23cd-43cc-4ab1-b5d7-ef1f918362e9 Age 0-3: https://jobs.utah.gov/occ/provider/early_childhood.pdf
- Procedure- Step by step instructions for implementing the activity
- Supplies- materials needed to complete the activity
- Rationale- explains how the activity benefits the child
- Reflection/evaluation- a review of the activity including: any changes, children's learning, teacher's learning.

Workplace Skills

Students will develop professional and interpersonal skills needed for success in industry.

- Determine the difference between hard skills and soft skills.
  - Hard Skills: Hard skills are specific, teachable abilities that can be defined and measured
  - Soft Skills: Personal attributes that enable someone to interact effectively and harmoniously with other people.
- Identify soft skills needed in the workplace
  - Professionalism
  - Respect legal requirements/expectations
  - Good communication skills
  - Resourcefulness & creativity
  - Work Ethic

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		

STRANDS AND STANDARDS
EARLY CHILDHOOD EDUCATION 2

Course Description

This semester course provides students an opportunity to work with children in a professional lab setting. Instruction given includes: applying developmentally appropriate practices (DAP) and teaching lessons to children, maintaining a healthy environment for children, and developing positive relationships with children. On-site lab experiences will be a major component of the course. Students will continue preparing for the Child Development Associate Credential (CDA). This course will strengthen comprehension of concepts and standards outlined in Science, Technology, Engineering and Math (STEM) education. Student leadership and competitive events (FCCLA) may be integrated into this course.

The Child Development and the Early Childhood Education 1 Curriculum courses are REQUIRED prerequisites.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	34.01.00.00.040
Concurrent Enrollment Core Code	34.01.00.13.040
Prerequisite	Child Development, Early Childhood Ed 1
Skill Certification Test Number	328
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	FCS (General/CTE)
Endorsement 2	Early Childhood Education
Endorsement 3	N/A

STRAND 1

Students will complete and incorporate observations to strengthen every aspect of an early childhood program.

Incorporate observation techniques and guidelines while studying children and developing strategies to meet their needs.

Standard 1

Understand the purposes of early childhood observations

- Observation - Watching children with the clear goal of studying or understanding how they are feeling, learning and thinking.
- Fundamental tool to support awareness of a child's development, skills, interests, strengths, and play
  - Understand the child and their experience in the classroom, to better respond and interact with them
  - Identify how best to challenge and support children, to scaffold learning
  - Develop realistic curriculum and goals.
  - Document progress
  - Show growth and behavior patterns.
- Naturalistic Observer: watches children and records their natural behaviors as they occur
- Participant Observer: someone who interacts with the children while observing

Standard 2

Explore a variety of observation tools used in early childhood education.

- Assessment- Evaluation or estimation of the nature, quality or ability of someone or something
  - Formal Assessments: include standardized tests and research instruments, recording data on carefully designed forms, and analyzing and interpreting data
  - Informal Assessments: observing children in the classroom, collecting samples of their work, interviewing parents, and talking with children
  - Types of Informal Assessments
    - Anecdotal—short, recorded descriptions of incidents involving one or more children to provide data on a child's interests, interactions, and progress
    - Checklist—gather observational information about children's skills, behaviors, or attitudes (e.g. developmental milestones)
    - Frequency count—records the number of times something happens (e.g. how many times a child bites or is aggressive to another child) during a specified time period (e.g. hour or day) during a specified time period (e.g. hour or day)
    - Work Sample—examples of children's work, photos, video etc.
    - Interview — questioning children or families to gain information

Standard 3

Explore objective and subjective statements in observations and personal biases.

- Explore your own personal biases in the early childhood education classroom and how they affect an observation.
  - Personal, Emotional, Mental, Cultural etc…
- Objective/factual statements- statements that rely on and are based on the solid facts as a foundation. They focus only on what you can see and hear.
  - "Johnny sat and stared at the blocks before he began to build with them."
- Subjective/interpretive statements- rely on personal opinions, assumptions, and feelings about the

behavior that has been observed.

- "Johnny did not want to build with blocks, I don't think he likes playing blocks, so he sat and stared at them."

Standard 4

Evaluate and interpret observations to guide teaching practices.

- Use completed observations to develop relationships with children and learning activities
  - What did you observe?
    - Observe and document
  - What does this tell me?
    - Reflect, evaluate and interpret
  - What do I do with this information?
    - Plan, implement, observe

STRAND 2

Students will explore the responsibilities of early childhood educators.

Standard 1

Identify and/or demonstrate the responsibilities of the lead and support teacher.

- Lead Teacher:
  - Creating a caring, equitable community of learning (e.g. supervision of children, anticipate the needs of the children.)
  - Establishing partnerships with families (e.g. home to school connection)
  - Observing, documenting, and assessing children
  - Teaching to enhance each child's development (e.g. Responsible for the pace and order of the lessons)
  - Planning and implementing curriculum (e.g. create the daily plan for the class.)
  - Professionalism (e.g. involve and direct support teachers to help with lessons and activities, crowd control, preparation, etc. Clean up and complete an evaluation of the day)
  - https://www.naeyc.org/resources/position-statements/dap/guidelines
- Support Teacher: Help with activities, crowd control, preparation, and anticipate classroom/lead teacher needs. Make activity idea suggestions. Fulfill assignments of preparing activities from the lead teacher. Get involved in the activities and support the children. Help with clean-up and evaluating the day's activities.

STRAND 3

Students will create developmentally appropriate curriculum for young children.

Standard 1

Understand calendaring, daily scheduling/routines, learning centers and group time.

- Scope and sequence-a summary of content to be taught and the order it will be taught
- Themes- A main topic, idea, or concept around which the classroom activities are planned.
- Daily schedule- represents the big picture and includes main activities that happen across the day.
- Routines- steps needed to complete each part of the schedule
- Learning Centers (child-directed and teacher supported play)- purposeful way of dividing the classroom into different subject or learning areas (i.e., dramatic play, sensory, blocks, writing, etc.)
- Whole Group Time (teacher led)- a time when children come together as a community of learners to

share their thoughts, listen to one another, actively participate together and build a sense of respect and support for one another.

- Small Group Time (teacher led individualized support)- encourages children to explore and experiment with new or familiar materials, skills and ideas that adults have selected based on their daily observations of children's interests, the developmental milestones, the Utah Early Childhood Core Standards, and local events.

Standard 2

Review the components of a lesson plan.

- Lesson Plan- A description of the activity that includes goals and procedure
- Objective- The overall goals that children may learn, know and/or do.
- Standard- concise written descriptions of what students are expected to know and be able to do at a specific stage of their education.
  - Age 3-5: https://www.schools.utah.gov/file/2f5c23cd-43cc-4ab1-b5d7-ef1f918362e9
  - Age 0-3: https://jobs.utah.gov/occ/provider/early_childhood.pdf
- Procedure- Step by step instructions for implementing the activity
- Supplies- materials needed to complete the activity
- Rationale- explains how the activity benefits the child
- Reflection/evaluation- a review of the activity including: any changes, children's learning, teacher's learning.
- Transitions- the process of moving from one lesson, space, or event to another during the school day
  - Examples of Transitional Cues
    - Concrete Cues- objects move from one place to another (hang up your coat as you go inside, tuck in your chair)
    - Visual Cues- items are used that the child can see to inform them of a change in activity (when you see your name you may go, turning off the lights)
    - Auditory Cues- sounds used to move children from one area to another (clean up song, ringing a bell)
    - Novelty Cues- involve the use of unusual or new actions and devices to move the children from one activity to the next (asking a question, tiptoeing to the door)

Standard 3

Identify appropriate environmental space arrangement.

- Everything in your space, including furniture, materials and supplies set the tone for the class
- Children will be inclined to act appropriately if the space is orderly and organized with a place for everything
- Centers are defined and include a quiet/calming space where a child can be alone
- Space should be welcoming, pleasing to the eye and safe
- Children should have ownership in the space (ex. children's artwork displayed at their eye level)
- The space should be inclusive (multicultural, non-sexist, differing abilities) through books, pictures and learning materials
- Containers and shelves are child sized and labeled with words and pictures to support independence and language skills.
- Space arrangement
- Wet- Visual arts, Science, sensory

Standard 4

Explore the Utah Core Standards for Early Learning
https://www.schools.utah.gov/file/2f5c23cd-43cc-4ab1-b5d7-ef1f918362e9

STRAND 4

Students will demonstrate how to support learning in English Language Arts for preschoolers.

Standard 1

The English Language Arts strands includes speaking and listening, reading, and writing

- Literacy is the ability to read, write, speak, and listen.
  - Literacy enables students to participate fully in their community and society.
  - Language is the basis for understanding and communicating in most aspects of life.
- Techniques for supporting ELA include
  - Engage in conversations with children.
  - Read daily from a variety of texts, including narrative and informational genres.
  - Create a language- and print-rich environment
    - reading, listening, writing, and dramatic play centers, eye level alphabet charts, picture/word labels, and samples of children's work.
  - Provide activities that increase phonological awareness.
  - Use a wide variety of media and presentation forms
    - animated and engaging storytelling, pictures or drawings, posters, appropriate short multimedia presentations, drama, show and tell, signs, paintings, sculptures, puppets, and hand signs.
  - Sing a wide variety of songs
  - Provide a variety of texts representative of languages spoken in the classroom
  - menus, books, magazines, charts, newspapers, maps, instruction booklets, labels, and store flyers
  - Provide activities that increase awareness of the rhythm of language
    - clapping the syllables in children's names or other familiar words.
  - Provide opportunities for multiple readings/retellings of nursery rhymes or stories.
  - While reading to children, ask questions about what may happen next, how the book relates to their own experiences, how the characters in the story are feeling, etc.
  - Encourage children to re-enact stories using dramatic play or puppets.
  - Supply a variety of age-appropriate writing tools and materials in all areas of the classroom, including thin short pencils, crayons, markers, whiteboards, glue sticks, magnetic letters, paintbrushes, etc.
  - Model proper writing
    - writing down what children say, labeling their drawings, writing questions that could be asked of a visitor, or making a list of foods.

STRAND 5

Students will demonstrate how to support learning in Fine Arts for preschoolers.

Standard 1

The Fine Arts strands includes drama, dance, music, and visual arts

- Drama provides creative opportunities for children to portray a variety of events, characters, or stories through taking on different roles, interacting with props, and engaging in dramatic interactions.
- Dance provides children the opportunity to use their bodies to move to music and express themselves through movement.

- Music offers students the opportunity to learn songs, create music, develop self-expression, and build cultural understanding with self and others.
- Visual arts provide sensory, expressive, and social opportunities through the use of various media and materials to create drawings, pictures, or 3D art

Learning in Fine Arts is valuable for building curiosity and supporting children in expressing and communicating their ideas and experiences.

- Visual arts instruction improves reading readiness.
- Musical experiences support understanding foundational mathematical concepts.
- Engaging in fine arts reduces children's stress and increases their cognition, self-awareness, self-direction, social and cultural awareness, independence, language skills, physical and social-emotional development, and ability to make sense of the world around them.

Techniques for supporting Fine Arts include

- Engage and follow the children's lead in creative processes.
- Acknowledge children's efforts and persistence in artistic expression.
- Provide open-ended art experiences- all mediums are used to create and explore. An opportunity for exploration and expression without a look-alike result is the goal.
- Value the process not the product

STRAND 6

Students will demonstrate how to support learning in Health Education for preschoolers.

Standard 1

- The Health Education strands include physical, mental, emotional, and social health.
  - Physical Health includes Independence in personal care and hygiene.
  - Mental and Emotional Health focuses on awareness and care for the mental and emotional health of self and others.
  - Nutrition focuses on understanding the importance of nutritional food on health throughout life, including food choices, such as identifying healthy or less healthy foods, and how to properly fuel the body.
- Techniques for supporting Health Education include
  - Encourage the child to participate in self-care routines.
  - Provide examples of what a good friend is and is not.
  - Provide suggestions for appropriate turn taking.
  - Talk about foods in the environment and discuss healthy foods during snack time.
  - Help children acknowledge their feelings and teach them appropriate ways to handle those feelings.

STRAND 7

Students will demonstrate how to support Lifelong Learning Practices for preschoolers.

Standard 1

- Approaches to Learning includes the concepts of curiosity, engagement, interest in learning, independence, flexibility, perseverance, imagination, and problem-solving.
- Learning Engagement is the way children continue to develop the ability to actively explore and participate in the learning environment.
- Social development includes self-awareness, regulation and recognition of emotions, emotional responsiveness, managing stress, and the ability to interact with others effectively in social settings.

- Techniques for supporting Lifelong Learning Practices include
  - Encourage balance and healthy lifestyles.
  - Teach problem solving.
  - Help children develop citizenship skills to be responsible, accountable, and helpful.
  - Create a learning environment that inspires a sense of wonder, delight, curiosity, and creativity.
  - Recognize and honor variations in cultural contexts relating to how children play and make sense of their experiences. Provide materials that are culturally relevant and inclusive of children that make up the learning community.
  - Embed opportunities throughout the day to provide positive, affirming, and supportive, feedback to children.
  - Provide direct instruction on appropriate social interaction skills.
  - Design activities that require social interaction.
  - Demonstrate problem-solving techniques in relationships.
  - Acknowledge, respect, and validate children's expression of all emotions as teaching opportunities.

STRAND 8

Students will demonstrate how to support Mathematics for preschoolers.

Standard 1

- Mathematics is a way of thinking about patterns, relationships, and seeking multiple solutions to problems.
- Quality learning environments should focus on actual hands-on experiences during play and interaction with others to incorporate well-designed mathematical experiences.
- Math concepts include
  - Counting and cardinality- the ability to identify numerals by name, count in sequence, use one-to-one correspondence, and describe quantities of objects counted.
  - Operations and algebraic thinking- identifying and manipulating simple patterns, the understanding of addition as putting together and adding to, and the understanding of subtraction as taking apart and removing from.
  - Measurement and Data- the ability to describe and compare measurable attributes of objects, classify objects, and count the number of objects in each category.
  - Geometry- the ability to identify, describe, compare, and create shapes.
- Techniques for supporting Math include
  - Give children adequate time to explore and experiment with manipulatives before starting teacher planned instruction.
  - Design experiences where children explore and experience their environment to identify spatial relationships such as, "How many children fit inside the castle in the outdoor area?"
  - Use mathematical language to extend children's understanding within the context of their experiences, such as: "Do you want half a glass of milk or a full glass of milk?" or "Would you like more or fewer grapes than I have?"
  - Integrate mathematical experiences, including stories, chants, and songs to reinforce mathematical concepts such as "Five Little Speckled Frogs," "Five Little Ducks," and "The Three Billy Goats Gruff."
  - Integrate mathematics throughout the day (for example, counting snacks, identifying shapes, ordering objects by length or size).

STRAND 9

Students will demonstrate how to support Physical Education for preschoolers.

Standard 1

- The goal of physical education is to develop healthy, responsible children who have the knowledge, skills, and dispositions to work together, think critically, and participate in a variety of activities that lead to a lifelong healthy lifestyle.
- Physical development is integral to building children's self-esteem, confidence, fitness, and well-being.
- As children refine their physical movements, they develop higher-order thinking skills that are necessary for future social and academic success.
- Motor skills are defined as both small muscle and large muscle movements.
    - Gross (large) motor skills, including walking, kicking, hopping, galloping, running, sliding, skipping, leaping, and jumping, are the foundation of movement.
    - Fine (small) motor skills, including the two-finger pincer grasp and manipulation of small objects, support the development of pre-writing skills.
    - Locomotor skills include walking, hopping, running, jumping, galloping, leaping, and sliding.
    - Non-locomotor skills include balancing on one foot, moving body parts in isolation, bending, twisting, turning.
- Techniques for supporting Physical Education include
    - Continually encourage, challenge, and strengthen children's gross and fine motor skills by teaching, modeling, and providing many opportunities to:
        - Run, gallop, throw, catch, hop, kick, dance, jump, climb, pull, carry, stretch, bend, twist, and move isolated parts of the body. `
        - Practice building with large and small blocks, molding clay, using scissors or tongs, stringing beads, placing pegs in holes, assembling puzzles, using a computer mouse, and using a variety of writing utensils (pencils, crayons, markers) and art mediums (painting, printing, manipulating clay, stamping).
    - Participate in fine and gross motor activities alongside the children.
    - Teach, model, and maintain proper safety rules.
    - Provide opportunities for both organized and spontaneous play.

STRAND 10

Students will demonstrate how to support Science for preschoolers.

Standard 1

- Young children are captivated by discovering and exploring their natural world. They insist that teachers and family members answer their questions about the world around them
- Weather: the combination of sunlight, wind, snow, or rain, and temperature in a particular place at a particular time. Humans can plan and prepare for different weather conditions.
    - Sunlight has an effect on surfaces. Objects can be seen when light is available to illuminate them. Light is required for plant growth.
- Living things (plants and animals, including humans) depend on their surroundings to get what they need, including food, water, and shelter, to survive.
    - Behavior patterns between parents and offspring can help animals, including humans, to survive.
- All things are made of matter. Various kinds of matter, such as wood, metal, and water, have different properties that can be observed, described, and classified.
    - Pushing or pulling on an object can change the speed or direction of an object in motion.

- Techniques for supporting Physical Education include
  - Allow children to explore their surroundings and ask questions while they are doing so.
  - Lead children in discussions of, "What do you think will happen if…?"
  - Point out changes in children's environment including the weather, seasons, etc.
  - Provide children with language to describe what they see, hear, touch, taste, etc.
  - Build ramps, forts, levers, etc. with children and let them discover what will happen when using them.
  - Model and support vocabulary associated with the scientific process.
  - Support children's curiosity in their exploration of their environment by encouraging problem solving and discovery.

STRAND 11

Students will demonstrate how to support Social Studies for preschoolers.

Standard 1

The purpose of Social Studies is to prepare children to become informed and engaged citizens in a culturally diverse, rapidly changing, and interdependent world

- Techniques for supporting Physical Education include
  - Encourage regular classroom discussions.
  - Learn about children's preferences, interests, background, and culture. Adults share information about themselves and find commonalities with children and others.
  - Honor children's family culture and maintain a respectful attitude when interacting with others.
  - Encourage children to respect and include all classmates, appreciate differences, and meet one another's needs.
  - Acknowledge children's efforts and classroom contributions.
  - Provide direct instruction on appropriate social interaction skills with specific feedback.
  - Design activities that foster social interaction.
  - Model behaviors that care for the environment.
  - Explain the importance of safety and why that practice is important.
  - Provide children with choices and voting opportunities.

Performance Skills

Create a developmental profile for a child.

Workplace Skills

Students will develop professional and interpersonal skills needed for success in industry.

- Determine the difference between hard skills and soft skills.
  - Hard Skills: Hard skills are specific, teachable abilities that can be defined and measured
  - Soft Skills: Personal attributes that enable someone to interact effectively and harmoniously with other people.
- Identify soft skills needed in the workplace
  - Professionalism
  - Respect legal requirements/expectations
  - Good communication skills
  - Resourcefulness & creativity
  - Work Ethic

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
EARLY CHILDHOOD EDUCATION 3

Course Description

This semester course provides students an opportunity to work with children in a professional lab setting. Students enrolled in this course will: teach young children, demonstrate positive employment skills, maintain a healthy environment for children, and develop positive relationships with children. On-site lab experiences will be a major component of the course. Students will continue preparing for the Child Development Associate Credential (CDA). This course will strengthen comprehension of concepts and standards outlined in Science, Technology, Engineering and Math (STEM) education.

Student leadership and competitive events (FCCLA) may be integrated into this course. Child Development, Early Childhood Education 1 and Early Childhood Education 2 courses are REQUIRED prerequisites.

Intended Grade Level	11-12
Units of Credit	0.5
Core Code	34.01.00.00.050
Concurrent Enrollment Core Code	00.00.00.13.000
Prerequisite	Child Development, Early Childhood Education 1, Early Childhood Education 2
Skill Certification Test Number	329
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Family & Consumer Science (CTE/General)
Endorsement 2	Child Development/Early Childhood Education
Endorsement 3	N/A

STRAND 1

Students will receive Utah Pre-service Training and implement Utah Child Care Licensing Rules

Standard 1

Complete and implement Pre-service training

- Utah preservice-All students should complete the annual Utah preservice training
- https://childcarelicensing.utah.gov/Trainings.html
  - 2.5 hours of training is required before providing care to children
- Individual center health and safety plan based on Utah Childcare Licensing Rules
  - Training should be provided based on individual center or preschool rules

Standard 2

Students will review and implement Utah licensing standards.

- Identify qualifications for directors, lead teachers, and supporting teachers in an early childhood setting.
- Maintain the number of caregiver-to-child ratios for single-age groups of children in the table below:

Ages of Children	# of Caregivers	# of Children	Maximum Group Size (with 2 caregivers)
Birth-23 months (Infants)	1	4	8
2 years old	1	7	14
3 years old	1	12	24
4 years old	1	15	30
School age	1	20	40

Performance Skills

Review state licensing standards and evaluate a child care center to assess if it meets the qualifications outlined. (Facility, Ratios and Group Size, Administration and Children's Records)

Standard 3

Apply active supervision of each child at all times.

- Set Up the Environment- so staff can supervise and be accessible to children at all times
  - Position Staff- If there is more than one staff member in a space, position yourselves so that you can observe and see children at all times
  - Scan and Count- staff always know how many children are in their care and what they are doing
  - Listen- listen for specific sounds or the absence of them that could indicate a potential danger
  - Anticipate Children's Behavior- staff use what they know about their children to anticipate potential challenges
  - Engage and Reflect- staff work together to assist in the care of children
- Child Safety and Injury Prevention
  - All harmful objects and hazards are inaccessible to children; to view a list see the Child Care Center Rule Interpretation Manual, section 13
  - Objects and other items that are brought into the center (backpacks, things in pockets, etc.) may also be hazardous
  - Items with small parts or that fit through a paper towel tube are too small for children under the age of 2
- Emergency Preparedness and Response
  - Keep first-aid supplies in center, including at least antiseptic, bandages and tweezers

    - Fire drills are conducted monthly and disaster drills at least once every 6 months
    - Health and safety plan are located in the center and followed in an emergency or disaster
    - Parents will receive a written report of every incident, accident, or injury involving the child
- Health and Infection Control
    - Keeping the facility clean, sanitized, and washing hands are key factors in preventing and reducing the spread of illness
    - Toys and materials (bedding, dress-up clothing, etc.) should be cleaned weekly or more often if needed. (ie: for example if a toy is in a child's mouth)
    - Proper Handwashing Procedures should be posted and followed:
    - Use warm water. Run water over hands to remove soil before applying soap.
    - Use liquid soap and rub hands together to create a soapy lather.
    - Rub hands for at least 20 seconds including back of hands, between fingers and under fingernails.
    - Rinse hands and dry with a single-use towel.
        - Handwashing is required:
            - Before handling or preparing food or bottles
            - Before and after eating meals and snacks or feeding a child
            - After using the toilet or helping a child use the toilet
            - After contact with a body fluid
            - When coming in from outdoors or arriving to work
        - After cleaning up or taking out garbage
    - A child who is ill with an infectious disease may not be cared for at the center except when the child shows signs of illness after arriving at the center
    - Gloves should be worn during diapering/toileting practices, first-aid and when handling food
- Food and Nutrition
    - Each child age 2 years and older is offered a meal or snack at least once every 3 hours
    - Providers should be aware of food allergies and sensitivities and ensure that children are not served the food or drink of which they are allergic/sensitive

All of the above standards are from the Utah Center Rule Interpretation Manual, sections 7-
For specifics see https://childcarelicensing.utah.gov/centerinterpretation.html

STRAND 2

Identify signs of child abuse, abusive head trauma, ans sudden infant death syndrome.

Standard 1

Identify the signs of child abuse

- Provider shall ensure that no child is subjected to physical, emotional, or sexual abuse while in care.
- Utah law requires any person who has reason to believe that a child has been subjected to abuse, neglect, or dependency to immediately notify the nearest office of Child and Family Services, a peace officer, or a law enforcement agency.
- Inform parents, children and those who interact with the children of the center's behavioral expectations and how any misbehavior will be handled
- Individuals who interact with the children shall guide children's behavior by using positive reinforcement, redirection and by setting clear limits that promote children's ability to become self-disciplined Caregivers shall use gentle, passive restraint with children only when it is needed to stop children from injuring themselves or others, or from destroying property
- Interactions with the children shall not include: restraining a child's movement by binding, tying, or any other form of restraint that exceeds gentle, passive restraint

Performance Skills

Complete the Prevent child abuse Utah training
http://educators.pcautah.org

Standard 2

Describe causes, prevention, and consequences for infant Abusive Head Trauma(AHT).

- Abusive head trauma (AHT), including shaken baby syndrome, is a severe form of child abuse that results in brain injury.
  - It is caused by violent shaking and/or with blunt impact.
  - The resulting injury can cause bleeding around the brain or on the inside back layer of the eyes.
    - AHT often happens when a parent or caregiver becomes angry or frustrated because of a child's crying.
  - Abusive head trauma is preventable by responding to infant crying appropriately.
    - Examine ways to cope with crying.
  - Techniques for soothing an infant: Touch, Motion, Sound.
  - If your coping threshold (how much a person can take of something) for crying is reached and there is no one around to relieve you by taking the baby, put the crying baby down in its crib, close the door, and go do something to relieve the stress (i.e. dance to loud music, vacuum, watch TV, etc.) Checking on the baby every 5-10 minutes.
- At least one of every four babies who experience AHT dies from this form of child abuse.

Standard 3

Describe sudden infant death syndrome (SIDS) and prevention strategies.

- SIDS is the sudden, unexplained death of an apparently healthy child in their sleep (often under 1 year old)
- Use safe sleep practices to reduce the risk of SIDS:
  - Always place infants on their backs for sleeping.
  - No toys, pillows, stuffed animals, bumper pads, or wedges in the crib or bassinet.
  - Sleep infants in equipment designed for sleep, such as cribs or bassinets. Car seats, strollers, and swings should be avoided for sleeping.
  - Dress infants in sleep clothing, such as sleepers and sleep sacks, instead using blankets
  - Avoid letting infants get too hot when they are sleeping. Signs of overheating include sweating, damp hair, flushed cheeks, heat rash, or rapid breathing.
  - Supervise sleeping infants by having them sleep in a location where you can see and hear them or by doing an in-person observation at least once every 15 minutes covering them with blankets.
- Avoid letting infants get too hot when they are sleeping. Infants are too hot when you see them sweating or have damp hair, flushed cheeks, heat rash, or rapid breathing.
- Supervise sleeping infants by having them sleep in a location where you can see and hear them or by doing an in-person observation at least once every 15 minutes.

All of the above standards are from the Foundations for Success CCDF Topics for Pre-Service Training. For specifics see https://childcarelicensing.utah.gov/Trainings.html

STRAND 3

Students will evaluate and model developmentally appropriate practices with children

Standard 1

Review and implement a developmentally appropriate environment and curriculum

- Purposes of intentional space arrangement

    - Everything in your space, including furniture, materials and supplies set the tone for the class
    - Children will be inclined to act appropriately if the space is orderly and organized with a place for everything
- Centers are defined and include a quiet/calming space where a child can be alone
    - Space should be welcoming, pleasing to the eye andsafe
    - Children should have ownership in the space (ie: children's artwork displayed at their eye level)
- The space should be inclusive (multicultural, non-sexist, differing abilities) through books, pictures and learning materials
    - Containers and shelves are child sized and labeled with words and pictures to support independence and language skills.
- Space arrangement
    - Wet- Visual arts and Science/sensory
    - Dry- Mathematics and manipulatives
    - Active- Dramatic arts and blocks
    - Quiet- English Language Arts and technology

STRAND 4

Students will review guidance strategies in Early Childhood Education 1 Strand 3 & 4.
Examine positive guidance strategies I-messages and problem solving.

Standard 1

Identify i-messages

- I-messages: A specific description of behavior how it affects you, and your feelings about it.
- An i-message should follow this form "I feel ____ when ____ because____, next time please____."
    - Ex: "I feel worried when you climb up the slide because you might get hurt next time please use the ladder."

Standard 2

Identify the reasons to teach and use i-messages in an early childhood setting.

- Emotional intelligence: become more comfortable with labeling their emotions and communicating them to others.
- Assertiveness: respectfully and clearly teach others how to treat us.
- Problem solving: A tool to express feelings without blaming or judging.

Standard 3

Facilitate and encourage the development of independent problem solving.

- Passive Intervention: Giving children time to work through their own problems. If a situation does not escalate to destructive or aggressive behavior, simply observe as the children seek a solution, or be present to serve as a gentle reminder to use words instead of action. Trust children to 'figure it out' and help as needed.
- Physical Intervention: Physically stop children when they are hurting each other. Then focus on actively resolving the conflict at hand.
- Active Intervention: Steps in Teaching Conflict Resolution
    - Identify the problem and define it as a shared problem.
    - Invite children to participate in fixing the problem.
    - Generate possible solutions as a group.
    - Examine each idea for its merits or drawbacks. Decide which idea to try.
    - Work out ways of putting the plan into action.

- Follow up. Evaluate how the plan worked

Performance Skills

Conduct a child case study. Perform three different types of observations(see ECE 2 Strand 1). One of the observations should be completing the CDC milestones checklist for the child's age. https://www.cdc.gov/ncbddd/actearly/milestones/index.html
Identify a need for support. Develop strategies and a lesson plan to address that need. (Ex: taking turns, communicating needs, empathy, conflict resolution etc..)

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

FCCLA Integration into Early Childhood Education 3:
STAR Events: Career Investigation, Illustrated Talk, Interpersonal Communications, Job Interview, Life Event Planning, Advocacy, Chapter Service Project Display, Chapter Service Project Portfolio, Early Childhood Education, Focus on Children, Leadership, National Programs in Action, Teach and Train

Online STAR Events: Digital Stories for Change

Skill Demonstration Events: Impromptu Speaking, Early Childhood, Toys that Teach, Technology in Teaching

National Program: Career Connection, Power of One, Student Body, FACTS-Families Acting for Community Traffic Safely, Families First, Leadership Service in Action, STOP the Violence- Students Taking on Prevention

STRANDS AND STANDARDS
TEACHING AS A PROFESSION 3

Course Description

This course is designed to familiarize students with professional expectations and responsibilities of an educator. Students will identify different philosophies in education and develop their own philosophy of education. Students will recognize the impact of multiculturalism, diversity, and economic factors in the classroom. Students will explore the state approved standards, identify various types of instructional teaching methods, and apply effective strategies for effective classroom management and student learning. Students will recognize the elements of the Utah Effective Teaching Standards (UETS) through classroom observations. Students will integrate the elements of the Utah Effective Teaching Standards (UETS) in lesson design and instructional decision making.

Effective School Year	2023-2024
Intended Grade Level	11-12
Units of Credit	0.5
Core Code	39.02.00.00.003
Concurrent Enrollment Core Code	39.02.00.13.003
Skill Certification Test Number	013
Test Weight	0.5
License Area of Concentration	Professional Secondary License
Required Endorsement(s)	
Endorsement 1	K-12 Teaching as a Profession

STRAND 1

Students will compare the different roles and dispositions needed in various careers in education and define, identify, and develop a personal philosophy of education.

Standard 1

Compare the different roles and dispositions needed in the administrative, academic, and support services careers in education.

- Administrative
  - Superintendent
  - Principal
  - Assistant Principal
- Academic Teachers *(Elementary and Secondary)*
  - Arts
  - Career and Technical Education
  - Foreign Languages
  - Health/Physical Education
  - Language Arts
  - Mathematics
  - Science
  - Social Studies
    Special Education
- Support Services
  - Counselor
  - Librarian
  - Paraprofessional
  - Psychologists
  - Social Workers

Standard 2

Identify the purpose of and develop a personal philosophy of education.

- Define **personal philosophy of education** as an explanation of personal values and beliefs as they relate to teaching.
  - Identify personal core beliefs and values pertaining to education.
  - Identify the responsibility of professional growth.
  - Identify the benchmarks of student success expectations.
- Discuss why having and knowing a personal philosophy is beneficial in education.
  - Answers the question, “Why I want to become an educator?”
  - Allows reflection in response to feedback from students and peers.
  - Growth in ideas and goals for teaching and learning effectiveness.
- Develop a personal philosophy of education.

Performance Skills

- Students will visually present a reflection of the insights gained through an interview and/or observation using the elements of the Utah Effective Teaching Standards (UETS) in a career in administration, academic, or support services.
- Students will verbally present their personal philosophy of education that communicates the power of being an educator.

STRAND 2

Students will define multiculturalism, diversity, and economic status, explore self-awareness as a learner in an educational environment, and identify the unique individual characteristics of students and how to effectively address and leverage their attributes to build the classroom community.

Standard 1

Define multiculturism and dimensions of diversity.

- Define **multiculturalism** as people from many different cultures learning together in a classroom with mutual respect.
- Define **diversity** as an understanding that each individual is unique and recognizing our individual differences. These can be the dimensions of:
    - Define **disability** as a physical or mental impairment that substantially limits one or more major life activities.
    - Define **academic learning needs** as the gap between a learner's current knowledge and the knowledge needed to complete or perform a task or set of tasks.
    - Define **linguistic needs** as providing curriculum in both the primary language and secondary language.
    - Define **personal characteristics** as qualities such as gender, race, ethnicity, and sexual orientation that contribute to the uniqueness of each individual.

Standard 2

Explore, identify, and demonstrate self-awareness as a learner and sensitivity to others in the educational environment.

- Explore personal histories (e.g., positive/negative experiences within/outside a school), values, and beliefs to identify and compare the impact on personal attitudes towards education.
- Identify personal biases that may limit learning opportunities.
    - Reflect on positive/negative experiences with dimensions of diversity (i.e., disability, academic learning needs, linguistic needs, personal characteristics).
    - Demonstrate the ability to identify personal bias and potential techniques to overcome such bias.

Standard 3

Define socio-economic status and identify the different social, cultural, ethnic, and economic backgrounds in a classroom and how to effectively address and leverage their attributes in the classroom community.

- Define **socio-economic status (SES)** as three levels (high, middle, and low) that describe the three places a family and/or individual may fall based upon income, education, and occupation.
- Identify local social and cultural norms (e.g., religion, ethnicity, geography, holidays)
- Compare how different cultural and ethnic backgrounds contribute to student performance.
    - Discuss situations that may affect student learning due to cultural expectations and norms (e.g., contributing to family finances, family structure, educational expectations, sibling care)

Strand 2 Performance Skill

- Students will create an introductory activity that engages students to learn more about their peers.
- Students will create an interactive visual that highlights the local education community (classroom, school, community) showcasing diversity.

STRAND 3

Students will explore the elements of the Utah Effective Teaching Standards (UETS) **and identify components of the Utah High Quality Instructional (HQI) Cycle to develop a lesson plan using state approved standards.**

Standard 1

Explore the elements of the Utah Effective Teaching Standards (UETS).

- Compare effective teaching practices from the elements of the Utah Effective Teaching Standards (UETS) Standards.
- Discuss how the elements of the Utah Effective Teaching Standards (UETS) apply in various classroom settings (e.g., traditional, lab setting, large group, field trips)

Standard 2

Identify the components of the Utah High Quality Instructional (HQI) Cycle in developing effective lesson plans and discuss the relationship between lesson plans, scope and sequences, and units of study.

- Components of the Utah High Quality Instructional (HQI) Cycle include:
    - Goals and Outcomes
        - Connect learning intentions and student success criteria to standards and student data.
            - Define **learning intentions** as statements written by educators that define the day-to-day learning goals aligned to state standards.

        - Define **success criteria** as how educators and students will know if they have met the learning intentions.
    - Planning Instruction
        - Understand the fundamental aspects of the Universal Design for Learning (UDL) framework as providing structure for personalizing, accommodating, scaffolding, and accessing background knowledge to improve learning for all students. *Please refer to the Universal Design for Learning chart located at the end of this document as a reference.*
            - Provide multiple means of engagement
            - Provide multiple means of representation
            - Provide multiple means of action and expression
    - Instruction
        - Understand instruction incorporates
            - Student agency
            - Customized support
            - Opportunities to read, write, speak, and listen
            - Multiple opportunities to show mastery over time
    - Assessment
        - Design and use formative assessment practices that are student centered with multiple methods for demonstrating competency.
            - Define **formative assessment** as an ongoing evaluation of student learning that is administered multiple times during a lesson, unit, or course.
    - Data and Reflection
        - Analyze and reflect on student errors and misconceptions.
        - Explore how collaborative teams use a variety of data to reflect on instruction.
    - Adapt Instruction
        - Adjust plans for instruction based on student needs by:
            - Extending and deepening learning
            - Providing appropriate interventions
            - Incorporating feedback
- Define **lesson plan** as a teacher's plan for teaching an individual lesson.
- Define **scope and sequence** as an instructional map and calendar to outline the strands and standards, lessons, activities, and assessments of a course.
- Define **unit of study** as a framework that guides students through a process of learning concepts or content.

Standard 3

Identify a state approved standard on the Utah State Board of Education website and develop a lesson plan including the components of the Utah High Quality Instruction (HQI) Cycle.

- Arts
    - Visual art

        - Music
        - Dance
        - Media arts
        - Drama
    - Career and Technical Education (CTE)
    - Humanities
        - Language Arts
            - English
            - World Languages
            - Journalism
            - Speech/Debate
        - Social Studies
            - Civics and Government
            - Economics
            - History
            - Geography
    - STEM
        - Science
        - Technology
        - Engineering
        - Mathematics
        - Health Sciences
        - Physical Education

Standard 4

Reflect on the effectiveness of a lesson plan based on DuFour's four critical questions.

- What do we want all students to know and be able to do?
- How will we know if they learn it?
- How will we respond when some students do not learn?
- How will we extend the learning for students who are already proficient?

Strand 3 Performance Skill listed below.

- Students will unpack a state approved strand or standard to craft learning intentions and success criteria.
- Develop a lesson plan that includes components listed in Strand 3 from a state approved standard.

STRAND 4

Students will define various instructional methods and identify strategies to assess student understanding through instruction methods and effective questioning.

Standard 1

Define and identify various instructional methods.

- Define **explicit instruction** as an instructional approach that is structured, sequenced, and led by teachers.
    - Lecture
    - Teacher demonstration
- Define **Universal Design for Learning (UDL) instruction** as tailored instruction to meet individual needs.
    - The three guidelines for Universal Design for Learning (UDL) are: *Please refer to the Universal Design for Learning chart located at the end of this document as a reference.*
        - Engagement
        - Representation
        - Action & Expression
- Define **cooperative instruction** as a technique that allows students to learn from each other and gain important interpersonal skills.
    - Jigsaw
    - Pair share
    - Peer review
- Define **inquiry-based instruction** as a student center approached where the teacher guides the students through a driving question.
    - Project-based learning (PBL)
- Define **instructional technology** as a technique that uses technology and other electronic devices/software in its delivery.
    - Blended learning
    - Flipped classroom
    - Software products
    - Virtual environment (e.g., guest speaker, field trip)

Standard 2

Identify strategies to adapt to student learning according to DuFour's four critical questions.

- What do we want all students to know and be able to do?
- How will we know if they learn it?
- How will we respond when some students do not learn?
- How will we extend the learning for students who are already proficient?

Standard 3

Explore how the nature of questions asked of students leads to different levels of cognitive demand and manifests learning differently.

- Identify, evaluate, compare, and create various question types (e.g. open vs. closed, levels of Bloom's Taxonomy, Depth of Knowledge (DOK) levels)

Performance Skill

- Develop and deliver a 10-15 minute lesson plan, aligned to a state approved strand or standard, that includes a variety of the instructional strategies listed in Strand 4.

STRAND 5

Students will apply effective strategies and learning methods to manage the classroom learning environment.

Standard 1

Identify classroom management strategies and techniques.

- Define **classroom management** as a variety of skills and techniques that teachers use to keep students organized, orderly, focused, attentive, on task, and academically productive during class.
- Identify classroom management strategies in the learning environment.
    - Define **classroom culture** as creating an environment where students feel safe and supported to be involved.
    - Define **consistency** as steadfast adherence to the same principles, course, form, etc. regardless of bias and/or personality.
    - Define **planning** as the process of being prepared.
    - Define **procedures** as an established or official way of doing something.
    - Define **proximity** as nearness in space, time, or relationship.
    - Define **rapport** as a close and harmonious relationship in which the teacher and students understand each other's feelings or ideas and communicate well.
    - Define **rules** as a set of explicit or understood regulations or principles governing conduct within the learning environment.
    - Define **norms** as a set of co-developed standards for engaging in productive classroom discussions.
- Differentiate between rules, procedures, and norms.
- Discuss how effective classroom management is proactive rather than reactive.

Performance Skill

- Students will compare multiple classrooms, observing classroom management strategies. (*Teaching Tip: Remind students when sharing observations to not use teacher/student names, subjects, etc.)*

Cluster: Health Science		
Pathway: Health Science		
Course Code Number	Course Name	Summary
36.01.00.00.090	Health Science Introduction	Improved organization of document; updated terminology; added pituitary hormones; removed insurance trends; added definitions to career pathways; emphasized aspects of HIPAA. Added Workplace Skills.
36.01.00.00.195	Physical Therapy Introduction	Improved organization of document; updated terminology; added some basic anatomy, kept evidence based therapeutic modalities and treatment - removed outdated. Better alignment for concurrent enrollment. Added Performance Skills - none previously. Added Workplace Skills.

STRANDS AND STANDARDS
HEALTH SCIENCE, INTRODUCTION

Learning that works for Utah
CTE®

Course Description

This semester course is designed to create an awareness of career possibilities in health care and inform students of the educational options available for health science and health technology programs. Instruction includes beginning anatomy and physiology, medical terminology, medical ethics, diseases, and disorders. The course prepares students for the Medical Anatomy/Physiology course and/or for a variety of health technology programs.

Intended Grade Level	9-12
Units of Credit	0.5
Core Code	36.01.00.00.090
Concurrent Enrollment Core Code	N?
Prerequisite	N/A
Skill Certification Test Number	700
Test Weight	1.0
License Area of Concentration	CTE and/or Secondary Education or Elemntary Education 1-8
Required Endorsement(s)	
Endorsement 1	Health Science Introduction
Endorsement 2	Emergency Medical Technician
Endorsement 3	Exercise Science, Sports Medicine
Endorsement 4	Medical Anatomy & Physiology
Endorsement 5	Medical Forensics
Endorsement 6	Nurse Assistant
Endorsement 7	Surgical Technician

STRAND 1

INTRODUCTION-Students will explore the fundamental aspects of Healthcare.

Standard 1

Identify how math is used in the medical field.

- Demonstrate use of the 24-hour clock/military time.
- Demonstrate competency in basic math skills as they relate to healthcare (averages, ratios, fractions, percentages, addition, subtraction, multiplication, division).
- Demonstrate the ability to convert units of height, weight, and temperature.
- Demonstrate the ability to use the metric system.

Standard 2

Describe anatomical position and the role it plays in human anatomy.

- Define anatomical position.

Standard 3

Decribe body planes and directional terms and their relationship to anatomical position.

- Identify body planes.
  - Sagittal
  - Mid-sagittal
  - Coronal/frontal
  - Transverse/horizontal
- Identify directional terms.
  - Superior
  - Inferior
  - Anterior
  - Posterior
  - Medial
  - Lateral
  - Proximal
  - Distal
  - Superficial
  - Deep

STRAND 2

SUPPORT SYSTEMS-Students will explore aspects of the body systems related to support.

Standard 1

Identify the basic functions of the skeletal system.

- Describe how the skeletal system provides structure/support.
- Describe how the skeletal system provides means for muscle attachment and movement.
- Describe how the skeletal system store minerals (i.e., calcium).
- Describe hematopoiesis (blood cell production) and where it occurs.

Standard 2

Explore the basic structure of the skeleton.

- Identify the following bones:
  - Cranium
    - Frontal

    - Parietal
    - Occipital
    - Temporal
  - Maxillae
  - Mandible
  - Vertebrae
    - Cervical
    - Thoracic
    - Lumbar
    - Sacrum
    - Coccyx
  - Ribs
  - Sternum
  - Humerus
  - Radius
  - Ulna
  - Carpals
  - Metacarpals
  - Phalanges (fingers)
  - Pelvis
  - Femur
  - Patella
  - Tibia
  - Fibula
  - Tarsals
  - Metatarsals
  - Phalanges (toes)
- Describe articulation and identify examples of the following:
  - Immovable
  - Movable
- Describe the function of ligaments.

Standard 3

Describe the diseases and disorders associated with the skeletal system.

- Compare and contrast open and closed fractures.
- Describe the causes, signs, symptoms, and treatment of scoliosis.
- Describe the causes, signs, symptoms, and treatment of osteoarthritis.
- Describe the causes, signs, symptoms, and treatment of osteoporosis.
- Describe the causes, signs, symptoms, and treatment of sprain.

Standard 4

Describe the basic functions of the muscular system.

- Define thermogenesis.
- Identify how muscles produce movement (i.e., muscle contractions).
- Explain how muscles maintain posture.
- Explain how muscles protect internal organs.
- Explain how smooth muscle controls the volume of hollow body organs.

Standard 5

Explore the basic structure of the muscular system.

- Differentiate between cardiac, smooth, and skeletal muscles (appearance, location, control)
- Identify the location of the following muscles:
  - Biceps Brachii
  - Triceps Brachii
  - Trapezius
  - Deltoid
  - Diaphragm
  - Pectoralis major
  - Latissimus dorsi
  - Rectus abdominis
  - Gastrocnemius
  - Hamstrings
  - Quadriceps
  - Gluteus maximus
- Describe the function of tendons

Standard 6

Describe the disease and disorders associated with the muscular system.

- Describe the causes, signs, symptoms, and treatment of tendonosis.
- Describe the causes, signs, symptoms, and treatment of muscular dystrophy.
- Describe the causes, signs, symptoms, and treatment of strain.
- Describe the causes, signs, symptoms, and treatment of spasm (i.e., Charlie horse).

Standard 7

Describe the basic functions of the integumentary system.

- Identify how skin protects against infection.
- Explain that the skin produces vitamin D.
- Explain how the skin functions as a sensory organ.
- Explain how skin regulates body temperature.
- Identify how the skin protects against UV light.

Standard 8

Identify the layers of the skin and appendages.

- Describe the layers of the skin.
  - Epidermis
  - Dermis
  - Hypodermis (Subcutaneous)
- Describe the appendages of the skin.
  - Nails
  - Sudoriferous (sweat) glands
  - Sebaceous (oil) glands
  - Hair

Standard 9

Describe the disease and disorders associated with the integumentary system.

- Describe the causes, signs, symptoms, and treatment of acne.
- Describe the causes, signs, symptoms, and treatment of mycoses (fungal infections) (i.e., athlete's foot,

ringworm).
- Describe the causes, signs, symptoms, treatment, prevention, and detection (ABCDE method) of skin cancer.
  - Basal cell carcinoma
  - Squamous cell carcinoma
  - Melanoma

STRAND 3

TRANSPORTATION SYSTEMS-Students will explore aspects of the body systems related to transportation.

Standard 1

Describe the basic functions of the cardiovascular system.
- Identify how the cardiovascular system transports nutrients and wastes.
- Identify how the cardiovascular system transports heat.
- Identify how the cardiovascular system transports oxygen to body cells and carbon dioxide away from body cells.
- Identify how the cardiovascular system transports hormones.
- Identify how the cardiovascular system transports antibodies.

Standard 2

Identify the basic structures and functions of the heart, blood vessels, and blood.
- Describe the basic structures and functions of the heart.
  - Right atrium
  - Right ventricle
  - Left atrium
  - Left ventricles
  - Valves
- Explain the flow of blood through the heart.
- Compare and contrast the difference between arteries, capillaries, and veins.
- Identify the components of blood and the function of each component.
  - Red blood cells
  - White blood cells
  - Platelets
  - Plasma

Standard 3

Describe the diseases and disorders associated with the circulatory system.
- Describe the causes, signs, symptoms, and treatment of atherosclerosis.
- Describe the causes, signs, symptoms, and treatment of hypertension.
- Describe the causes, signs, symptoms, and treatment of myocardial infarction.
- Describe the causes, signs, symptoms, and treatment of anemia.

Standard 4

Identify the basic functions of the respiratory system.
- Describe how the nose warms, moistens, and filters air.
- Describe how sound production is related to the respiratory system.
- Describe the process of carbon dioxide-oxygen gas exchange.

Standard 5

Identify basic structures of the respiratory system.

- Nasal cavity
- Oral cavity
- Pharynx
- Epiglottis
- Larynx
- Trachea
- Bronchi
- Bronchioles
- Lungs
- Alveoli

Standard 6

Describe the diseases and disorders associated with the respiratory system.

- Describe the causes, signs, symptoms, and treatment of pneumonia.
- Describe the causes, signs, symptoms, and treatment of lung cancer.
- Describe the causes, signs, symptoms, and treatment of tuberculosis.
- Describe the causes, signs, symptoms, and treatment of influenza.
- Describe the causes, signs, symptoms, and treatment of Chronic Obstructive Pulmonary Disorders (COPD).
  - Asthma
  - Chronic bronchitis
  - Emphysema

Standard 7

Describe the basic function and structures of the immune system.

- Identify the basic function of the immune system (provides protection against diseases).
- Identify the basic structures of the immune system.
  - Tonsils
  - Lymph nodes
  - Spleen
  - White blood cells

Standard 8

Describe the diseases and disorders associated with the immune system.

- Describe the causes, signs, symptoms, and treatment of the human immunodeficiency virus (HIV).
- Describe the causes, signs, symptoms, and treatment of acquired immune deficiency syndrome (AIDS).
- Describe the causes, signs, symptoms, and treatment of lupus.
- Describe the causes, signs, symptoms, and treatment of mononucleosis.

STRAND 4

REGULATORY SYSTEMS-Students will explore aspects of the body systems related to regulation.

Standard 1

Identify the basic functions of the nervous system.

- Describe how the sensory nerves detect stimuli (pressure, temperature, taste, smell, light, etc.) and send the message in the form of an impulse to the central nervous system (spinal cord/brain).
- Describe how the nervous system receives and interprets incoming nerve impulses and determines

appropriate responses.
- Explain how the motor nerves carry out the response of the central nervous system (spinal cord/brain).

Standard 2

Identify the basic structures and their functions.

- Describe the structures of the brain and their functions.
  - Cerebrum
  - Cerebellum
  - Brain stem
- Describe the structure and function of the spinal cord.
- Describe the location and function of cerebrospinal fluid.
- Describe the location and function of meninges.
- Describe the structure (cell body, dendrites, axon) and function of sensory and motor nerves.

Standard 3

Describe the diseases and disorders associated with the nervous system.

- Describe the causes, signs, symptoms, and treatment of meningitis.
- Describe the causes, signs, symptoms, and treatment of epilepsy.
- Describe the causes, signs, symptoms, and treatment of concussion.
- Describe the causes, signs, symptoms, and treatment of cerebrovascular accident (stroke).

Standard 4

Describe the receptors of the special senses.

- Identify the sense of smell (chemoreceptors).
- Identify the sense of taste (chemoreceptors).
- Identify the sense of hearing (mechanoreceptors).
- Identify the sense of vision (photoreceptors).
- Identify the sense of touch (mechanoreceptors).

Standard 5

Identify the basic structures of the special sense organs and their functions.

- Describe the structure and function of the ear.
  - Outer ear
    - Auricle
    - External auditory canal
  - Middle ear
    - Tympanic membrane
    - Auditory/Eustachian tube
    - Auditory ossicles
      - Malleus
      - Incus
      - Stapes
  - Inner ear
    - Cochlea
- Describe the structure and function of the eye.
  - Eyelid
  - Conjunctiva
  - Sclera
  - Cornea

  - Iris
  - Pupil
  - Lens
  - Retina
- Describe the structure and function of the nose (olfactory receptors).
- Describe the structure and function of the mouth/tongue (taste buds).
- Describe the structure and function of the skin (nerve endings).

Standard 6

Describe the diseases and disorders of the special senses.

- Describe the causes, signs, symptoms, and treatment of pinkeye (conjunctivitis).
- Describe the causes, signs, symptoms, and treatment of middle ear infection (otitis media).
- Describe the causes, signs, symptoms, and treatment of deafness.
- Describe the causes, signs, symptoms, and treatment of near-sightedness (myopia).
- Describe the causes, signs, symptoms, and treatment of far-sightedness (hyperopia).
- Describe the causes, signs, symptoms, and treatment of aging eyes (presbyopia).

Standard 7

Identify the basic functions of the endocrine system.

- Describe how the endocrine system regulates body processes.
- Describe how the endocrine system regulates growth, development, and maturation.

Standard 8

Identify the location of the following glands and the function of the hormones they release.

- Pituitary gland-located in the brain, releases growth hormone (GH), thyroid stimulating hormone (TSH), and adrenocorticotropic hormone (ACTH).
- Thyroid gland-located in the neck, releases thyroxine.
- Pancreas-located behind the stomach, releases insulin and glucagon.
- Adrenal glands-located on top of the kidneys, releases cortisol, adrenaline, and noradrenaline.

Standard 9

Describe the disease and disorders of the endocrine system.

- Describe the causes, signs, symptoms, and treatment of Type 1 diabetes (Insulin Dependent Diabetes Mellitus).
- Describe the causes, signs, symptoms, and treatment of Type 2 diabetes (Non-insulin Dependent Diabetes Mellitus).
- Describe the causes, signs, symptoms, and treatment of gigantism.
- Describe the causes, signs, symptoms, and treatment of dwarfism.
- Describe the causes, signs, symptoms, and treatment of hypothyroidism.
- Describe the causes, signs, symptoms, and treatment of hyperthyroidism.

STRAND 5

MAINTENANCE SYSTEMS-Students will explore aspects of the body systems related to maintenance.

Standard 1

Describe the basic functions of the digestive system.

- Define ingestion.
- Define digestion (chemical and mechanical).
- Define absorption.

- Define excretion.

Standard 2
Describe the location and basic functions of the digestive organs.
- Mouth,chemical and mechanical digestion
- Pharynx, passageway
- Esophagus, passageway
- Stomach-storage, absorption, chemical and mechanical digestion
- Small intestine, chemical digestion and absorption
- Large intestine, absorption of water and formation of feces
- Rectum, temporary storage for solid waste (feces)
- Anus, excretion of feces

Standard 3
Describe the diseases and disorders of the digestive system.
- Describe the causes, signs, symptoms, and treatment of Crohn's disease.
- Describe the causes, signs, symptoms, and treatment of celiac disease.
- Describe the causes, signs, symptoms, and treatment of appendicitis.
- Describe the causes, signs, symptoms, and treatment of colon cancer.

Standard 4
Describe the basic functions of the urinary system.
- Explain how the urinary system regulates the volume and composition of blood.
- Explain how the urinary system excretes body wastes.

Standard 5
Identify the basic organs, and functions of the urinary system.
- Kidneys, filter blood and produce urine
- Ureters, transport urine from the kidney to the bladder
- Bladder, storage of urine
- Urethra, transport unrine from bladder to the exterior of the boday

Standard 6
Describe the diseases and disorders of the urinary system
- Describe the causes, signs, symptoms, and treatment of kidney stones.
- Describe the causes, signs, symptoms, and treatment of kidney failure.
- Describe the causes, signs, symptoms, and treatment of urinary tract infections (UTI).

STRAND 6
REPRODUCTIVE SYSTEM-Students will explore aspects of the human reproductive system.

Standard 1
Describe the functions of the reproductive system.
- Explain the production of gametes (egg and sperm) by the gonads.
- Explain the production of hormones to help in the maturation process.

Standard 2
Describe the structures, location and function of the female reproductive system.
- Ovaries, produces and releases the egg (ovulation) and releases estrogen and progesterone.

- Uterine tubes, tube for the eggs to travel to the uterus, most common site for fertilization of the egg
- Uterus, consists of the fundus, body, and cervix, site for menstruation (endometrium), development of the embryo, and expulsion of the fetus
- Vagina, passageway for menstruation, female copulatory organ, birth canal

Standard 3

Describe the structures, location and function of the male reproductive system.

- Testes, produces sperm and testosterone
- Scrotum, encloses and protects the testes and maintains an optimal temperature for sperm production
- Epididymis, storage and maturation of sperm
- Vas Deferens, transportation of sperm
- Prostate gland, secretes alkaline fluid
- Urethra, passageway for sperm and urine

Standard 4

Describe the diseases and disorders of the reproductive system.

- Describe the causes, signs, symptoms, and treatment of endometriosis.
- Describe the causes, signs, symptoms, and treatment of cervical cancer.
- Describe the causes, signs, symptoms, and treatment of benign prostatic hypertrophy.
- Describe the causes, signs, symptoms, and treatment of testicular cancer.
- Describe the causes, signs, symptoms, and treatment of sexually transmitted infections (STI/STD).

STRAND 7

INTRODUCTION-Students will explore the fundamental aspects of Healthcare.

Standard 1

Compare and contrast the history of medicine with current trends.

- Describe the contribution(s) to healthcare that the following groups or individuals have made.
  - Egyptians
  - Hippocrates
  - Clara Barton
  - Florence Nightingale
  - William Harvey
  - Joseph Lister
  - Ignas Semmelweis
- Identify current trends in healthcare.

Standard 2

Investigate the various aspects of health insurance.

- Describe health insurance.
  - Premium
  - Copay
  - Deductible
- Compare and contrast government funded healthcare programs and private health insurance.
  - Medicaid
  - Medicare

Standard 3

Summarize basic professional standards and characteristics of healthcare workers.

- Describe proper hygiene of a healthcare worker.

- Handwashing
- Describe proper dress of a healthcare worker.
- Discuss proper behavior in a healthcare setting (honesty, empathy, dependable, life- long learner, and teamwork).

Standard 4

Discuss desirable attitudes and behaviors when providing healthcare to diverse patients.

- Describe how cultural differences impart the delivery of healthcare.
- Describe the importance of treating patients as individuals (gender, race, age, religion, etc.).

Standard 5

Compare and contrast the health science career pathways.

- Explore careers associated with the Diagnostic Services Pathway. Careers associated with the technology used to aid in the diagnosing of patients.
- Explore careers associated with the Therapeutic Services Pathway. Careers that are associated with direct patient care.
- Explore careers associated with the Health Informatics Pathway. Careers associated with the business side of healthcare.
- Explore careers associated with the Support Services Pathway. Careers that create an enviroment suitable for patient care.
- Explore careers associated with the Biotechnology Research and Development Pathway. Careers that use science and technology that make improvements in the therapeutic and diagnostic arenas.

Standard 6

Demonstrate knowledge of medical law and medical ethics.

- Differentiate between medical law and medical ethics.
- Describe scope of practice for healthcare workers.
- Explain the importance of expressed consent and implied consent.
- Define legal implications and how they relate to healthcare (battery, invasion of privacy, malpractice/ negligence).
- Describe HIPAA with particular emphasis on patient confidentiality and patient records.

Performance Skills

Choose one health science career and create a presentation to explain:

- Education/Training required
- Job description
- Job outlook
- Salary
- Skills
- Working environment
- Certification/licensure

Presentation examples may include, but are not limited to: PowerPoint, poster, oral brochure, HOSA career health display, and video

Performance Skills

Choose one disease/disorder and prepare an oral and/or written report/presentation including the following:

- Signs and symptoms
- Prevalence
- Treatment

- Prevention/Risk reduction

Presentation examples may include, but are not limited to: PowerPoint, poster, oral brochure, display, and video

Workplace Skills

- Communication
- Problem Solving
- Teamwork
- Critical Thinking
- Dependability
- Accountability
- Legal Requirements/expectations

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
PHYSICAL THERAPY, INTRODUCTION

Learning that works for Utah
CTE®

Course Description

This course introduces students to the field of physical therapy through the history, medical terminology, documentation, therapy treatments, and pertinent legal and ethical considerations of the profession. Healthcare for a diverse population begins its thread in this course. Students will participate in clinical observations.

Intended Grade Level	11-12
Units of Credit	1.0
Core Code	36.01.00.00.195
Concurrent Enrollment Core Code	36.01.00.13.195
Prerequisite	N/A
Skill Certification Test Number	735
Test Weight	1.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Exercise Science/Sports Medicine

STRAND 1

Students will explore the fundamentals of rehabilitation medicine.

Standard 1

Explore rehabilitation therapy.

- Define rehabilitation therapy.
- Explore the history of rehabilitation therapy.
- Identify careers in rehabilitation therapy.

Standard 2

Investigate the professions in the field of Physical Therapy.

- Explore the history of physical therapy.
- Examine the roles and responsibilities of a physical therapist according to the state practice act.
- Examine the different employment settings.
  - Hospital Setting
  - Long-term care facility
  - Clinic
  - Schools (non-clinical)
  - Home Health
  - Wellness
- Explore the members and roles of the physical therapy team.
  - Physical Therapist
  - Physical Therapist Assistant
  - Exercise Physiologist
  - Physical Therapy Aide/Technician
- Explore educational requirements, credentialing exams, and costs for a career in physical therapy.
- Explore specialty areas within the field of physical therapy.
- Describe and understand the importance of involvement in organizations such as APTA to further career development.

Standard 3

Investigate the professions in the field of Occupational Therapy and Speech Therapy.

- Explore educational requirements for a career in occupational therapy.
  - Occupational Therapist
  - Occupation Therapist Assistant
- Explore educational requirements for a career in speech therapy.
  - Speech Therapist/Speech Language Pathologist
    - Swallow studies
    - Cognitive therapy
    - Speech therapy
  - Audiologist
  - Speech Language Pathology Assistant

STRAND 2

Students will identify the legal issues governing the clinical practice of physical therapy.

Standard 1

Identify the rules and regulations of the Health Insurance Portability and Accountability Act (HIPAA).

Standard 2

Identify health and safety regulations in the workplace.

- Identify common workplace safety hazards.
- Describe proper cleanliness and sanitation practices.
  - Personal Protective Equipment (PPE)
  - Infection control in the clinic.

Standard 3

Describe the required documentation related to therapy visits and treatment.

- Identify the components of a SOAP note.
- Differentiate the other types of medical documentation that would be pertinent in physical therapy practice.
  - Imaging
  - Medical History
  - Lab results
  - Vital signs

Standard 4

Examine and discuss the Utah Physical Therapy Act and how it relates to the roles and relationship between the physical therapy team including evidence-based treatment and plans of care.

- Identify the scope of practice of the following:
  - Physical Therapist
  - Physical Therapist Assistant
  - Physical Therapy Aide

Standard 5

Discuss legal safeguards in physical therapy treatments

- Consent
  - Adults
  - Minors – parent/guardian
- Proper draping of private areas of the body.
- Avoid one-on-one treatments on private areas of the body.
- Avoid, recognize, and respond appropriately to sexual harassment.

Standard 6

Investigate the various types of health insurance and the reimbursement process for physical therapy.

- Understand the components of health insurance plans.
- Describe the following related terms:
  - Premium
  - Copay
  - Deductible
  - Coinsurance
  - Preventative care
  - Explanation of benefits (EOB)
  - Balance billing

STRAND 3

Identify professional standards and core values within physical therapy.

Standard 1

Describe the characteristics of an effective healthcare provider in personal and professional terms.

- Demonstrate and understand the APTA Core Values.
  - Accountability
  - Altruism
  - Compassion/Caring
  - Excellence
  - Integrity
  - Professional Duty
  - Social Responsibility
- Analyze and implement productivity and time management strategies.
- Understand the implications the following have on healthcare employment:
  - Criminal Record
  - Illegal drug use
- Discuss professional attire within the healthcare setting.

Standard 2

Explain effective communication strategies of a therapist with patients and all members of the therapy team.

- Distinguish appropriate verbal and nonverbal communication skills.
- Describe appropriate listening skills.

Standard 3

Discuss desirable attitudes and behaviors when providing healthcare to diverse patients.

- Describe diversity, equity, and inclusion in relation to healthcare.
- Discuss implicit bias, including the role of disability bias in patient care.
- Examine the APTA code of ethics.

STRAND 4

Students will explore the Medical Terminology used in the practice of physical therapy.

Standard 1

Describe positional terminology in regard to the human body.

- Describe anatomical position
- Identify body planes and directional terms
  - Sagittal
  - Midsagittal
  - Coronal/frontal
  - Transverse/horizontal
  - Superior
  - Inferior
  - Anterior
  - Posterior
  - Medial
  - Lateral
  - Bilateral

- Contralateral
- Ipsilateral
- Proximal
- Distal
- Superficial
- Deep

Standard 2

Compare and contrast body movements.

- Flexion, extension, and hyperextension
- Adduction and abduction
- Pronation and supination
- Retraction and protraction
- Elevation and depression
- Rotation and circumduction
- External rotation and internal rotation
- Lateral flexion (side bending left and right)
- Inversion and eversion
- Dorsiflexion and plantar flexion
- Radial deviation and ulnar deviation
- Opposition

Standard 3

Define terms associatedwith physical therapy treatments.

- Activities of daily living (ADLs)
- Base of support
- Center of gravity
- Contracture
- Core
- Deformity
- Dynamic
- Ergonomics
- Fine motor
- Genu valgum
- Genu varum
- Gross motor
- Hypertonic
- Hypotonic
- Instability
- Kyphosis
- Long-sitting
- Lordosis
- Manual therapy
- Motor control
- Pes planus
- Proprioception
- Range of motion
- Reflex
- Spasticity

- Static

Standard 4

Define the following abbreviations/acronyms:

- Ⓛ
- Ⓡ
- Ⓑ
- Tx
- Fx
- Hx
- d/c
- PT
- PTA
- OT
- OTA
- WNL
- WFL
- /
- ✓

STRAND 5

Identify common Conditions and Injuries of the Musculoskeletal System.

Standard 1

Locate the following bones of the axial and appendicular skeletons.

- Axial Skeleton
  - Mandible
  - Maxilla
  - Zygomatic
  - Frontal
  - Parietal
  - Occipital
  - Temporal
  - Vertebrae
    - Cervical
    - Thoracic
    - Lumbar
    - Sacrum
    - Coccyx
  - Ribs
  - Sternum
- Appendicular Skeleton
  - Clavicle
  - Scapula
  - Pelvis
    - Ilium
    - Ischium
    - Pubis

- Femur
- Patella
- Tibia
- Fibula
- Tarsals
- Metatarsals
- Phalanges
- Humerus
- Ulna
- Radius
- Carpals
- Metacarpals

Standard 2

Describe the locations and functions of the following skeletal muscles:

- Sternocleidomastoid
- Levator scapulae
- Trapezius
  - Upper
  - Middle
  - Lower
- Rotator cuff (SITS)
  - Supraspinatus
  - Infraspinatus
  - Teres minor
  - Subscapularis
- Biceps brachii
- Triceps brachii
- Deltoid
- Pectoralis major
- Latissimus dorsi
- Quadratus lumborum
- Erector Spinae
- Rectus abdominis
- External oblique
- Internal oblique
- Tranverse abdominis
- Gastrocnemius
- Soleus
- Tibialis anterior
- Hamstrings
  - Semimembranosus
  - Semitendinosus
  - Biceps femoris
- Quadriceps
  - Rectus femoris
  - Vastus lateralis
  - Vastus medialis
  - Vastus intermedius

- Tensor fasciae latae (TFL)
- Iliotibial band or tract
- Gluteus maximus
- Piriformis
- Sartorius
- Gracilis

Standard 3

Identify the general pathologies in various parts of the body that can require physical therapy treatment or post-operative rehabilitation.

- Osteoarthritis
- Osteoporosis
- Ligament sprain
- Muscle strain
- Fracture
- Tendinitis
- Effusion

Standard 4

Identify the conditions of the shoulder that likely require physical therapy treatment.

- Rotator cuff tear
- Dislocation
- Subluxation
- Adhesive Capsulitis (Frozen shoulder)
- Impingement syndrome

Standard 5

Identify the conditions of the elbow that require physical therapy treatment.

- Medial epicondylitis – (Golfer's elbow)
- Lateral epicondylitis – (Tennis elbow)
- Cubital tunnel syndrome

Standard 6

Identify the conditions of the wrist that require physical therapy treatment.

- Carpal tunnel syndrome
- DeQuervain's tenosynovitis

Standard 7

Identify the conditions of the neck and back that require physical therapy treatment.

- Disc pathology
- Stenosis
- Muscle spasm
- Poor posture
- Sacroiliac joint dysfunction
- Coccydynia

Standard 8

Identify the conditions of the hip that require physical therapy treatment.

- Acetabular labral tears
- Iliotibialband syndrome

- Total hip replacement
- Piriformis syndrome

Standard 9
Identify the conditions of the knee that require physical therapy treatment.
- Anterior cruciate ligament tear
- Collateral ligament tears
- Meniscal tears
- Patellar tendinitis

Standard 10
Identify the conditions of the ankle that require physical therapy treatment.
- Achilles tendinitis
- Peroneal tendinitis
- Anterior talofibular ligament sprain (ATFL)

Standard 11
Identify the conditions of the foot and toe that require physical therapy treatment.
- Plantar fasciitis
- 1st Metarsalphalangeal joint extension sprain (Turf toe)
- Arch pain

STRAND 6
Explore common pathologies of the Neuromuscular System.

Standard 1
Identify how neuromuscular conditions originate and their impact on functional activities.
- Congenital
- Traumatic
- Genetic
- Effect on quality of life
- Mobility
  - Ambulation
  - Activities of Daily Living (ADL's)
  - Required levels of assistance
  - Musculoskeletal impact
  - Strength
  - Joint contractures

Standard 2
Identify a sample of pathologies associated with the neuromuscular system.
- Parkinson's disease
- Cererbrovascular accident (CVA/stroke)
- Multiple Sclerosis (MS)
- Cerebral palsy
- Rheumatoid Arthritis (RA)
- Traumatic Brain Injury (TBI)
- Spinal cord injury (SCI)
- Vestibular disorders

Standard 3

Identify tests that are used to classify neuromuscular pathologies.

- American Spinal Injury Association (ASIA scale) - neurological classification of spinal cord injury
- Glascow Coma Scale (GCS) – measure of cognitive coherence after injury.

STRAND 7

Explore the common pathologies of the Cardiovascular and Pulmonary Systems.

Standard 1

Identify how cardiovascular and pulmonary conditions originate and their impact on functional activities.

- Prevalence
- Risk factors
- Heart and lung anatomy
- Heart conduction
- Peripheral circulation
- Respiration

Standard 2

Identify pathologies associated with the cardiovascular and pulmonary systems.

- Myocardial Infarction (MI)
- Aneurysm
- Cardiomyopathy
  - Genetic
  - Acquired
- Vascular insufficiency
- Arrhythmia
- Congestive Heart Failure (CHF)
- Hypertension
- Pulmonary Embolism (PE)
- Chronic Obstructive Pulmonary Disease (COPD)
- Asthma

Standard 3

Identify tests and equipment that are used to measure cardiovascular and pulmonary function.

- Pulse oximeter
- Blood pressure
  - Stethescope
  - Sphygmomanometer
- Heart rate
  - Respiratory rate
  - VO2 max – the maximal amount of oxygen consumption capacity
  - 6-minute walk test
  - 12- minute run/walk test
  - Bicycle ergometer test
- Rate of Perceived Exertion scale (RPE)

STRAND 8

Explore the common pathologies of the Integumentary System.

Standard 1

Identify pathologies associated with the integumentary system.

- Burns
- Pressure injuries
- Infection
- Wounds
  - Location and size
  - Characteristics
  - Tunneling
  - Phases of healing
- Dermatitis

Standard 2

Understand the progression and time frame of the inflammatory process.

- Inflammatory phase
  - Acute
  - Chronic
- Proliferative phase
  - Collagen
  - Granulation tissue
- Maturation phase
  - Scar formation
  - Skin contracture

STRAND 9

Describe therapeutic exercises and modalities used to treat conditions and injuries.

Standard 1

Describe the types of therapeutic exercises used in Physical Therapy.

- Range of motion (ROM)
  - Passive (PROM)
  - Active (AROM)
  - Goniometer
  - Static stretching
- Strengthening
  - Types of muscle contractions
    - Isometric
    - Isotonic
      - Eccentric
      - Concentric
  - Progressive Resistive Exercises
    - Calisthenics
    - Free weights
    - Resistance bands
    - Pulley

- Open chain
- Closed chain

Standard 2

Ascertain the need for various assistive devices.

- Canes
  - Single point
  - 4-point
- Crutches
  - Axillary
  - Forearm
- Gait belt
- Wheelchairs
- Walkers
  - Front-wheeled walker (FWW)
  - Four-wheeled walker (4WW)

Standard 3

Associate the different therapeutic modalities used in physical therapy.

- Traction (cervical and lumbar)
- Electrical Stimulation/Transelectric Neuromuscular Stimulation (TENS)
- Instrument-Assisted Soft Tissue Mobilization
- Ultrasound
- Iontophoresis
- Dry needling
- Thermotherapy
- Cryotherapy
- Home exercise program (HEP)
- Manual Therapy
  - Joint mobilization
  - Cross-friction massage

Strand 10

Explore the unique needs of pediatric patients.

Standard 1

Differentiate the normal physical developmental milestones in infants and children.

Standard 2

Identify a sample of pediatric pathologies.

- Club foot
- Scoliosis
- Torticollis
- Plagiocephaly
- Juvenile Rheumatoid Arthritis
- Duchenne Muscular Dystrophy
- Down Syndrome
- Cerebral Palsy
- Fetal Alcohol Syndrome

- Cystic Fibrosis
- Spina bifida
- Osteogenesis Imperfecta
- Hip Dysplasia

Standard 3

Identify special considerations when treating pediatric patients.

- Physical size of patient
- Cognitive level/tolerance to treatment
- Modifications to therapeutic treatment
- Be aware of signs of child abuse and legal requirement to report

STRAND 11

Explore the unique needs of geriatric patients

Standard 1

Identify common conditions that may be treated in geriatric patients.

- Balance impairments
- Deconditioning/generalized weakness
- Obesity
- Independence with functional activities
- Joint replacement surgery

Standard 2

Define levels of care that geriatric patients may require.

- Hospital/Acute care
- Skilled nursing facility (SNF)
- Rehabilitation facility
- Assisted living center
- Home health
- Hospice/palliative care

Standard 3

Understand special considerations when working with geriatric patients.

- Modifications to therapeutic treatment
  - Avoid being too aggressive
  - Allow the patient to decide intensity of exercise
- Be aware of signs of elder abuse and legal requirement to report

Performance Skills

- Demonstrate the documentation of a patient's subjective report.
- Demonstrate taking a patient from the clinic waiting area to a treatment table.
  - Welcoming and positive interactions
  - Congeniality with patient
  - Walking at pace of patient
- Demonstrate taking the vital signs of a patient.
  - Heart rate
  - Manual blood pressure

    - Respiratory rate
- Demonstrate using a goniometer to measure knee range of motion.
- Explain and demonstrate a therapeutic exercise to a patient.
- Demonstrate how to transfer a patient from a wheelchair to another sitting location using a gait belt.
    - Sit to stand
    - Stand pivot
    - Stand to sit
- Teach a patient the correct and safe usage of an assistive device using verbal cues and demonstration.
- Set up and administer modalities. Choose one of the following:
    - Estim/TENS
    - Cryotherapy
    - Thermotherapy

Workplace Skills

- Communication
- Problem Solving
- Teamwork
- Critical Thinking
- Dependability
- Accountability
- Legal Requirements/expectations

Skill Certificate Test Points by Strand – will be revised later

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

Cluster: Hospitality & Tourism		
Pathway: Hospitality & Tourism		
Course Code Number	Course Name	Summary
37.01.00.00.100	Hospitality & Tourism	Changes the course formatting to add the definitions to key terms and concepts. Removed out of date items and added a career and USHE pathway strand.
37.01.00.00.151	Event Planning & Management	Changed the formatting to add definitions and added a new career and USHE pathway strand. Incorporated digital marketing into the strands where applicable.

STRANDS AND STANDARDS

Event Planning & Management

Learning that works for Utah
CTE®

Course Description

The Event Planning and Management course is designed for students interested in learning about this multi-billion dollar industry. Students are introduced to many facets of event planning including: site selection, budgeting, catering, promotion, and evaluating. Students will be encouraged to organize, plan, and evaluate various types of events.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	37.01.00.00.151
Concurrent Enrollment Core Code	N/A
Prerequisite	None
Skill Certification Test Number	451
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Business & Marketing (CTE/ General)
Endorsement 2	Business & Marketing Essentials
Endorsement 3	

STRAND 1

Purpose of Events - Students will understand the different types of events and the goal setting process.

Standard 1

Explore the different purposes to hold an event, a planned public or social occasion, in your surrounding community.
Evaluate the purpose. (social/special - fashion show, festivals, weddings, reunions, sporting events, concerts, or educational/professional - conferences, seminars, expo/trade show, retreats, board meetings, workshops)

Standard 2

Identify client, somebody who buys goods or pays for services, as

- Internal Clients: the stakeholder within your organization that requires you to plan an event for the organization.
  - Note: you can be the event planner for your own or family's event.
- External Clients: people that pay for you to plan an event.

Identify participant: a person who is involved in an activity or event
Identify attendee: a person who plans and shows up at an event or meeting
Discuss various Event Expectations or the means to determine if an event is successful, by determining the following for the event:

- Vision: an idealized picture of the event outcome
- Goals: broad, long-term aims that define accomplishment of the vision
- Objectives: specific, quantifiable, realistic targets that measure the accomplishment of a goal

Standard 3

Determine the theme, the design, ambiance (the character and atmosphere), feel, and customer experience during the event.

- Appropriate themes for different events, including taste level and degrees of quality.
- Achieving a client's vision successfully. Example: Client wants a cookie buffet and only gets a cookie basket.
  - "Under promise and over deliver"

STRAND 2

Event Planning - Students will understand how to create and utilize event budgets and planning tools.

Standard 1

Create a financial strategy and budget: an estimation of the costs an event will incur based on plans made as well as research.

- ●esearch the cost allocation for expense items. Be sure to cover the following categories:
  - Venue
  - Technology
  - Food and Beverage
  - Staffing
  - Transportation
  - Promotion
- Describe the need to keep expenses low and to stay within a budget to gain the best return on investments defined as the net revenue an event receives from ticketed events.
  - ROI Formula: (Event Revenue - Event Expenses) / Event Expenses = ROI
- Note: If your ROI is 100%, that means you doubled your investment

Standard 2

Create both long-term and short-term planning tools for an event.
Long-Term

- Mood/Inspiration board: an arrangement of images, materials, pieces of text, etc. intended to evoke or project a particular style or concept to clarify the event theme.
- Event timeline: a long-term event planning timeline that refers to a chronological series of events and actions taking place over a period of time.

Short-Term:

Cover the following list of Documents and tools used to plan events

- Event schedule:
- Venue map: a scale diagram of the arrangement of the event

Discuss additional short term tools as needed: vendor list, delivery schedules, setup and teardown plans.

STRAND 3

Venue Specifics - Students will differentiate between diverse venues and services to determine a location that best meets the client's vision.

Standard 1

Identify needs in **Venue** or site selection for participants and attendees.

- Projected participants and attendance for the event
- **ADA** the Americans with Disabilities Act requires that all facilities have handicapped accessibility.
- Essential needs such as restrooms, kitchens and waste management needs
- **Physical layout** and flow of facility for educational/professional events.
  - Types: Theater, U-Shape, Classroom, Board Room, etc.
- **Spatial design**, layout, and flow for social/special events.
  - Type: Banquet, reception, crescent or half-moon, etc.
- Determine **contracts**, a written or spoken agreement concerning an event that is intended to be enforceable by law, that will be needed.
  - Vendors, facility, keynote speaker, etc.
- Explain that some vendors require contracts oftentimes with a deposit in advance to secure service.
- Emphasize that the details may differ from vendor to vendor and they should be read carefully before signing. Copies should be kept for reference.

Standard 2

Examine the use of technology as means of facilitating and enhancing an event.

In-person technology

- Audio/Visual technology: video projection, screens, cameras, speakers, microphones, music, DJ, lighting

Virtual or Hybrid technology

- Event specific software, social media, mobile apps, registration, live streaming cameras and software.
- **Virtual event**: an online event that involves people interacting in a virtual environment, rather than a physical location
- **Hybrid events**: a mix of live and virtual events
- Emerging industry of virtual or hybrid software options

Standard 3

Discover food and beverage service options for an event

- Cater: provide food and drink at an event

Onsite or Offsite may be dictated by the location
    - Feeding Participants/Staff: meals, snacks, and gift bags,
    - Catering styles: Pre-boxed, buffet style, family style and plated meals
- Consider special diets and restrictions: allergies, vegan, vegetarian, gluten free, diabetic and other health or religious diets
- Calculate menu and meal planning, including costs per person, and total expense for attendees.

Standard 4

Transportation and accommodations
- Explore the different transportation options for attendees and participants when planning an event including: airlines, shuttle, charter bus, taxi, ride shares, and public transit
- Determine lodging applicable to site by requesting a block of rooms, a group of hotel rooms for the guests attending an event

Standard 5

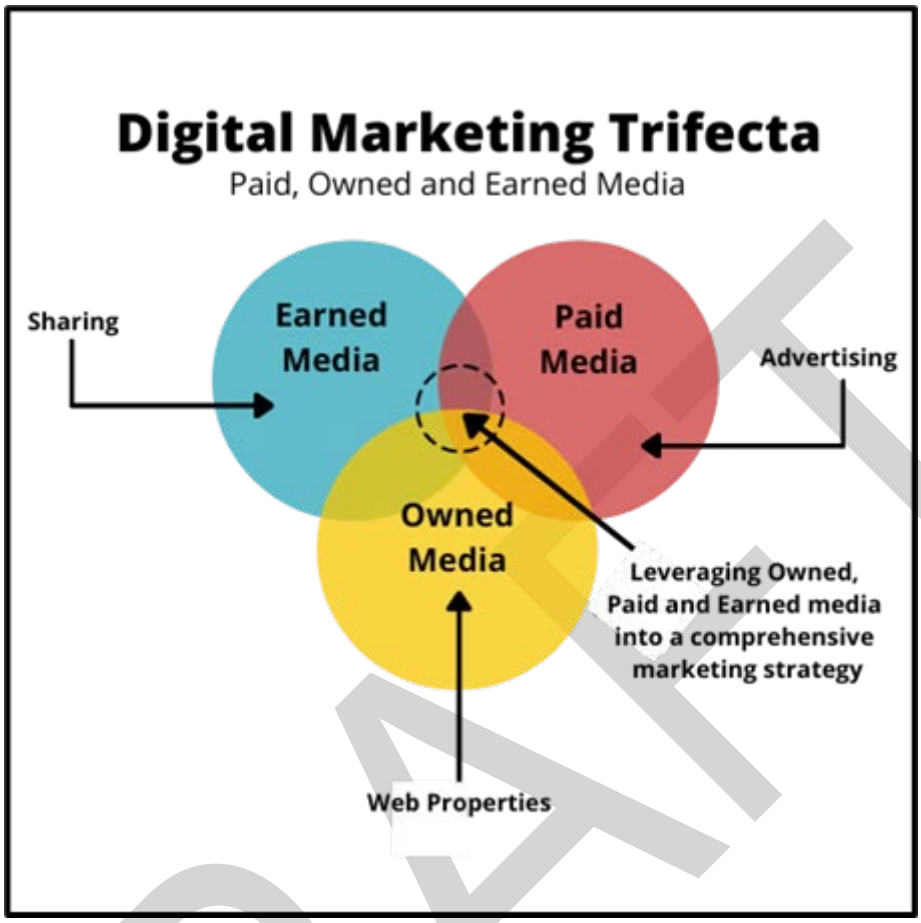
Determine necessary staffing for an event and discuss common event staffing
- Security Staff
- Check-in/Registration Staff
- Ushers: a person who shows people to their seats
- Food and Beverage Coordinator & Servers
- Janitorial staff
- Parking/valet

STRAND 4

Promotion & Evaluation - Students will understand the importance of promotional strategies and evaluation measurements to increase return on investment for an event.

Standard 1

Understand the types of promotion for event planning.
- Define promotion as the efforts to inform, persuade, and remind current and potential customers about a business's products or services
- Define the promotional mix: advertising, public relations, personal selling, and sales promotion.
- Identify the appropriate types of promotion for specific events
    - Weddings, Anniversary, Birthday Events (Direct Mailing, emailing, Invitations, and E-invites)
    - Conferences, Expos, Tradeshows (Billboards, Websites, Trade publications and Press release)
    - Seminars, Retreats, Reunions, (Internal communications, email, social media platforms and groups)
    - Performances, Concerts, Fundraiser, Outdoor Recreation and Sporting Events (Radio, Streaming & TV ads, Billboards, Posters, Marquees, Digital ads, Transit ads such as Bus, subway and car wraps.
- Word Of Mouth in Digital Marketing: Is called Paid, Owned, Earned Media or advertising
    - Owned Media: is any content owned and controlled by an organization, such as a content posted on a blog, website or social media channel.
    - Earned Media: is any material written about an event that the event hasn't paid for or created themselves.
        - UGC (User Generated Content): is any content — text, videos, images, reviews, shares, mentions, reposts etc. — created by people (fans), rather than brands.
    - Paid Media: is marketing that you pay for and includes paid advertising, branded content, and display ads.



Standard 2

Event planning and management evaluation after the conclusion of the event.

- A debrief of the goals and objectives with the client
- Staff debriefing to gain feedback of the pros and cons and "what we learned" moments.
- Evaluate the profit and loss. (Ticket sales, attendance percentages, revisiting your budgeted projection and documenting the actual expenses)
- Evaluate the ROI (return on investment) if necessary to the event's vision
- Use customer surveys and social media reviews to evaluate the success of the event.

STRAND 5

Careers & Pathways - Students will understand the Event Planning and Management career field.

Standard 1

Explore career opportunities in event planning and management.

- Research career growth trajectory.
- Examine salary and benefits for careers in Event planning and Management
  - 2021 Median Salary is
  - Networking opportunities
  - Travel opportunities
- Identify career types:
  - **Corporate Events**
    - Convention Planner, Hotel Manager, Venue Manager, Social Media Coordinator

- **Community Events**
  - Volunteer & Fundraising Coordinator
  - Sponsorship Coordinator
- **Private Event Planning**
  - Wedding and Party planners, Catering Event Manager, Communications Manager

Standard 2

Develop professional and interpersonal skills needed for success in event planning and management.

- Identify soft skills needed in the workplace. (i.e. good communication, being prompt, successful problem solving, good customer service skills, working in teams.).
- Identify hard skills needed in the workplace. (i.e. degree areas and certificates).
- Apply hire-ability skills needed to gain employment.

Standard 3

Research the the Hospitality & Tourism pathway and Post-secondary programs available in Event Planning and Management Careers

Hospitality & Tourism Pathway
https://www.schools.utah.gov/cte/hospitality/courses?mid=5530&aid=2

- **Explorer Courses**: Entrepreneurship, Marketing 1, Customer Service, Economics, Business Law, Business Communications, Accounting 1, Digital Graphic arts Intro
- **Concentrator Courses**: Hospitality & Tourism, Lodging & Recreation, and Event Planning & Management
- **Completor Courses**: Business & Marketing Capstone Course, or CTE Internship

- Certification Programs through Trade, Technical schools, and Junior colleges
- https://www.slcc.edu/continuinged/programs/event-meeting-planner.aspx
- https://www.davistech.edu/business-administrative-services
- https://mtec.edu/digital-marketing-and-analytics/

- Local University Degrees, Minors and Bachelor Degree programs
- https://www.uvu.edu/catalog/current/departments/organizational-leadership/event-planning-minor/
- https://www.suu.edu/business/hospitality/
- https://catalog.weber.edu/preview_program.php?catoid=18&poid=8633

Performance Skills (Choose three)

- Plan an event utilizing each Strand from the Event planning and management curriculum.
- Research career opportunities associated with event planning and management in Utah
- Evaluate a former school event and its successfulness
- Create a mood board for an upcoming event for your school or community
- Create one of each of the three different media types, Owned, Paid, and Earned
- Create a presentation on the many Post-Secondary pathways to a Career in Event Planning & Management.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS
HOSPITALITY & TOURISM

Learning that works for Utah
CTE®

Course Description

The Hospitality and Tourism course provides the student with an understanding of one of the largest industries in Utah and the world. The course is organized around the 4 segments of Hospitality & Tourism they are; Lodging, Transportation, Food and Beverage, and Entertainment and Recreation. Students will learn about career opportunities in tourism opportunities and the importance of hospitality and tourisms impact on the economy.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	37.01.00.00.100
Concurrent Enrollment Core Code	37.01.00.13.100
Prerequisite	None
Skill Certification Test Number	410
Test Weight	0.5
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Business & Marketing (CTE/General)
Endorsement 2	Business & Marketing Essentials
Endorsement 3	N/A

STRAND 1

Students will develop an understanding of the importance of hospitality and tourism marketing.

Standard 1

Students will understand key terms within the hospitality and tourism industry.

- Differentiate between the hospitality and tourism industries.
  - Hospitality industry: focuses on the relationship between guest and host
  - Tourism industry: people traveling to a location for business or pleasure

Identify the 4 segments of the Hospitality and Tourism Industry: Lodging, Transportation, Food and Beverage, Recreation and Entertainment.

- Define each of the 4 segments and provide examples of each type of business
- **Lodging**: sleeping accommodations for one or more nights
  - Examples - hotels, motels, campgrounds, resorts, rental properties
- **Transportation**: moving people from one place to another
  - Examples - buses, taxis, trams, subways, planes, car rentals, ferries
- **Food and Beverage**: preparing of meals, snacks, and beverages
  - Examples - fast food, bars, lounges, food trucks, catering
- **Recreation and Entertainment**:
  - Examples - zoos, museums, theaters, gyms, sport venues

Standard 2

Students will understand the importance of customer service in hospitality and tourism.

- Define **Hospitality**: the friendly and generous reception and entertainment of guests and visitors often referred to as exceptional customer service.
- Define **customer service**: the assistance and advice provided by a company to those people who buy or use its products or services.
- Know and Implement the **3 main objectives** of hospitality and tourism into practical applications (implementation can occur through DECA role plays).
  - Make the guest feel welcomed.
  - Make sure the product and services work for the guest.
  - Make sure the operation continues to provide service and make a profit.

Standard 3

Students will understand the impact of hospitality and tourism on the economy.

Define the following terms that highlight the

- **Ecotourism**: responsible travel to natural areas which conserves the environment and improves the welfare of local people.
- **Multiculturalism**: appreciating ethnic diversity within a society and encouraging people to learn from the contributions of those diverse ethnic backgrounds.

Discuss the social, cultural, economic, and environmental impacts of hospitality and tourism.

- Emphasize the impact of social customs and traditions, appeal of the destination, **benefit** and **detriment** to the local community
- Explain the ripple effect on an economy from tourism.

Discuss the importance of a strong infrastructure.

- Can the communities sustain an influx of tourists or the absence of tourism?
- Discuss the impact of technology on the hospitality and tourism industry.

Standard 3
Students will understand basic marketing principles.
- Define and apply **destination marketing**, target market, segmentation, and the marketing mix to the hospitality and tourism segments.

Performance Skills
Research and share cultural differences of countries and compare them to the United States in a visual presentation.
Research and evaluate a case study to solve an ecotourism problem in the hospitality and tourism industry
Example: Starbuck discontinues straws
Reuse of Linen
Eating Locally
Green initiatives in destinations or entertainment venues

STRAND 2
Lodging - Students will develop an understanding of the lodging industry

Standard 1
Students will understand the various aspects of the lodging industry.
- **Classify hotels** according to their types.
  - Guest (Business and leisure)
  - Price (budget/economy, mid price, upscale/luxury)
  - Location (airport, freeway, downtown, conference center)
  - Style (suite, extended stay, bed and breakfast, spa, timeshare, retreat
  - Vacation Rentals (AirBNB, VRBO)
- List and discuss the various hotel **amenities, a desirable or useful feature**, that influences the consumers' decision.
  - Pool, Gym, Breakfast, WiFi, and Parking

Standard 2
- Define and discuss **yield management**: setting different prices for goods and services in an effort to maximize revenue when a limited capacity is a factor
- Discuss the concept of **supply and demand** and how it relates to yield management
- Identify the different **types of room rates** (rack, AARP/AAA, government/state)
- Identify variables that affect **room rates**.
  - Dates/days
  - Occupancy rates
  - Room types
  - Room location (View from)

Standard 3
Students will be able to identify basic **hotel operations**.
- Explain front-of-the-house (front desk, auditor, bellhop, concierge) and back-of-the-house (reservations, management, housekeeping, human resources, marketing).

Standard 4
Define **staycation: a vacation spent at home or nearby**

Performance Skills (Choose one)

- Explore and create an infographic for 3 different types of hotel accommodations at a local attraction for a potential staycation. Your infographic should include the following
  - Hotel types, Hotel rates, Amenities offered, and your selection for a specific date.
- Perform a mock interview for a specific career in the lodging industry with a focus on communicating your understanding of the industry.

STRAND 3

Transportation - Students will develop an understanding of the different types of transportation used in international and domestic tourism.

Standard 1

Students will understand the importance of aviation to the hospitality and tourism industry.

- Discuss how the **hub and spoke system** works.
- Describe airline boarding procedures and **security methods**.
- Discuss the current trends and current events in the aviation industry.
- Identify the career opportunities and **necessary training** required to work in the airline industry.
  - Flight attendant schools
  - Pilot programs
  - Ground crew
  - Reservation and Gate agents
  - TSA and Security
  - Air Traffic Control
  - Sky Cap

Standard 2

Students will develop an understanding of the difference between domestic and international travel.

- **Passports** a official document issued by a government, certifying the holder's identity and citizenship and entitling them to travel under its protection to and from foreign countries.
- **Visas** an endorsement on a passport indicating that the holder is allowed to enter, leave, or stay for a specified period of time in a country.
- Understand the concept of the **24-hour clock, time zones**, and the International date line.
- Be able to convert money using current **exchange rates is a rate at which one currency will be exchanged for another currency**.

Standard 3

Students will understand the importance of ground transportation
List the various types of ground transportation that exist.

- Explain **rental car policies** and procedures.
- The importance of public transportation and rail and subway systems
  - Explore major cities use of rail systems and the importance to local economies
- Discuss s**huttle service and charter bus tours**.
- **Rideshares and taxi services** opportunities for careers or supplemental income.
- Identify the career opportunities and necessary training required to work in the ground transportation industry.

Standard 4

Students will demonstrate knowledge of the cruise industry

- Define **embarkation**, **debarkation**, and **port-of-call**.
  - **Embarkation** is the process of loading a passenger ship or an airplane with passengers
  - **Debarkation** the process of unloading a ship or airplane of passengers
  - **Port-of-call** a place where a ship stops on a voyage

Explore different cruising areas around the world.

- Research activities available both on and off the ship.
  - Explain **shore excursions**.

Discuss ship layouts and **cabin rates, gratuity** and amenities.

- Cabin location.
- Cabin view
- Cabin size

Identify the **career opportunitie**s and necessary training required to work in the cruise industry.

- Presales and booking
- Entertainment and Activity Director
- Food and beverage
- Hotel division
- Marine division
- Medical & Morgue

Performance Skills

- Compare and contrast ground transportation and rail service in the United States with that of other countries. Create a presentation that describes the differences between another country and our own.
- Plan a national or international vacation itinerary that includes at least two examples of transportation and links to their chosen options. Other segments of hospitality and tourism should be included.

STRAND 4

Food and Beverage - Students will develop an understanding of the different aspects of the restaurant industry.

Standard 1

Students will understand the key terms and functions of a restaurant business.

- Define a **restaurant** a place where meals are prepared and served to paying customers:
- Understand the difference between an **eating market, biological needs are met**, and **dining markets, social needs are met.**
- Describe the three types of restaurants:
  - **Quick-service**, fast food, offering fast, basic services, convenience, and a consistent quality at a low price (Taco Bell, Pizza Hut)
  - **Full-service**, a customer sits at a table, gives an order, and is served (IHOP, Olive Garden)
  - **Casual dining**, speed of service and efficiency is more important than a gourmet experience (Chipotle, Cafe Rio)

Standard 2

Students will understand the types of restaurant, including non-traditional food and beverage sectors

- **Food trucks, buffets, pop-up restaurants, to-go foodservice, catering** as the provision of food and drink at a social event or other gathering, typically as a professional service. , **bars and taverns, ghost**

kitchens as a delivery-only restaurant, single-item as a, and concession restaurants

Standard 3

Students will understand the **considerations of opening and operating restaurants**

- Competition, decor, pricing, food, beverages, location, target market, and **menu**
- Explore trends in consumer behavior and the **elements that influence** them
  - Reviews
  - Ease of ordering
  - Word-of-Mouth
  - Location
  - Payment Methods
- Employee recruitment, training and retention

Standard 4

Students will identify different jobs, careers, and opportunities in the restaurants.

- **Front of the house** - bartenders, servers, hosts, bussers
- **Back of the house** - chefs, line cooks, prep cooks, owner

STRAND 5

Recreation and Entertainment - Students will explore the difference between indoor and outdoor recreation and entertainment

Standard 1

Students will identify and describe outdoor recreation businesses

- Examples to include: (skiing and snowboarding, rock climbing, river running)
- Identify and describe indoor recreation businesses (movie theaters, roller skating, axe throwing, indoor climbing gyms, laser tag)
- Discuss **seasonality** in Utah and **consumer motivation** for travel in Utah.
  - **Extrinsic and Intrinsic**
    - **VFR**: Visiting Family and Relatives
    - Conference sites: Business/Leisure travel
    - Scenery and Recreation

Standard 2

Students will examine different **special events** offered throughout the state. (i.e. ski resorts, desert activities, Sundance, Shakespeare Festival, Tuacahn and the economic impact of past and future Winter Olympics.)

Standard 3

Students will identify and locate the **"Mighty 5" National Parks in Utah** and the recreation opportunities within the parks and surrounding area.

- Discuss the **impact of economic growth** that the national parks provide for smaller communities
  - Jobs
  - Housing
  - Restaurants
  - Recreation opportunities
  - Community development and infrastructure
- Explore the **career opportunities** that are provided in both indoor and outdoor entertainment and recreation. Agencies to include the **BLM Bureau of Land Management**, Forest Service, **Park Service**,

State Parks, State Forest and private agencies. Examples to include

- National Park Rangers
- State Park
- Tour Guides
- River Guides
- Fishing & Hunting Guides
- Survivalist Guides

Performance Objective

- Report on guest speaker or field trip experience from a local expert or after visiting a business in the recreation area.
- Create media or digital advertisements highlighting one of Utah's products or Utah's state and National parks as a tourist destination.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

Cluster: Human Services		
Pathway: Family & Human Services		
Course Code Number	Course Name	Summary
40.03.00.00.200	Behavioral Health, Introduction	Changes to Strand 5 ONLY to reflect changes in the DSM-5 (Latest Version) Standards 1 & 2
		Added definition of a mental health condition
		Added explanation of the DSM-5

STRANDS AND STANDARDS
BEHAVIORAL HEALTH, INTRODUCTION

Course Description

This course is an introduction to the Behavioral Health industry. Topics that will be introduced in this foundational level course include understanding individual wellness, effective communication, healthy relationships, addictive behaviors, mental health conditions, and protective laws and rights of patients and practitioners.

*This course is not designed for the student to diagnose themselves, friends, or family. It is an introduction to the behavioral health career field only.

Intended Grade Level	9-12
Units of Credit	0.5
Core Code	40.03.00.00.200
Concurrent Enrollment Core Code	
Prerequisite	None
Skill Certification Test Number	
Test Weight	
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Health Science Introduction
Endorsement 2	Family and Consumer Sciences
Endorsement 3	

ADA Compliant:September 2022

STRAND 1

Students will explore individual wellness.
***Performance skill included – see below.**

Standard 1

Introduce the different components of individual wellness

- The 7-dimension Wellness Wheel includes environmental, physical, spiritual, intellectual, social, financial/occupation, and emotional wellness

Performance Skills

Students will evaluate their overall health using the wellness wheel, setting goals in each dimension.

Standard 2

Explain how self-concept and self-esteem are built and preserved and how it relates to the perception of individual strengths and weaknesses.

- Define Self-Concept, Self-Esteem & Self-Ideal
  - Self-Concept: how someone thinks about, evaluates or perceives themselves; the mental image or perception that one has of oneself
  - Self-Esteem: is the positive or negative evaluations of the self, as in how we feel about it.
  - Self-Ideal: the way we would like to be
- Describe the positive and negative development of self-concept and self-esteem.
  - Ways to build self-esteem.
  - Things that might hurt self-esteem.
  - Self responsibility (resiliancy)
  - Self talk and affirmations

- Bullying
  - Prevention and resources
  - Resiliency
- Define how personal values, goals, and decision making contribute to self-concept.
  - Define and discuss values and their impact on self-esteem.
    - Values (Ideas, qualities, beliefs, and attitudes that guide the way you live) can change over time/experiences, if behaviors are consistent with your values it will build self-esteem.
    - Behaviors inconsistent with or lack of values can negatively impact self-esteem.
  - Describe how goals impact values, behavior, decisions, and self esteem.
    - Goals: the result of something a person intends to acquire, achieve, do, reach, or accomplish- sometime in the near or distant future.
    - SMART Goals: refers to goals that are Specific, Measurable, Achievable/Attainable, Realistic, and

Time Framed.
- Short-term and long-term goals
- Decision making
  - Describe the influence of social pressure on our decisions.
  - Evaluate the role of emotions, attitudes, and behavior in making decisions.

Standard 3

Explore the reward circuit and prefrontal cortex development on behavior.
- Define the function of the Reward Circuit
  - Impulsive, emotional, and reactive
  - Primary area of brain utilized during adolescence
  - Impacts risky behaviors and poor decision making
- Define the function of the Prefrontal Cortex Development
  - Thoughtful, logical, reasoning, and higher-level thinking
  - Not fully developed until mid-20's.
  - Regulates emotions
  - Recognizes social cues and non-verbal communication
  - Promotes processing of the potential consequences of actions

Standard 4

Identify the role of experiences that impact self-concept. in creating one's perception and on personal wellness & resilience.
- Adverse Childhood Experiences (ACEs)
- Adverse childhood experiences, or ACEs, are potentially traumatic events that occur in childhood (0-17 years). i.e. violence/abuse, death, divorce, substance misuse, etc.
- ACEs are linked to chronic health problems, mental illness, and substance misuse in adulthood.
- ACEs can also negatively impact education and job opportunities.
- The effects of ACEs, with intervention, can be managed.
- Positive childhood experiences are defined as experiences of feeling safe, connected, and supported when talking about emotions and hard things.
- Positive childhood experiences lower the likelihood of poor mental health outcomes and increase the probability of healthy relationships.
  - PCEs have lifetime consequences for mental and relational health despite co-occurring adversities, such as ACEs.

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Trauma: when a person feels intensely threatened by an event that they are involved in or witness. The event is a trauma.
- Acute – A single traumatic event that occurs in one's life.
- Complex – Exposure to multiple trauma events often of an evasive, interpersonal nature and the wide ranging, long term effects of this exposure.
- Chronic – Traumatic event that has occurred over and over in one's life.
- Protective Factors/Resilience
  - Individual, family, ~~and~~ community resources, self esteem, and cultural, religious and personal beliefs

Standard 5

Stress Management
- Stress – the body's and mind's reaction to everyday demands or threats. Can affect how you feel, think, and behave as well as how your body works.

  - Eustress – positive impact on physical and mental health. Creates challenge response motivating one to rise to the occasion and increase confidence.
  - Distress – negative impact on physical and mental health. Creates a crippling response affecting productivity or ability to think clearly.
- Coping Skills
  - Coping Skills – the method a person uses to deal with negative emotions.

- Helpful – assists in thought processing to allow progression through negative emotion. i.e. Exer- cise, diet, journaling, hobbies
- Hurtful – prevents progressing through the thought process of a negative emotion. i.e. self- harm, eating disorders, avoidance, substance abuse
- Coping skills can vary for each individual.

Performance Skills

Students will explore different healthy coping skills (Imagery, Meditation, Mindfulness, Yoga etc.)

Standard 6

Students will explore careers related to individual self-concept wellness.
If possible, guest speakers in career areas related to each strand would add greatly to the course.

- Clinical or counseling psychologist
- Clinical social worker
- Psychiatric nurse practitioner
- Psychiatric registered nurse
- Mental health counselor

STRAND 2

Students will practice ~~personel~~personal and professional effective communication.

Standard 1

Identify effective destructive and constructive verbal communication.

- Destructive communication: Methods that tear down communication. i.e. blaming, interrupting, endless fighting, character assassination, calling in reinforcements, withdrawal, need to be right.
- Constructive communication: Methods that promote and strengthen communication. i.e. "I" messages, clarity, timing, asking questions, reflective listening, respect and consideration, avoiding intense anger)
- Communication Styles
  - Assertive - Confidently aggressive or self-assured.
    - Self Advocacy - learning how to speak up for yourself, making your own decisions, reaching out to others, personal problem solving skills, etc.
    - Refusal skills: set of skills to help avoid high risk behaviors.
      - Say no, walk away, broken record, make joke, ask questions, etc.
  - Passive aggressive- Denoting or pertaining to a personality type or behavior marked by the expression of negative emotions in passive, indirect ways, as through manipulation or noncooperation.
  - Aggressive- Boldly assertive and forward; pushy.
  - Passive- Submissive, unresisting.

Standard 2

Identify positive and negative nonverbal communication.

- Identify nonverbal behaviors and messages (Most communication is nonverbal)
  - Body Language
    - Gestures
    - Eye Contact
    - Posture
    - Dress
- Demonstrate effective ways to communicate personal boundaries and show respect for the boundaries of others.

- Zones of Personal Space in Communication
  - Intimate Space: This zone is guarded closely and is reserved for close friends, relatives, and those we trust most.
  - Personal Space: This space is for those that we like. The closer someone is, more we like them.
  - Social Space: Used for friendly gathers and acquaintances.
  - Public Space: Used by speakers and audiences.

Can vary from one person, family, or culture to another.

Standard 3

Examine the effect of technology on communication

- Discuss positive and negative ways that technology effects communication.
  - Identify the purpose of Social Media and the effect on communication.
    - Social Media (Facebook, Instagram, Twitter, Tik Tok, etc.)
    - Effect on Relationships (Friendships, Family, Romantic, Professional, etc.)
  - Negative effects
    - Affect mental state: comparison culture, contentious culture, body image, depression, loneliness, anxiety, cyber bullying, privacy.
    - Potential negative professional implications (loss of job or educational opportunities due to social media posts)
  - Positive effects
    - Maintain relationships with others, communicate easily, part of a peer/social network that can provide support, more social interaction, educational.
  - Social Etiquette
  - Human Connection

Performance Skills

Students will explore the effect of communication in multiple environments (Possible examples: survey of peers on technology use, tracking their own use of technology, track their own or peers positive & negative communication, tracking their positive/negative communication in different environments.)

Standard 4

Explore careers related to effective communication in behavioral health.

- Speech Pathology
- Audiologist
- Communicative Disorders
- Behavioral Youth Counselor
- Outreach Specialist

STRAND 3

Students will explore the importance of healthy relationships.

Standard 1

Explore types of relationships and role responsibilities.

- List the types of professional relationships (client/patient, teacher/student, employer/employee)
  - Review the important functions of professional relationships (respect, communication, productivity, collaboration, cooperation)
  - Identify appropriate role responsibilities in professional relationships (client/patient, teacher/student, employer/employee)

- List the types of personal relationships (family, friends, romantic relationships)
  - Analyze the functions of personal relationships in growth and development (support, safety, guidance, etc.)
  - Identify responsibilities in personal relationships (honesty, respect, setting boundaries, clear expectations, respecting privacy, trust, etc.).
- List types of community-based relationships (civic, religious, neighbor)
  - Analyze the functions and benefits of participating in community-based relationships. (volunteerwork, educational, networking, invested in community etc.)
- List virtual environments where relationships can develop (social media, professional affiliates, dating sites, gaming forums etc.).
  - Identify the functions of virtual relationships (entertainment, networking, friendship, dating, professional etc.)
  - Compare and contrast the functions of virtual relationship to professional, personal, and community relationships.
  - Discuss the importance of awareness and safety when participating in virtual relationships.

Standard 2

Evaluate strategies to foster healthy relationships.

- Discuss the level of personal responsibility needed to form and participate in healthy relationships.
  - Review components of communication skills practiced in relationships (verbal, non-verbal, compromise, conflict resolution).
  - Demonstrate positive communication within each type of relationship. (personal, professional, community, virtual)
- List behaviors demonstrating trust (dependability, contribution, privacy, advocacy, accountability, transparency, commitment)
  - Analyze the value of trust when developing relationships.
  - Compare and contrast the characteristics of trust for each type of relationship. (personal, professional, community, virtual)
- Assess resources that support and foster healthy relationships. (therapy, workshops, community courses, counselor etc.)

Standard 3

Identify characteristics of unhealthy relationships and apply strategies to protect against unhealthy relationships.

- Define abuse and identify physical/social/emotional forms of abuse and violence.
  - Abuse:
    - Physical: Intentional use of physical force that can result in physical injury.
    - Emotional: Behaviors that harm one's self-worth or emotional well-being.
- Identify different types of abuse in relationships (dating, professional, family, peers, community)
- Identify characteristics and motivations of participants in the abuse/violence cycle
  - Stages of violence cycle: tension building, incident, reconciliation, calm.
  - Motivations: control, codependency, people pleaser, rescue mentality.
- Define the types of sexual violations (harassment, assault, rape, abuse)
  - Consent: explicit vs. implicit
    - Explicit: an individual is clearly presented with an option to agree or disagree with and clearly indicates their choice
    - Implicit: when surrounding circumstances exist that would lead a reasonable person to believe

that this consent had been given, although no direct, express, or explicit words of ~~agreemment~~agreement had been uttered.
- ~~Consent is freely given, reversible, specific, silence is NOT consent~~
- Discuss Utah Code 76-5-406 regarding consent; silence is NOT consent.
- Force/coercion: Force does not always refer to physical pressure
- Perpetrators may use: threats, emotional coercion, manipulation, intimidation tactics etc.

- Discuss the warning signs of abusive relationships. (jealousy, short temper, no privacy, raised in an abusive home, controlling, manipulation, isolation, reacts physically, lies)

Standard 4

Explore careers related to healthy and unhealthy relationships.

- Any type of therapy can relate to healthy and unhealthy relationships.
- Specializations could be:
  - Domestic Violence
    - Domestic Violence Shelters
  - Marriage and family counselor
  - Psychologist
  - Abuse specialist
  - Victim advocate
  - Occupational therapist
  - Marriage and relationship educator
  - Sexual crisis counselors
  - Non-profit resource specialist
- Different agencies offer specific resources and opportunities within the industry.

STRAND 4

Students will identify patterns in addictive behaviors.

Standard 1

Overview of Addiction

- Understand the process leading up to addiction and define key terms
  - Tolerance: when a person no longer responds to a drug or behavior in the way they did at first. People may seek more and more of a drug or behavior to get the "high" they seek.
  - Dependence: a condition where the body or brain has become so adapted to a substance that an individual would experience negative side effects should they abruptly cease use. This is known as withdrawal.
  - Addiction: a chronic, relapsing disorder characterized by compulsive behavior, continued use despite harmful consequences, and long-lasting changes in the brain.
  - Cravings: intense urges to use a particular substance or engage in a particular behavior
- Identify the two types of addiction (behavioral & substance) and examples of each
  - Behavioral addiction: the individual is addicted to the behavior or the feeling brought about by the relevant action.
  - Signs of behavioral addiction: craving, excessive behavior, psychological and physical withdrawal symptoms, loss of control, development of tolerance, whenever a habit changes into an obligation.
    - Examples: gambling, video game playing, eating disorders, sports and physical exercise, media use, sex addiction, pathological working, and compulsive criminal behavior.
  - Substance use disorder: chronic, relapsing disorder characterized by compulsive drug seeking, continued use despite harmful consequences, and long-lasting changes in the brain.

- Review that addiction can affect people of all ages, race or gender. (teens, adults, parents, babies)

Standard

Explore the function of brain chemistry on mental health.

- Identify major parts of the brain and their main functions
  - Emphasis should be placed on a basic overview, with more detail given to parts of the brain that are involved with course content (behavior, addiction, mental illness, etc.)
- Healthy Brain Function
  - Neurons (nerve cells) – sends and receives electrical signals to/from other parts of the brain, spinal cord and nerves in the rest of the body.
  - Neurotransmitters – chemicals released into the gap (synapse) between neurons that causes changes in the receiving cell.
  - Reward circuit –
    - Group of neurons in the brain (basal ganglia) that control behavior and memory.
    - Neurotransmitters help the brain make connections between an activity and pleasure. Certain neurotransmitters trigger either "go" or "stop" signals to pass along messages.
    - Example: food, hobbies, relationships, etc.
  - Prefrontal Cortex –
    - Thoughtful, logical, reasoning, and higher-leveling thinking (promotes the processing of potential consequences of actions)
    - Regulates emotions, recognizes social cues and non-verbal communication
    - Not fully developed until mid-20's
- Chemical changes within the brain
  - Substances that can modify neurotransmission.
    - Medications – over the counter and prescription
    - Alcohol
    - Nicotine
    - Illicit/illegal drugs
  - Chemical changes that can lead to addiction
    - Repeatedly exposes the brain to a flood of neurotransmitters (by blocking transporters, blocking receptors, exciting neurons, etc.
    - With each repeated exposure, the brain slowly adjusts
    - Effects are
      - Diminished natural highs – what once brought joy/fulfillment does not
      - Higher tolerance – need to increase quantity, potency, and frequency of substance to have the same effect

Standard 3

Explore the addiction recovery process.

- Determine how the brain can reverse the effects of addiction.
  - Define Neuroplasticity: the ability of the brain to form new neural pathways. The more you use your brain in a specific way the stronger the brain and pathways become, but it can also work in reverse.
    - Explore the concept of Use it (to learn new things) or Lose it (the brain can change back through soberness)
  - An addict's neural pathway is strong but with long periods of sobriety it can begin to heal chemically and physically.
  - Treatment varies depending on the type of drug and the characteristics of the patients. Matching treatment settings, interventions, and services to an individual's particular problems and needs is critical to his or her ultimate success in returning to productive functioning in the family, workplace, and society.
    - A patient may require varying combinations of services and treatment components during the course of treatment and recovery. (Examples: Counseling or psychotherapy, family therapy, medications, etc.

Standard 4

Identify the effects of addiction on family and friends of an addict.

- Trauma, abuse, neglect, violence, financial hardships, exposure to other drugs, poor school performance, strained relationships, loss of legal custody, reckless behavior.

Standard 5

Explore careers related to addiction recovery.

- Marriage & Family therapy
- Group therapy
- Addiction recovery specialist
- Social Workers
- Medical Professionals

STRAND 5

Students will identify mental health conditions and the common signs, symptoms, and treatment.

Standard 1

~~Catefgrizing~~Categorizing and defining mental health conditions and related stigma

- Mental Health Condition: "A major disturbance in an individual's thinking, feelings, or behavior that reflects a problem in mental function" (APA, Understanding Mental Disorders p. xvi)
  - Deviant, Distressful, Dysfunctional
- Diagnosing a condition
  - The Diagnostic and Statistical Manual of Psychological Disorder IV (DSM-5)
  - What is the purpose of the DSM-5? To standardize mental health diagnosis and care
  - What is in the DSM-5?
    - Symptoms
    - Diagnostic Criteria
    - Risk Factors
    - Prevalence
    - Comorbidity- conditions that commonly go together

        - Differential Diagnosis- conditions that can be mistaken for other conditions
        - Prognosis
        - Treatment Options
    - Conditional vs. diagnosed mental conditions
        - Conditional - normal day to day
        - Diagnosed mental conditions
- 3 types of stigmas related to mental health conditions
    1. Self stigma- within oneself, internalizing other forms of stigma.
    2. Social stigma- interpersonal
    3. Structural/Institutional- examples: societal, hiring practices, government policy
- Mental Health disorder conditions can happen at any age and will be a life-long journey.
    - Examples of Types of Treatment
        - DBT - dialectical behavior therapy, CBT - Cognitive Behavioral Therapy, ACT - Acceptance, Commitment Therapy- Value Based Therapy, Psychotherapy, etc.
- Treatment options
    - Psychotherapy - talk therapy
        - Psychotherapy can be offered individually, in couples, families, or groups
        - Some types of psychotherapy (Information via Mayo Clinic)
        - Cognitive Behavioral Therapy (CBT)- helps you identify unhealthy, negative beliefs and behaviors and replace them with healthy, positive ones
        - Dialectical Behavior Therapy (DBT)- teaches behavioral skills to help you handle stress, manage your emotions and improve your relationships with others
        - Acceptance and Commitment Therapy (ACT)- becoming aware of and accept your thoughts and feelings and commit to making changes, increasing your ability to cope with and adjust to situations
        - Psychodynamic and psychoanalysis therapy- increase awareness of unconscious thoughts and behaviors, developing new insights into your motivations and resolving conflicts
    - Pharmacological - prescription drugs

Standard 2

Identify some common mental health condition categories, starred categories* are essential: (See addendum)

- Anxiety Disorders *
- Bipolar and Related Disorders
- Depressive Disorders *
- Dissociative Identity Disorder
- Schizophrenia Spectrum and Related Disorders
- Feeding and Eating Disorders *
- Personality Disorders
- Obsessive Compulsive Disorder and Related
- Trauma and Stressor Related Disorders *
- Neurodevelopmental Disorders

Standard 3

Explore knowledge of risk factors, protective factors, warning signs and resources for suicide prevention

- Risk Factors of suicide
    - Mental health conditions
    - Social isolation

    - A time of crisis
    - Substance misuse
    - Trauma
    - Societal pressures
    - Life-changing illness or injury
    - Suicidal ideation- thinking about, planning, or considering suicide
    - Suicidal attempt
- Protective Factors
    - Connectedness
    - Reduced access to lethal means
    - Access to quality Healthcare
    - social supports
    - coping strategies
    - Resiliency
    - Self esteem
    - Familial relationships
    - Cultural, religious and personal beliefs
- Warning Signs
    - Isolation from friends & family
    - Change in behavior and sleeping patterns
    - Impulsive, irrational, or extreme mood swings
    - Giving away personal items
    - Substance misuse
    - Boredom and indifference
    - Violent actions or rebellious behaviors
    - Running away
    - Writing about death or suicide (Example: poems, diary, songs, social media, etc).
    - Talking about hopelessness, death, or being a burden

Identify suicide prevention resources

- Identify support for individuals in crisis
    - If you believe someone may be at risk
        - Question, Persuade, Refer (QPR) - Consider bringing in district or health department instructors as a guest speaker.
    - Ongoing support
        - HOPE Squad
- Resources for suicide prevention
    - Safe Utah App
    - Trusted Adults
    - Emergency 911
    - Statewide Crisis Line 1-800-273-TALK (8255)
    - Emergency Mental Health number being considered: 988

STRAND 6

Students will explore patient protection laws and rights and professional obligation

Standard 1

- Legal, Ethical and professional responsibilities/boundaries

- Abuse and neglect recognizing & reporting (based on Utah law)
- Accurate documentation
  - Professional: Correct grammar and proper English

- Law associated with Behavioral health (History)
  - Tarasoff Law Case
  - HIPAA Laws
  - Hitech
  - 42CFR Part 2
- Ethical responsibility: Guided by Behavioral Health professional organizations

Performance Skills

- Students will evaluate their overall health using the wellness wheel and set goals in at least 3 of the dimensions. (Strand 1)
- Students will identify coping skills that are potentially helpful and potentially hurtful and will explore a variety of different positive coping skills (Imagery, Meditation, Mindfulness, Yoga etc.) (Strand 1)
- Demonstrate refusal skills in a variety of situations. (e.g. professional, peer, relationships) (Strand 2)

Workplace Skills

Students will develop professional and interpersonal skills needed for success in the Family & Human Services industry.

- Determine the difference between hard skills and soft skills.
  - Hard Skills: Hard skills are specific, teachable abilities that can be defined and measured
  - Soft Skills: Personal attributes that enable someone to interact effectively and harmoniously with other people.
- Identify soft skills needed in the workplace
  - Professionalism
  - Respect Legal requirements/expectations
  - Good communication skills
  - Resourcefulness & creativity
  - Work Ethic

Cluster: Law, Public Safety, Corrections & Security		
Pathway: Protective Services		
Course Code Number	Course Name	Summary
40.06.00.00.046	Corrections	Removed "Introduction" from course name; increased the rigor of the course; improved CE alignment. Added Workplace Skills.
40.06.00.00.105	Careers in Criminal Justice	Changed name from "Careers in Law Enforcement"; improved course description; expanded and improved clarity of strands/standards; added Performance Skills; improved CE alignment. Added Workplace Skills.
40.06.00.00.108	Criminal Law	Improved course description; reorganized, expanded and improved clarity of strands/standards; added Performance Skills. Added Workplace Skills

STRANDS AND STANDARDS

CAREERS IN CRIMINAL JUSTICE

Learning that works for Utah
CTE®

Course Description

This course provides an overview of the various jobs and careers within the criminal justice system. This includes jobs and careers in law enforcement, in the courts, and in corrections. Students that are interested in a criminal justice occupation will be able to explore and understand the educational, physical, mental, and emotional requirements necessary to pursue those careers. This course relies upon the use of guest speakers from various occupations within the criminal justice system.

Intended Grade Level	11-12
Units of Credit	1.0
Core Code	40.06.00.00.105
Concurrent Enrollment Core Code	40.06.00.13.105
Prerequisite	None
Skill Certification Test Number	N/A
Test Weight	N/A
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Law Enforcement
Endorsement 2	
Endorsement 3	

STRAND 1

Students will understand careers within the Criminal Justice System and related fields

Standard 1

Students will be exposed to a variety of jobs and occupations in law enforcement, courts, and corrections.

- Police/law enforcement:
  - Local, state and federal police agencies.
    - Police officer/investigator
    - Crime Scene Investigators
    - Evidence Technicians/custodian
    - Records and other administrative support personnel
- Courts
  - Local, state, and federal courts
    - Attorneys/paralegals
    - Judges
    - Clerks
    - Bailiffs
    - Counseling services
    - Probation services
    - Records and other administrative support personnel
- Corrections
  - Local, state, and federal correctional institutions
    - Correctional officers
    - Parole/Board of Pardons
    - Counseling services
    - Vocational training services
    - Facility maintenance and other related support occupations
- Private Security

Standard 2

Students will examine the requirements necessary to attain employment in the occupations explored.

- OccupationEducational requirements
- Physical fitness/demands
- Mental Health stability
- Related experience
- Pass security/background check

Standard 3

Students will describe the Occupational Outlook for the careers explored.

- Geographical demand
- Wage/salary/benefits

STRAND 2

Students will be able to understand the importance of Resume development.

Standard 1

Explore the variety of Resume structures appropriate for criminal justice occupations.

Standard 2

Learn how to create a compilation of their work, educational development, and experience.

- Community Service Projects
- Occupational Internships
- Awards/Certifications
- Scholarships earned
- CTSO participation

STRAND 3

Students will be able to understand the significance of completing an internship in their fields of interest.

Standard 1

Describe the availability of desired internships.

- Age requirements
- Sources
  - Educational institutions
  - Criminal Justice agencies
- Background requirements

Standard 2

Define the different types of internships.

- Paid
- Unpaid

STRAND 4

Students will be able to understand the ethical issues and demands of a career in the criminal justice system.

Standard 1

Describe choices/actions that could disqualify a candidate for a criminal justice related occupation.

Standard 2

Explore ethical issues within the criminal justice system.

Performance Skills

1. Students will create resumes.
   - Current
   - Fictional based on a criminal justice occupation.
2. Research and write a short paper on a criminal justice related occupation that is of interest.
   - Must include:
     - Educational requirements
     - Physical requirements
     - Geographical Occupational outlook
     - Wages/Salary
     - Should be typewritten and consistent with professional formatting requirements
3. Complete a sample job application.
4. Participate in a mock job interview.

Workplace Skills

Communication
Problem Solving
Teamwork
Critical Thinking
Dependability
Accountability
Legal Requirements/expectations

STRANDS AND STANDARDS

CORRECTIONS

Learning that works for Utah
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Course Description

This course prepares individuals to perform the duties of correction officers on a local, state, or federal level. Including the history basic functions, and administration of corrections in our criminal justice system. Purpose to introduce students to the basics of rehabilitation, methodology, diversion, intermediate sanctions, prison/ jail system, juvenile corrections, probation/parole systems, sentencing, appeals, basic crime prevention methods, and other routine correction enforcement responsibilities are also included.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.06.00.00. 046
Concurrent Enrollment Core Code	40.06.00.13. 046
Prerequisite	None
Skill Certification Test Number	N/A
Test Weight	N/A
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Law Enforcement
Endorsement 2	N/A
Endorsement 3	N/A

STRAND 1

Students will be able to understand the corrections system, history, and administration of corrections in our criminal justice system.

Standard 1
Identify the role of corrections in society.

Standard 2
Define the philosophy of corrections.

Standard 3
Explore a brief history of corrections.

Standard 4
Describe Correction officer's authority in the United States.

Standard 5
Discuss the Bill of Rights within Corrections.

STRAND 2

Students will be able to understand the law, Constitution, and prisoner rights.

Standard 1
Compare and contrast Utah law and Federal law as it relates to Corrections

Standard 2
Identify prisoner's constitutional rights.

Standard 3
Identify the classification of criminal offences.

STRAND 3

Students will be able to understand the booking process, pre-trial release, sentencing proceedings and guidelines.

Standard 1
Describe the booking process.

Standard 2
Outline the pre-trial release process and factors.

Standard 3
Describe the presentence investigation process.

Standard 4
Identify factors influencing the sentence (aggravating/mitigating).

Standard 5
Identify the impact of plea bargaining on sentencing decisions.

Standard 6
Identify the differences between determinant and indeterminant sentences.

STRAND 4
Students will be able to understand the alternatives to incarceration.

Standard 1
Identify diversion and its impact on corrections.

Standard 2
Outline and distinguish between the role of probation and parole.

Standard 3
List and identify other alternatives to incarceration.

Standard 4
Describe the role of community corrections.

Standard 5
Explain the impact of effective corrections on recidivism rates.

STRAND 5
Students will be able to understand the function and differences between prisons and jails.

Standard 1
Identify the purpose and operation of jails.

Standard 2
Identify the purpose and operation of prisons.

Standard 3
List the different inmate classifications for each of the different incarceration options.

Standard 4
Describe inmate security threat groups (gangs) and prisoner subculture.

Standard 5
Decribe the demographics of inmate populations in prisons and jails in the U.S., including gender, sexual orientation, age, race, ethicity, and socio-eccomic status.

Standard 6
Describe the history and role of capital punishment and its various forms as practiced in the U.S.

STRAND 6
Students will be able to understand the juvenile justice system of corrections.

Standard 1
Distinguish between treatment of adults and juveniles in the criminal justice system.

Standard 2
Describe the role of juvenile probation.

Standard 3
Identify juvenile disposition (sentencing) options.

Standard 4
Identify juvenile detention options.

STRAND 7
Students will be able to understand corrections as an occupation.

Standard 1
Identify the positive and negative aspects.

Standard 2
Explore career opportunities and job assignments.

Standard 3
Describe the difference between civilian and sworn positions and opportunites

Standard 4
Outline the steps and requirements to become a Corrections Officer.

Workplace Skills
Communication
Problem Solving
Teamwork
Critical Thinking
Dependability
Accountability
Legal Requirements/expectations

STRANDS AND STANDARDS

CRIMINAL LAW

Learning that works for Utah
CTE®

Course Description

This course examines the criminal law and its importance and application in our system of justice in the United States. Students will learn the sources of criminal law, historical origins of law, functions of law in society, elements of a crime, interpretation of laws by the judicial system and compliance with the U.S. Constitution, classifications of crimes, terms of imprisonment and forms of punishment, and defenses to crimes. Students will analyze mock factual scenarios to determine what, if any, crime has occurred.

Intended Grade Level	11-12
Units of Credit	0.5
Core Code	40.06.00.00.108
Concurrent Enrollment Core Code	40.06.00.13.108
Prerequisite	None
Skill Certification Test Number	N/A
Test Weight	N/A
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Law Enforcement
Endorsement 2	
Endorsement 3	

STRAND 1

Students will be able to understand what behaviors are crimes and why they are prohibited and punished in society.

Standard 1

Define "what is a crime?"

Standard 2

Compare and contrast the differences between civil and criminal law.

Standard 3

Describe the classifications of crimes.

Standard 4

Identify the purposes of punishment.

Standard 5

Identify the sources of law that define crimes.

- Constitution
- Statutory
- Case Law

STRAND 2

Students will be able to understand the legal system in the United States.

Standard 1

Define the system of federalism in the United States.

Standard 2

Identify the three branches of government.

- Executive
- Legislative
- Judicial

Standard 3

Identify the different judicial systems in the United States.

- Local
- State
- Federal

Standard 4

Identify and describe the different burdens of proof.

- Preponderance of the evidence – civil standard
- Beyond a reasonable doubt – criminal standard

STRAND 3

Students will be able to understand the role and influence of the U.S. Constitution in criminal justice.

Standard 1

Describe the applicability of the U.S. Constitution to alleged criminal behaviors.

Standard 2

Describe the application of the due process and equal protection clauses of the 5th and 14th amendments of the U.S. Constitution.

Standard 3

Describe "freedom of speech" and "freedom of religion" and identify the exceptions to these protections.

Standard 4

Describe the sources and application of the "right to privacy".

Standard 5

Explain the applicability of the "right to bear arms".

Standard 6

Explain the limitations provided by the 8th amendment.

STRAND 4

Students will be able to understand the elements of crimes and how they differ from crime to crime.

Standard 1

Define the criminal act element (actus reus).

Standard 2

Define the mental state element (mens rea).

Standard 3

Identify the other elements which may or may not be part of a crime.

- Harm
- Causation
- Attendant circumstances

Standard 4

Identify crimes which do not require a mental state -- strict liability crimes.

STRAND 5

Students will understand the variety of defenses available to an accused who has been charged with a crime.

Standard 1

Describe the difference between an affirmative defense and a denial or failure of proof defense.

Standard 2

Compare and contrast the difference between a perfect defense and an imperfect defense.

Standard 3
Compare and contrast the difference between a justification defense and an excuse defense.

Standard 4
Describe the use and applicability of self-defense.

Standard 5
Explain the application of consent as a defense.

Standard 6
Explain the application of defense based on choice.
- Necessity
- Compulsion

Standard 7
Explain the application of defense based on entrapment, infancy, intoxication, or mistake.

Standard 8
Explain the circumstances of the application of an insanity defense.

STRAND 6
Students will understand who may be a party to a crime, inchoate crimes, and the concept of group criminality.

Standard 1
Identify the various parties to a criminal act.
- Principal, accomplice, accessory
- Vicarious liability

Standard 2
Identify the various incomplete crimes.
- Attempt crimes
- Conspiracy crimes/RICO
- Solicitation

STRAND 7
Students will understand the different types of crimes.

Standard 1
Identify the various types of homicide crimes.
- Aggravated murder
- Murder
- Manslaughter
- Negilgent homicide (involuntary manslaughter)

Standard 2
Identify the various sex offenses and other crimes against the person.
- Rape and sodomy
- Assault

- Battery
- Domestic violence
- Stalking
- Kidnapping/false imprisonment

Standard 3

Identify the various types of crimes against property.

- Non-violent theft/receiving stolen property/embezzlement
- Extortion/robbery
- Burglary/trespass/criminal mischief/arson

Standard 4

Identify the various types of crimes against the public.

- Quality of life crimes
  - Disorderly conduct
  - Vagrancy
  - Loitering
  - Pan-handling
- Group conduct crimes
  - Unlawful assembly
  - Rioting
  - Gang violence
- Vice crimes
  - Alcohol
  - Drugs
  - Prostitution
  - Gambling

Standard 5

Identify the various types of crimes against the government.

- Treason
- Sedition
- Espionage
- Sabotage
- Perjury/bribery/obstruction of justice
- Terrorism

Performance Skills

- Analyze mock factual scenarios to determine what, if any, crime has occurred. Scenarios should be from each of the substantive crime categories.
- Research and write a report describing a crime in your local community or a current event of local or national significance. Include the following elements:
  - Provide a factual summary of the situation/event.
  - Identify the crime, if any that occurred
  - Identify the elements of the crime
  - Based on the available facts, determine if you would prosecute the crime. Why?
  - Report should be type written and consistent with professional formatting requirements.

Workplace Skills

- Communication
- Problem Solving
- Teamwork
- Critical Thinking
- Dependability
- Accountability
- Legal Requirements/expectations

Cluster: Manufacturing		
Pathway: Welding & Machining		
Course Code Number	Course Name	Summary
40.10.00.00.110	Welding Technician - Entry Level	1. Changes were made to several standards to clarify specifically what needed to be taught. Small changes were made to grammar and format. 2. Strand 7, Standard 2, added an objective, "Build a pad of overlapping beads in a flat position. Include the skills, striking an arc, restarts, and filling a crater." 3. Strand 8, Standard 2, added an objective, "Use Short Circuit Transfer welding process to make 1F (flat position-fillet weld) multi-pass weld on carbon steel."
40.10.00.00.112	Welding Technician - Intermediate Level	1. Changes were made to several standards to clarify specifically what needed to be taught. Small changes were made to grammar and format. 2. Strand 8, Standard 2, Removed this objective - "Perform shape gouging operations on carbon steel."
40.10.00.00.114	Welding Technician - Advanced Level	1. Changes were made to several standards to clarify specifically what needed to be taught. Small changes were made to grammar and format. 2. Strand 7, Standard 2, added an objective, "Make a 3F (vertical position-fillet weld-multipass) welds on carbon steel."

STRANDS AND STANDARDS

WELDING TECHNICIAN – ADVANCED LEVEL

Learning that works for Utah
CTE®

Course Description

This is an advanced welding skills course. This course will teach students the processes that will prepare them to apply technical knowledge and skill in the workplace and in project construction. In this course, students will learn, and practice knowledge, attitude, skills, and habits required to perform tasks autonomously and with minimum supervision, including the selection and use of appropriate techniques and equipment.

Intended Grade Level	9-12
Units of Credit	1.0
Core Code	40.10.00.00.114
Concurrent Enrollment Core Code	40.10.00.13.114
Prerequisite	Welding Technician-Intermediate Level
Skill Certification Test Number	597
Test Weight	1.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Welding Technician
Endorsement 2	N/A
Endorsement 3	N/A

STRAND 1

Student will participate in personal and leadership development activities through SkillsUSA or another appropriate career and technical student organization.

Standard 1

Student will use communication skills to effectively communicate with others.

- Understand when it is appropriate to listen and to speak.
- Understand and follow verbal and written instructions for classroom and laboratory activities.

Standard 2

Student will effectively use teamwork to respectfully work with others.

- Identify and understand different roles in working with a team

Standard 3

Student will use critical thinking and problem-solving skills

- Analyze the cause of the problem.
- Develop a solution to address the problem.
- Implement the plan.
- Evaluate the effectiveness of the plan.

Standard 4

Student will be dependable, reliable, steady, trustworthy and consistent in performance and behavior.

- Set and meet goals on attendance and punctuality.
- Prioritize, plan and manage work to complete assignments and projects on time.

Standard 5

Student will be accountable for results.

- Use an achievement chart for activities and behaviors in class that encourages a personal evaluation of classroom performance.
- File a weekly/bi-weekly written report on progress toward completion of assignments and projects.

Standard 6

Be familiar with the legal requirements and expectations of the course.

- Be familiar with the course disclosure statement and all requirements for successful completion of the course.
- Demonstrate workplace ethics, e.g. fair, honest, disciplined.

STRAND 2

Student will participate in work-place readiness activities.

Standard 1

Student will demonstrate employability skills.

- Use a career search network to find career choices.
- Write a resume including a list of demonstrated skills.
- Write a letter of application.
- Complete a job application.
- Participate in an actual or simulated job interview.

Standard 2
Participate in a work-based learning experience outside the classroom.
- Plan and implement a work-based learning experience aligned with their career goal.

STRAND 3
Student will demonstrate appropriate welding safety practices for laboratory and work settings.

Standard 1
Implement safety practices related to welding.
- Identify, select, and properly use appropriate personal protective equipment (PPE).
- Verify that all equipment is in good operating condition and that appropriate safety devices are in place and working (e.g., guards in place, tool rests adjusted, etc.).
- Maintain a neat, well-organized laboratory or shop working area.

Standard 2
Identify fire hazard conditions and actions to take in case of fire.
- Explain combustion and identify three conditions necessary for it to occur.
- Describe fire prevention in a welding shop or work site.
- Explain classes of fires and appropriate extinguishers.

Standard 3
Take appropriate actions in an accident or emergency.
- Demonstrate the use of simple first aid in an accident with an injury.
- Locate first aid kits and investigate their contents and use in appropriate settings.
- Discuss appropriate safety responses in an accident or emergency.

STRAND 4
Students will use the Gas Metal Arc Welding (GMAW) process.

Standard 1
Set up for GMAW operations on carbon steel.
- Properly set up welding machine.

Standard 2
Properly set up and complete fillet and groove welds in the flat and horizontal position with GMAW process.
- Use Spray Transfer mode to make 1F (flat position-fillet weld) welds on carbon steel.
- Use Spray Transfer mode to make 2F (horizontal position-fillet weld) welds on carbon steel.
- Use Spray Transfer mode to make 1F (flat position-fillet weld) multi-pass welds on carbon steel.
- Use Spray Transfer mode to make 1G (flat position-groove weld) welds on carbon steel.
- Use Spray Transfer mode to make 2G (horizontal position-groove weld) welds on carbon steel.

STRAND 5
Student will use the Gas Tungsten Arc Welding (GTAW) process.

Standard 1
Set up for GTAW operations on carbon steel.
- Properly set up welding machine.

Standard 2

Properly set up and complete fillet and groove welds in the horizontal and vertical position with GTAW process.

- Make 3F (vertical position-fillet weld) welds on carbon steel.
- Make 2G (horizontal position-groove weld) welds on carbon steel.
- Make 3G (vertical position-groove weld) welds on carbon steel.
- Perform GTAW welder performance qualification test on carbon steel.

STRAND 6

Students will use the Flux Cored Arc Welding (FCAW) process.

Standard 1

Set up for FCAW operations on carbon steel.

- Properly set up welding machine.

Standard 2

Properly set up and complete fillet and groove welds in the vertical and horizontal position with FCAW process.

- Make 3F (vertical position-fillet weld) welds on carbon steel.
- Make 2G (horizontal position-groove weld) welds on carbon steel.
- Make 3G (vertical position-groove weld) welds on carbon steel.
- Perform FCAW welder performance qualification test on carbon steel.

STRAND 7

Students will use the Shielded Metal Arc Welding (SMAW) process.

Standard 1

Set up for SMAW operations on carbon steel.

- Properly set up welding machine.

Standard 2

Properly set up and complete fillet and groove welds in the vertical position with SMAW process.

- Make 3F (vertical position-fillet weld, uphill travel) welds on carbon steel.
- Make 3G (vertical position-groove weld, uphill travel) welds on carbon steel.
- Make a 3F (vertical position-fillet weld) multipass welds on carbon steel.
- Perform SMAW welder performance qualification test on carbon steel.

STRAND 8

Students will conduct weld inspection and testing.

Standard 1

Visually inspect metal and welds.

- Visually examine cut surfaces and edges of prepared base metal parts for appropriate preparation and fit.
- Visually examine tacks, root passes, intermediate layers, and completed welds for penetration and porosity, undercut, bead reinforcement, slag inclusions, and overlap.
- Suggest appropriate corrective action based on visual inspection results.

Standard 2
Use basic tools to inspect welds.
- Use basic weld inspection tools including dial calipers, fillet gauges, and weld reinforcement gauge.
- Suggest appropriate corrective action based on inspection results.

Standard 3
Use mechanical methods to determine weld quality.
- Perform bend-testing procedures to determine the quality of the weld.
- Suggest appropriate corrective action based on testing results.

STRAND 9
Students will fabricate a project, made from metal, using a blueprint and welding processes.

Standard 1
Use the following steps to plan a project.
- Develop a drawing of a project using appropriate welding symbols and information.
- Create a bill of materials with cost estimates.
- Use correct techniques to layout project as indicated on blueprints.
- Accurately measure and prepare materials for fabrication.
- Prepare a materials order and secure the materials.

Standard 2
Fabricate the project.
- Construct the project according to a plan that meets high quality standards in four areas, including project design, quality of workmanship, attention to detail, and fit and finish.

STRAND 10
Students will be able to perform automated manufacturing processes using CNC equipment

Standard 1
Understand and use correct processes to operate CNC equipment
- Understand the advantages, disadvantages, and limitations of CNC Plasma Cutting
- Understand and apply the concept of X, Y, and Z axis.
- Understand and apply the concept of Vector and Raster Lines.
- Define and generate G-Code using drafting software

Standard 2
Use CNC Plasma Cutter to make a cut
- Use a CNC Plasma Cutter to Cut Metal
- Create a simple object in a drafting program and successfully cut it.

Performance Skills
- File a weekly/bi-weekly written report on progress toward completion of assignments and projects.
- Plan and implement a work-based learning experience aligned with their career goal.
- Use GMAW Spray Transfer mode to make 2G (horizontal position-groove weld) welds on carbon steel.
- Perform GTAW welder performance qualification test on carbon steel.
- Perform FCAW welder performance qualification test on carbon steel.
- Perform SMAW welder performance qualification test on carbon steel.

- Perform bend-testing procedures to determine the quality of the weld.
- Construct the project according to a plan that meets high quality standards in four areas, including project design, quality of workmanship, attention to detail, and fit and finish.
- Create a simple object in a drafting program and successfully cut it.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS

WELDING TECHNICIAN – ENTRY LEVEL

Learning that works for Utah
CTE®

Course Description

This is an entry level course that will teach basic welding skills. This course will prepare students to apply technical knowledge and skill in the workplace and in project construction. In this course, students will learn, and practice knowledge, attitude, skills, and habits required for performing tasks autonomously, including the selection and use of appropriate techniques and equipment with minimum supervision.

Intended Grade Level	9-12
Units of Credit	1.0
Core Code	40.10.00.00.110
Concurrent Enrollment Core Code	40.10.00.13.110
Prerequisite	None
Skill Certification Test Number	595
Test Weight	1.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Welding Technician
Endorsement 2	N/A
Endorsement 3	N/A

STRAND 1

Student will participate in personal and leadership development activities through SkillsUSA or another appropriate career and technical student organization.

Standard 1

Student will use communication skills to effectively communicate with others.

- Understand when it is appropriate to listen and to speak.
- Understand and follow verbal and written instructions for classroom and laboratory activities.

Standard 2

Student will effectively use teamwork to respectfully work with others.

- Identify and understand different roles in working with a team

Standard 3

Student will use critical thinking and problem-solving skills

- Analyze the cause of the problem.
- Develop a solution to address the problem.
- Implement the plan.
- Evaluate the effectiveness of the plan.

Standard 4

Student will be dependable, reliable, steady, trustworthy and consistent in performance and behavior.

- Set and meet goals on attendance and punctuality.
- Prioritize, plan and manage work to complete assignments and projects on time.

Standard 5

Student will be accountable for results.

- Use an achievement chart for activities and behaviors in class that encourages a personal evaluation of classroom performance.
- File a regular written report on progress toward completion of assignments and projects.

Standard 6

Be familiar with the legal requirements and expectations of the course.

- Be familiar with the course disclosure statement and all requirements for successful completion of the course.
- Demonstrate workplace ethics, e.g. fair, honest, disciplined.

STRAND 2

Student will participate in work-place readiness activities.

Standard 1

Student will demonstrate employability skills.

- Use a career search network to find career choices.
- Write a resume including a list of demonstrated skills.
- Write a letter of application.
- Complete a job application.
- Participate in an actual or simulated job interview.

Standard 2
Student will participate in a work-based learning experience outside the classroom.
- Student will plan and implement a work-based learning experience aligned with their career goal.

STRAND 3
Students will understand welding processes and procedures.

Standard 1
Identify weld joints, weld types and weld positions.
- Identify five welding joints; butt, corner, edge, lap and tee.
- Identify four types of welds; fillet, groove, surfacing, and plug or slot.
- Identify four welding positions; flat, vertical, horizontal and overhead.

Standard 2
Visually identify common weld defects.

STRAND 4
Student will demonstrate appropriate welding safety practices for laboratory and work settings.

Standard 1
Implement safety practices related to welding.
- Identify, select, and properly use appropriate personal protective equipment (PPE).
- Verify that all equipment is in good operating condition and that appropriate safety devices are in place and working (e.g., guards in place, tool rests adjusted, etc.).
- Maintain a neat, well-organized laboratory or shop working area.

Standard 2
Identify fire hazard conditions and actions to take in case of fire.
- Explain combustion and identify three conditions necessary for it to occur.
- Describe fire prevention in a welding shop or work site.
- Explain classes of fires and appropriate extinguishers.

Standard 3
Take appropriate actions in an accident or emergency.
- Demonstrate the use of simple first aid in an accident with an injury.
- Locate first aid kits and investigate their contents and use in appropriate settings.
- Discuss appropriate safety responses in an accident or emergency.

STRAND 5
Students will identify welding tools and equipment.

Standard 1
Identify and properly use welding tools and equipment.
- Identify and properly use basic welding hand tools (e.g., safety glasses, welding helmet, chipping hammer, gloves, etc.).
- Identify and properly use basic power tools and equipment (e.g., shielded metal arc welder, gas metal arc welder, bench grinder, etc.).

STRAND 6

Student will identify and use basic layout techniques, welding symbols and drawing symbols identified in blueprints.

Standard 1

Use basic math and measuring skills to enhance basic layout techniques.

- Perform basic math conversions from fractions to decimals.
- Read and correctly use a tape measure, ruler, and square.
- Perform basic layout techniques.

Standard 2

Read and interpret welding blueprints.

- Apply information found in the information block of the drawing.
- Identify basic views used in blueprints, including assembly, detail, and fit-up drawings.
- Identify common types of lines used in blueprints, including object, hidden, center, and construction lines.

Standard 3

Identify and apply basic welding symbols.

- Identify and interpret basic welding symbols (e.g., square groove weld, fillet weld, field weld, reference line, etc.).
- Draw welding symbols for given specifications.
- Interpret a welding blueprint and welding procedure specifications.

STRAND 7

Student will use the Shielded Metal Arc Welding (SMAW) process.

Standard 1

Set up for SMAW operations on carbon steel.

- Properly set up welding machine.
- Start and restart an arc and run a bead on carbon steel.
- Identify common electrode classifications.

Standard 2

Properly set up and complete fillet and groove welds in the flat and horizontal position with SMAW process.

- Build a pad of overlapping beads in a flat position. Include the skills, striking an arc, restarts, and filling a crater.
- Make 1F (flat position-fillet weld) welds on carbon steel.
- Make 2F (horizontal position-fillet weld) welds on carbon steel.
- Make 1G (flat position-groove weld) welds on carbon steel.

STRAND 8

Student will use the Gas Metal Arc Welding (GMAW) process.

Standard 1

Set up for GMAW operations on carbon steel.

- Properly set up welding machine.
- Start and restart an arc and run a bead on carbon steel.

- Identify common electrode classifications.

Standard 2

Properly set up and complete fillet and groove welds in the flat and horizontal position with GMAW process.

- Use Short Circuit Transfer welding process to make 1G (flat position-groove weld) welds on carbon steel.
- Use Short Circuit Transfer welding process to make 1F (flat position-fillet weld) welds on carbon steel.
- Use Short Circuit Transfer welding process to make 2F (horizontal position-fillet weld) welds on carbon steel.
- Use Short Circuit Transfer welding process to make 1F (flat position-fillet weld) multi-pass weld on carbon steel.

STRAND 9

Students will use a manual oxy fuel process/system.

Standard 1

Set up and safely use a manual oxy fuel system to cut metal.

- Perform safety inspections of equipment and accessories.
- Set up for manual oxyfuel gas cutting operations on carbon steel.

Standard 2

Perform oxy fuel cutting operations on carbon steel.

- Perform straight cutting operations on carbon steel.
- Perform shape-cutting operations on carbon steel.
- Perform bevel-cutting operations on carbon steel.
- Pierce a hole through a carbon steel plate.

Performance Skills

- File a regular written report on progress toward completion of assignments and projects.
- Student will plan and implement a work-based learning experience aligned with their career goal.
- Implement safety practices related to welding.
- Interpret a welding blueprint and welding procedure specifications.
- Use the SMAW process to make 1G (horizontal position-groove weld) welds on carbon steel.
- Use the GMAW Short Circuit Transfer welding process to make 1G (horizontal position-groove weld) welds on carbon steel.
- Perform oxyfuel cutting operations on carbon steel.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS

WELDING TECHNICIAN – INTERMEDIATE LEVEL

Learning that works for Utah
CTE®

Course Description

This is an intermediate level course that will teach the next level of welding skills. This course will prepare students to apply technical knowledge and skill in the workplace and in project construction. In this course, students will learn, and practice knowledge, attitude, skills, and habits required for performing tasks autonomously, including the selection and use of appropriate techniques and equipment with minimum supervision.

Intended Grade Level	10-12
Units of Credit	1.0
Core Code	40.10.00.00.112
Concurrent Enrollment Core Code	40.10.00.13.112
Prerequisite	Welding Techniciano-Entry Level
Skill Certification Test Number	596
Test Weight	1.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Welding Technician
Endorsement 2	N/A
Endorsement 3	N/A

STRAND 1

Student will participate in personal and leadership development activities through SkillsUSA or another appropriate career and technical student organization.

Standard 1

Student will use communication skills to effectively communicate with others.

- Understand when it is appropriate to listen and to speak.
- Understand and follow verbal and written instructions for classroom and laboratory activities.

Standard 2

Student will effectively use teamwork to respectfully work with others.

- Identify and understand different roles in working with a team

Standard 3

Student will use critical thinking and problem-solving skills

- Analyze the cause of the problem.
- Develop a solution to address the problem.
- Implement the plan.
- Evaluate the effectiveness of the plan.

Standard 4

Student will be dependable, reliable, steady, trustworthy and consistent in performance and behavior.

- Set and meet goals on attendance and punctuality.
- Prioritize, plan and manage work to complete assignments and projects on time.

Standard 5

Student will be accountable for results.

- Use an achievement chart for activities and behaviors in class that encourages a personal evaluation of classroom performance.
- File a regular written report on progress toward completion of assignments and projects.

Standard 6

Be familiar with the legal requirements and expectations of the course.

- Be familiar with the course disclosure statement and all requirements for successful completion of the course.
- Demonstrate workplace ethics, e.g. fair, honest, disciplined.

STRAND 2

Student will participate in work-place readiness activities.

Standard 1

Student will demonstrate employability skills.

- Use a career search network to find career choices.
- Write a resume including a list of demonstrated skills.
- Write a letter of application.
- Complete a job application.
- Participate in an actual or simulated job interview.

Standard 2
Student will participate in a work-based learning experience outside the classroom.
- Student will plan and implement a work-based learning experience aligned with their career goal.

STRAND 3
Students will understand with welding processes and procedures.

Standard 1
Identify weld joints, weld types and weld positions.
- Identify the five welding joints: butt, corner, edge, lap and tee.
- Identify fillet and groove welds.
- Identify the four welding positions: flat, horizontal, vertical, and overhead.

STRAND 4
Student will demonstrate appropriate welding safety practices for laboratory and work settings.

Standard 1
Implement safety practices related to welding.
- Identify, select, and properly use appropriate personal protective equipment (PPE).
- Verify that all equipment is in good operating condition and that appropriate safety devices are in place and working (e.g., guards in place, tool rests adjusted, etc.).
- Maintain a neat, well-organized laboratory or shop working area.

Standard 2
Identify fire hazard conditions and actions to take in case of fire.
- Explain combustion and identify three conditions necessary for it to occur.
- Describe fire prevention in a welding shop or work site.
- Explain classes of fires and appropriate extinguishers.

Standard 3
Take appropriate actions in an accident or emergency.
- Demonstrate the use of simple first aid in an accident with an injury.
- Locate first aid kits and investigate their contents and use in appropriate settings.
- Discuss appropriate safety responses in an accident or emergency.

STRAND 5
Student will read and interpret welding symbols and drawing symbols identified in blueprints.

Standard 1
Use intermediate math and measuring skills to enhance layout techniques.
- Calculate the circumference of a circle.
- Use Pythagorean Theorem to calculate the missing side of a triangle (3-4-5 rule).
- Correctly use and interpret reading on a dial caliper.

Standard 2
Read and interpret welding blueprints.
- Interpret the tolerance dimensions found on a blueprint in decimals, fractions, and degrees.
- Draw blueprints for simple welding projects.

Standard 3

Identify and apply basic welding symbols.

- Identify and interpret basic welding symbols including bevel groove weld, plug or slot weld, melt through, intermittent fillet weld, and contour symbols.
- Identify and interpret drawings describing the anatomy of a groove and fillet weld.
- Draw welding symbols for given specification.
- Interpret a welding print and welding procedure specifications.

STRAND 6

Students will use the Flux Cored Arc Welding (FCAW) process.

Standard 1

Set up for FCAW operations on carbon steel.

- Properly set up welding machine.
- Identify wire classification

Standard 2

Properly set up and complete fillet and groove welds in the flat and horizontal position with FCAW process.

- Make 1F (flat position-fillet weld) welds on carbon steel.
- Make 2F (horizontal position-fillet weld) welds on carbon steel.
- Make 1G (flat position-groove weld) welds on carbon steel.

STRAND 7

Student will use the Gas Tungsten Arc Welding (GTAW) process.

Standard 1

Set up for GTAW operations on carbon steel.

- Properly set up welding machine.
- Identify filler rod classifications.
- Identify tungsten electrode classifications; lanthanated, ceriated, thoriated and pure.

Standard 2

Properly set up and complete fillet and groove welds in the flat and horizontal position with GTAW process.

- Make 1F (flat position-fillet weld) welds on carbon steel.
- Make 2F (horizontal position-fillet weld) welds on carbon steel.
- Make 1G (flat position-groove weld) welds on carbon steel.

STRAND 8

Student will use the Carbon Arc Cutting (CAC-A) or gouging process.

Standard 1

Set up for Carbon Arc Cutting (CAC-S) gouging operations on carbon steel.

- Properly set up Carbon Arc machine.
- Identify Carbon Arc electrodes.

Standard 2

Properly set up and complete gouging operation.

- Perform straight gouging operations on carbon steel.

- Pierce a hole through a carbon steel plate.

STRAND 9

Students will use the Plasma Arc cutting process.

Standard 1

Set up for plasma arc cutting operations on carbon steel.

- Properly set up Plasma Arc machine.

Standard 2

Properly set up and complete cutting operation.

- Perform straight cutting operations on carbon steel.
- Perform shape cutting operations on carbon steel.
- Pierce a hole through a carbon steel plate.

Performance Skills

- File a regular written report on progress toward completion of assignments and projects.
- Student will plan and implement a work-based learning experience aligned with their career goal.
- Maintain a neat, well-organized laboratory or shop working area.
- Use FCAW process to make 1G (flat position-groove weld) welds on carbon steel.
- Use GTAW process to make 1G (flat position-groove weld) welds on carbon steel.
- Use Carbon Arc Cutting process to pierce a hole through a carbon steel plate.
- Use Plasma Arc cutting process to perform straight cutting operations on carbon steel.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

Cluster: Transportation, Distribution & Logistics		
Pathway: Aviation		
Course Code Number	Course Name	Summary
40.11.00.00.052	UAS Lab: Intermediate Flight	Set of 4 new courses. Being piloted this year. Will go live SY 23-24 for all.
40.11.00.00.054	UAS Lab: Design, Build, and Maintain	
40.11.00.00.056	UAS Lab: Exploration of Industry Applications	
40.11.00.00.058	UAS Capstone	
Pathway: Automotive		
40.09.00.00.027	Electric Vehicle Safety and Technology	New Course

STRANDS AND STANDARDS

ELECTRIC VEHICLE SAFETY AND TECHNOLOGY

Learning that works for Utah
CTE®

Course Description

Electric Vehicles present unique challenges when servicing. This course addresses safety mechanisms in place, the electrical principles involved, and other emerging technologies in the transportation sector.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.09.00.00.027
Concurrent Enrollment Core Code	40.09.00.13.027
Prerequisite	ASE Electrical/Electronics
Skill Certification Test Number	
Test Weight	
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Automotive Service
Endorsement 2	
Endorsement 3	

ADA Compliant: September 2022

STRAND 1

Safety

Students will understand and demonstrate electric vehicle and shop safety.

Standard 1

Personal Protective Equipment (PPE)

Students will learn safe working habits and procedures and pass an electric vehicle and technology safety test with 100% accuracy.

- Personal safety
- Tool and equipment safety
- Workplace safety
- Understand the proper use of personal protective equipment (PPE)
- Know appropriate gloves for high voltage applications
- Know the appropriate glove validation procedures and tests (leak check, expiration, etc.)
- Identify proper footwear for high voltage applications
- Identify proper eyewear and/or face shields for high voltage applications. Resources: Light Duty Hybrid/ Electric Vehicle Specialist ASE L3

Standard 2

Safe Work Area

Comply with safety rules for working with electric and hybrid vehicles. Identify an appropriate work area of high voltage vehicles.

- Demonstrate proper use of cones, barriers, and ground markings for high voltage service of vehicles.
- Describe a proper location for storage of vehicle keys for preventing accidental vehicle startup.
- Demonstrate proper use of emergency response equipment (insulated rescue hook, etc.)
- Identify proper lift points on an electric or hybrid vehicle.
- Identify proper towing points and procedures on an electric or hybrid vehicle.

Standard 3

High Voltage Safety & Identification

Students will be able to identify safety concerns and high voltage warning labels when working with hybrid or electric vehicles.

- Identify high voltage wiring in an electric or hybrid vehicle (wire color variations and meanings)
- Identify the purpose and location of high voltage service disconnect.
- Understand proper fire response in a case of an emergency.
- Explain potential hazards of traditional firefighting techniques for high voltage vehicles.
- Understand and explain proper procedures in the event of an accidental electric shock.

Performance Skills

- Pass the electric vehicle safety test with 100% accuracy.
- Demonstrate proper use of cones, barriers, and ground markings for high voltage service of vehicles.
- Demonstrate proper use of emergency response equipment (insulated rescue hook, etc.)
- Demonstrate a proper high voltage glove inspection.
- Demonstrate proper lift procedures for electric and hybrid vehicles.

STRAND 2

Tools

Students will be able to identify and understand tools related to high voltage vehicles.

Standard 1

Safety Kit

Students will be able to identify tools used in a high voltage service and safety kit.

- Understand and identify glove use associated with hybrid electric vehicle (HEV) service and repair.
- Understand the purpose and use of cotton-lined, insulated rubber, and leather outer-protective gloves.
- Understand how to test and inspect gloves, including expiration dates and test for leaks.
- Understand expiration time on glove inspection and read their stamped date.
- Understand leak tests on glove inspections (roll up method, pump method, etc.)
- Understand and identify purpose and use of an insulated safety hook and its location.
- Understand and identify cones and safety barriers.
- Understand and identify approved eye protection used for servicing and repair of hybrid electric vehicles.

Standard 2

Key Storage

Students will be able to understand and identify proper key storage and lockout options.

- Understand and identify location and purpose of lockboxes and lockout options.
- Understand and identify the purpose of key isolation.

Standard 3

Insulated Tools

Students will be able to understand and identify tools related to hybrid electric vehicle (HEV) service.

- Understand and identify classification and rating of high voltage tools.
- Understand and identify purpose and use of coated tools.
- Understand and identify purpose and use of composite tools.
- Understand and maintain HEV tools.

Standard 4

Diagnosing & Testing Equipment

Students will be able to understand and identify use of diagnostic and testing equipment for hybrid electric vehicle (HEV) service.

- Understand and use scan tools for diagnostic requirements.
- Understand and identify use and storage of Digital Multimeters (class 3 meter and leads).
- Understand and identify purpose of Isolation Testers rated for HEV service in Mega Ohms.

Standard 5

Service Information

Students will be able to use and access hybrid electric vehicle (HEV) service information using online resources.

- Properly use online service information that relates to HEV service.

Standard 6

Cooling Systems Tools

Students will be able to understand and identify the use of colling system tools specific to hybrid electric vehicle (HEV) service.

- Understand and identify how to properly fill and bleed cooling systems.
- Understand and identify coolant concentration using a hydrometer and refractometer.

Performance Skills

- Demonstrate proper lockout procedures (vehicle key location).
- Identify proper tool usage for HEVs.
- Demonstrate proper Digital Multimeter (DMM) settings and usage (range selection).

STRAND 3

Battery Systems

Students will be able to identify the types of batteries used in electric and hybrid vehicles.

Standard 1

Low Voltage Auxiliary

Students will be able to inspect and test the low voltage battery system.

- Confirm proper battery capacity, size, type, and application for vehicle.
- Maintain or restore electronic memory functions as recommended by manufacturer.
- Inspect and clean low voltage battery, cable, connectors, clamps, and hold downs.

Standard 2

High Voltage Battery

Students will be able to identify the types of high voltage batteries used in hybrid electric vehicles (HEV).

- Understand the composition of materials used in high voltage batteries.
- Understand the chemistry of various high voltage batteries (nickel metal hydride, lithium ion, lithium polymer, etc.)
- Understand the series and parallel method used to produce high voltage battery modules.

Standard 3

Jump Starts

Students will be able to properly and safely jump start the low voltage auxiliary battery on a hybrid or electric vehicle (HEV).

- Demonstrate or describe the appropriate procedures for jump starting the low voltage auxiliary batter on an HEV.

Standard 4

State of Charge

Students will be able to perform a battery state of charge test and determine needed action.

- Demonstrate the proper procedure for measuring the battery state of charge using a Digital Multimeter (DMM) on the low voltage Auxiliary battery.
- Demonstrate the proper procedure for measuring the high voltage system using a scan tool.

Standard 5

Cooling

Students will be able to understand the different cooling systems used in cooling the high voltage battery and components.

- Identify and inspect the coolant level for the high voltage system.
- Inspect the battery cooling system for leaks.

Standard 6

Loss of Isolation

Students will be able to describe the conditions that cause a loss of isolation on hybrid/electric vehicles (HEV).

- Understand the safety concerns related to loss of isolation (electrocution, fire, etc.)

Performance Skills

- Perform a high voltage system coolant fluid check
- Retrieve/diagnose Diagnostic Trouble Codes (DTCs) related to the high voltage system concerns.
- Jump start a low voltage system in an HEV.
- Remove and replace an auxiliary battery.
- Locate or replace a high voltage battery air filter.
- Perform high voltage service disconnection procedure.

STRAND 4

Internal Combustion

Students will be able to identify the role of an internal combustion engine in a hybrid electric vehicle (HEV).

Standard 1

Retrieve & Diagnose Diagnostic Trouble Codes (DTCs)

Students will be able to retrieve and diagnose the DTCs on an HEV.

- Demonstrate the procedure for retrieving and diagnosing DTCs using a scan tool on an HEV.

Standard 2

Modes & Shutdown

Students will be able to identify the different modes of operations found on an electric/hybrid vehicle (HEV).

- Understand the meaning of ready mode and the consequences of servicing an HEV without placing it in shutdown mode.

Standard 3

Cooling System Differentiations

Students will be able to identify the different types of cooling systems found on a hybrid/electric vehicle (HEV).

- Describe the purpose of the cooling system for high voltage system components.

Standard 4

Start & Stop Technology

Students will be able to identify the components and advantages of a vehicle with start and stop technology.

- Identify the components used in a start and stop vehicle (manufacture-specific components).
- Inspect belts and tensioners on a belt alternator starter (BAS) system.

Standard 5

No Start Diagnosis

Students will be able to identify leading causes for no start conditions in a hybrid vehicle.

- List the leading causes for a no start condition (crank no start, or no crank, no start, etc.)
- Retrieve diagnostic trouble codes (DTCs) associated with no start conditions.

Performance Skills

- Perform an oil change on a hybrid vehicle.
- Retrieve and diagnose DTCs related to hybrid vehicles.
- Perform belt inspection with a groove gauge tool.
- Optional enrichment activity: perform a compression test.

STRAND 5

Drive Systems

Students will be able to identify and describe hybrid electric vehicle (HEV) drive system components.

Standard 1

Transmission Service Procedures for Fluid Inspection

Students will be able to identify and describe fluid service and inspection in hybrid electric vehicles (HEV).

- Identify and describe procedures for servicing and inspecting HEV drive systems.
- Identify and describe fluid considerations for HEV drive systems.
- Identify specific fluid components related to HEVs (manufacturer-specific fluids).

Standard 2

Types

Students will be able to identify and describe basic drive system layouts.

- Identify and describe the difference between drive types 1, 2, and 3 (identified in the ASE L3 blueprint; see resource below)
- Identify and describe what a Plug in Hybrid Electric Vehicle (PHEV) is.
- Identify what a Battery Electric Vehicle (BEV) is.
- Identify and describe a Fuel Cell Electric Vehicle (Hydrogen cell)
- Identify and describe the Belt Alternator Starter (BAS) system. Resources: Light Duty Hybrid/Electric Vehicle Specialist ASE L3

Standard 3

Retrieve & Diagnose Diagnostic Trouble Codes (DTCs)

Students will be able to identify and describe how to retrieve and diagnose DTCs.

- Identify and describe how to retrieve DTCs related to HEVs
- Identify and describe how to find and use diagnostic flowcharts.
- Identify and describe needed diagnostic steps based on diagnostic trouble codes.

Standard 4

Harnesses & Terminal Inspection

Students will be able to identify and describe problems caused by damaged and failed harnesses and connectors.

- Identify and describe proper terminal inspection procedures.
- Identify and describe wiring harness inspection procedures.
- Identify and describe wiring harness isolation testing procedures.

Standard 5

Regenerative Braking Systems & Drive Modes

Students will be able to identify and describe regenerative braking and charging systems.

- Identify and describe procedures to deactivate the brake system self-test.
- Identify and describe operations and methods of regenerative braking.

- Identify and describe drive modes used in hybrid vehicles.
- Identify and describe power flow used in hybrid vehicles.
- Identify and describe placing vehicles in various service modes (place in run, service, etc.).

Performance Skills

- Verify fluid levels for transmission.
- Identify various types of drive systems (type 1, type 2, type 3, etc.).
- Retrieve & diagnose DTCs related to drive systems.
- Visually inspect harness & terminal conditions.
- Place vehicle in various service modes (place in run, service, etc.).

STRAND 6

Power Electronics

Students will be able to identify the high voltage systems and components on a hybrid or electric vehicle (HEV).

Standard 1

Alternating Current/Direct Current (AC/DC) Differentiation

Students will be able to describe the difference between AC and DC voltage.

- Describe alternating current.
- Describe direct current.

Standard 2

Inverters (AC to DC)

- Describe the purpose of the high voltage AC to DC inverter on an HEV.
- Describe the purpose of the high voltage AC to DC inverter on an HEV.

Standard 3

Converters (DC to DC)

Students will be able to describe the purpose of the high voltage DC to DC converter on an HEV.

- Describe the purpose of the high voltage DC to DC converters on an HEV.

Standard 4

Retrieve & Diagnose Diagnostic Trouble Codes (DTCs)

Students will be able to retrieve and diagnose DTCs related to the high voltage system components.

- Retrieve and diagnose DTCs related to the high voltage system components.

Standard 5

Cable Routing Identification

Students will be able to identify the high voltage cable routing between high voltage systems found on a hybrid and electric vehicle.

- Identify the high voltage cable routing between high voltage systems found on an HEV.
- Understand the dangers and hazards associated with high voltage wiring.

Standard 6

Motor Control

Students will be able to describe the various types of electrical motors used on an HEV.

- Describe the various types of electrical motors used on an HEV (type 1, type 2, type 3, etc.)

Standard 7

Change Control

Students will be able to describe the operational characteristics of the change controller.

- Describe the purpose and operation of the characteristics of the change controller (heat management, current flow, etc.)
- Verify charger interface and operation.

Standard 8

Contactors

Students will be able to describe the operational characteristics of high voltage contactors and their role in isolating the high voltage battery.

- Describe the operational characteristics of high voltage contactors and their role in isolating the high voltage battery.

Standard 9

On-Vehicle Charging

Students will be able to describe on-vehicle charging of high voltage batteries on HEVs.

- Describe the standards found in SAE standard J1772
- Describe the process and disadvantages for fast charging an electric vehicle with a DC fast charger (cost, availability, safety, etc.)
- Identify the various types of electric vehicle chargers used (Level 1 (120volt), Level 2 (240volt), Level 3 (DC Fast Charge)).
- Describe the purpose and process for battery conditioning prior to charging (manufacturer's recommended procedure).
- Performance Skills
- Retrieve & Diagnose DTCs related to electric propulsion vehicles.
- Identify various types of motor used in hybrid and electric vehicles.
- Identify AC/DC related components.
- Optional enrichment activity: safely connect a charger to an electric vehicle.

STRAND 7

Hybrid Supporting Systems

Students will be able to identify and understand the hybrid supporting systems.

Standard 1

Heating, Ventilation, and Air Conditioning (HVAC)

Students will be able to identify the unique components found on a hybrid or electric vehicle (HEV) for the HVAC system.

- Identify the unique characteristics of the oil found in A/C refrigerant for HEVs (non- conductive oil, etc.)
- Identify the characteristics of the heating system found on an HEV.
- Describe the role of the HVAC system related to high voltage battery conditioning and temperature in hot and cold climates.

Standard 2

Electric Steering Systems

Students will be able to describe the operation and components related to the electric steering system.

- Describe the operation and components related to the electric steering system.
- Describe voltages used in steering systems (12v, 42v, etc.)

Standard 3

Information Management

Students will be able to describe the interface options available to the driver related to the HEV systems operation.

- Navigate the HEV information system related to the battery management system.
- Navigate the HEV information system related to vehicle range ability

Standard 4

Charging Infrastructure

Students will be able to identify and understand charging systems and requirements, electricity generation, infrastructure requirements, as well as limitations and locations of charging stations.

- Identify and describe ability to find local charging stations.
- Identify and describe how electricity is generated and where.
- Identify and understand charge times.

Performance Skills

- Remove and replace the cabin air filter
- Navigate an information system (battery maintenance, power flow, etc.)
- Electric Vehicle Safety & Technology Workplace Skills
- Students will participate in personal and leadership development activities through SkillsUSA or another appropriate career and technical student organization.
- Understand when it is appropriate to listen and to speak
- Understand and follow verbal and written instructions for classroom and laboratory activities.
- Identify and understand different roles when working with a team.
- Analyze the cause of a problem
- Develop a solution to address a problem.
- Implement a plan in addressing a problem.
- Evaluate the effectiveness of a plan in addressing a problem.
- Set and meet goals on attendance and punctuality.
- Prioritize, plan, and manage work to complete assignments and projects on time.
- Use an achievement chart for activities and behaviors in class that encourages a personal evaluation of classroom performance.
- File a regular written report on progress toward completion of assignments and projects.
- Be familiar with the course disclosure statement and all requirements for successful completion of the course.
- Demonstrate workplace ethics (fairness, honesty, discipline, etc.)

Skill Certificate Test Points by Strand

Updates coming soon.

STRANDS AND STANDARDS

Unmanned Aerial Systems Capstone

Course Description

Unmanned Aerial Systems Capstone is a self-directed project-oriented course that may be an internship with a UAS company, research project, advanced application of UAS skills, or design/build project. This course is the pinnacle in this pathway and will provide a kickstart to a student's career in Unmanned Systems.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.11.00.00.058
Concurrent Enrollment Core Code	000
Prerequisite	Unmanned Aerial Systems 1
Skill Certification Test Number	000
Test Weight	0.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1 OR	Aviation - Flight
Endorsement 2	Unmanned Aerial Systems

STRAND 1

Students will participate in personal and leadership development activities through SkillsUSA or another appropriate career and technical student organization.

Standard 1

Students will use communication skills to effectively communicate with others.

- Understand when it is appropriate to listen and to speak.
- Understand and follow verbal and written instructions for classroom and laboratory activities.

Standard 2

Students will effectively use teamwork to respectfully work with others.

- Identify and understand different roles in working with a team.

Standard 3

Students will use critical thinking and problem-solving skills.

- Analyze the cause of the problem.
- Develop a solution to address the problem.
- Implement the plan.
- Evaluate the effectiveness of the plan.

Standard 4

Students will be dependable, reliable, steady, trustworthy, and consistent in performance and behavior.

- Set and meet goals on attendance and punctuality.
- Prioritize, plan, and manage work to complete assignments and projects on time.

Standard 5

Students will be accountable for results.

- Use an achievement chart for activities and behaviors in class that encourages a personal evaluation of classroom performance.
- File a regular written report on progress toward completion of assignments and projects.

Standard 6

Be familiar with the legal requirements and expectations of the course.

- Be familiar with the course disclosure statement and all requirements for successful completion of the course.
- Demonstrate workplace ethics, e.g. fair, honest, disciplined.

STRAND 2

Students will participate in work-place readiness activities.

Standard 1

Students will demonstrate employability skills.

- Use a career search network to find career choices.
- Write or maintain a resume including a list of demonstrated skills.
- Write a letter of application.
- Complete a job application.
- Participate in an actual or simulated job interview.

Standard 2

Students will participate in a work-based learning experience outside the classroom.

- Students will create a self-directed project, that may be an internship with a UAS company, research project, advanced application of UAS skills, or design/build project. Student and Project advisor together will determine the deliverable (paper, presentation, video, etc.) for the course.

  The student project is to include individual projects that serve as a culmination of previous learning. Some examples follow, but the list is not exhaustive:

  - Make a professional video for a business school or community (can be a paid project if they are Part 107 certified) from conception, approval, implementation and completion of project
  - Collect agricultural data for a local farmer
  - Monitor production and progress at a construction site
  - Test drones to evaluate varieties for a specific project or test different set ups with propellers/sensors/payloads

Skill Certificate Test Points by Strand

Coming Soon!

STRANDS AND STANDARDS

UAS LAB: DESIGN, BUILD AND MAINTAIN

Learning that works for Utah
CTE®

Course Description

UAS Lab: Design, Build, and Maintain Course explores aviation principles while building and testing a drone in flight. It combines engineering processes and aviation principles into a hands- on course specifically created for the explosion of Unmanned Aerial Systems in a variety of industries. Unmanned Aerial Systems 1 is a prerequisite.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.11.00.00.054
Concurrent Enrollment Core Code	None
Prerequisite	Unmanned Aerial Systems 1
Skill Certification Test Number	000
Test Weight	0.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Aviation - Flight
Endorsement 2	Unmanned Aerial Systems
Endorsement 3	N/A

STRAND 1

Students will understand the main components and construction of multi-rotor and fixed-wing drones.

Standard 1

Students will build a fixed wing or multi-rotor drone from a kit.

- Students will demonstrate the airworthiness of the constructed drone by performing specific maneuvers or completing a flight test course.

Standard 2

Students will discover principles of flight and practice activities to demonstrate principles of flight.

- Aerodynamic forces (drag, lift, thrust, weight)
- Center of gravity
- Stall speed
- Bernoulli's principle
- Propwash

Standard 3

Students will manipulate and understand basic electronic circuits and components used in RC flight.

- Brushed v. Brushless Motors
- Servos
- Battery types and connectors
- Flight Controllers
- Electronic Speed Controllers
- Transmitters and Receivers

Performance Skills

Demonstrate flight principles using constructed drone.

STRAND 2

Students will design and install modifications with an intended purpose in mind.
Students will understand the Engineering Design Process and use it to make modifications to a drone.

Standard 1

Students will examine the steps of the Engineering Design Process
Define the problem

1. Conduct research
2. Specify requirements
3. Brainstorm and choose a solution
4. Build a prototype
5. Test solution & iterate
6. Communicate Results

Standard 2

Students will determine a goal of increased efficiency in one or more metrics of drone use.

Standard 3

Students will design or make modifications to the drone with the intended purpose of reaching their determined goal.

Standard 4
Students will employ materials science and engineering principles to construct the modifications and be able to justify their methods, materials choices, and cost.

Standard 5
Students will justify their methods, material choices, and cost.

Performance Skills
Demonstrate a modification to the drone that achieves the student's intended goal.

STRAND 3
Students will understand drone maintenance, repair, and associated documentation.

Standard 1
Students will maintain and replace drone parts and equipment. (This is a list of possible parts to be experienced.)

- Propellers
- Motors
- Flight control board
- Landing gear
- Camera
- Etc.

Standard 2
Students will manage logbooks to track repairs, physical maintenance, battery maintenance, and equipment flight hours.

Standard 3
Students will be able to diagnose and perform simple repairs on a drone.

Performance Skills
Maintain appropriate logbooks. Install replacement parts.

STRAND 4
Students will understand the differences between categories of drones and the industrial application of those drones.

Standard 1
Students will explore differences in aircraft that allow it to perform specialized tasks.

- Quad or Multi-Rotor Vertical Takeoff
- Racing (First Person View)
- Fixed-Wing
- Mini
- Emerging technology drones
- Other Unmanned Systems

Standard 2

Students will apply acquired knowledge and critical thinking skills to solve a real-world problem. Examples might include but are not limited to the following:

- Search and rescue
- Photogrammetry
- Real Estate and other promotional photography
- Live events
- Construction sites
- Mining / Quarrying
- Inspections (Towers, Solar, Bridge, etc.)
- Transportation of goods

Performance Skills

Present results of your experience in solving a real-world problem.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS

UAS LAB: EXPLORATION OF INDUSTRY APPLICATIONS

Learning that works for Utah
CTE®

Course Description

UAS Lab: Exploration of Industry Applications examines how various sensors and payloads are being applied to drones across all industries. It gets its strength from being flexible enough to respond quickly to emerging technology in the Unmanned Systems category. Unmanned Aerial Systems 1 is a prerequisite.

NOTE TO INSTRUCTORS: This course is designed to be adaptable to the variety of skill sets and equipment available at individual schools. You are expected to choose at lease two Strands that are in line with your expertise, available drone-captured data, available drone models and associated cameras/sensors.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.11.00.00.056
Concurrent Enrollment Core Code	000
Prerequisite	Unmanned Aerial Systems 1
Skill Certification Test Number	000
Test Weight	0.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Aviation - Flight
Endorsement 2	Unmanned Aerial Systems
Endorsement 3	N/A

STRAND 1

Students will explore drone aerial photography & videography uses.

Standard 1

Students will demonstrate specific flight maneuvers associated with this industry.

- Use different control modes to capture photos and video.
- Use manual mode to capture various types of shots including but not limited to a reveal shot, tracking shot, panning shot, orbit, dolly zoom, setting shot, etc.

Standard 2

Students will understand and describe differences of resolution and frame rate in relation to intended audience and hardware limitations.

Standard 3

Students will utilize digital camera settings to control, manipulate, and effectively utilize aperture, white Balance, shutter speed, and exposure value.

Standard 4

Student will use industry standard tools to edit drone photos.

- Students will be able to manipulate digital photographs and optimize tools in a photo editing suite such as white balance, horizon leveling, contrast and brightness, color correction, anomaly removal, and sky balancing.
- Students will be familiar with and understand how to edit RAW and standard image types using destructive and non-destructive methods.
- Students will demonstrate an understanding of aspect ratio modifications and resolution profiles.

Standard 5

Student will use industry standard tools to edit drone video footage.

- Students will be able to manipulate videos and optimize tools in a video editing suite such as white balance, contrast and brightness, color correction, and frame rate.
- Students will be able to clip/trim videos from multiple sources and apply music synchronization.
- Students may use digital effects in their films. (e.g. After Effects and animated pan/zoom of still images.)

Standard 6

Students will prepare digital assets for publishing.

- Students will prepare photos and videos for publishing on social media (e.g. YouTube, Facebook, etc.)
- Students may practice live streaming drone footage. (May include footage of flight, pilot perspective, or First-Person View (FPV))
- Students will prepare photos and videos for publishing on web pages and digital portfolios.

Standard 7

Students will apply acquired skills in an industry-related setting.

- Students will apply acquired knowledge and skills that require capturing, processing, and publishing high-quality digital photographs in support of a specific industry application (real estate, marketing, news reporting, infrastructure inspections, etc.).
- Students will apply acquired knowledge and skills that require filming, processing, and publishing high-quality videos in support of a specific industry application (filmmaking, real estate, marketing, news reporting, infrastructure inspections, disaster response, etc.).

STRAND 2

Students will understand the principles of digital photogrammetry and orthomosaic manipulation systems.

Standard 1

Students will demonstrate planimetric mapping, stereoscopic calculations, and effective use of photogrammetric software (such as Pix4D and Agisoft).

Standard 2

Students will describe quantitative and qualitative methods and industry standards for quality assurance and accuracy assessment of photogrammetry data products.

Standard 3

Students will determine flight characteristics (height, position, etc.), object dimensions, and conduct precise measurements from a photo and its embedded data tags.

Standard 4

(optional) Students will develop a suitable flight plan, adjust drone camera settings, perform collection of overlapping digital photos, and process the photos using photogrammetric software to produce an orthorectified mosaiced image that can be displayed in a GIS.

Standard 5

Students will apply acquired knowledge and critical thinking skills to solve a real-world problem with appropriate digital photogrammetry aerial data collection, processing, and analysis methods (e.g., aerial mapping, aerial surveying, volumetric calculations of earth material removal/movement/acquisition).

STRAND 3

Students will understand the principles relating to thermal remote sensing systems.

Standard 1

Students will understand the Electromagnetic Spectrum, including the boundaries and applications for the divisions/bands of energy used in remote sensing applications.

Standard 2

Students will understand the principles of thermal imaging systems.

Standard 3

Students will describe the basic principles of heat and processing of thermal image/video data.

Standard 4

Students will describe quantitative and qualitative methods and industry standards for quality assurance and accuracy assessment of thermal-derived data products.

Standard 5

Students will assess the strengths and weaknesses of various thermal imaging platforms and instruments for a broad range of application scenarios.

Standard 6

(optional) Students will develop a suitable flight plan, make adjustments to thermal instrument settings as needed, and perform aerial collection, processing, and analysis of thermal images/video.

Standard 7
Students will apply acquired knowledge and critical thinking skills to solve a real-world problem with appropriate thermal data processing and analysis methods (e.g., soil moisture mapping, search and rescue operations, pipe leaks - water / steam, wildlife management, etc.).

STRAND 4
Students will understand the principles relating to multispectral and hyperspectral remote sensing systems.

Standard 1
Students will understand the Electromagnetic Spectrum, including the boundaries and applications for the divisions/bands of energy used in remote sensing applications.

Standard 2
Students will understand the principles of multispectral and hyperspectral analysis systems.

Standard 3
Students will demonstrate an effective use of analysis software (e.g., Pix4D, ArcGIS Pro, ENVI, etc.) across multiple applications (inspection, agriculture, etc).

Standard 4
Students will describe quantitative and qualitative methods and industry standards for quality assurance and accuracy assessment of multispectral and hyperspectral data products (e.g., false color composite images, NDVI, classified data, etc.).

Standard 5
(optional) Students will develop a suitable flight plan and perform aerial image collection, processing, and analysis of multispectral/hyperspectral images (e.g., false color composite images, NDVI, classified data, etc.).

Standard 6
Students will apply acquired knowledge and critical thinking skills to solve a real-world problem with appropriate remotely sensed data collection, processing, and analysis methods (e.g., precision agriculture, land cover mapping, damage assessment, geologic mapping, etc.).

STRAND 5
Students will understand the principles of LiDAR systems.

Standard 1
Students will describe the basic principles and steps for collecting, processing, and publishing drone LiDAR data with a high-level of spatial accuracy.
- LiDAR point cloud collection/processing
- Digital Terrain Models
- Digital Surface Models

Standard 2
Students will describe quantitative and qualitative methods and industry standards for quality assurance and accuracy assessment of LiDAR-derived data products.

Standard 3
Students will assess the strengths and weaknesses of various LiDAR platforms and instruments for a broad

range of application scenarios.

Standard 4
(optional) Students will develop a suitable flight plan and perform aerial LiDAR collection, processing, and analysis of DEM surfaces (DTMs, DSMs, and corresponding digital photos).

Standard 5
Students will apply acquired knowledge and critical thinking skills to solve a real-world problem with appropriate LiDAR data processing and analysis methods (e.g., landslide hazard mapping, aerial surveying, archaeology, terrain mapping/analysis, volumetric calculations of structures and earth material removal/ movement/acquisition, etc.).

STRAND 6
Students will understand the principles of Geographic Information Systems (GIS) Integration & Analysis of Drone Data

Standard 1
Students will be able to publish various drone-based geospatial data (photogrammetric; remotely sensed - thermal, multispectral, hyperspectral; LiDAR) in a GIS project using common geospatial software (e.g., ArcGIS Pro, QGIS, ENVI, ERDAS, etc.).

Standard 2
Students will apply acquired knowledge and critical thinking skills to solve a real-world problem using aerial data captured by a camera, sensor, or LiDAR instrument along with appropriate GIS data processing and analysis methods (e.g., terrain analysis, viewshed analysis, land use planning, vegetation mapping/analysis, geologic mapping, etc.).

STRAND 7
Students will understand the principles surrounding payload delivery of smaller cargo such as groceries, medical, packages, etc.

Standard 1
Students will gain an understanding of current Federal Aviation Administration (FAA) Small Unmanned Aerial Systems (sUAS) regulations under 14 CFR Part 107 related to cargo/payloads that can be transported by a drone in the National Airspace System (NAS).

- Drones must weigh less than 55 pounds on takeoff, including everything that is on board or otherwise attached to the aircraft (such as cargo).
- Restrictions associated with flying drones transporting another person's property for compensation or hire.

Standard 2
Students will describe the basic principles of small unmanned cargo aircraft (sUCA) delivery systems.

Standard 3
Students will describe the basic principles of Center-of-Gravity for aircraft and how it can change with the addition of cargo on board. and supply-chain logistics.

Standard 4
Students will describe the basic principles of supply-chain logistics.

Standard 5
Students will assess the strengths and weaknesses of various delivery platforms and instruments for a broad range of application scenarios.

Standard 6
Students will apply acquired knowledge and critical thinking skills to solve a real-world problem with appropriate aerial delivery and distribution methods.

Performance Skills
Present and industry-related completed project.

Skill Certification Test Points by Strand

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40

STRANDS AND STANDARDS

UAS Lab: Intermediate Flight

Learning that works for Utah
CTE®

Course Description

UAS Lab: Intermediate Flight continues your exploration of aviation principles and gives students experience with various categories of drones in action. Unmanned Aerial Systems 1 is a prerequisite.

Intended Grade Level	10-12
Units of Credit	0.5
Core Code	40.11.00.00.052
Concurrent Enrollment Core Code	40.11.00.13.052
Prerequisite	Unmanned Aerial Systems 1
Skill Certification Test Number	000
Test Weight	0.0
License Area of Concentration	CTE and/or Secondary Education 6-12
Required Endorsement(s)	
Endorsement 1	Aviation - Flight
Endorsement 2	Unmanned Aerial Systems

STRAND 1

Students will demonstrate how to properly log and document flying activities

Standard 1

Follow a prescribed documenting procedures after each flight.

- Document the Date and Time of Flight
- Document Vehicle Type
- Document your Role
- Document Location (longitude, latitude, simulator)
- Document Airspace Class
- Document Reason for Mission
- Document Flight Time
- Document Takeoffs and Landings
- Document Battery Use

Standard 2

Students will document 10 hours of logged simulator or device flight time, no more than half should be on simulator

Performance Objective

Properly maintain a UAS flight log.

STRAND 2

Students will perform the tasks of both the Pilot In Command (PIC) and the Visual Observer (VO) on at least two of the following types of drones:

- **Quad or Multi-Rotor Vertical Takeoff**
- **Racing (First Person View)**
- **Fixed-Wing**
- **Mini**
- **Emerging technology drones**
- **Virtual Drones (Simulator)**

Standard 1

Students will perform the tasks of Pilot in Command

- Be properly designated prior to flight.
- Ensure no undue hazards to people, aircraft, or property.
- Ensure compliance with all rules, regulations, and safety measures for the UAS and flight crew.

Standard 2

Students will perform the tasks of Visual Observer

- Keep the UAV in sight.
- Scan for threats or obstacles.
- Maintain communication with the remote operator.

Performance Objective

Describe Pilot in Command and Visual Observer tasks.

STRAND 3

Students will understand and experience Mission Planning through a variety of flight control methods or techniques. (Choose at least one flight method in addition to Standard 1 from the Standards below.)

Standard 1 (required)

Students will operate a drone using Mission Planning.

- Clear objective/purpose for flight and data to be captured
- Detailed shot list or method list or mapped flight paths
- Prior authorizations (LAANC, photo release, etc)
- Considerations and back-up plans for inclement weather or other delay
- Pre/Post Flight checklists
- IMSAFE and PAVE

Standard 2 (optional)

Students will operate a drone using the System Interface.

Standard 3 (optional)

Students will operate a drone using Simple Programming.

Standard 4 (optional)

Students will operate a drone using a Semi-autonomous method.

Performance Objective

Conduct a well-planned mission.

STRAND 4

Students will understand how flight operations change with different mission objectives.

Standard 1

Students will complete at least one challenge flight event from the following suggestions:

- Obstacle Course: demonstrate flying around, over and through obstacles
- Skills Challenge: demonstrate a pick-up and delivery, object drop or other task
- Objective Course: demonstrate ability to determine temperature, color or other task
- Speed Course: race course around a circuit

Skill Certificate Test Points by Strand - Coming Soon

Test Name	Test #	Number of Test Points by Strand										Total Points	Total Questions
		1	2	3	4	5	6	7	8	9	10		
Ag Mechanics & Tech 1	110	2	2	5	5	4	6	16				55	40