



UTAH SYSTEM OF  
HIGHER EDUCATION

# MEMORANDUM

March 21, 2024

## Program Alignment

The Utah Board of Higher Education's Strategic Plan includes a tactic to facilitate coordination among technical education programs to align program structure and course content for consistent programming in broad occupational areas. This initiative also supports another strategy to develop stackable credentials that streamline student transfer among institutions, reducing the duplication of coursework already completed, expediting time to completion, and reducing tuition costs.

### Information

Technical education programs have a general broad alignment across technical education institutions, particularly those regulated through licensure or programmatic accreditations, which make up about half of the programs offered. Currently, program and course names, lengths, and objectives in the same occupational areas, including regulated programs, differ between institutions. These differences confuse stakeholders seeking to identify and compare program requirements, associated costs, and time to completion. Further, these differences burden degree-granting institutions desiring to develop and maintain articulation agreements with technical education.

### Expectations

- The Office of the Commissioner coordinates and provides guidance and assistance on the alignment initiative.
- Institutions are expected to implement aligned programs within two years unless reasonable exceptions are granted by the Board of Higher Education.
- The alignment initiative follows program and course guidelines, including:
  - required participation of USHE institutions that offer technical education programs;
  - alignment of program title, CIP code, description, and objectives;
  - alignment of course numbers, titles, length in clock-hours and credit hours, descriptions, and objectives;
  - a core of required courses representing foundational knowledge and skills
  - potential broad selection of prescribed or elective non-aligned courses representing regional employment needs.

- programs offered by single institutions are submitted to the Office of the Commissioner for inclusion in the program inventory; and
- non-aligned courses can be added to or modified within the program at any time during the year and should be reported to the Office of the Commissioner annually. Program committees consider whether to include electives in aligned program requirements.

### **Participation and Review Process**

- Every program area has a Faculty Program Committee comprising one faculty member from each institution that offers the program.
- Faculty Program Committees propose a program title, length, description, objectives, and course titles, lengths, descriptions, and objectives. Faculty members are encouraged to engage with occupational advisory committees, degree-granting partner institutions, and other interested institutional personnel in developing these proposals.
- Instructional designers from participating institutions review program and course descriptions and objectives. Recommended changes are reviewed and accepted by the faculty.
- The Office of the Commissioner compiles and submits Program Committee proposals and modifications of proposals to instructional officers for review and recommendations. Recommended changes are reviewed and accepted by the faculty.
- The USHE Curriculum Review Committee, consisting of representatives from technical education institution presidents, instructional officers, and the Commissioner and his staff — including the chief economist, associate commissioner of technical education, and assistant commissioner of technical education — reviews each proposal to verify that it meets the initiative's intent.
- Proposals are submitted to the Board as an action item on the consent calendar. Approval of this item signifies the Board accepts the documentation as meeting the directives and intent of the initiative.
- Board policy defined program approval and modification requirements.

### **Committee Recommendation**

The USHE Curriculum Review Committee has reviewed and recommends that the Board accept the proposals as meeting the directives and intent of the program initiative as outlined above.

### **Commissioner's Recommendation**

The Commissioner recommends the Board accept the proposals as meeting the directives and intent of the program alignment initiative as outlined above.

### **Attachments**

New Program Proposals

Substantive Change Proposals

Non-Substantive Change Proposals



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

<b>Automotive Technology</b>			
Institutions: Bridgerland, Davis, Dixie, Mountainland, Ogden-Weber, Salt Lake, Snow, Southwest, USU-Eastern, Uintah Basin			
<i>Certificate of Program Completion (Catalog Year: 2025, 16 Credits/480 Clock-Hours Required, CIP: 47.0604)</i>			
<b>Aligned (16 Credits/480 Clock-Hours)</b>		<b>Credits</b>	<b>Clock-Hours</b>
TEAU 1500	Brakes	4	120
TEAU 1400	Suspension and Steering	4	120
TEAU 1600	Electrical I	4	120
TEAU 1800	Engine Performance I	4	120
<b>Non-Aligned (Electives)</b>			
<b>Bridgerland Technical College</b>			
TEAU 1020	General Automotive Service	2	60
TEAU 1210	Transmissions	2	60
TEAU 2610	Electrical II	4	120
TEAU 2810	Engine Performance II	4	120
TEAU 1110	Engine Repair	3	90
TEAU 2400	Suspension and Steering II	2	60
TEAU 2500	Brakes II	2	60
TEAU 1310	Manual Drive Train and Axle	3	90
TEAU 1210	Automatic Transmissions	2	60
TEAU 1710	HVAC	2	60
<b>Davis Technical College</b>			
TEAU 1005	Introduction and Safety	1	30
TEAU 1040	Maintenance and Light Repair I	3	90
TEAU 1045	Maintenance and Light Repair II	3	90
TEAU 2410	Suspension and Steering II	4	120
TEAU 1130	Engine Repair I	1	30
TEAU 1135	Engine Repair II	6	180
TEAU 1230	Automatic Transmissions and Transaxles I	2	60
TEAU 2230	Automatic Transmissions and Transaxles II	5	150
TEAU 1330	ASE Manual Drive Train and Axles I	3	90
TEAU 2330	ASE Manual Drive Train and Axles II	3	90
TEAU 2510	ASE Brake Systems II	3	90
TEAU 2630	ASE Electrical/Electronic Systems II	2	60
TEAU 1730	ASE Heating, Ventilation, and Air Conditioning I	1	30
TEAU 2730	ASE Heating, Ventilation, and Air Conditioning II	2	60
TEAU 2830	Engine Performance II	5	150
TEAU 1900	ASE Light Duty Diesel	2	60
TEAU 2901	Automotive Technology Special Projects I	1	30
TEAU 2902	Automotive Technology Special Projects II	2	60
TEAU 2903	Automotive Technology Special Projects III	3	90
TEAU 2990	Automotive Technology Externship Guide	2	90
<b>Dixie Technical College</b>			
TEAU XXXX	Course Name	X	XX
<b>Mountainland Technical College (28 Credits/840 Clock-Hours)</b>			
TEAU 1030	G1 Maintenance and Light Repair	9	270
TEAU 1120	A1 Engine Repair	5	150
TEAU 1220	A2 Automatic Transmission/Transaxle	5	150
TEAU 1320	A3 Manual Drivetrain and Axles	4	120
TEAU 2620	A6 Electrical II	1	30



UTAH SYSTEM OF  
HIGHER EDUCATION

**Utah System of Higher Education  
Automotive Technology  
FY2025 /16 Credits (480 Clock-Hours)**

TEAU 1720	A7 Heating, Ventilation, and Air Conditioning (HVAC)	3	90
TEAU 2820	A8 Engine Performance II	1	30
<b>Ogden-Weber Technical College (32 Credits/840 Clock-Hours)</b>			
TEAU 1105	Engine Repair	4	120
TEAU 1205	Transmissions	4	120
TEAU 1705	Automotive HVAC and Critical Workplace Skills	4	120
<b>Salt Lake Community College</b>			
TEAU 1060	Safety and Introduction to Automotive Service	4	120
TEAU 1150	Engine Repair	4	120
TEAU 1300	Manual Drivetrain and Axles	4	120
TEAU 1200	Automatic Transmissions	4	120
TEAU 1750	Heating, Ventilation, and Air Conditioning	4	120
TEAU 2600	Electrical II	4	120
TEAU 2605	Electrical III	4	120
TEAU 2800	Engine Performance II	4	120
<b>Snow College (28 Credits/840 Clock-Hours)</b>			
TEAU 1000	Safety and Basics	1	30
TEAU 1010	Introduction to Automotive Technology I	2	60
TEAU 1015	Introduction to Automotive Technology II	2	60
TEAU 1100	Engine Repair	3	90
TEAU 1200	Automatic Transmissions	4	120
TEAU 1300	Manual Drivetrain and Axles	4	120
TEAU 1700	Heating, Ventilation, and Air Conditioning (HVAC)	3	90
TEAU 2000	Hybrid and Electrical Vehicles	1	30
TEAU 2600	Electrical II	4	120
TEAU 2800	Engine Performance II	4	120
<b>Southwest Technical College</b>			
TEAU 1050	Workshop Practices and Safety	1	30
TEAU 1055	Math for Automotive Technicians	2	60
TEAU 2640	Electrical II	4	120
TEAU 2840	Engine Performance II	4	120
TEAU 1740	Heating and Air Conditioning	3	90
TEAU 1340	Manual Drive Trains and Axles	3	90
TEAU 1240	Automatic Transmissions and Transaxles	4	120
TEAU 1140	Engine Repair	5	150
TEAU 2910	Manufacturer Automotive Service Training – General Motors	4	120
TEAU 2911	Manufacturer Automotive Service Training – Toyota	2	60
TEAU 2912	Manufacturer Automotive Service Training – Mopar CAP	2	60
TEAU 2913	Manufacturer Automotive Service Training – Audi	2	60
TEAU 2914	Manufacturer Automotive Service Training – Hyundai	2	60
TEAU 2915	Manufacturer Automotive Service Training – Mercedes-Benz	2	60
<b>Utah State University-Eastern</b>			
TEAU XXXX	Course Name	X	XX
<b>Uintah Basin Technical College</b>			
TEAU XXXX	Course Name	X	XX



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

**PROGRAM DESCRIPTION**

The Automotive Technology program prepares students with diversified employment skills and knowledge as master automotive technicians, including hands-on instruction in brakes; suspension and steering; manual drivetrain and transaxles; electrical/electronic systems; engine performance; preventative maintenance; safety; professionalism; and workplace relations.

Objectives:

- Demonstrate safe working habits and practice.
- Demonstrate the service, maintenance, operation, and function of the core systems related to automotive vehicles.
- Build and maintain good working relationships.

**ALIGNED COURSE DESCRIPTIONS**

**Brakes**

**4 Credits/120 Clock-Hours**

The Brakes course provides theory and hands-on instruction on automotive braking systems while following the industry acceptable standards.

Objectives:

- Maintain vehicle safety through safe brake maintenance and repairs.
- Identify and repair hydraulic, disc, and drum brake systems.
- Identify and repair parking and anti-lock braking systems.
- Identify and repair traction and stability control systems.
- Repair brake assist systems.

**Suspension and Steering**

**4 Credits/120 Clock-Hours**

The Suspension and Steering course teaches theory and hands-on instruction on automotive suspension and steering systems while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe suspension and steering maintenance and repairs.
- Identify and repair automotive steering and suspension systems.
- Identify the issues with and perform an automotive wheel alignment.
- Identify and repair automotive wheels and tires.

**Electrical I**

**4 Credits/120 Clock-Hours**

The Electrical I course provides theory and hands-on instruction on automotive electrical systems while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe electrical maintenance and repairs.
- Identify and repair electrical/electronic series, parallel, and series-parallel circuits using principles of electricity (Ohm's Law).
- Identify and repair the causes and effects from shorts, grounds, opens, and resistance problems in electrical/electronic circuits.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

- Identify and demonstrate proper use of a digital multimeter (DMM) when measuring source voltage, voltage drop (including grounds), current flow and resistance.
- Identify and repair automotive electrical/electronic systems including battery systems, charging systems starting systems, and lighting systems.

---

**Engine Performance I**

**4 Credits/120 Clock-Hours**

The Engine Performance I course provides theory and hands-on instruction in automotive engine performance while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe engine performance maintenance and repairs.
- Identify and interpret engine performance concerns; determine needed action.
- Inspect and repair abnormal engine noises or vibration concerns; determine needed action.
- Inspect and repair automotive ignition systems; determine needed action.
- Inspect and repair automotive fuel systems; determine needed action.
- Inspect and repair automotive air induction systems as it relates to engine performance.
- Inspect and repair automotive exhaust systems as it relates to engine performance.

**NON-ALIGNED (ELECTIVE) COURSES**

**Bridgerland Technical College**

---

**General Automotive Service**

**2 Credits/60 Clock-Hours**

This course provides an overview of automobile equipment and its operating systems. Emphasis will be placed on safety, precision tools in the auto shop, basic external engine repair, tire pressure monitoring systems (TPMS), brake refinishing, an introduction to electrical diagnostic equipment, basic engine performance, heating ventilation and air conditioning (HVAC), and electrical systems. Students have the opportunity to complete minor repairs and preventative maintenance procedures on their personal vehicles, customer vehicles, and donated vehicles. This course is individualized and includes extensive hands-on experiences.

Objectives:

- Work safely in an automotive shop.
- Demonstrate proper use of precision measuring tools.
- Perform external engine repair.
- Service the TPMS system.
- Refinish disc and drum brakes.

---

**Transmissions**

**2 Credits/60 Clock-Hours**

This course covers operation and maintenance of automatic/manual transmissions and transaxles. Students will receive training on the diagnosis and repair of various types of clutches, drive axles, u-joints, and CV axles.

Objectives:

- Demonstrate safe working habits and handling of hazardous materials.
- Inspect and adjust fluids in manual and automatic transmissions.
- Properly service automatic and manual transmissions.
- Perform clutch diagnosis.



UTAH SYSTEM OF  
HIGHER EDUCATION

**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

- Properly service differentials.

---

**Electrical II**

**4 Credits/120 Clock-Hours**

This course covers the electrical system used in the modern automobile. The training covers electrical theory including ohm's law and hands on application of that theory. Students will receive detailed training on onboard electronic control computers and their associated systems, lighting, starting/charging systems, and general electrical systems and accessories. Students will learn the use of specialized test equipment such as digital multimeter and a lab scope.

Objectives:

- Demonstrate safe working habits and handling of hazardous materials.
- Diagnose and repair general electrical problems.
- Diagnose and repair onboard computer controls.
- Diagnose battery, starting, and charging systems.
- Utilize wiring diagrams.
- Diagnose and repair lighting systems.
- Demonstrate electrical accessory and warning systems repair.

---

**Engine Performance II**

**4 Credits/120 Clock-Hours**

This course covers general engine diagnosis along with tune-up and drivability repair. The ignition system, fuel system, and emission systems will be covered in detail. Use of scan tools and lab scopes for diagnosis of engine control computers and related systems will also be covered.

Objectives:

- Demonstrate safe working habits and handling of hazardous materials.
- Perform general engine evaluation.
- Diagnose computerized engine controls on OBDII systems.
- Perform ignition system diagnosis and repair.
- Perform fuel, air induction, and exhaust systems diagnosis and repair.
- Diagnose emission control devices and system repair.
- Perform engine tune-up along with necessary mechanical adjustments.

---

**Engine Repair**

**3 Credits/90 Clock-Hours**

This course covers the diagnosis and repair of the automotive gas engine mechanical systems and components. Students will learn how to diagnose and repair short block and cylinder heads, valve trains, and timing mechanisms. Students will also learn how to perform a complete engine replacement.

Objectives:

- Demonstrate safe working habits and handling of hazardous materials.
- Perform general engine diagnosis.
- Perform engine removal and reinstallation.
- Perform cylinder head and valve train diagnosis and repair.
- Demonstrate engine short block diagnosis and repair.
- Demonstrate lubrication and cooling system diagnosis and repair.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

---

**Suspension and Steering II**

**2 Credits/60 Clock-Hours**

This course covers the suspension and steering systems which include shock absorbers, tie rods, ball joints, tires, McPherson struts, along with conventional steering boxes and rack and pinion steering systems.

Objectives:

- Demonstrate safe working habits and handling of hazardous materials.
- Perform steering system diagnosis and repair.
- Perform suspension system diagnosis and repair.
- Explain wheel alignment theory and perform adjustment and repair.
- Perform wheel and tire diagnosis and repair.

---

**Brakes II**

**3 Credits/90 Clock-Hours**

This course covers the theory of brake operation and repair of mechanical and hydraulic portions of the brake system. Also covered is the diagnosis and repair of the electronic controls used in anti-lock brake systems.

Objectives:

- Demonstrate safe working habits and handling of hazardous materials.
- Perform hydraulic system diagnosis and repair.
- Perform drum and disc brake diagnosis and repair.
- Diagnose and repair power assist units.
- Demonstrate wheel bearing service.
- Diagnose and repair anti-lock brake systems.

---

**Manual Drive Train and Axle**

**3 Credits/90 Clock-Hours**

This course covers operation and repair of manual shift transmissions and transaxles. Clutches, drive axles, u-joints, and CV axles are also covered.

Objectives:

- Demonstrate safe working habits and handling of hazardous materials.
- Perform clutch diagnosis and repair.
- Diagnose and repair hydraulic system operation.
- Perform transmission/transaxle diagnosis and repair.
- Perform drive shaft, universal and Constant Velocity (CV) joint diagnosis and repair.
- Perform drive axle and differential diagnosis and repair.
- Diagnose and repair four-wheel drive/All-wheel drive component.

---

**Automatic Transmissions**

**2 Credits/60 Clock-Hours**

This course covers the automatic transmission and transaxles used in today's cars and light trucks. Students will learn to diagnose and repair mechanical and hydraulic systems along with computer controls.

Objectives:

- Demonstrate safe working habits and handling of hazardous materials.
- Perform general transmission and transaxle diagnosis.
- Perform transmission and transaxle maintenance and adjustment.
- Perform transmission and transaxle on-vehicle repair.





**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

- Demonstrate proper off-vehicle transmission and transaxle repair.

## **HVAC**

**2 Credits/60 Clock-Hours**

This course covers the theory, operation, and diagnosis of the modern climate control system. Topics covered include compressors, system controls, and recycling of refrigerant gases.

### Objectives:

- Demonstrate safe working habits and handling and recovery of refrigerant gases.
- Diagnose and repair A/C system.
- Demonstrate refrigeration system component diagnosis and repair.
- Perform heating, ventilation, and engine cooling systems diagnosis and repair.
- Diagnose and repair operating systems and related controls.
- Demonstrate proper refrigerant recovery, recycling, and handling.

## **Davis Technical College**

### **Introduction and Safety**

**1 Credit/30 Clock-Hours**

Introduction and Safety introduces the basic uses and functions of the automotive shop. Throughout this course, you will study shop safety, including handling hazardous materials and disposal. In addition, you will demonstrate the proper use of the torque wrench, correct and accurate use of all automotive measuring tools, and safe operation of equipment, including jacks, jack stands, and vehicle hoists.

### Objectives:

- Explain the importance of container labeling and material safety data sheets (MSDS) and to properly handle common, automotive industry materials.
- Describe the automotive shop layout.
- Identify:
  - Classes of fires and the appropriate fire extinguishers to have present.
  - Hazardous material located in the automotive shop.
  - Common hand and power tools.
  - Various threaded fasteners and perform thread repair.
  - Major pieces of shop equipment.
- Demonstrate:
  - Proper safety procedures using hoists, jacks, and jack stands.
  - Ability to retrieve and use the various vehicle information sources.
  - Ability to perform basic Maintenance Procedures.
  - Safety requirements necessary to work in the automotive shop and on vehicles.
  - Ability to use measuring tools.

### **Maintenance and Light repair I**

**3 Credits/90 Clock-Hours**

Students in this course are introduced to the basic theory and function of modern engine technology, automatic and manual transmission/transaxles, and basic electrical fundamentals. Students will maintain and service engines and drivetrain systems, and practice electrical testing procedures.

### Objectives:

- Engine Systems Inspection, Service and Repair:
  - Describe engine system fundamentals, including 4-stroke cycle, engine sizes and performance.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

- Demonstrate basic engine testing, service and maintenance procedures of engine systems.
- Retrieve and record diagnostic OBDII generic power train Diagnostic Trouble Codes (DTCS).
- Automatic and Manual Transmission/Transaxle Inspection, Service, and Repair:
  - Describe the Fundamentals of Automatic Transmission operation.
  - Perform Maintenance, Diagnosis and Service Procedures.
  - Describe Transmission/Transaxle Fundamentals, including clutch operation.
  - Perform Inspection, Maintenance, Diagnosis and Service Procedures.
- Electrical:
  - Explain basic electrical theory, types of circuits in the automobile.
  - Demonstrate proper testing procedures using Digital Volt Ohmmeter (DVOM) as well as test lights.
  - Perform battery tests and service procedures.
  - Perform starter tests and service procedures.
  - Describe lighting, gauges, horns, and wiper systems service and repair.

**Maintenance and Light repair II**

**3 Credits/90 Clock-Hours**

ASE Automotive Maintenance and Light Repair II is a continuation of ASE Automotive Maintenance and Light Repair I and carries you forward in basic theory and function of suspension and steering systems, braking systems and heating ventilation and air conditioning fundamentals. During this course, you will continue to explore maintenance and servicing of engines and drivetrain systems.

Objectives:

- Engine Systems Inspection, Service and Repair:
  - Describe engine system fundamentals, including 4-stroke cycle, engine sizes and performance.
  - Demonstrate basic engine testing, service and maintenance procedures of engine systems.
  - Retrieve and record diagnostic OBDII generic power train Diagnostic Trouble Codes (DTCS).
- Automatic and Manual Transmission/Transaxle Inspection, Service, and Repair:
  - Describe the Fundamentals of Automatic Transmission operation.
  - Perform Maintenance, Diagnosis and Service Procedures.
  - Describe Transmission/Transaxle Fundamentals, including clutch operation.
  - Perform Inspection, Maintenance, Diagnosis and Service Procedures.
- Electrical:
  - Explain basic electrical theory, types of circuits in the automobile.
  - Demonstrate proper testing procedures using Digital Volt Ohmmeter (DVOM) as well as test lights.
  - Perform battery tests and service procedures.
  - Perform starter tests and service procedures.
  - Describe lighting, gauges, horns, and wiper systems service and repair.

**Suspension and Steering II**

**4 Credits/120 Clock-Hours**

In this course, students will receive training in all aspects of diagnosis and repair of automotive suspension and steering systems. Instruction will be given in alignments, diagnosing and replacement of steering components, diagnosis of tire wear, and alignment related problems. This course conforms to ASE/NATEF standards.

March 22, 2024



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

Objectives:

- Inspect, diagnose, and repair wheel bearings.
- Inspect, diagnose, and repair steering systems.
- Inspect and replace or repair power steering assist system components.
- Inspect, diagnose, adjust, and repair wheel alignment.

**Engine Repair I**

**1 Credit/30 Clock-Hours**

ASE Engine Repair I explores all aspects of diagnosis and repair and replacement of automotive engines, cylinder heads and valve trains, blocks, lubrication and cooling systems. This is the first part of a two-part series focusing on diagnosis and repair of lubrication and cooling systems. This course conforms to ASE/NATEF standards.

Objectives:

- Diagnose and repair lubrication systems.
- Diagnose and repair cooling systems.

**Engine Repair II**

**6 Credits/180 Clock-Hours**

ASE Engine Repair II continues training from ASE Engine Repair I including: diagnosis, repair, and replacement of automotive engines, cylinder heads and valve trains, blocks, and lubrication and cooling system repairs. Throughout your time in this course, you will also explore general engine diagnosis and all aspects of engine repair, including engine repair, cylinder head, valve train, and engine block assemblies. You will also practice the safe and proper techniques for removal and reinstallation of engines. This course conforms to ASE/NATEF standards.

Objectives:

- Demonstrate proper removal, reinstallation and general diagnosis of an engine.
- Diagnose and repair of cylinder head and valve train.
- Diagnose and repair of engine block assemblies.
- List alternative fuel and advanced technology vehicles.

**Automatic Transmissions and Transaxles I**

**2 Credit/60 Clock-Hours**

This is the first course in a two-course series. Students in this course will learn diagnosis and repair of automatic transmissions and transaxles inside and outside of a vehicle including proper maintenance techniques of automatic transmissions/transaxles. Students will also learn how to retrieve diagnostic code using a scan tool. This course conforms to Automotive Service Excellence (ASE) and National Automotive Technicians Education Foundation (NATEF) standards.

Objectives:

- Diagnose noise, vibration, harshness, and shift quality problems.
- Inspect, adjust, and replace transmission cables, linkage, and range sensors.
- Replace transmission fluid, flush, replace filter(s) and refill.
- Using scan tool retrieve transmission codes and look up diagnostic procedures related to these codes.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

**Automatic Transmissions and Transaxles II**

**5 Credit/150 Clock-Hours**

This is the second course in a two-course series. Students in this course will learn diagnosis, removal, replacing and repair of automatic transmissions and transaxles inside and outside of a vehicle. This course conforms to Automotive Service Excellence (ASE) and National Automotive Technicians Education Foundation (NATEF) standards.

Objectives:

- Properly perform all adjustment that can be made on an automatic transmission while still in the vehicle in flat rate.
- Properly diagnose and service torque converter and front pumps.
- Properly perform stall speed test and stator clutch operation.
- Diagnose and inspect planetary gears, clutch packs, bands, and input and output shafts in automatic transmissions.
- Diagnose, inspect, remove, clean, repair, and install transmission valve bodies and other hydraulic parts.
- Properly remove, inspect, clean, rebuild, and reinstall of automatic transmission and automatic transaxles in flat rate.

**ASE Manual Drive Trains and Axles I**

**3 Credit/90 Clock-Hours**

ASE Manual Drive Train and Axles I is the first course in a two-course series. During your time in this course, you will diagnosis and repair manual drive trains and axles including manual transmissions and transaxles, clutches, drive shafts, U-joints, CV joints, drive axles, four-wheel and all-wheel drive components. This course conforms to Automotive Service Excellence (ASE) and National Automotive Technicians Education Foundation (NATEF) standards.

Objectives:

- Diagnose and repair of drive trains.
- Diagnose and repair of drive shaft and half shaft, universal and constant-velocity (CV) joints.
- Diagnose and repair of clutches.

**ASE Manual Drive Trains and Axles II**

**3 Credits/90 Clock-Hours**

ASE Manual Drive Train and Axles II is the second course in a two-course series. Throughout this course, you will diagnose and repair manual drive trains and axles including manual transmissions and transaxles, clutches, drive shafts, U-joints, CV joints, drive axles, four-wheel and all-wheel drive components. This course conforms to Automotive Service Excellence (ASE) and National Automotive Technicians Education Foundation (NATEF) standards.

Objectives:

- Diagnose and repair of drive trains.
- Diagnose and repair of drive shaft and half shaft, universal and constant-velocity (CV) joints.
- Diagnose and repair of clutches.

**ASE Brake Systems II**

**3 Credits/90 Clock-Hours**

This course conforms to ASE/NATEF standards. ASE Brake Systems II explores all aspects of diagnosis and repair of automotive brake systems. Throughout this course, you will be introduced to brake functions, anti-lock brake functions, diagnosing of all aspects of brakes, and proper service of brake and



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

their related components. This is the second part of the two-course series. This part focuses on inspection, adjustment, and repair of drum and disc brakes.

**Objectives:**

- Inspect, diagnose and repair drum brakes.
- Inspect, diagnose and repair disk brakes.
- Inspect, adjust and repair parking brakes.
- Inspect and diagnose power assist brake units.
- Inspect, diagnose and repair anti-lock brake systems.

**ASE Electrical/Electronic Systems II**

**2 Credits/60 Clock-Hours**

This course conforms to ASE/NATEF standards. In this course, students will receive detailed training in all aspects of Automotive Electricity and Electronics. Instruction is given in electrical theory, Ohms law, troubleshooting, diagnosis, and functions of all Automotive Electrical/Electronic systems. This is the second of a two-course series. This course focuses on Ohms law, series and parallel circuits, use of wiring diagrams to inspect, test and diagnose electrical circuits.

**Objectives:**

- Use a Digital Volt Ohm Meter (DVOM) to diagnose lighting systems.
- Diagnose, repair, and replace all vehicle lighting systems.

**ASE Heating, Ventilation, and Air Conditioning I**

**1 Credit/30 Clock-Hours**

ASE Heating, ventilation, and Air Conditioning I is the first course in a two-course series. In this course, you will practice diagnosing, operating, and repairing automotive heating and air conditioning systems, as well as safe handling, recovering, and recycling refrigerants. This course conforms to Automotive Service Excellence (ASE) and National Automotive Technicians Education Foundation (NATEF) standards.

**Objectives:**

- Explain the refrigeration cycle.
- Identify basic components of the Air Conditioning system.
- Diagnose and troubleshoot heater functions.
- Diagnose and troubleshoot heater and air conditioner ventilation ducting system.
- Diagnose the engine cooling system function.
- Remove and replace blower motors, ventilation ducts, linkages and control assemblies.
- Properly handle, recover, test, recycle, and disposal of all types of refrigerants.

**ASE Heating, Ventilation, and Air Conditioning II**

**2 Credits/60 Clock-Hours**

ASE Heating, Ventilation, and Air Conditioning II is the second course in a two-course series. In this course, you will study diagnosis, operation, and repair of automotive heating and air conditioning systems including operation and repair of air conditioning systems and related controls. You will explore safe handling, recovery and recycling of refrigerants. This course conforms to Automotive Service Excellence (ASE) and National Automotive Technicians Education Foundation (NATEF) standards. In order to successfully complete the course, you must pass the Section 609 Certification.

**Objectives:**

- Recognize appropriate pressure and temperatures of properly working automotive air conditioning systems.
- Properly recover, recycle, and recharge air conditioning systems.



UTAH SYSTEM OF  
HIGHER EDUCATION

**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

- Properly evacuate, leak test and determine the “state of charge” of an air conditioning system.
- Remove and replace air conditioning components such as hoses, fittings, metering devices, receiver dryers, accumulators, condensers evaporators and pressure switches.
- Remove and replace air conditioning compressors and clutch assemblies.
- Diagnose air conditioning and heating system control modules and related systems.

**Engine Performance II**

**5 Credits/150 Clock-Hours**

This course conforms to ASE/NATEF standards. During this course, you will receive detailed training in all aspects of diagnosis and repair of automotive engine performance systems. You will explore all aspects of engine performance including but not limited to fuel injection systems, ignition systems, computer controls, emissions systems, and exhaust systems. This is the second of a two-course series. This course focuses on all aspects of air induction and exhaust systems, fuel systems, emission system, and onboard computer powertrain controls.

Objectives:

- Inspect, diagnose, and repair general fuel supply and delivery systems.
- Diagnose and Repair Intake and Exhaust Systems.
- Inspect, diagnose, and repair general emission control systems.
- Operate a 5-gas exhaust analyzer, and interpret and analyze exhaust 5 gas emission.
- Inspect, diagnose with and without the use of a scan tool, and repair engine computer control systems (On Board Diagnostics I).
- Operate a lab scope and analyze electronic components and devices oscilloscope waveforms.
- Inspect, diagnose, and repair electronic fuel injection systems.
- Inspect, diagnose, and repair On Board Diagnostic II systems.

**ASE Light Duty Diesel**

**2 Credits/60 Clock-Hours**

Students in this course will study the current fuels used in the automotive industry and the environmental concerns associated with fuels. Students will be introduced to fuel systems of light duty diesel vehicles. Students will have an opportunity to apply new skills in basic fuel systems, types, engines, engine aspiration systems, emission controls, and general vehicle emissions inspection, as well as an introduction to light duty diesels used in automotive applications.

Objectives:

- Describe properties of gasoline and diesel fuel.
- Explain octane and cetane ratings.
- Describe normal and abnormal combustion of gasoline and diesel fuel.
- Describe how vehicle emission gasses are formed and identify the emission control parts.
- Summarize the differences between gasoline and diesel engines.
- Explain operation principles of a diesel injections system.
- Properly replace fuel filter and bleed fuel system on diesel injection system.
- Describe the type of engine aspiration systems and how to safely work around them.
- Maintain a safe and clean working environment, clean shop as directed by instructor.

**Automotive Technology Special Projects I**

**1 Credit/30 Clock-Hours**

Automotive Technology Special Project I provides the opportunity to practice previously learned skills. You will complete approved and supervised in-class work experiences as you prepare for work in the automotive technology industry.



UTAH SYSTEM OF  
HIGHER EDUCATION

**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

**Objectives:**

- Perform maintenance repairs and service on special projects as determined by the instructor to meet course requirements.

**Automotive Technology Special Projects II**

**2 Credits/60 Clock-Hours**

Automotive Technology Special Project II provides the opportunity to practice previously learned skills. You will complete approved and supervised in-class work experiences as you prepare for work in the automotive technology industry.

**Objectives:**

- Perform maintenance repairs and service on special projects as determined by the instructor to meet course requirements.

**Automotive Technology Special Projects III**

**3 Credits/90 Clock-Hours**

Automotive Technology Special Project III provides the opportunity to practice previously learned skills. You will complete approved and supervised in-class work experiences as you prepare for work in the automotive technology industry.

**Objectives:**

- Perform maintenance repairs and service on special projects as determined by the instructor to meet course requirements.

**Automotive Technology Externship Guide**

**2 Credits/90 Clock-Hours**

The Automotive Technology externship experience helps you transition from a student into a professional role by allowing you to demonstrate the knowledge, skills and professional attributes learned in the program while working in a professional setting. This experience takes place under the supervision of a qualified site supervisor and includes skill practice and evaluation. Program faculty periodically visit the externship site to evaluate your progress and performance. All program course work must be completed prior to enrolling in this course.

**Objectives:**

- Demonstrate basic diagnostic testing, service, and maintenance procedures on a variety of automotive systems.
- Demonstrate professional and appropriate customer service.

**Dixie Technical College**

**Mountainland Technical College**

**G1 Maintenance and Light Repair**

**9 Credits/270 Clock-Hours**

This course provides knowledge of proper practices in working safely in a professional shop environment.

**Objectives:**

- Demonstrate a safety-oriented mindset and always ensure a safe working environment.
- Demonstrate the proper use of the tools and equipment needed to work in the automotive industry.
- Inspect engine assembly for fuel, oil, coolant and other leaks.
- Install engine covers using gaskets, seals and sealers.
- Identify service precautions for servicing engines of hybrid electrical vehicles.

March 22, 2024



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

- Identify cylinder head and valve train components and configurations.
- Identify engine block assembly components and configurations.
- Perform engine oil and filter change, cooling system leak pressure and dye tests, and identify causes of engines overheating.
- Drain and recover coolant. Remove and replace thermostat and gasket/seal.

---

**A1 Engine Repair**

**5 Credits/150 Clock-Hours**

In this course, students learn general automotive repair techniques, such as researching vehicle information, monitoring automobile status, clearing codes, and inspecting the engine for fluid levels and leaks. Students will diagnose and repair issues with the cylinder head and valve train. They will also perform tests and diagnose lubrication and cooling system problems and make necessary repairs.

Objectives:

- Research vehicle service information online, such as fluid types, part numbers, etc.
- Inspect engines for fluid leaks and determine needed action, including replacement of gaskets and seals.
- Check mechanical timing and inspect/replace engine mounts.
- Remove and install engine, cylinder head, and camshaft. Adjust valves.
- Disassemble, inspect and reassemble engine block.
- Inspect and maintain and repair lubrication and cooling systems.

---

**A2 Automatic Transmission/Transaxle**

**5 Credits/150 Clock-Hours**

This course teaches the student to identify transmission and transaxle parts, and to inspect, maintain and repair transmission and transaxle systems. Students will distinguish between continuously variable transmissions and will learn the characteristics of hybrid vehicle drive trains. They will learn to inspect, measure, and replace the valve body and assemble transmissions and transaxles.

Objectives:

- Identify automatic transmission and transaxle components and configurations.
- Analyze transmission/transaxle concerns, differentiating between engine performance and transmission/transaxle concerns.
- Diagnose fluid condition and loss and inspect for leaks.
- Diagnose pressure concerns in a transmission, using hydraulic principles.
- Drain and replace fluid and filters, and inspect, replace or align powertrain mounts.
- Assemble transmission/transaxle.
- Inspect and troubleshoot oil delivery circuits, bushings, planetary gear assembly, case bores, clutch drum, piston, etc.

---

**A3 Manual DriveTrain and Axles**

**4 Credits/120 Clock-Hours**

This course provides the student with knowledge and practice in inspecting, diagnosing and repairing manual drivetrain and axle systems in automobiles and four-wheel/all-wheel drive vehicles.

Objectives:

- Identify drivetrain and axle components and identify drive train concerns and action.
- Check and adjust clutch master cylinder fluid level, check for leaks, and use proper fluids.
- Diagnose clutch noise, binding, slippage, pulsation and chatter to determine needed action; bleed clutch hydraulic system.
- Inspect flywheel and ring gear for wear and determine needed action.





UTAH SYSTEM OF  
HIGHER EDUCATION

**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

- Disassemble, inspect, clean and reassemble internal transmission/transaxle components.
- Inspect and service/replace bearings, hubs and seals, and shafts, yokes boots, and universal/CV joints.
- Inspect and repair differential housings, pinion and ring gear, drive axles.
- Diagnose, test, adjust and/or replace electrical components of four-wheel or all-wheel drive systems.
- Disassemble, service and reassemble transfer case components.

**A6 Electrical II**

**1 Credit/30 Clock-Hours**

---

This course covers the principles and laws of basic electrical theory and lab practices.

Objectives:

- Identify electrical systems associated with automobiles and trucks.
- Explain basic electrical circuits and how they work.
- Discuss battery, starting circuits, and charging systems and their proper function.
- Demonstrate proper use of digital multimeter for measuring voltage.
- Use wiring diagrams during diagnosis of electrical/electronic circuit problems.
- Test, measure, repair and replace components, connectors, terminals and wiring. Solder repairs.
- Inspect, clean, and replace the battery. Reinitialize or enter codes for peripheral equipment as needed.
- Identify, inspect, troubleshoot, repair and replace starters in vehicles.
- Inspect, diagnose, and replace interior and exterior lights.
- Inspect, diagnose and repair issues with instrument panel gauges and warning lights. Reset if needed.
- Diagnose vehicle comfort, convenience safety, security, restraint, wiper, entertainment, and related systems operation. Update software, as needed.

**A7 Heating, Ventilation, and Air Conditioning (HVAC)**

**3 Credits/90 Clock-Hours**

---

The A7 Automotive HVAC course covers the HVAC (heating ventilation and air conditioning) systems for automotive cars and light trucks. Hands on and theory training includes, shop safety, electrical fundamentals, all components and systems both mechanical and electronic that are related to a vehicle's heating and air conditioning system. Manufacturer web-based training, ASE practice testing, and a final exam. Students will also study and take the online EPA section 609 Certification exam in class, as part of the course, and the ASE A7 certification exam will be taken at an independent testing facility at the conclusion of the course.

Objectives:

- Identify and discuss the function of the heating, ventilation, and air conditioning systems.
- Identify HVAC components and configurations.
- Perform A/C system performance tests, and determine needed actions.
- Inspect, remove and replace A/C systems.
- Inspect engine cooling and heating systems, hoses, pipes, control valves and heater core. Repair or replace, as needed.
- Inspect HVAC ducts, doors, hoses, cabin filters, and outlets to determine needed action.
- Use and maintain refrigerant handling equipment.
- Identify A/C system refrigerants. Test, recover, evacuate, and charge the A/C system.
- Recycle, label and store refrigerant using proper processes.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

**A8 Engine Performance II**

**1 Credit/30 Clock-Hours**

Students will identify and interpret various engine performance concerns and will determine needed action. They will learn to correct camshaft timing, perform engine manifold pressure tests, and perform tests on cylinders to determine needed adjustments and repairs. Students will also analyze computerized controls to determine needed adjustments. Students will learn to repair and replace the ignition system, fuel filter, exhaust systems, and turbocharger systems, as well as emission control systems.

Objectives:

- Verify proper engine cooling system operation. Determine any needed actions.
- Verify correct Camshaft timing and adjust as necessary.
- Interpret engine performance concerns, including engine noises or vibration concerns.
- Perform engine manifold pressure test, cylinder power balance test, cylinder cranking and running compression tests, and cylinder leaking tests. Determine needed action.
- Diagnose engine mechanical, electrical, electronic, fuel, and ignition concerns. Determine needed action.
- Inspect, test, and adjust engine computerized controls.
- Reprogram or recalibrate the powertrain/engine control module.
- Inspect, test, and/or replace ignition components. Reprogram as necessary.
- Identify, test and repair components of the Ignition, Fuel, Air Induction and exhaust systems.
- Inspect and service the Emissions Control Systems.

**Ogden-Weber Technical College**

**Engine Repair**

**3 Credits/90 Clock-Hours**

The Engine Repair course covers theory and hands-on instruction in automotive engines while following the standards as established by Automotive Service Excellence Education Foundation.

Objectives:

- Practice safe servicing procedures as related to engine repair.
- Identify engine configurations.
- Determine procedures to maintain engine lubrication and cooling systems.
- Identify and service internal engine components.
- Explore techniques to measure clearances of engine components.
- Determine safe procedures to engine assembly removal and installation.
- Identify ASE testing strategies related to the topic of engine repair.

**Automatic Transmissions**

**4 Credits/120 Clock-Hours**

The Transmission course covers theory and hands-on instruction in transmissions while following the standards as established Automotive Service Excellence Education Foundation.

Objectives:

- Practice safe servicing procedures as related to transmissions.
- Identify transmission types.
- Determine procedures to maintain automatic and manual transmissions.
- Diagnose and repair automatic and manual transmission components.
- Identify and service drive shafts and axles.
- Identify and service manual transmission clutch components.
- Explore final drive assemblies.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

- Explore four-wheel and all-wheel drive systems.
- Identify ASE testing strategies related to the topic of automatic and manual transmissions.

**Heating, Ventilation, and Air Conditioning**

**3 Credits/90 Clock-Hours**

This course covers theory and hands-on instruction on automotive HVAC systems while following the standards as established by Automotive Service Excellence Education Foundation. In addition, this course will cover workplace skills needed to maintain gainful and satisfying employment.

Objectives:

- Practice safe servicing procedures as related to automotive HVAC.
- Identify air conditioning system faults based on gauge readings and vent temperatures.
- Demonstrate the process of refrigerant recovery, recycling, and recharging using approved equipment.
- Diagnose and repair faulty HVAC components.
- Pass the EPA 609 technician certification test.
- Identify ASE testing strategies related to the topic of heating, ventilation, and air conditioning.
- Identify workplace interpersonal and human relations skills.

**Salt Lake Community College**

**Safety and Introduction to Automotive Service**

**4 Credits/120 Clock-Hours**

The Safety and Intro to Auto Service course provides proper knowledge of practices in safety to help establish safe working habits that would reflect industry standards, introduces the student to careers in the automotive field, ASE certifications, and service of the following systems: engines, electrical, brakes, steering and suspension, HVAC, transmissions, drivetrain, and engine performance.

Objectives:

- Maintain personal safety and proper lifting procedures.
- Identify occupational rules and regulations.
- Identify and use personal protective equipment.
- Identify and use hand and power tools.
- Identify and properly dispose of hazardous waste.
- Identify and use metric and standard measuring systems.
- Identify and inspect engine systems.
- Identify and inspect starting and charging systems.
- Identify and inspect brake systems.
- Identify and inspect the steering and suspension systems.
- Identify and inspect the HVAC system.
- Identify and inspect transmission and drivetrain systems.

**Engine Repair**

**4 Credits/120 Clock-Hours**

The Engine Repair course teaches theory and hands-on instruction in automotive engines while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe engine maintenance and repairs.
- Identify engine components and configurations.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

- Identify and maintain the automotive engine and its systems.
- Identify and maintain the cooling system.
- Identify and maintain the lubrication system.
- Identify and repair an engine, including overhaul.

---

**Manual Drivetrain and Axles**

**4 Credits/120 Clock-Hours**

The Manual Drivetrain and Axles course teaches theory and hands-on instruction on automotive manual drivetrain and axles while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe manual drivetrain and axles maintenance and repairs.
- Identify manual drive train and axles components and configurations.
- Identify and maintain the manual drivetrain, axles, clutch systems, and manual transmissions.
- Identify and maintain the drive shaft, half shaft, and all types of CV joints.
- Identify and maintain ring and pinion gears, differentials, and drive axles.
- Identify and maintain four-wheel and all-wheel drive systems.

---

**Automatic Transmissions**

**4 Credits/120 Clock-Hours**

The Automatic Transmission course teaches theory and hands-on instruction in automatic transmissions and transaxles while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe automatic transmission maintenance and repairs.
- Identify automatic transmission components and configurations.
- Identify and maintain the automatic transmission and its systems.
- Identify and repair automatic transmissions, including overhaul.
- Identify and repair the electronic components of automatic transmissions.

---

**Heating, Ventilation, and Air Conditioning**

**4 Credits/120 Clock-Hours**

The Heating, Ventilation, and Air Conditioning course teaches theory and hands-on instruction on automotive HVAC while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe automotive HVAC and repairs.
- Identify and repair the refrigeration systems and components.
- Identify and repair the heating, ventilation, and engine cooling system.
- Identify and repair operating systems and controls relating to automotive HVAC.
- Identify and demonstrate use of refrigerant recovery, recycling, and handling equipment and procedures.
- Review and complete the US-EPA 609 Refrigerant Handling Certification.

---

**Electrical II**

**4 Credits/120 Clock-Hours**

The Electrical II course delves deeper into advanced topics and tools such as electronic control systems and digital communication networks. Students will master complex diagnostic procedures and emerge ready to tackle the intricate electrical challenges posed by modern vehicles.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

**Objectives:**

- Maintain vehicle safety through safe electrical maintenance and repairs.
- Retrieve and record DTCs, OBD monitor status, and freeze frame data; clear codes and data when directed.
- Diagnose the cause(s) of excessive key-off battery drain (parasitic draw); determine needed action.
- Test and measure circuit using an oscilloscope and/or graphing multimeter (GMM); interpret results; determine needed action.
- Identify and repair instrument cluster and driver information systems.
- Identify and repair body electrical systems.
- Test and repair electrical related systems using electronic testing industry specific equipment.

**Electrical III**

**4 Credits/120 Clock-Hours**

Electrical III is a hands-on course introducing the student in the theory and operation of body control, ADAS and other similar networked systems. Students will test, diagnose, and demonstrate repairs utilizing modern equipment and follows standards established by Automotive Service Excellence Education Foundation. This course also introduces Hybrid/EV theory, safety, operations, and maintenance.

**Objectives:**

- Diagnose body electronic systems circuits using a scan tool, oscilloscope, and other related industry test equipment.
- Identify/diagnose analog and digital signal inputs and outputs of the body electronic systems.
- Personal safety and handling practices of vehicle restraint system components.
- Identify/diagnose operation of vehicle safety systems, ADAS and related systems to determine needed action.
- Identify/diagnose network module communication errors to determine needed action.
- Describe the process for software transfer, software updates, or reprogramming of electronic modules.
- Diagnose operation of entertainment/infotainment systems determine needed action.
- Identify/test and demonstrate proper use of personal protective equipment used in high voltage applications.
- Identify proper manufacturer power down safety procedures of individual hybrid/EV models prior to repair/testing.
- Identify common components of hybrid and electric vehicles.
- Identify proper tools and precautions specific to hybrid/EV vehicles.

**Engine Performance II**

**4 Credits/120 Clock-Hours**

The Engine Performance II course provides theory and hands-on instruction in automotive engine performance while following standards set forth by Automotive Service Excellence Education Foundation at the master level.

**Objectives:**

- Maintain vehicle safety through safe engine performance maintenance and repairs.
- Identify and repair computerized controls related to engine performance.
- Identify and repair emission control systems related to engine performance.
- Test and repair engine performance systems using industry specific electronic testing equipment.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

**Snow College**

**Safety and Basics**

**1 Credit/30 Clock-Hours**

The Safety and Basics course provides proper knowledge of practices in safety to help establish working habits that would reflect industry standards in a safe working environment.

Objectives:

- Maintain personal safety and proper lifting procedures.
- Identify occupational rules and regulations.
- Identify and use personal protective equipment.
- Identify and use hand and power tools.
- Identify and properly dispose of hazardous waste.
- Identify and use metric and standard measuring systems.

**Intro to Automotive Technology I**

**2 Credits/60 Clock-Hours**

The Intro to Automotive Technology I course introduces the student to careers in the automotive field, ASE certifications and engine design and operation.

Objectives:

- Identify and study engine theory, design and operation.
- Identify and repair the lubrication system and its components.
- Identify and repair the cooling system and its components.
- Identify and repair the fuel system and its components.

**Intro to Automotive Technology II**

**2 Credits/60 Clock-Hours**

The Intro to Automotive Technology II course introduces the student to automotive electrical, ignition, brake, suspension, and steering systems.

Objectives:

- Identify and study electrical theory, starting and charging systems.
- Identify and repair the ignition system and its components.
- Identify and repair the brake system and its components.
- Identify and repair the steering and suspension systems and their components.

**Engine Repair**

**3 Credits/90 Clock-Hours**

The Engine Repair course teaches theory and hands-on instruction in automotive engines while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe engine maintenance and repairs.
- Identify engine components and configurations.
- Identify and maintain the automotive engine and its systems.
- Identify and maintain the cooling system.
- Identify and maintain the lubrication system.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

**Automatic Transmissions**

**4 Credits/120 Clock-Hours**

The Automatic Transmission course teaches theory and hands-on instruction in automatic transmissions and transaxles while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe automatic transmission maintenance and repairs.
- Identify automatic transmission components and configurations.
- Identify and maintain the automatic transmission and its systems.
- Identify and repair automatic transmissions, including overhaul.
- Identify and repair the electronic components of automatic transmissions.

**Hybrid and Electric Vehicles**

**1 Credit/30 Clock-Hours**

The Hybrid and Electric Vehicle course teaches theory and hands-on instruction in the basics of hybrid and electrical vehicles.

Objectives:

- Maintain vehicle safety through safe hybrid and electric vehicle repairs.
- Identify and use proper personal protective equipment.
- Identify common components of hybrid and electric vehicles.
- Identify and repair operating systems and controls on hybrid and electric vehicles.
- Identify and demonstrate proper precautions around high voltage.

**Electrical II**

**4 Credits/120 Clock-Hours**

The Electrical II course delves deeper into advanced topics and tools such as electronic control systems and digital communication networks. Students will master complex diagnostic procedures and emerge ready to tackle the intricate electrical challenges posed by modern vehicles.

Objectives:

- Maintain vehicle safety through safe electrical maintenance and repairs.
- Retrieve and record DTCs, OBD monitor status, and freeze frame data; clear codes and data when directed.
- Diagnose the cause(s) of excessive key-off battery drain (parasitic draw); determine needed action.
- Test and measure circuit using an oscilloscope and/or graphing multimeter (GMM); interpret results; determine needed action.
- Identify and repair instrument cluster and driver information systems.
- Identify and repair body electrical systems.
- Test and repair electrical related systems using electronic testing industry specific equipment.

**Engine Performance II**

**4 Credits/120 Clock-Hours**

The Engine Performance II course provides theory and hands-on instruction in automotive engine performance while following standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe engine performance maintenance and repairs.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

- Identify and repair computerized controls related to engine performance.
- Identify and repair emission control systems related to engine performance.
- Test and repair engine performance systems using industry specific electronic testing equipment.

**Manual Drivetrain and Axles**

**4 Credits/120 Clock-Hours**

The Manual Drivetrain and Axles course teaches theory and hands-on instruction on automotive manual drivetrain and axles while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe manual drivetrain and axles maintenance and repairs.
- Identify manual drive train and axles components and configurations.
- Identify and maintain the manual drivetrain, axles, clutch systems, and manual transmissions.
- Identify and maintain the drive shaft, half shaft, and all types of CV joints.
- Identify and maintain ring and pinion gears, differentials, and drive axles.
- Identify and maintain four-wheel and all-wheel drive systems.

**Heating, Ventilation, and Air Conditioning**

**3 Credits/90 Clock-Hours**

The Heating, Ventilation, and Air Conditioning course teaches theory and hands-on instruction on automotive HVAC while following the program standards set forth by Automotive Service Excellence Education Foundation at the master level.

Objectives:

- Maintain vehicle safety through safe automotive HVAC and repairs.
- Identify and repair the refrigeration systems and components.
- Identify and repair the heating, ventilation, and engine cooling system.
- Identify and repair operating systems and controls relating to automotive HVAC.
- Identify and demonstrate use of refrigerant recovery, recycling, and handling equipment and procedures.

**Southwest Technical College**

**Workshop Practices and Safety**

**1 Credit/30 Clock-Hours**

In Workshop Practices and Safety, students will be introduced to the various tools and equipment to be used in the Automotive Industry. Additionally, students will complete an in-depth automotive specific safety training program. This course meets the required tasks in preparation for successful certification in ASE (Automotive Service Excellence).

Objectives:

- Practice shop safety.
- Use and understand a digital multimeter and how to test basic electrical circuits.
- Demonstrate working knowledge of automobile information systems.
- Use and understand automotive computer diagnostic tools and equipment.
- Use and read precision measurement tools.

**Math for Automotive Technicians**

**2 Credits/60 Clock-Hours**

Mathematical skills form the foundation of automotive design and operation. Math for Automotive Technicians, is designed to provide realistic problems technicians will face including: whole numbers,





**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

decimals, fractions, geometry, angle measurement, metric system, integers, ratios, business statistic, repair orders, automotive engine systems, automotive electrical systems, automotive drivetrain, automotive chassis, and automotive HVAC systems.

**Objectives:**

- Calculate differential gear ratios, engine bore and stroke, electrical current flow, voltage, resistance and many other components and systems found in the modern automobile.
- Determine weights of gasses needed in the air conditioning systems and fuel systems.
- Determine fuel composition, and diagnose and repair vehicles.

**Electrical II**

**4 Credits/120 Clock-Hours**

Automotive Electrical Systems II is an in-depth industry-based course including these units of study: safety concerns when working on electrical systems, advanced wiring and schematics, testing and diagnosis of digital automotive systems, testing and diagnosis of automobile safety systems. This course meets the required tasks in preparation for successful certification in ASE (Automotive Service Excellence) Automotive Electrical Systems.

**Objectives:**

- Diagnose and repair electronic systems through electric theory and practice.
- Diagnose on-board computers and networked systems.
- Diagnose, repair and program vehicle communication systems.
- Diagnose, repair, and determine preparation of airbag and restraint systems.
- Safely operate and diagnose hybrid drive systems.

**Engine Performance II**

**4 Credits/120 Clock-Hours**

Engine Performance II is an in-depth practical course dealing with advanced automotive systems. In this course, you will be introduced to ECU operations and controls, programming and reprogramming ECU systems, networking systems, and other systems and components necessary to maintain proper operation of new vehicles. When you have completed this course, you will be eligible to take the certification exam in ASE (Automotive Service Excellence) Engine Performance.

**Objectives:**

- Safely and appropriately use the tools and theories designed to repair high tech vehicles.
- Use vehicle on-board diagnostics, and emission testing to repair vehicles to manufacture operating specifications.
- Diagnose, and repair on-board computers, sensors, ignition, and fuel systems.
- Correctly find, and repair emission and evaporative system failures.

**Heating and Air Conditioning**

**3 Credits/90 Clock-Hours**

Automotive Heating and Air Conditioning is an in-depth industry-based course that meets ASE/NATEF standards. In this course you will examine safety concerns when working with refrigerants and superheated liquids, construction and operation systems, testing and diagnosis of automotive passenger comfort systems. When you have completed this course, you will be prepared to take the certification exam in ASE (Automotive Service Excellence) Automotive Heating and Air Conditioning systems.

**Objectives:**

- Demonstrate a working knowledge of temperature vs. pressure in HVAC systems.
- Diagnose and repair engine cooling and passenger comfort systems.
- Describe the operating principles found in mobile HVAC systems.

March 22, 2024



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

- Demonstrate a working knowledge of mobile HVAC system components.
- Diagnose and repair mobile refrigerant systems.
- Diagnose and repair compressors and components.
- Use on-board diagnostic systems to control and test mobile HVAC systems.

---

**Manual Drive Train and Axles**

**3 Credits/90 Clock-Hours**

Manual Drive Trains is an in-depth clinical based course that conforms to the ASE/NATEF standards. Throughout the course, you will concentrate on topics such as safety concerns when working on drive train components, power flow through a gear set, clutch diagnosis and operation, manual gearbox diagnosis, removal and rebuilding procedures for manual transmissions, 4-wheel drive systems. When you have completed this course, you will be prepared to take the certification exam in ASE (Automotive Service Excellence) Automotive Manual Drive Train Systems.

Objectives:

- "Demonstrate a working knowledge of manual drivetrains and axle systems.
- Diagnose, remove, repair, and replace manual transmission and components.
- Remove driveshafts, replace universal joints and repair four-wheel drive systems.
- Diagnose and repair electronically controlled transmission systems.

---

**Automatic Transmissions and Transaxles**

**4 Credits/120 Clock-Hours**

Automotive Automatic Transmission and Transaxles is an in-depth clinical based course. Throughout the course, you will practice safety concerns when working on transmissions and drivetrain components, power flow through a planetary gear set, clutch pack diagnosis and operation, hydraulic circuits, removal and rebuilding procedures for automatic transmissions and transaxles, and torque converter operation. When you have completed this course, you will be eligible to take the certification exam in ASE (Automotive Service Excellence) Automotive Automatic Transmissions and Transaxles.

Objectives:

- Diagnose automatic transmissions and transmission control systems.
- Remove, repair/rebuild and replace automatic transmissions and related systems.
- Diagnose and repair automatic hybrid drive systems.

---

**Engine Repair**

**5 Credits/150 Clock-Hours**

The Engine repair course conforms to ASE/NATEF standards. In this course, you will work with both classroom instruction and hands-on lab training. You will evaluate the design and operation of internal combustion engines, diagnosis of engine operation, failure analysis of engine components, and complete engine machining and rebuilding procedures. When you have completed this course, you will be eligible to take the exam for ASE certification.

Objectives:

- Diagnose internal engine failures.
- Remove, repair/rebuild, and reinstall modern automobile engines.
- Demonstrate a working knowledge of modern hybrid drive systems.

---

**Manufacturer Automotive Service Training – General Motors**

**4 Credits/120 Clock-Hours**

GM STEP provides graduating students an opportunity to be hired as entry-level Maintenance Light Repair (MLR) technicians or other roles within the dealer they partnered with.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

**Objectives:**

- Demonstrate competency in all eight ASE areas of emphasis will be covered: engine repair, electrical systems, heating and air conditioning, brake systems, steering and suspension, manual drive trains, automatic transmission, and engine performance.

**Manufacturer Automotive Service Training – Toyota** **2 Credits/60 Clock-Hours**

---

Toyota TECS Elite is supplemental training to STECH's automotive training curriculum and provides students the ability to become Toyota/Lexus Certified Maintenance Level Technicians.

**Objectives:**

- Demonstrate competency in all eight ASE areas of emphasis will be covered: engine repair, electrical systems, heating and air conditioning, brake systems, steering and suspension, manual drive trains, automatic transmission, and engine performance.

**Manufacturer Automotive Service Training – Mopar CAP** **2 Credits/60 Clock-Hours**

---

The Mopar CAP course provides students with more than a general automotive education. Mopar CAP students gain the training and fundamental knowledge they need to work on some of the hottest vehicles in the industry from legendary Chrysler, Dodge, Jeep®, Ram, FIAT® and Alfa Romeo brands. Mopar CAP certification gives students a competitive edge and shows our dealers they have the fundamental qualifications to be a successful automotive Technician at an FCA dealership.

**Objectives:**

- Demonstrate competency in all eight ASE areas of emphasis will be covered: engine repair, electrical systems, heating and air conditioning, brake systems, steering and suspension, manual drive trains, automatic transmission, and engine performance.

**Manufacturer Automotive Service Training – Audi** **2 Credits/60 Clock-Hours**

---

After completing the Audi AEP program training, student technicians will be Expert Level Audi-Certified Technicians.

**Objectives:**

- Demonstrate competency in all eight ASE areas of emphasis will be covered: engine repair, electrical systems, heating and air conditioning, brake systems, steering and suspension, manual drive trains, automatic transmission, and engine performance.

**Manufacturer Automotive Service Training – Hyundai** **2 Credits/60 Clock-Hours**

---

Hyundai tech training provides student technicians the path to become Hyundai Maintenance Certified.

**Objectives:**

- Demonstrate competency in all eight ASE areas of emphasis will be covered: engine repair, electrical systems, heating and air conditioning, brake systems, steering and suspension, manual drive trains, automatic transmission, and engine performance.

**Manufacturer Automotive Service Training – Mercedes-Benz** **2 Credits/60 Clock-Hours**

---

MB Campus provides next-level vehicle technology, service, and repair. This program provides exposure to MB technologies and products, provides a skill set for MB success, and improves earning potential as an MB intern.



**Utah System of Higher Education**  
Automotive Technology  
**FY2025 /16 Credits (480 Clock-Hours)**

**Objectives:**

- Demonstrate competency in all eight ASE areas of emphasis will be covered: engine repair, electrical systems, heating and air conditioning, brake systems, steering and suspension, manual drive trains, automatic transmission, and engine performance.

**Uintah Basin Technical College**

**Utah State University - Eastern**



UTAH SYSTEM OF  
HIGHER EDUCATION

**Utah System of Higher Education**  
CNC Machinist Technician  
FY2026 / 6 Credits (180 Clock-Hours)

<b>CNC Machinist Technician</b>			
Institutions: Ogden-Weber, Salt Lake			
<i>Certificate of Program Completion (Catalog Year: 2026, 6 Credits/180 Clock-Hours Required, CIP: 48.0501)</i>			
<b>Aligned (6 Credits/180 Clock-Hours)</b>		<b>Credits</b>	<b>Clock-Hours</b>
TEMT 1005	CNC Technician Fundamentals	2	60
TEMT 1510	Geometric Dimensioning and Tolerancing Basic	1	30
TEMT 1015	Machining Concepts	1	30
TEMT 1120	CNC Mill Basic Operation	1	30
TEMT 1220	CNC Lathe Basic Operation	1	30



**Utah System of Higher Education**  
CNC Machinist Technician  
FY2026 / 6 Credits (180 Clock-Hours)

## **PROGRAM DESCRIPTION**

The essential role of a Machinist technician is to operate Computer Numerical Control machines to fabricate parts under the supervision of a machinist. The technician loads parts in the machine, cycles machine and safely and accurately to pre-form a variety of functions. Most go on to earn machinist certificates at technical colleges while working as interns, or apprentices in manufacturing to gain practical experience as they move up to a machinist level

### Objectives:

- Obtain general knowledge in manufacturing setting.
- Operate Computer Numerical Controlled lathe.
- Operate Computer Numerical Controlled vertical mill.

## **ALIGNED COURSE DESCRIPTIONS**

### **CNC Technician Fundamentals**

**2 Credits / 60 Clock-Hours**

An introductory course to basic procedures and machining operations encountered in the machine shop manufacturing industry. Topics include essential safety practices, SDS, basic measuring tools, and alphabet of lines, title block data, dimensions, tolerances, surface finish, and multiple-view drawings, with sectional, auxiliary and projected views.

### Objectives:

- Identify safe practices in a machine shop.
- Identify correct clean-up procedures.
- Interpret a Material Safety Data Sheet (SDS).
- Demonstrate accurate use and reading of steel rules, micrometers, and calipers.
- Perform basic layout procedures.
- Add, subtract, multiply, and divide to solve a problem following the correct order of operations.
- Add, subtract, multiply, and divide fractions and decimals, as well as how to convert these numbers to percentages.
- Interpret blueprint title block and revision information.
- Visualize a three-dimensional part from a blueprint drawing.
- Calculate dimensions and tolerances from views shown on a blueprint.
- Identify surface finish requirements.
- Determine threading data from blueprint specifications.
- Inspect and document finish dimension using various metrology.
- Calculate taper dimensions from blueprint specifications.

### **Geometric Dimensioning and Tolerancing Basic**

**1 Credit / 30 Clock-Hours**

This course teaches students to interpret Geometric Dimensioning and Tolerancing (GD&T) on blueprints used in manufacturing. Topics include symbols, terms, datum, material condition modifiers, and tolerance zones.

### Objectives:

- Solve problems of location and positional tolerances using GD&T symbols.
- Solve problems of linear tolerances using GD&T symbols.
- Solve tolerance problems of feature form, profile, and function using GD&T symbols.



**Utah System of Higher Education**  
CNC Machinist Technician  
FY2026 / 6 Credits (180 Clock-Hours)

**Machining Concepts**

**1 Credit / 30 Clock-Hours**

This course instructs basic machining concepts. It gives students a working overview of machining practices. This course is designed to provide students with basic measuring equipment, basic Inspection, and documentation of machined parts.

Objectives:

- Demonstrate safe work habits and be conscious of safety when working with machinery.
- Describe basic blueprints, drawings, and establish tolerances.
- Apply basic mathematics in the machine tool technology.
- Demonstrate proper machine tool usage.
- Describe 5's concepts.
- Select and plan machining operations on equipment.
- Demonstrate beginning skills in quality control, inspection, gauging methods, and production control as they relate to manufacturing production.

**CNC Mill Basic Operation**

**1 Credit / 30 Clock-Hours**

This course introduces CNC vertical milling. Students will be taught safe setup and operation of CNC vertical mill, CNC terminology, preparatory steps to run a CNC program.

Objectives:

- Demonstrate proper work holding for CNC mill machine.
- Demonstrate basic CNC mill machine setup.
- Demonstrate setting program zero for CNC mill machines.
- Use motion commands of rapid positioning, linear interpolation, and circular interpolation.
- Demonstrate interpersonal skills.
- Inspect and document finish dimension using various metrology.

**CNC Lathe Basic Operation**

**1 Credit / 30 Clock-Hours**

This course introduces CNC lathe operation. Students will be taught safe setup and operation of CNC lathe, CNC terminology, preparatory steps to run a CNC program.

Objectives:

- Demonstrate proper work holding for CNC lathe machine.
- Demonstrate basic CNC lathe machine setup.
- Demonstrate setting program zero for CNC lathe machines.
- Inspect and document finish dimension.
- Demonstrate interpersonal skills.



**Utah System of Higher Education**  
**Culinary Arts**  
 FY2026 / 21 Credits (630 Clock-Hours)

<b>Culinary Arts</b>			
Institutions: Bridgerland, Davis, Dixie, Mountainland, Ogden-Weber, Southwest, Uintah Basin			
<i>Certificate of Program Completion (Catalog Year: 2026, 21 Credits/630 Clock-Hours Required, CIP: 12.0503)</i>			
<b>Aligned (21 Credits/630 Clock-Hours)</b>		<b>Credits</b>	<b>Clock-Hours</b>
TECA 1000	Sanitation and Safety	1	30
TECA 1010	Introduction to Culinary Arts	1	30
TECA 1020	Culinary Math	1	30
TECA 1100	Culinary I	3	90
TECA 1110	Culinary Techniques	3	90
TECA 1200	Soups, Stocks, and Sauces	3	90
TECA 1210	World Cuisine	2	60
TECA 1400	Garde Manger – Cold Kitchen	3	90
TECA 1500	Baking I	3	90
TECA 1800	Job Seeking Skills	1	30
<b>Non-Aligned (Electives)</b>			
<b>Bridgerland Technical College (9 Credits 300 Clock hours) Total 30 Credits/930 Clock-hours</b>			
TECA 1220	Flavor Essentials	1	30
TECA 1230	Artisan Methods	2	60
TECA 1240	Pastas and Grains	2	60
TECA 1510	Pastries and Desserts	2	60
TECA 1600	Baking II	2	60
TECA 1700	Restaurant Practical	3	90
TECA 2901	Special Applications	2-3	90-135
TECA 2998	Line Cooking/Café Management	1	45
TECA 2999	Catering	1	45
<b>Davis Technical College (9 Credits 300 Clock hours) Total 30 Credits/930 Clock-hours</b>			
TECA 1030	Exploratory Culinary	1	30
TECA 1410	Advanced Garde Manger	2	60
TECA 1610	Advanced Baking – Pastries	2	60
TECA 1615	Advanced Baking – Cakes	2	60
TECA 1900	Line Cooking	1	45
TECA 1910	Culinary Externship	1	45
<b>Dixie Technical College (9 Credits 270 Clock hours) Total 30 Credits/900 Clock-hours</b>			
TECA 1120	Culinary II	4	120
TECA 1710	Introduction to Restaurant Practical	1	30
TECA 1720	Banquets and Catering	4	120
<b>Mountainland Technical College (8 Credits 270 Clock hours) Total 29 Credits/900 Clock-hours</b>			
TECA 1130	Advanced Culinary Techniques	2	60
TECA 1600	Baking II	2	60
TECA 1810	Front of House Restaurant Management	1	30
TECA 1820	Nutrition	1	30
TECA 1920	Culinary Arts Externship	2	90
<b>Ogden-Weber Technical College (9 Credits 270 Clock hours) Total 30 Credits/900 Clock-hours</b>			
TECA 1300	Hors d'oeuvres	2	60
TECA 1310	Brunch	2	60
TECA 1420	Garde Manger II	3	90
TECA 1520	Pies and Pastries	2	60
TECA 1530	Cakes and Frostings	2	60
TECA 1540	Custards and Frozen Desserts	2	60
TECA 1620	Advanced Yeast Breads	2	60





**Utah System of Higher Education**  
**Culinary Arts**  
 FY2026 / 21 Credits (630 Clock-Hours)

TECA 1840	Food Purchasing and Budgets	2	60
TECA 1930	Culinary Arts Special Projects	1	45
TECA 1940	Culinary Arts Externship	1	45
<b><i>Southwest Technical College (9 Credits 300 Clock hours) Total 30 Credits/930 Clock-hours</i></b>			
TECA 1220	Flavor Essentials	1	30
TECA 1240	Pastas and Grains	2	60
TECA 1600	Baking II	2	60
TECA 1630	Custom Baking Service	1	30
TECA 1830	ServSafe Food Managers Course	1	30
TECA 1920	Culinary Arts Externship	2	90
<b><i>Uintah Basin Technical College (9 Credits 270 Clock hours) Total 30 Credits/900 Clock-hours</i></b>			
TECA 1250	Vegetables, Grains, and Starches	2	60
TECA 1610	Advanced Baking – Pastries	2	60
TECA 1730	Line Cooking	2	60
TECA 1740	Banquet Service/Catering	1	30
TECA 1850	Menu Design and Inventory Controls	2	60



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

**PROGRAM DESCRIPTION**

The Culinary Arts program prepares students by teaching the fundamental principles and techniques of professional cooking and baking. Students learn through classroom lectures, guest speakers, presentations, and hands-on activities for commercial kitchens. Students learn, develop, and test their skills by using different cooking methods to cook vegetables, starches, proteins, soups, sauces, and many other foods. They also develop and test their skills in baking breads, cakes, cookies, pastries, pies, and more.

Objectives:

- Receive state-approved food safety management certification.
- Demonstrate kitchen safety in a professional environment.
- Define key culinary terms, processes, and methods.
- Demonstrate customer service and guest hospitality.
- Demonstrate professionalism through repetition by preparing and plating foods daily.
- Preparing classic dishes using appropriate cooking principles.

**ALIGNED COURSE DESCRIPTIONS**

**Sanitation and Safety**

**1 Credit/30 Clock-Hours**

The Sanitation and Safety course introduces students to the importance of food safety and sanitation in the kitchen. Students learn how to recognize and prevent hazards that can cause food-borne illnesses. It covers how to store and handle food and equipment, including the use of sanitizers and prevention of cross contamination. The course introduces regulations related to food safety and sanitation.

Objectives:

- Identify microorganisms related to food spoilage and food-borne illnesses; describe their requirements and methods for growing.
- Demonstrate acceptable procedures when preparing potentially hazardous foods, including time/temperature principles.
- Demonstrate good personal hygiene and health habits.
- Identify the Hazard Analysis Critical Control Points (HAACP) during all food handling processes as a method for minimizing the risk of food-borne illness.
- Define appropriate responses to kitchen injuries.

**Introduction to Culinary Arts**

**1 Credit/30 Clock-Hours**

The Introduction to Culinary Arts course explores the careers available in the food service industry. Students learn how to identify, prepare, and combine ingredients for a well-balanced diet, as well as learn about nutrients and dietary substitutions for food allergies. Through hands-on activities, students practice the basic techniques used in cooking, with an emphasis on presentation. Students who complete this course will have a comprehensive understanding of the fundamentals behind a successful culinary career.

Objectives:

- Explain the hospitality industry's philosophy and its role in providing customer service.
- Examine professional career opportunities in the hospitality and foodservice industry.
- Explain the primary characteristics, functions, and major food sources for major nutrients.
- Identify common food allergies and identify appropriate substitutions.
- Examine the importance of sustainable practices in a foodservice operation.

March 22, 2024



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

---

**Culinary Math**

**1 Credit/30 Clock-Hours**

The Culinary Math course teaches students the basics of math as it relates to the culinary field. In this course, students learn how to cost recipes and develop yield formulas, as well as practice fraction skills. Through lectures, demonstrations, and in-class problem solving, students practice a variety of math principles such as fractions, decimals, and baker percentages needed for success in the culinary industry.

Objectives:

- Perform basic math functions to include fractions, weights, and measurements.
- Calculate the correct cost of a recipe, including the overall cost, individual cost, and menu sales price.
- Determine selling price based on calculated food costs using current technology.
- Modify recipes using a yield formula to increase and decrease quantities.
- Generate an overall food-cost percentage by examining inventory/ordering.

---

**Culinary I**

**3 Credits/90 Clock-Hours**

The Culinary I course introduces students to knife skills, and the tools and common equipment used in the kitchen. Students practice knife skills and classical cuts. The course provides instruction and practice for mise en place and organizing a kitchen, as well preparing different vegetables, grains, and starches. Basic herbs, spices, seasonings, and cooking techniques are also covered.

Objectives:

- Identify tools and equipment used in a professional kitchen and demonstrate proper handling of these items to include safety, sanitation, and storage.
- Demonstrate knife proficiency to achieve quality results when producing classical knife cuts used in various food preparation and cooking.
- Identify, describe, and utilize herbs, spices, and seasonings.
- Explain Mise en Place and demonstrate a combination of organizational skills, preparedness, and timing when it comes to seasonings and flavors when preparing and cooking food.
- Evaluate and analyze the preparation of a variety of vegetables, legumes, grains, and starches using a variety of cooking methods.

---

**Culinary Techniques**

**2 Credits/60 Clock-Hours**

The Culinary Techniques course teaches the essential techniques used in the professional kitchen. Students practice breaking down, preparing, and cooking poultry as well as fish. Fabrication methods for beef, lamb, and game are also taught.

Objectives:

- Execute proper poultry fabrication.
- Identify a variety of poultry and how they are used.
- Demonstrate cooking poultry using a variety of cooking methods.
- Identify and prepare a variety of fish, shellfish, and crustaceans.
- Identify and explain various fabrication methods for beef, lamb, pork, and game as available.

---

**Soups, Stocks, and Sauces**

**2 Credits/60 Clock-Hours**

The Soups, Stocks, and Sauces course introduces students to the fundamentals of cooking quality soups, stocks, and sauces. A variety of preparation techniques and ingredients are explored. Topics include understanding the importance of mirepoix, making soups, and thickening sauces.



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

**Objectives:**

- Explain the process for making classical stocks.
- Produce and use various methods for thickening.
- Produce a variety of classic soups.
- Produce the five classic mother sauces.
- Produce a variety of small sauces.

**World Cuisine**

**2 Credits/60 Clock-Hours**

This World Cuisine course teaches students about the vast array of ingredients and flavors found Throughout the world. Demonstrations on some regional and international dishes are given by the instructor. Using the same cooking principles that students have learned, they are able to cook with different herbs and spices from around the country to create some regional dishes.

**Objectives:**

- Demonstrate a variety of cooking methods using specific ingredients from a certain region.
- Examine different regions and gain a basic knowledge of the history of the cuisine.
- Construct dishes using regional and international flavors.
- Explain how geography and culture affects the regional cuisine.
- Build visually appealing and balanced plates from specific regions from around the country and the world.

**Garde Manger – Cold Kitchen**

**2 Credits/60 Clock-Hours**

The Garde Manger-Cold Kitchen course teaches the fundamentals of the cold kitchen. Students gain an understanding of the pantry, sandwich and salad preparation and other common dishes found under Garde Manager skills.

**Objectives:**

- Identify and prepare a variety of salads.
- Identify and prepare a variety of dressings and emulsions.
- Identify and prepare an assortment of hot and cold sandwiches.
- Explain the importance of food preservation techniques.
- Demonstrate proficiency using knives and other tools to achieve professional quality results working with vegetables, fruits, garnishes, and other decorative and edible purposes.
- Discuss the flow of goods in a foodservice operation including ordering, receiving, and storing.
- Define, describe, and explain the importance of a par system.
- Define FIFO and explain how it is used to effectively maintain proper storage procedures.

**Baking I**

**3 Credits/90 Clock-Hours**

The Baking I course teaches students basic bakery principles that are fundamental for success in any food industry career. The course outlines the basic ingredients and mixing methods that make up the majority of baked goods. Learn to create pie doughs and basic pastries. Mixing techniques along with the appropriate types of crusts to be used with their subsequent fillings are demonstrated. The correct equipment and baking procedures. This course also teaches basic quick breads, muffins, and cake mixing methods.

**Objectives:**

- Identify baking ingredients and explain their basic function in the formulation of baking and pastry recipes.



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

- Identify and demonstrate different mixing methods used in baking.
- Demonstrate proper use of baking scale and measuring of wet and dry ingredients.
- Identify and prepare various types of quick breads and yeast breads.
- Identify and prepare various pies and cookies.
- Prepare a variety of cakes utilizing the various mixing methods and finish each cake with a variety of icings or toppings.

**Job Seeking**

**1 Credit/30 Clock-Hours**

Job Seeking Skills explores how to prepare and successfully apply to potential career opportunities. During this course, you will be presented with essential job-seeking skills needed to find gainful employment.

Objectives:

- Create a professional resume, cover letter and reference sheet.
- Utilize online tools successfully to create an e-portfolio.
- Expand and develop networking skills.
- Utilize online resources effectively to find job openings.
- Demonstrate the ability to fill out job applications in a professional manner.
- Perform successfully in a job interview.
- Demonstrate appropriate follow-up procedures.

**NON-ALIGNED (ELECTIVE) COURSE DESCRIPTIONS**

**Bridgerland Technical College**

**Flavor Essentials**

**1 Credit/30 Clock-Hours**

The Flavor Essentials course teaches students the importance of working with flavors and seasonings. Students learn about sustainability and when different fruits and vegetables are in season to best utilize their flavor. Students work on plating, advanced flavor, and seasoning.

Objectives:

- Combine flavor and seasoning profiles.
- Demonstrate the ability of working with seasonal fruits and vegetables.
- Determine proper use of fresh herbs and spices.
- Demonstrate proper plating.

**Artisan Methods**

**2 Credits/60 Clock-Hours**

The Artisan Methods course teaches students the basics of bread making using artisan methods. The history of grains prepares students to learn about the important fermentation processes that lend great flavor to the different types of bread they make. Several artisan techniques are taught, along with shaping and baking methods.

Objectives:

- Describe some of the characteristics of grains and flours used in artisan bread methods.
- Describe the fermentation process and explain how it changes the finished product.
- Practice different mixing methods and discuss how it affects the crumb texture.
- Create and keep a sourdough starter active.
- Produce products using various shaping methods.
- Construct laminated doughs (rolled-in) with different folding techniques.



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

- Discuss the differences in a variety of pre-ferments such as sponge/biga/polish and discuss how it affects the crumb texture.
- Produce "bucky" dough, such as bagels and pretzels with appropriate flavor variations.

**Pastas and Grains**

**2 Credits/60 Clock-Hours**

The Pastas and Grains course teaches students about different types of starches including pasta and grains. Students learn the proper techniques in creating pasta dough and shaping for the desired finished product. Several methods of potato preparation are demonstrated. Rice/grain cooking methods are explained and demonstrated to the students.

Objectives:

- Prepare pasta dough and identify different shapes and uses of pasta.
- Identify grains and cook them using a variety of methods.
- Identify different types of rice and demonstrate a variety of methods to cook rice.
- Describe the role of starches and their place on a balanced plate.
- Identify different beans and legumes.

**Pastries and Desserts**

**2 Credits/60 Clock-Hours**

The Pastries and Desserts course is hands-on and designed to provide students with the knowledge and skills needed to make delicious and attractive desserts. Through demonstrations, projects, and direct instruction, students learn to create classic cakes and modern desserts.

Objectives:

- Produce laminated doughs.
- Produce mousse with appropriate variations.
- Produce ice cream or sorbet using appropriate techniques and equipment.
- Build and decorate cakes with fondant effectively.
- Prepare dessert sauces.
- Compose a dessert plate that is visually appealing and served at the correct temperature.

**Baking II**

**2 Credits/60 Clock-Hours**

The Baking II course expands the students' knowledge and skills and prepares them to work in a retail or industrial bakery. Students practice creating a variety of baked and dessert goods. Advanced bakery techniques are shared and practiced.

Objectives:

- Construct pies with appropriate crust and filling while being able to differentiate the filling methods.
- Produce puff and blitz pastry dough using proper roll-in and fold-in techniques.
- Cook sugar syrup to the seven different stages, avoiding crystallization.
- Produce pastry cream and baked custard.
- Examine the differences between a baked pudding and starch-thickened pudding.

**Restaurant Practical**

**3 Credits/90 Clock-Hours**

The Restaurant Practical course teaches students how to manage the front of the house buffet, including set-up, staffing needs, time-management, and effective communication with the customer. The course also teaches the student how to manage sit-down and family-style meals. Students demonstrate time-management of food and personnel needs to meet the demands of an event.



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

**Objectives:**

- Execute proper setup and breakdown of a hot line/buffet in an organized manner.
- Demonstrate proper time management in a production setting.
- Demonstrate professionalism and proper communication while preparing food.
- Apply proper sanitation while preparing food.
- Demonstrate professional organizational standard.
- Demonstrate cost management.
- Identify basic principles of menu planning.
- Identify different menu types and how they are used in a foodservice operation.

**Special Applications**

**2-3 Credits/90-135 Clock-Hours**

A course providing competencies that meet an immediate occupational need beyond the skills available in the program's currently approved outline. The need, competencies, and length have been specified and documented by the employer advisory committee to meet current industry needs.

**Objectives:**

- These will be determined on an individual course basis and will be made known to the student upon instructor approval of the course to be taken or the skill to be developed.
- Complete all other objectives in the course, as defined by the instructor.

**Line Cooking/Café Management**

**1 Credit/45 Clock-Hours**

The Line Cooking/Cafe Management course teaches food preparation and service for short order. Students learn what a par stock is and help in the day-to-day preparation. Students use First in First Out (FIFO) techniques, and the sales of popular items in planning a food preparation schedule. Students learn important aspects of taking customer orders, service, and presentation of food in a hands-on line cooking experience.

**Objectives:**

- Plan proper holding temperatures for food without damaging quality.
- Plan for the day using FIFO techniques.
- Construct a par inventory level for the cafe using sales and inventory data.
- Present customers with their meals.
- Demonstrate proper daily use, and cleaning of grill and fryer equipment.
- Operate a basic point-of-sale system.
- Produce breakfast items efficiently and without mistakes.
- Produce lunch items efficiently and without mistakes.

**Catering**

**1 Credit/45 Clock-Hours**

The Catering course teaches students best practices for time and food management, along with service techniques. Students learn to assign tasks to team members. Students are taught accurate plate pricing for a catering event with effective customer communication and interaction.

**Objectives:**

- Calculate food costs.
- Plan and time food courses for a catering event.
- Schedule team members to perform catering services and tasks.
- Practice taking and confirming customer menus and scheduling their catering event.

March 22, 2024



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

- Interact effectively with customers.

### **Davis Technical College**

#### **Exploratory Culinary**

**1 Credit/30 Clock-Hours**

Exploratory Culinary offers an opportunity to explore a culinary topic of the student's choosing. Throughout this course, students will research an instructor-approved topic and find ways to apply this topic as well as talk to a local employer on how they utilize it. Students will find multiple recipes using the chosen topic and make a dish with them. At the end of this course, students will create and make an original recipe based on the approved topic.

Objectives:

- Identify a topic of interest.
- Explore the chosen topic.
- Determine methods, processes, and ingredients used.
- Explain what was learned.
- Prepare items identified by the research.

#### **Advanced Garde Manger**

**2 Credits/60 Clock-Hours**

This course further explores skills of Garde Manger. Students will prepare a variety of hors d'oeuvres including canapé, hummus, guacamole, antipasto, tapas, and bruschetta. Students also will prepare dips, cold hors d'oeuvres and other hors d'oeuvres as assigned. During this course, students will study curing, pickling, and sausages. Students also will explore how to make pâtés, terrines, and other cold foods.

Objectives:

- Prepare a variety of hors d'oeuvres.
- Define hors d'oeuvres and examine the different types.
- Identify different types of hors d'oeuvres and dips.
- Examine the process for curing and pickling.
- Explore making pates and terrines.

#### **Advanced Baking – Pastries**

**2 Credits/60 Clock-Hours**

The Advanced Baking - Pastries course continues to explore baking skills with an emphasis on pastries and will focus on creating desserts that require more complex skills to develop than basic baking. In this course students will create and plate each dessert they make.

Objectives:

- Prepare a variety of pastries and deserts using different methods.
- Successfully prepare puff pastry or phyllo dough.
- Successfully prepare Pate a choux.
- Prepare different types of tarts.
- Prepare baked custards and puddings.
- Produce desserts using different types of custards, creams, and mousses.

#### **Advanced Baking - Cakes**

**2 Credits/60 Clock-Hours**

This advanced baking continues to explore baking skills with an emphasis on cakes. Students will prepare a variety of cakes including pound cake, sponge cake, angel food cake, chiffon cake, and more.





**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

Students also will prepare and use frostings and icings including Italian buttercream, cream cheese frosting, royal icing, and fudge icing.

**Objectives:**

- Prepare a variety of cakes.
- Demonstrate different methods for making cakes.
- Identify and produce different types of icing.
- Demonstrate various icing and decorating techniques.
- Determine which types of icing are appropriate for different types of cake.

**Line Cooking**

**1 Credit/45 Clock-Hours**

The Line Cooking course teaches food preparation and service for short order. Students learn what a par stock is and help in the day-to-day preparation and use FIFO (First In First Out) techniques. Students learn important aspects of food service, and presentation of food in a hands-on line cooking experience.

**Objectives:**

- Plan proper holding temperatures for food.
- Plan for the day using FIFO techniques.
- Demonstrate proper daily use, and cleaning of equipment.
- Produce breakfast items efficiently and without mistakes.
- Produce lunch items efficiently and without mistakes.

**Culinary Arts Externship**

**2 Credits/90 Clock-Hours**

Externship students will have a work-based learning experience in a foodservice environment under the supervision of a pre-approved chef. Food service will involve at least 51 percent cooking from scratch.

**Objectives:**

- Identify opportunities to learn new skills.
- Demonstrate working knowledge of learned skills.
- Execute proper sanitation and professionalism.
- Perform the assigned functions of the establishment.
- Explain the learning gained from this experience.

**Dixie Technical College**

**Culinary II**

**4 Credits/120 Clock-Hours**

The Culinary II course includes braising, sautéing, roasting, blanching, poaching, grilling, broiling, steaming, and frying. Grains, vegetable, potatoes and pasta preparations and cooking will also be learned in this class. Students will begin to use their skills to produce daily specials and grab and go food for the cafe.

**Objectives:**

- Select and prepare equipment for grilling, broiling, roasting, and baking.
- Explain what is meant by a “zone” on a grill or broiler and how it can be used to adapt to different foods or different production needs.
- Clean, preheat, and lubricate a grill or broiler.
- Grill or broil meats, poultry, and fish to the correct doneness to develop the best flavor and texture in the finished dish.



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

- Describe roasting, baking (as it relates to meat, poultry, and fish), smoke roasting, rotisserie cooking, and spit-roasting.
- Roast or bake meats, poultry, and fish to the correct doneness to develop the best flavor and texture in the finished dish.
- Describe the correct procedure for preparing a pan gravy and jus.
- Carve roasts into portions.
- Select and prepare appropriate meats, poultry, or fish for sautéing, pan frying, and deep frying.
- Sauté, pan fry, and deep fry a variety of foods using the basic methods outlined in the text.

**Introduction to Restaurant Practical**

**1 Credit/30 Clock-Hours**

In the Introduction to Restaurant Practical course, students will begin learning the essential operations of a restaurant kitchen. They will learn basic cooking techniques, kitchen organization, and the importance of teamwork in a fast-paced culinary setting. Through focused hands-on practical exercises and guided activities, students will begin to develop the skills that are foundational to success in the culinary arts industry. This course serves as preparation for the Restaurant Practical course that will follow.

Objectives:

- Demonstrate basic food preparation techniques for simple dishes.
- Understand the flow of a restaurant kitchen and the roles within it.
- Apply essential kitchen safety and sanitation practices.
- Collaborate with peers to execute kitchen tasks effectively.
- Gain a preliminary understanding of menu planning and execution.

**Banquets and Catering**

**4 Credits/120 Clock-Hours**

In the Banquets and Catering course, students will learn the specifics of cooking for small and large functions. Using a combination of both lecture and hands-on practical training, students will be taught front of house and back of house operations as it pertains to catering and full-service restaurants. There will be a strong emphasis on table service and overall guest service. Students will learn techniques for different types of serving and food.

Objectives:

- Describe the roles played by both staff and food in a banquet setting.
- Select and prepare ingredients, preparations, and garnishes for hors d'oeuvre, appetizers, and cold savory mousses and event cuisine.
- Describe the qualities of foods to be served as appetizers.
- Present banquets with professionalism.
- Name the basic guidelines for preparing and executing a banquet.
- Work properly with various food ingredients and cuisines.
- Explain the importance of making a good first impression.

**Mountainland Technical College**

**Advanced Culinary Techniques**

**2 Credits/60 Clock-Hours**

The Advanced Culinary Techniques course builds upon the foundational techniques and principles covered in Culinary Techniques I and provides an in-depth exploration of advanced culinary concepts, techniques, and creative applications. Students will delve into the world of gastronomy, refining their culinary abilities and expanding their repertoire to achieve a higher level of excellence in the culinary arts.



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

**Objectives:**

- Contrast and evaluate complex culinary techniques to develop an advanced understanding of the principles behind them and determine the most appropriate technique for different ingredients and recipes.
- Create innovative, well-balanced menus that showcase their culinary expertise. Students will explore culinary trends, global cuisines, and fusion cooking, while incorporating sustainable practices and utilizing seasonal, local ingredients.
- Identify skills related to culinary business management, including menu costing and pricing, inventory management, and effective communication and leadership within a culinary team.
- Demonstrate proficient knife skills and precision in culinary preparations.
- Design and execute complex recipes that showcase mastery of culinary techniques.
- Critique and provide constructive feedback on the culinary creations of others based on advanced culinary techniques.
- Compare and contrast different culinary techniques and their effects on texture, flavor, and visual appeal.
- Engage with industry professionals through guest lectures, culinary competitions, and field trips to renowned culinary establishments. They will develop professional networks and gain insights into current industry practices and trends.

**Baking II**

**2 Credits/60 Clock-Hours**

The Baking II course expands the students' knowledge and skills and prepares them to work in a retail or industrial bakery. Students practice creating a variety of baked and dessert goods. Advanced bakery techniques are shared and practiced.

**Objectives:**

- Construct pies with appropriate crust and filling while being able to differentiate the filling methods.
- Produce puff and blitz pastry dough using proper roll-in and fold-in techniques.
- Cook sugar syrup to the seven different stages, avoiding crystallization.
- Produce pastry cream and baked custard.
- Examine the differences between a baked pudding and starch-thickened pudding.

**Front of House Restaurant Management**

**1 Credit/30 Clock-Hours**

The Front of House Restaurant Management course is designed to provide students with a comprehensive understanding of the key principles and practices involved in managing the front of a restaurant. This course will cover various aspects, including customer service, staff management, operations, and the overall guest experience. Students will develop the necessary skills and knowledge to excel in a front of house management role and contribute to the success of a restaurant.

**Objectives:**

- Explain the responsibilities and duties of front of house staff and the importance of their role in delivering exceptional guest experiences.
- Describe how to recruit, train, and manage front of house staff, including servers, hosts, and bartenders.
- Identify effective customer service techniques including communication skills, conflict resolution, and problem-solving, to provide outstanding service and ensure customer satisfaction.
- Devise and execute strategies for resolving customer complaints and handling challenging situations in a professional manner.



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

- Describe strategies for handling reservations, managing table assignments, and optimizing seating arrangements to maximize restaurant capacity and enhance the guest experience.
- Explain the importance of teamwork and motivation in creating a positive work environment.
- Demonstrate effective communication skills in managing and coordinating front of house staff and activities.
- Critique and provide constructive feedback on front-of-house operations, including service standards, staff performance, and overall guest experience.
- Develop strategies to handle guest complaints and feedback professionally and efficiently, aiming to resolve issues and ensure guest satisfaction.
- Practice basic financial concepts relevant to front of house operations, including budgeting, cost control, pricing strategies, and revenue management.

---

**Nutrition****1 Credit/30 Clock-Hours**

In the Nutrition course, students will explore the intersection of culinary arts and nutrition science. Through a blend of theory, practical cooking demonstrations, and interactive discussions, students will learn about the impact of food on our bodies, delve into the principles of balanced nutrition, and explore techniques for incorporating wholesome ingredients into culinary creations.

**Objectives:**

- Discuss the fundamentals of nutrition and the key nutrients bodies require, including carbohydrates, proteins, fats, vitamins, minerals, and dietary fiber.
- Identify the relationship between nutrition and various health conditions, including heart disease, diabetes, obesity, and food allergies and discover how dietary choices can help prevent or manage these conditions.
- Develop essential skills in preparing healthy meals, including healthy techniques for steaming, grilling, roasting, sautéing, and baking.
- Utilize a variety of whole foods, emphasizing the importance of color, texture, and flavor while ensuring a balance of macronutrients and adequate intake of essential vitamins and minerals.
- Evaluate and interpret food labels and nutrition information to make informed choices about food products.
- Evaluate and discuss the socio-cultural, economic, and environmental factors that influence food choices and nutrition.

---

**Culinary Arts Externship****2 Credits/90 Clock-Hours**

Externship students will have a work-based learning experience in a foodservice environment under the supervision of a pre-approved chef. Food service will involve at least 51 percent cooking from scratch h.

**Objectives:**

- Identify opportunities to learn new skills.
- Demonstrate working knowledge of learned skills.
- Execute proper sanitation and professionalism.
- Perform the assigned functions of the establishment.
- Explain the learning gained from this experience.

**Ogden-Weber Technical College**

---

**Hors d'oeuvres****2 Credits/60 Clock-Hours**

This course explores advanced cooking techniques and methods for preparing various types of Hors d'oeuvres from a variety of different types of cuisine.

March 22, 2024



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

**Objectives:**

- Prepare a variety of cold hors d'oeuvre, including canapés.
- Prepare a variety of hot hors d'oeuvre, including canapés.
- Serve a variety of cold hors d'oeuvre, including canapés.
- Serve a variety of hot hors d'oeuvre, including canapés.
- Choose hors d'oeuvre, including canapés, that are appropriate for the meal or event.

**Brunch**

**2 Credits/60 Clock-Hours**

This course explores advanced cooking techniques and methods for preparing brunch foods to include quiches, flaky biscuits, eggs benedict, chilaquiles, breakfast cereals, breakfast meats, and breakfast pastries.

**Objectives:**

- Select, prepare, and serve a variety of foods for brunch.
- Describe types of foods to serve for brunch.
- Explain the basic principles of buffet presentation.
- Use a variety of techniques for appealing buffets.

**Garde Manger II**

**3 Credits/90 Clock-Hours**

This course introduces concepts about forcemeat assembly, pate terrines, sausages, and proper methods for brining, curing and smoking meats and fish. Additionally, this course explores appropriate ways to prepare foods using a variety of methods and techniques to include pickling, curing, brining, smoking, spice blends, salsa, cheeses, and condiments.

**Objectives:**

- Identify categories of nutrients and explain their importance in a healthy diet.
- Identify the characteristics of a nutritious diet for healthy adults.
- Describe diet-planning tools available to consumers and chefs.
- Prepare a variety of forcemeats.
- Assemble and cook a variety of pâtés, terrines and sausages.
- Perform the proper methods for brining, curing and smoking meats and fish.
- Identify several cured pork products.
- Describe the basic principles of plate presentation.
- Use a variety of techniques to add visual appeal to plated foods.
- Explain the concept of a small plate menu and how to compose small plates.

**Pies and Pastries**

**2 Credits/60 Clock-Hours**

This course explores how to use rich yeast doughs and laminated doughs for sweet breads and pastries and preparing flaky and mealy doughs. This course covers techniques for rolling and shaping dough for double crust pies, and how to roll dough for lattice crust and tartlets shells. This course covers topics on how to prepare a variety of pies, tarts, Danish pastries, puff pastries, eclairs, and pie and pastry fillings.

**Objectives:**

- Prepare a variety of pie crusts and fillings.
- Prepare a variety of classic pastries.
- Prepare a variety of meringues.
- Prepare a variety of cookies.



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

- Prepare a variety of dessert and pastry items, incorporating components from other chapters.

**Cakes and Frostings**

**2 Credits/60 Clock-Hours**

This course explores how each ingredient is used to make cakes and their functions. This course covers a variety of cakes using creamed fat and whipped egg with high fat mixing methods, and egg foam mixing methods. This course explores a variety of frostings, butter cakes, high ration cakes, and sponge cakes.

Objectives:

- Prepare a variety of cakes.
- Prepare a variety of frostings.
- Assemble cakes using basic finishing and decorating techniques.

**Custards and Frozen Desserts**

**2 Credits/60 Clock-Hours**

This course explores stirred custard, baked custard, fruit sauce, cream sauce, caramel, soufflés, bread puddings, cheesecakes, curds and pastry creams and mousse. This course covers a variety of custards, creams, ice creams, sorbets, frozen dessert items, and dessert sauces.

Objectives:

- Prepare a variety of custards and creams.
- Prepare a variety of ice creams, sorbets and frozen dessert items.
- Prepare a variety of dessert sauces.
- Use these products in preparing and serving other pastry and dessert items.
- Describe the basic principles of plate presentation.
- Use a variety of techniques to add visual appeal to plated foods.
- Explain the concept of a small plate menu and how to compose small plates.

**Advanced Yeast Breads**

**2 Credits/60 Clock-Hours**

This course explores traditional sourdough and rye breads. Students will learn about flour types and grains, and how to select and use yeast properly. This course covers topics on how to prepare a variety of breads from lean and rich yeast doughs and will utilize proper shaping techniques.

Objectives:

- Select yeast properly.
- Use yeast properly.
- Perform the 10 steps involved in yeast bread production.
- Mix yeast dough using the straight dough method.
- Mix yeast dough using the sponge method.

**Food Purchasing and Budgets**

**2 Credits/60 Clock-Hours**

This course explores the foundations of food budgeting and purchasing for catering, kitchen and restaurant management. This course covers topics on how to apply skills needed to maintain a budget as well as prepare and deploy a menu.

Objectives:

- Maintain inventory of food sold through the Campus Grille on a weekly basis.
- Compile a list of food to be purchased on a weekly basis for the Campus Grille.
- Create a summary report on a weekly basis of food sold and an inventory of food to be ordered.
- Summary report to a head chef.



---

**Culinary Arts Special Projects****1 Credit/45 Clock-Hours**

This course covers the use of skills and techniques learned to complete a project under the approval and supervision of a culinary arts instructor.

**Objectives:**

- Use appropriate cooking techniques.
- Create a unique meal.
- Perform in the kitchen environment.

---

**Culinary Arts Externship****1 Credit/45 Clock-Hours**

This course provides experience working in a hands-on culinary setting. This externship will be coordinated and approved by Culinary Arts program faculty.

**Objectives:**

- Use appropriate cooking techniques.
- Create a unique meal.
- Perform in the kitchen environment.

---

**Southwest Technical College**

---

**Flavor Essentials****1 Credit/30 Clock-Hours**

The Flavor Essentials course teaches students the importance of working with flavors and seasonings. Students learn about sustainability and when different fruits and vegetables are in season to best utilize their flavor. Students work on plating, advanced flavor, and seasoning.

**Objectives:**

- Combine flavor and seasoning profiles.
- Demonstrate the ability of working with seasonal fruits and vegetables.
- Determine proper use of fresh herbs and spices.
- Demonstrate proper plating.

---

**Pastas and Grains****2 Credits/60 Clock-Hours**

The Pastas and Grains course teaches students about different types of starches including pasta and grains. Students learn the proper techniques in creating pasta dough and shaping for the desired finished product. Several methods of potato preparation are demonstrated. Rice/grain cooking methods are explained and demonstrated to the students.

**Objectives:**

- Prepare pasta dough and identify different shapes and uses of pasta.
- Identify grains and cook them using a variety of methods.
- Identify different types of rice and demonstrate a variety of methods to cook rice.
- Describe the role of starches and their place on a balanced plate.
- Identify different beans and legumes.



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

---

**Baking II**

**2 Credits/60 Clock-Hours**

The Baking II course expands the students' knowledge and skills and prepares them to work in a retail or industrial bakery. Students practice creating a variety of baked and dessert goods. Advanced bakery techniques are shared and practiced.

Objectives:

- Construct pies with appropriate crust and filling while being able to differentiate the filling methods.
- Produce puff and blitz pastry dough using proper roll-in and fold-in techniques.
- Cook sugar syrup to the seven different stages, avoiding crystallization.
- Produce pastry cream and baked custard.
- Examine the differences between a baked pudding and starch-thickened pudding.

---

**Custom Baking Service**

**1 Credit/30 Clock-Hours**

The Custom baking course teaches students to use their baking skills in fulfill a custom order. Students learn best practices for time and food management along with service techniques. They also learn accurate item pricing for baked goods and effective customer communication and interactions.

Objectives:

- Discuss food costing.
- Plan and time baked goods for an event or customer.
- Practice taking customer orders and confirming and complete service.

---

**ServSafe Food Managers Course**

**1 Credit/30 Clock-Hours**

The ServSafe Food Managers Certification course expands on the students' basic food safety knowledge and standards. Students will go into more details on safe food handling, time and temperature abuse, food borne illnesses, various sanitizers and their application, allergens, cross-contact, proper kitchen flow, pest management, facilities, and equipment management. The purpose of this training is to prepare students for supervisory positions that require a Food Managers Certification.

Objectives:

- Identify the symptoms and associated foods that can cause the Big Six food borne illnesses.
- Demonstrate the proper procedures for identifying intentional food contamination that can cause illness or harm to the public.
- Plan and compose an Active Managerial System for one of the steps in the Flow of Food.
- Demonstrate the usage of SDS, OSHA, and other safety materials.
- Pass National ServSafe Certification standards and exam.

---

**Culinary Arts Externship**

**2 Credits/90 Clock-Hours**

Externship students will have a work-based learning experience in a foodservice environment under the supervision of a pre-approved chef. Food service will involve at least 51 percent cooking from scratch h.

Objectives:

- Identify opportunities to learn new skills.
- Demonstrate working knowledge of learned skills.
- Execute proper sanitation and professionalism.
- Perform the assigned functions of the establishment.
- Explain the learning gained from this experience.





**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

**Uintah Basin Technical College**

**Vegetables, Grains, and Starches**

**2 Credits/60 Clock-Hours**

In this course, students will learn about different types of vegetables, grains, and starches as well as how to properly store, prepare, and serve them. Students will also gain a greater understanding of vegan/vegetarian diets and how they pertain to the industry.

Objectives:

- Identify and prepare a variety of vegetables.
- Identify and prepare a variety of potatoes.
- Demonstrate preparation and cooking of legumes, grains, pasta, and other starches.
- Demonstrate preparation and cooking for vegetarian diets.
- Prepare a variety of legumes, grains, pasta, and other starches.

**Advanced Baking – Pastries**

**2 Credits/60 Clock-Hours**

The Advanced Baking - Pastries course continues to explore baking skills with an emphasis on pastries and will focus on creating desserts that require more complex skills to develop than basic baking. In this course students will create and plate each dessert they make.

Objectives:

- Prepare a variety of pastries and deserts using different methods.
- Successfully prepare puff pastry or phyllo dough.
- Successfully prepare Pate a choux.
- Prepare different types of tarts.
- Prepare baked custards and puddings.
- Produce desserts using different types of custards, creams, and mousses.

**Line Cooking**

**2 Credits/60 Clock-Hours**

The Line Cooking course teaches food preparation and service for short order. This course gives students the opportunity to work on a short-order line and a restaurant-style hot line, in preparation for real life restaurant applications. This course provides a practical application of the food danger zone and focuses on heating, cooling, and proper holding of food as well as plating design. Students will also get an introduction to breakfast cookery. Students learn what a par stock is and help in the day-to-day preparation. Students use First in First Out (FIFO) techniques, and the sales of popular items in planning a food preparation schedule. Students learn important aspects of taking customer orders, service, and presentation of food in a hands-on line cooking experience.

Objectives:

- Plan proper holding temperatures for food without damaging quality.
- Plan for the day using FIFO techniques.
- Construct a par inventory level for the cafe.
- Demonstrate proper daily use, and cleaning of grill and fryer equipment.
- Produce breakfast items efficiently and without mistakes.
- Produce lunch items efficiently and without mistakes.
- Interact effectively with customers.
- Serve food that is attractively arranged on the plate or platter with proper balance of shape, color, and texture.



**Utah System of Higher Education**  
Culinary Arts  
FY2026 / 21 Credits (630 Clock-Hours)

- Demonstrate proper cooking, holding, cooling, storing, and re-heating of food.

**Banquet Service/Catering**

**1 Credit/30 Clock-Hours**

The Banquet Service/Catering course teaches students best practices for time and food management along with service techniques. Students learn the basics of banquet set up and the profitability this can add to your restaurant. In this course, students will have the opportunity to work on real catering events and help plan and create food for each event.

Objectives:

- Set up a variety of catering events.
- Help plan and create menu options for catering events.
- Explain all the different roles that are required to have a successful catering/ banquet company.
- Demonstrate good time management and supervision of people and food.
- Explain how to order enough food for a catering or banquet event.

**Menu Design and Inventory Controls**

**2 Credits/60 Clock-Hours**

Menu Design and Inventory Controls gives the student the opportunity to create their own hospitality concept. This would include location, size of operation (staffing and building vs mobile), style of cuisine, and demographic they would serve. Students will understand how to create a menu and inventory list for their new concept and cost of each menu item. After the inventory list is created students will gain an understanding of how that is directly tied to profit and loss statement.

Objectives:

- Plan and create a hospitality concept.
- Create a detailed menu.
- Conduct inventory.
- Demonstrate how cost to menu items.
- Create a detailed inventory list for their new concept.
- Calculate labor for new concept.



**Utah System of Higher Education**  
**Machining Technology**  
 FY2026 / 15 Credits (450 Clock-Hours)

<b>Machining Technology</b>			
Institutions: Bridgerland, Davis, Dixie, Mountainland, Ogden-Weber, Snow, Southwest, USU-Eastern			
<i>Certificate of Program Completion (Catalog Year: 2026, 15 Credits/450 Clock-Hours Required, CIP: 48.0501)</i>			
<b>Aligned (15 Credits/450 Clock-Hours)</b>		<b>Credits</b>	<b>Clock-Hours</b>
TEMT 1000	Manufacturing Fundamentals	3	90
TEMT 1200	Lathe Concepts	3	90
TEMT 1100	Mill Concepts	3	90
TEMT 1150	CNC Mill Concepts	3	90
TEMT 1250	CNC Lathe Concepts	3	90
<b>Non-Aligned (Electives)</b>			
<b><i>Bridgerland Technical College (15 Credits/450 Clock-Hours)</i></b>			
TEMT 1300	CNC Mill Programming	3	90
TEMT 1350	CNC Lathe Programming	3	90
TEMT 2000	Process Control	3	90
TEMT 2300	Multi-Axis	3	90
TEMT 2100	Advanced CNC Mill	3	90
TEMT 2200	Advanced CNC Lathe	3	90
TEMT 2800	Special Applications	1-3	30-90
<b><i>Davis Technical College (5 Credits/150 Clock-Hours)</i></b>			
TEMT 1020	Machining for Manufacturing	3	90
TEMT 1160	Vertical Mill Operations I	3	90
TEMT 1205	Lathe Operations I	3	90
TEMT 1360	Mazatrol Programming	3	90
TEMT 1505	GD&T	3	90
TEMT 1550	Inspection Fundamentals	3	90
TEMT 1570	Advanced Inspection	3	90
TEMT 1860	Additive Manufacturing	3	90
TEMT 2130	CNC III	3	90
TEMT 2150	5 <sup>th</sup> Axis Programming	3	90
TEMT 2810	Special Projects I	1	30
TEMT 2820	Special Projects II	2	60
TEMT 2850	Workplace Management	2	60
WKSK 1500	Job Seeking Skills	1	30
<b><i>Dixie Technical College (15 Credits/450 Clock-Hours)</i></b>			
TEMT 1010	Career Success	1	30
TEMT 1300	CNC Mill Programming	3	90
TEMT 1350	CNC Lathe Programming	3	90
TEMT 1450	CNC II	6	180
TEMT 1500	Measuring Analysis	2	60
<b><i>Mountainland Technical College (15 Credits/450 Clock-Hours)</i></b>			
TEMT 1050	Advanced Manufacturing Fundamentals	3	90
TEMT 1300	CNC Mill Programming	3	90
TEMT 1350	CNC Lathe Programming	3	90
TEMT 1650	Applied Manual Machining	3	90
TEMT 2300	Multi-Axis	3	90
<b><i>Ogden-Weber Technical College (15 Credits/900 Clock-Hours)</i></b>			
TEMT 1005	CNC Technician Fundamentals	2	60
TEMT 1015	Machining Concepts	1	30



**Utah System of Higher Education**  
**Machining Technology**  
 FY2026 / 15 Credits (450 Clock-Hours)

TEMT 1120	CNC Mill Basic Operation	1	30
TEMT 1220	CNC Lathe Basic Operation	1	30
TEMT 1300	CNC Mill Programming	3	90
TEMT 1350	CNC Lathe Programming	3	90
TEMT 1510	Geometric Dimensioning and Tolerancing Basic	1	30
TEMT 1565	Advanced Print Reading	3	90
TEMT 2000	Process Control	3	90
TEMT 2300	Multi-Axis	3	90
<b><i>Snow College (15 Credits/450 Clock-Hours)</i></b>			
TEMT 1300	CNC Mill Programming	3	90
TEMT 1350	CNC Lathe Programming	3	90
TEMT 1565	Advanced Print Reading	3	90
TEMT 2000	Process Control	3	90
TEMT 2300	Multi-Axis	3	90
<b><i>Southwest Technical College</i></b>			
<b><i>Utah State University – Eastern (15 Credits/450 Clock-Hours)</i></b>			
TEMT 1300	CNC Mill Programming	3	90
TEMT 1350	CNC Lathe Programming	3	90
TEMT 1400	Introduction to CNC Machining	3	90
TEMT 1600	Introduction to Manual Machining	3	90
TEMT 1565	Advanced Print Reading	3	90



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

## **PROGRAM DESCRIPTION**

The Machining Technology program trains students to use machine tools to produce complex parts used in every industry, from the machines they use, to the parts they use to produce their product. Machinists are trained to use various turning, milling, grinding, and computer numerical controlled (CNC) machines to produce these complex parts. Machinists are also tasked to interpret engineer's drawings to process the desired part. The Machining Technology program is structured to give students a solid foundation in the core fundamentals of machining and launch a career in a field that is always in high demand.

### Objectives:

- Demonstrate safe operation of machine shop equipment.
- Interpret engineering drawings.
- Perform calculations common to the machining industry.
- Use appropriate measuring equipment.
- Use cutting tool geometry and theory in the machining process.
- Properly select appropriate equipment and cutting tools.
- Setup, program, and operate a Computer Numerical Control (CNC) machine.

## **ALIGNED COURSE DESCRIPTIONS**

### **Manufacturing Fundamentals**

**3 Credits / 90 Clock-Hours**

The Manufacturing Fundamentals course introduces students to basic procedures and operations encountered in the machine shop and various manufacturing industries. Topics include essential safety practices, measuring and hand tools, pedestal grinding, and sawing operations.

### Objectives:

- Identify safe practices in a machine shop.
- Identify appropriate PPE.
- Demonstrate environmental awareness.
- Identify correct clean-up procedures.
- Interpret a Safety Data sheet (SDS).
- Perform basic measurements with calipers and micrometers.
- Perform basic layout procedures.
- Identify basic hand tools and their usage.
- Perform basic mathematical calculations.

### **Lathe Concepts**

**3 Credits / 90 Clock-Hours**

The Lathe Concepts course introduces students to essential material cutting concepts using a precision lathe machine. Topics include holding and locating work pieces; selecting cutting tools and holders; turning speeds and feeds; applying cutting depth, width, and direction; part production; and inspection.

### Objectives:

- Demonstrate safe operation of a precision lathe machine.
- Demonstrate proper machine maintenance and workstation cleanup.
- Demonstrate proper tool selection and application.
- Demonstrate proper work-holding device selection and setup.
- Demonstrate efficient speeds and feeds for lathe tooling.

March 22, 2024



UTAH SYSTEM OF  
HIGHER EDUCATION

**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

- Perform accurate facing operations.
- Perform accurate turning operations.
- Perform accurate chamfer/taper turning operations.
- Perform accurate hole-forming operations for size and location.
- Perform accurate threading operations.
- Perform accurate knurling operations.
- Perform calculations needed to operate precision machine.
- Inspect and document finish dimension using various metrology.

**Mill Concepts**

**3 Credits / 90 Clock-Hours**

The Mill Concepts course introduces students to essential material cutting concepts using a milling machine. Topics include clamping and locating work pieces; selecting cutting tools and holders; milling speeds and feeds; cutting depth, width, and direction; part production; and inspection.

Objectives:

- Demonstrate safe operation of a milling machine.
- Demonstrate use of indicators relating to aligning, work holding, and figuring.
- Demonstrate proper machine maintenance and workstation cleanup.
- Demonstrate proper work-holding device selection and setup.
- Demonstrate efficient speeds and feeds for mill tooling.
- Perform accurate milling of pockets, windows, and slots.
- Perform accurate hole-forming, mill operations for size and location.
- Perform accurate angle milling.
- Create and evaluate milled surface finishes.
- Perform calculations needed to operate precision machines.
- Inspect and document finish dimension using various metrology.

**CNC Mill Concepts**

**3 Credits / 90 Clock-Hours**

The CNC Mill Concepts course introduces students to CNC milling. Topics include safety, CNC terminology, preparing a CNC program, setup and operation of CNC milling machines, part production, and inspection.

Objectives:

- Demonstrate proper work holding for CNC machining.
- Demonstrate basic CNC machine setup.
- Demonstrate setting program zero for CNC machines.
- Perform manual mode operation, edit mode, MDI (manual data input) and program operation mode.
- Perform calculations needed to operate machine.
- Apply recognition of program codes to CNC machine operation.
- Apply knowledge of motion commands of rapid positioning, linear interpolation, and circular interpolation.
- Apply proper feeds, speeds, and chip load to quality part production.
- Apply CSS (Constant Surface Speed) and constant RPM (Revolutions Per Minute).
- Perform necessary operations to load a program, set tool offsets, and set cutter or nose radius compensations.

March 22, 2024



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

- Demonstrate use of indicators relating to aligning work holding and figuring.

**CNC Lathe Concepts**

**3 Credits / 90 Clock-Hours**

The CNC Lathe Concepts course introduces students to CNC turning. Topics include safety, CNC terminology, preparing a CNC program, setup and operation of CNC turning machines, part production, and inspection.

Objectives:

- Demonstrate proper work holding for CNC machining.
- Demonstrate basic CNC machine setup.
- Demonstrate setting program zero for CNC machines.
- Perform manual mode operation, edit mode, MDI (manual data input) and program operation mode.
- Apply recognition of program codes to CNC machine operation.
- Apply knowledge of motion commands of rapid positioning, linear interpolation, and circular interpolation.
- Apply proper feeds, speeds, and chip load to quality part production.
- Apply CSS (Constant surface speed) and constant RPM (Revolutions Per Minute).
- Perform necessary operations to load a program, set tool offsets, and set cutter or nose radius compensations.
- Perform calculations needed to operate machine.

**NON-ALIGNED (ELECTIVE) COURSE DESCRIPTIONS**  
**Bridgerland Technical College**

**CNC Mill Programming**

**3 Credits / 90 Clock-Hours**

The CNC Mill Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and posting a program.

Objectives:

- Create basic 2D geometry construction.
- Modify existing geometry.
- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.
- Demonstrate how to post a program to create NC code.
- Inspect and document finish dimensions using various metrology.
- Create advanced 2D geometry construction.
- Create 2-1/2 D geometry construction.
- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.
- Generate process and toolpath planning.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Inspect and document finish dimension using various metrology.



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

---

**CNC Lathe Programming**

**3 Credits / 90 Clock-Hours**

The CNC Lathe Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and post a program.

Objectives:

- Create basic 2D geometry construction.
- Modify existing geometry.
- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.
- Demonstrate how to post a program file to create NC code.
- Create advanced 2D geometry construction.
- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.
- Perform calculations needed to operate precision machine.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Generate process and toolpath planning.
- Inspect and document finish dimension using various metrology.
- Generate toolpaths for CNC lathe.

---

**Process Control**

**3 Credits / 90 Clock-Hours**

Process Control provides practice reading blueprints and technical drawings to create and inspect a part or assembly. This class will teach practical theory and provide hands-on experience in the proper use of common and advanced measuring tools found in the inspection room.

Objectives:

- Interpret basic blueprint symbols, line types, and views.
- Analyze title blocks and apply the data found there to the inspection process.
- Describe the basic Geometric Dimensioning and Tolerance (GD&T) symbols.
- Perform calculations needed in regards to process control.
- Demonstrate the proper use of micrometers, calipers, and other gaging tools required for part inspection.

---

**Multi-Axis**

**3 Credits / 90 Clock-Hours**

Multi-Axis introduces CNC multi-axis machines. Topics include the procedures and practices for safe setup and operation of the machine, tool-holding and work holding selection, programming in CAD/CAM software for multi-axis machines, part production, and inspection.

Objectives:

- Identify the correct nomenclature of the machine.
- Create wireframe and solid models.
- Create additional planes for tool pathing.
- Perform 2D, 3D, 3+2, and full 5<sup>th</sup> axis tool pathing.
- Demonstrate solid model modification.
- Perform calculations needed to operate machines.





**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

- Perform part setup and fixturing operations.
- Perform tool setup and set tool offsets.
- Demonstrate proving out a program safely.

---

**Advanced CNC Mill**

**3 Credits / 90 Clock-Hours**

The Advanced CNC Mill course provides students with advanced practice in 3D Mastercam. This includes constructing 3D drawings and generating 3D milling toolpaths. Students demonstrate the setup and operation of CNC machines and part production.

Objectives:

- Demonstrate proper work holding, setup, feeds, speeds and chip load for CNC machining.
- Perform manual mode operation, edit mode, MDI (Manual Data Input) and program operation mode.
- Apply recognition of program codes to CNC machine operation and create CNC code in G&M format.
- Apply motion commands of rapid positioning, linear interpolation, and circular interpolation.
- Operate CNC machines using verification mode, single block, graphics, option stops, and feed and speed overrides.
- Properly use length offsets, radius compensation, fixture offsets, dimensional tool offsets, and tool nose radius offsets in CNC programs.
- Apply CSS (Constant Surface Speed) and constant RPM (Revolutions Per Minute).
- Use special features found on most CNC controls, including canned cycles, inch/metric input, dwell commands, sub programming, and roughing cycles for the turning centers.

---

**Advanced CNC Lathe**

**3 Credits / 90 Clock-Hours**

The Advanced CNC Lathe course provides students with advanced practice in CAD/CAM programming, setup, and running parts on the CNC lathe. This includes constructing drawings and generating lathe toolpaths. Students demonstrate the setup and operation of CNC machines and part production.

Objectives:

- Demonstrate proper work holding, setup, feeds, speeds and chip load for CNC machining.
- Perform manual mode operation, edit mode, MDI (Manual Data Input) and program operation mode.
- Apply recognition of program codes to CNC machine operation, and create CNC code in G&M format.
- Apply motion commands of rapid positioning, linear interpolation, and circular interpolation.
- Operate CNC machines using verification mode, single block, graphics, option stops, and feed and speed overrides.
- Properly use length offsets, radius compensation, fixture offsets, dimensional tool offsets, and tool nose radius offsets in CNC programs.
- Apply CSS (Constant Surface Speed) and constant RPM (Revolutions Per Minute).
- Use special features found on most CNC controls, including canned cycles, inch/metric input, dwell commands, sub programming, and roughing cycles for the turning centers.

---

**Special Applications**

**1-3 Credits / 30-90 Clock-Hours**

The Special Applications course provides students with unique or advanced skill development related to the current industry. Students will select a course or project and draft a proposal defining its relation to

March 22, 2024



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

Machining Technology. Upon completion of this course, students will demonstrate their achievement of the outcomes from their proposal. Credit will be given in 1 credit increments up to 3 credits. All courses and projects require approval before starting.

Objectives:

- Create a professional proposal.
- Set and achieve measurable outcomes.
- Apply decision-making, critical-thinking, and problem-solving skills.

**Davis Technical College**

**Machining for Manufacturing**

**3 Credit/90 Clock-Hours**

Machining for Manufacturing emphasizes the basic procedures and machining operations encountered in the machine shop. Students will study topics including instruction in machine safety, basic measuring tools, shop math, speeds and feeds, and metal identification. Students will also operate engine lathe and vertical mills.

Objectives:

- Demonstrate accurate use and reading of steel rules, micrometers, and calipers.
- Demonstrate proper feeds and speeds.
- Identify common hole making tools.
- Identify safe practices when using lathes.
- Identify safe practices when using mills.
- Perform basic turning and milling operations.

**Vertical Mill Operations**

**3 Credit/90 Clock-Hours**

In this course, students will be introduced to essential material cutting concepts by setting up and operating a manual milling machine. Topics include principles of clamping and locating work pieces; selection of cutting tools and holders; milling speeds and feeds; application of cutting depth, width, and direction; part production; and inspection.

Objectives:

- Demonstrate:
  - Safe operation of a milling machine.
  - Proper machine maintenance and workstation cleanup.
  - Proper work holding device selection and setup.
  - Efficient speeds and feeds for mill tooling.
- Perform accurate:
  - Milling of pockets and windows & slots.
  - Hole forming mill operations for size and location.
  - Angle milling.
- Create and evaluate milled surface finishes.

**Lathe Operations I**

**3 Credit/90 Clock-Hours**

Lathe Operations I will introduce essential material cutting concepts. This course provides instruction in tool selection, setup, work holding, and basic turning operations.



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

**Objectives:**

- Identify the parts of a lathe and the different styles/models of lathes.
- Demonstrate safe operation, maintenance & cleanup of a lathe.
- Demonstrate efficient speeds and feeds for lathe tooling.
- Demonstrate proper:
  - Work holding device selection and setup.
  - Lathe cutting tool selection and setup.
- Perform lathe OD machining operations according to industry standards.
- Perform lathe ID machining operations according to industry standards.
- Create and evaluate surface finishes.
- Perform cutting and measuring of threads.

**Mazatrol Programming**

**3 Credit/90 Clock-Hours**

Mazatrol Programming introduces operating and programming controls and cutting tools as it relates to programming. During this course, students will demonstrate knowledge by programming both CNC machining and turning centers using the Mazatrol conversational language.

**Objectives:**

- Demonstrate:
  - Proper use of reference materials
  - Proper procedures in setting tool length offsets, tool library, part zero offsets.
  - Ability to set-up and run existing programs.
- Identify and use operator and programming controls.
- Create a program for the CNC machining center and CNC turning center using blueprints and Mazatrol programming language for the production of industry standard parts.

**Geometric Dimensioning and Tolerancing I**

**3 Credit/90 Clock-Hours**

Geometric Dimensioning and Tolerancing I introduces students to the basic concepts of geometric dimensioning and tolerancing (GD&T). This course emphasizes terminology, planar datums, size datums, and tolerances of size, and form and location.

**Objectives:**

- Define Maximum Material Condition (MMC), Least Material Condition (LMC), and Regardless of Feature Size (RFS).
- Explain how to use GD&T to determine tolerances of form and location, positional tolerances, and part fits.
- Define geometric characteristic symbols and how they are used in GD&T.
- Define feature control frames.
- Given a basic blueprint, identify basic dimensions.
- Define datums and explain their application in GD&T.
- Demonstrate the skills gained in the course by completing the print exercises and tests given in the textbook.

**Inspection Fundamentals**

**3 Credits/90 Clock-Hours**

Inspection fundamentals defines basic procedures and inspection operations encountered in the machine shop. In this course, students will practice reading blueprints & technical drawings in order to create and



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

inspect a part or assembly. Students will be trained in the proper use of common measuring tools as well as more advanced measuring tools found in the inspection room.

**Objectives:**

- Interpret basic blueprint symbols, line types, and views.
- Analyze title blocks and apply the data found there to the inspection process.
- Describe the basic GD&T symbols.
- Demonstrate the proper use of micrometers, calipers, and other hard gaging tools.
- Demonstrate Inspection techniques using digital height gages and equator machines.

**Advanced Inspection**

**3 Credit/ 90 Clock**

---

Advanced Inspection will teach students the foundational skills of CMM (Coordinate Measuring Machine) operation, and programming. This course teaches industry standards, program file management, calibration, and programming.

**Objectives:**

- Explain the 6 Degrees of Freedom.
- Demonstrate the setup and calibration of a CMM.
- Create and manage project files.
- Program the part inspection.
- Output the inspection data.

**Additive Manufacturing**

**3 Credit/90 Clock-Hours**

---

This course will focus on the field of design for additive manufacturing also known as 3D printing. The course will use design-based problems, and project-based learning (hands-on) to aid students in developing the design and research skills required to function within the area of design for additive manufacturing. As a student in this course, you will be expected to gain understanding and skillsets in computer-aided design (CAD) with 3D printing, manufacturing, and research knowledge. (Prior CAD experience required for this course).

**Objectives:**

- Demonstrate:
  - Efficient use of machine and additive practices.
  - Proper machine maintenance and workstation cleanup.
  - Proper device selection and setup.
- Perform:
  - Designed parts are designed with additive printing in mind.
  - Demonstrate proper settings for specific applications.
  - Designs in fixturing to machine parts.
  - Ability to design parts accurately for CMM inspection.
  - Reverse engineer and make rapid prototypes.
- Create and evaluate milled surface finishes.

**CNC III**

**3 Credit/90 Clock-Hours**

---

CNC III provides training on multiple full-sized CNC machining centers. In this course, students will use the latest industry trends in regard to tool measurement and work coordinate systems. The parts will be



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

more complex and require multiple tools. The cutters and material will require more skill in both the CAD/CAM as well as setup and operation of the CNC.

Objectives:

- Execute the design and program multi-axis parts.
- Demonstrate setting up machines for multi-axis parts.
- Construct the design, program and run simple molds.
- Identify the use of multiple work coordinates.
- Demonstrate fine detail surfacing of parts.

**5th Axis Programming**

**3 Credit/90 Clock-Hours**

This course will focus on the field of design for 5th Axis Setup and Machining. The course will use design-based problems, and project-based learning (hands-on) to aid students in developing the design and research skills required to function within the area of 5th Axis manufacturing. As a student in this course, you will be expected to gain understanding and skillsets in computer-aided design (CAD) with 5 Axis manufacturing, and research knowledge. (Prior CAD experience required for this course).

Objectives:

- Demonstrate:
  - Efficient use of machine and additive practices.
  - Proper machine maintenance and workstation cleanup.
  - Proper device selection and setup.
- Perform:
  - Designed parts are designed with 5 axis machining in mind.
  - Demonstrate proper settings for specific applications.
  - Designs in fixturing to machine parts.
  - Ability to design parts accurately for CMM inspection.
- Create and evaluate milled surface finishes.

**Special Projects I**

**1 Credit/30 Clock-Hours**

This is a special course designed to allow students additional time when building complex projects found in Special Projects II as assigned by an Advisor. This course is also used to allow students time to prepare for the Skills USA state or national contest. Students in this course will receive additional instructor-led guidance to build upon prior instruction and experience to meet or exceed industry standards. Students will practice and demonstrate professional-level work according to industry standards.

Objectives:

- Demonstrate project bid creation by estimating completion time and necessary materials to complete a machining project.
- Given a sketch or blueprint from a client, create the requested project to industry standards.
- Demonstrate and apply proper inspection techniques to ensure parts are accurate and compatible.

**Special Projects II**

**2 Credit/60 Clock-Hours**

This is an advanced course designed to allow students to participate in complex projects related to CNC machining and programming as assigned by an Advisor. Coursework will vary with the work available and



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

may involve regional industry. Students in this course will receive additional instructor-led guidance to build upon prior instruction and experience to meet or exceed industry standards. Students will practice and demonstrate professional-level work according to industry standards.

**Objectives:**

- Demonstrate project bid creation by estimating completion time and necessary materials to complete a machining project.
- Given a sketch or blueprint from a client, create the requested project to industry standards.
- Demonstrate and apply proper inspection techniques to ensure parts are accurate and compatible.

**Workplace Management**

**2 Credits/60 Clock-Hours**

This course is designed to help students starting their career in the CNC machining industry. Students begin this process learning critical fundamental skills such as job knowledge, fire safety and teamwork. Students have the opportunity to help other students as well as present to the group something they learned or found interesting in this course. Student will also be asked to create a LinkedIn account as well as CNC Expert to create a resume that they can show potential employers. In this course students will act as a shop lead, working closely with the instructors to develop team building, communication, conflict resolution skills and complete a team project.

**Objectives:**

- Demonstrate teamwork and problem solving by acting as shop lead for a few days.
- Demonstrate fire safety and prevention strategies.
- Create a presence on LinkedIn & CNC Expert.
- Create an up-to-date resume outlining their skills in CNC machining.
- Demonstrate time management skills by keeping accurate track of course timelines, proper login/log out on the attendance station and course progress by meeting with an instructor at least once during each course.
- Explore at least one manufacturing company and report findings in an oral report to the class.

**Job Seeking Skills**

**1 Credit/30 Clock-Hours**

Job Seeking Skills explores how to prepare and successfully apply to potential career opportunities. During this course, students will be presented with essential job-seeking skills needed to find gainful employment.

**Objectives:**

- Create a professional resume, cover letter and reference sheet.
- Utilize online tools successfully to create an e-portfolio.
- Expand and develop networking skills.
- Utilize online resources effectively to find job openings.
- Demonstrate the ability to fill out job applications in a professional manner.
- Perform successfully in a job interview.
- Demonstrate appropriate follow-up procedures.

**Dixie Technical College**



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

**Career Success**

**1 Credit / 30 Clock-Hours**

The Career Success course helps prepare students to interview for a new job. Topics include professional attire and demeanor for the interview, the importance of including a list of references with their resume, and comporting a positive and upbeat attitude before, during, and after the interview. Students will also map the distance to the interview location to determine travel distance. Students will participate in discussions on the longevity at the job including the difference between lateral and vertical career pathways.

Objectives:

- Demonstrate professional dress, grooming, hygiene, and attitude.
- Create an updated resume with a list of at least three references.
- Demonstrate time keeping and punctuality.
- Communicate positively both verbally and nonverbally.
- Show and explain case parts for an interview setting.
- Create a plan to keep the job, including plans of moving laterally and vertically within the workplace.
- Demonstrate and explain the proper use of cell phones in a work environment.

**CNC Mill Programming**

**3 Credits / 90 Clock-Hours**

The CNC Mill Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and posting a program.

Objectives:

- Create basic 2D geometry construction.
- Modify existing geometry.
- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.
- Demonstrate how to post a program to create NC code.
- Inspect and document finish dimensions using various metrology.
- Create advanced 2D geometry construction.
- Create 2-1/2 D geometry construction.
- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.
- Generate process and toolpath planning.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Inspect and document finish dimension using various metrology.

**CNC Lathe Programming**

**3 Credits / 90 Clock-Hours**

The CNC Lathe Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and post a program.

Objectives:

- Create basic 2D geometry construction.
- Modify existing geometry.

March 22, 2024



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.
- Demonstrate how to post a program file to create NC code.
- Create advanced 2D geometry construction.
- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.
- Perform calculations needed to operate precision machine.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Generate process and toolpath planning.
- Inspect and document finish dimension using various metrology.
- Generate toolpaths for CNC lathe.

**CNC II**

**6 Credits / 180 Clock-Hours**

The CNC II course teaches students additional practical abilities including more than three axis directions of movement to machine complex geometries. Students will learn to program CAD/CAM software to create a number of projects, each building on their CNC machining skills. Students will machine with a variety of materials to practice efficiency, processes, applications, and accuracy in both tramming, squaring, and calibrating the machine as well as creating precision projects.

Objectives:

- Use a multi-axis machine.
- Machine with a variety of material types.
- Create diverse CNC projects.
- Program CAD/CAM software to create multiple projects.

**Measuring Analysis**

**2 Credits / 60 Clock-Hours**

The Measuring Analysis course teaches students repetitive measurements for part inspection. Students will learn how to operate an Optical Comparator to measure various parts sizes using a magnified silhouette of a part projected on a screen, and the dimensions and geometry of the part are measured against prescribed limits. Students will learn the MSA method to determine an acceptable measurement average from a sample of parts. In Process Controls students learn to gather data to determine which machining process is the most suitable for a workpiece to ultimately improve quality and reliability of a process. Students will receive training in practical theory and hands-on experience, in the proper use of common measuring tools as well as more advanced measuring tools found in the inspection room.

Objectives:

- Demonstrate a repetitive MSA measuring method using a sample of parts.
- Operate an Optical Comparator to measure the dimensions and geometry of the part against prescribed limits.
- Utilize the process controls process to determine which machining process is most suitable for a project.
- Practice repetitive measurements for part inspection.

**Mountainland Technical College**

March 22, 2024





**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

**Advanced Manufacturing Fundamentals**

**3 Credits / 90 Clock-Hours**

The Advanced Manufacturing Fundamentals course teaches students to interpret information on blueprints used in manufacturing to machine parts within defined tolerances. Students will learn methods used in inspecting parts to ensure parts are made to the print requirements.

Objectives:

- Apply tolerancing concepts and rules.
- Demonstrate how datums work.
- Demonstrate how features frames work.
- Interpret basic blueprint symbols, line types, and views.
- Analyze title blocks and apply the data to the inspection process.
- Describe the basic Geometric Dimensioning and Tolerance (GD&T) symbols.
- Properly use micrometers, calipers, and other gaging tools.
- Use Coordinate Measuring Machines and Optical Comparators.

**CNC Mill Programming**

**3 Credits / 90 Clock-Hours**

The CNC Mill Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and posting a program.

Objectives:

- Create basic 2D geometry construction.
- Modify existing geometry.
- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.
- Demonstrate how to post a program to create NC code.
- Inspect and document finish dimensions using various metrology.
- Create advanced 2D geometry construction.
- Create 2-1/2 D geometry construction.
- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.
- Generate process and toolpath planning.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Inspect and document finish dimension using various metrology.

**CNC Lathe Programming**

**3 Credits / 90 Clock-Hours**

The CNC Lathe Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and post a program.

Objectives:

- Create basic 2D geometry construction.
- Modify existing geometry.
- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

- Demonstrate how to post a program file to create NC code.
- Create advanced 2D geometry construction.
- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.
- Perform calculations needed to operate precision machine.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Generate process and toolpath planning.
- Inspect and document finish dimension using various metrology.
- Generate toolpaths for CNC lathe.

---

**Applied Manual Machining**

**3 Credits / 90 Clock-Hours**

In the Applied Manual Machining course, students will learn to apply what they have been taught in the previous courses to manufacturing various part assemblies. Topics will include reading and interpreting prints and the use of machines to manufacture various parts and assemble them into a working assembly.

Objectives:

- Operate manual lathes and milling machines.
- Properly use measuring tools to make the parts to the required tolerances.
- Make parts into working assemblies.

---

**Multi-Axis**

**3 Credits / 90 Clock-Hours**

Multi-Axis introduces CNC multi-axis machines. Topics include the procedures and practices for safe setup and operation of the machine, tool-holding and work holding selection, programming in CAD/CAM software for multi-axis machines, part production, and inspection.

Objectives:

- Identify the correct nomenclature of the machine.
- Create wireframe and solid models.
- Create additional planes for tool pathing.
- Perform 2D, 3D, 3+2, and full 5<sup>th</sup> axis tool pathing.
- Demonstrate solid model modification.
- Perform calculations needed to operate machines.
- Perform part setup and fixturing operations.
- Perform tool setup and set tool offsets.
- Demonstrate proving out a program safely.

---

**Ogden-Weber Technical College**

---

**CNC Technician Fundamentals**

**2 Credits / 60 Clock-Hours**

An introductory course to basic procedures and machining operations encountered in the machine shop manufacturing industry. Topics include essential safety practices, SDS, basic measuring tools, and alphabet of lines, title block data, dimensions, tolerances, surface finish, and multiple-view drawings, with sectional, auxiliary and projected views.



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

**Objectives:**

- Identify safe practices in a machine shop.
- Identify correct clean-up procedures.
- Interpret a Material Safety Data Sheet (SDS).
- Demonstrate accurate use and reading of steel rules, micrometers, and calipers.
- Perform basic layout procedures.
- Add, subtract, multiply, and divide to solve a problem following the correct order of operations.
- Add, subtract, multiply, and divide fractions and decimals, as well as how to convert these numbers to percentages.
- Interpret blueprint title block and revision information.
- Visualize a three-dimensional part from a blueprint drawing.
- Calculate dimensions and tolerances from views shown on a blueprint.
- Identify surface finish requirements.
- Determine threading data from blueprint specifications.
- Inspect and document finish dimension using various metrology.
- Calculate taper dimensions from blueprint specifications.

**Machining Concepts**

**1 Credit / 30 Clock-Hours**

---

This course instructs basic machining concepts. It gives students a working overview of machining practices. This course is designed to provide students with basic measuring equipment, basic Inspection, and documentation of machined parts.

**Objectives:**

- Demonstrate safe work habits and be conscious of safety when working with machinery.
- Describe basic blueprints, drawings, and establish tolerances.
- Apply basic mathematics in the machine tool technology.
- Demonstrate proper machine tool usage.
- Describe 5's concepts.
- Select and plan machining operations on equipment.
- Demonstrate beginning skills in quality control, inspection, gauging methods, and production control as they relate to manufacturing production.

**CNC Mill Basic Operation**

**1 Credit / 30 Clock-Hours**

---

This course introduces CNC vertical milling. Students will be taught safe setup and operation of CNC vertical mill, CNC terminology, preparatory steps to run a CNC program.

**Objectives:**

- Demonstrate proper work-holding for CNC mill machine.
- Demonstrate basic CNC mill machine setup.
- Demonstrate setting program zero for CNC mill machines.
- Use motion commands of rapid positioning, linear interpolation, and circular interpolation.
- Demonstrate interpersonal skills.
- Inspect and document finish dimension using various metrology.



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

**CNC Lathe Basic Operation**

**1 Credit / 30 Clock-Hours**

This course introduces CNC lathe operation. Students will be taught safe setup and operation of CNC lathe, CNC terminology, preparatory steps to run a CNC program.

Objectives:

- Demonstrate proper work-holding for CNC lathe machine.
- Demonstrate basic CNC lathe machine setup.
- Demonstrate setting program zero for CNC lathe machines.
- Inspect and document finish dimension.
- Demonstrate interpersonal skills.

**CNC Mill Programming**

**3 Credits / 90 Clock-Hours**

The CNC Mill Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and posting a program.

Objectives:

- Create basic 2D geometry construction.
- Modify existing geometry.
- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.
- Demonstrate how to post a program to create NC code.
- Inspect and document finish dimensions using various metrology.
- Create advanced 2D geometry construction.
- Create 2-1/2 D geometry construction.
- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.
- Generate process and toolpath planning.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Inspect and document finish dimension using various metrology.

**CNC Lathe Programming**

**3 Credits / 90 Clock-Hours**

The CNC Lathe Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and post a program.

Objectives:

- Create basic 2D geometry construction.
- Modify existing geometry.
- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.
- Demonstrate how to post a program file to create NC code.
- Create advanced 2D geometry construction.
- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

- Perform calculations needed to operate precision machine.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Generate process and toolpath planning.
- Inspect and document finish dimension using various metrology.
- Generate toolpaths for CNC lathe.
- 

**Geometric Dimensioning and Tolerancing Basic**

**1 Credit / 30 Clock-Hours**

This course teaches students to interpret Geometric Dimensioning and Tolerancing (GD&T) on blueprints used in manufacturing. Topics include symbols, terms, datum, material condition modifiers, and tolerance zones.

Objectives:

- Solve problems of location and positional tolerances using GD&T symbols.
- Solve problems of linear tolerances using GD&T symbols.
- Solve tolerance problems of feature form, profile, and function using GD&T symbols.

**Advanced Print Reading**

**3 Credits / 90 Clock-Hours**

Advanced Print Reading teaches students to interpret information on blueprints used in manufacturing. Topics include mathematical calculations, symbols, terms, datum, material condition modifiers, and application of tolerance zones.

Objectives:

- Demonstrate how tolerancing concepts and rules apply in print reading.
- Demonstrate how datums work on a print.
- Demonstrate how feature control frames work in applying print reading concepts.
- Identify and interpret all symbols on a manufacturing print.
- Perform calculations related to print reading.

**Process Control**

**3 Credits / 90 Clock-Hours**

Process Control provides practice reading blueprints and technical drawings to create and inspect a part or assembly. This class will teach practical theory and provide hands-on experience in the proper use of common and advanced measuring tools found in the inspection room.

Objectives:

- Interpret basic blueprint symbols, line types, and views.
- Analyze title blocks and apply the data found there to the inspection process.
- Describe the basic Geometric Dimensioning and Tolerance (GD&T) symbols.
- Perform calculations needed in regards to process control.
- Demonstrate the proper use of micrometers, calipers, and other gaging tools required for part inspection.

**Multi-Axis**

**3 Credits / 90 Clock-Hours**

Multi-Axis introduces CNC multi-axis machines. Topics include the procedures and practices for safe setup and operation of the machine, tool-holding and work holding selection, programming in CAD/CAM software for multi-axis machines, part production, and inspection.



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

**Objectives:**

- Identify the correct nomenclature of the machine.
- Create wireframe and solid models.
- Create additional planes for tool pathing.
- Perform 2D, 3D, 3+2, and full 5<sup>th</sup> axis tool pathing.
- Demonstrate solid model modification.
- Perform calculations needed to operate machines.
- Perform part setup and fixturing operations.
- Perform tool setup and set tool offsets.
- Demonstrate proving out a program safely.

**Snow College**

**CNC Mill Programming**

**3 Credits / 90 Clock-Hours**

The CNC Mill Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and posting a program.

**Objectives:**

- Create basic 2D geometry construction.
- Modify existing geometry.
- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.
- Demonstrate how to post a program to create NC code.
- Inspect and document finish dimensions using various metrology.
- Create advanced 2D geometry construction.
- Create 2-1/2 D geometry construction.
- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.
- Generate process and toolpath planning.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Inspect and document finish dimension using various metrology.

**CNC Lathe Programming**

**3 Credits / 90 Clock-Hours**

The CNC Lathe Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and post a program.

**Objectives:**

- Create basic 2D geometry construction.
- Modify existing geometry.
- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.
- Demonstrate how to post a program file to create NC code.
- Create advanced 2D geometry construction.



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.
- Perform calculations needed to operate precision machine.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Generate process and toolpath planning.
- Inspect and document finish dimension using various metrology.
- Generate toolpaths for CNC lathe.

**Advanced Print Reading**

**3 Credits / 90 Clock-Hours**

Advanced Print Reading teaches students to interpret information on blueprints used in manufacturing. Topics include mathematical calculations, symbols, terms, datum, material condition modifiers, and application of tolerance zones.

Objectives:

- Demonstrate how tolerancing concepts and rules apply in print reading.
- Demonstrate how datums work on a print.
- Demonstrate how feature control frames work in applying print reading concepts.
- Identify and interpret all symbols on a manufacturing print.
- Perform calculations related to print reading.

**Process Control**

**3 Credits / 90 Clock-Hours**

Process Control provides practice reading blueprints and technical drawings to create and inspect a part or assembly. This class will teach practical theory and provide hands-on experience in the proper use of common and advanced measuring tools found in the inspection room.

Objectives:

- Interpret basic blueprint symbols, line types, and views.
- Analyze title blocks and apply the data found there to the inspection process.
- Describe the basic Geometric Dimensioning and Tolerance (GD&T) symbols.
- Perform calculations needed in regards to process control.
- Demonstrate the proper use of micrometers, calipers, and other gaging tools required for part inspection.

**Multi-Axis**

**3 Credits / 90 Clock-Hours**

Multi-Axis introduces CNC multi-axis machines. Topics include the procedures and practices for safe setup and operation of the machine, tool-holding and work holding selection, programming in CAD/CAM software for multi-axis machines, part production, and inspection.

Objectives:

- Identify the correct nomenclature of the machine.
- Create wireframe and solid models.
- Create additional planes for tool pathing.
- Perform 2D, 3D, 3+2, and full 5<sup>th</sup> axis tool pathing.
- Demonstrate solid model modification.
- Perform calculations needed to operate machines.



**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

- Perform part setup and fixturing operations.
- Perform tool setup and set tool offsets.
- Demonstrate proving out a program safely.

**Utah State University - Eastern**

**CNC Mill Programming**

**3 Credits / 90 Clock-Hours**

The CNC Mill Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and posting a program.

Objectives:

- Create basic 2D geometry construction.
- Modify existing geometry.
- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.
- Demonstrate how to post a program to create NC code.
- Inspect and document finish dimensions using various metrology.
- Create advanced 2D geometry construction.
- Create 2-1/2 D geometry construction.
- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.
- Generate process and toolpath planning.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Inspect and document finish dimension using various metrology.

**CNC Lathe Programming**

**3 Credits / 90 Clock-Hours**

The CNC Lathe Programming course teaches the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool-path generation, and post a program.

Objectives:

- Create basic 2D geometry construction.
- Modify existing geometry.
- Demonstrate 2-Axis toolpath generation.
- Perform basic 2D toolpath editing.
- Demonstrate how to post a program file to create NC code.
- Create advanced 2D geometry construction.
- Perform advanced modification of existing geometry.
- Demonstrate advanced 2D toolpath editing.
- Perform calculations needed to operate precision machine.
- Verify calculations needed to operate the machine effectively to create an acceptable project based on print specification.
- Generate process and toolpath planning.
- Inspect and document finish dimension using various metrology.





**Utah System of Higher Education**  
Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

- Generate toolpaths for CNC lathe.

---

**Introduction to CNC Machining**

**3 Credits / 90 Clock-Hours**

The Introduction to CNC Machining course introduces students to Computer-Numeric Control (CNC) Machining at an entry-level. Topics include CNC terminology CNC operation and performing part Production and inspection.

Objectives:

- Explain basic elements of G and M code.
- Demonstrate safety practices and techniques for a machine shop.
- Properly perform a basic start-up of a CNC machine.
- Correctly load a part.
- Run basic programs on a CNC machine.
- Explain the various functions of the CNC control keypad and screen.
- Select the correct tooling for operations.
- Demonstrate appropriate preventative maintenance of a CNC machine.

---

**Introduction to Manual Machining**

**3 Credits / 90 Clock-Hours**

This course is designed to develop skills needed to safely operate various hand tools, power equipment, and precision measuring instruments related to the machining field. Safety measures will be followed while developing decision-making skills to maintain productivity and quality.

Objectives:

- Demonstrate safe practices in the shop.
- Read and interpret machining blueprints.
- Demonstrate precision measurement techniques.
- Properly use common hand and power tools including:
  - saws.
  - Drill presses.
  - Bench grinders.
- Demonstrate manual lathe operations.
- Demonstrate work holding procedures.

---

**Advanced Print Reading**

**3 Credits / 90 Clock-Hours**

Advanced Print Reading teaches students to interpret information on blueprints used in manufacturing. Topics include mathematical calculations, symbols, terms, datum, material condition modifiers, and application of tolerance zones.

Objectives:

- Demonstrate how tolerancing concepts and rules apply in print reading.
- Demonstrate how datums work on a print.
- Demonstrate how feature control frames work in applying print reading concepts.
- Identify and interpret all symbols on a manufacturing print.
- Perform calculations related to print reading.



**Utah System of Higher Education**  
Manual Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

<b>Manual Machining Technology</b>			
Institutions: Salt Lake			
<i>Certificate of Program Completion (Catalog Year: 2026, 15 Credits/450 Clock-Hours Required, CIP: 48.0501)</i>			
<b>Aligned (15 Credits/450 Clock-Hours)</b>		<b>Credits</b>	<b>Clock-Hours</b>
TEMT 1000	Manufacturing Fundamentals	3	90
TEMT 1200	Lathe Concepts	3	90
TEMT 1100	Mill Concepts	3	90
TEMT 2000	Process Control	3	90
TEMT 1030	Grinding Concepts	3	90



**Utah System of Higher Education**  
Manual Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

**PROGRAM DESCRIPTION**

The Manual Machining Technology program introduces students to the use and operation of manual machine tools to produce complex parts used in a variety of industries. Manual machinists are trained to use turning, milling, and grinding machines to produce these complex parts. This program is structured to give students the core fundamentals of machining.

**Objectives:**

- Demonstrate safe operation of machine shop equipment.
- Interpret engineering drawings.
- Perform calculations common to the machining industry.
- Use appropriate measuring equipment.
- Properly select appropriate equipment and cutting tools.

**COURSE DESCRIPTIONS**

**Manufacturing Fundamentals**

**3 Credits / 90 Clock-Hours**

The Manufacturing Fundamentals course introduces students to basic procedures and operations encountered in the machine shop and various manufacturing industries. Topics include essential safety practices, use of basic measuring and hand tools, applications of pedestal grinding, and basic knowledge of sawing operations.

**Objectives:**

- Identify safe practices in a machine shop.
- Identify appropriate PPE.
- Demonstrate environmental awareness.
- Identify correct clean-up procedures.
- Interpret a Safety Data sheet (SDS).
- Perform basic measurement with calipers and micrometers.
- Perform basic layout procedures.
- Identify basic hand tools and their usage.
- Perform basic mathematical calculations.

**Lathe Concepts**

**3 Credits / 90 Clock-Hours**

The Lathe Concepts course introduces students to essential material cutting concepts using a precision lathe machine. Topics include holding and locating work pieces; selecting cutting tools and holders; turning speeds and feeds; applying cutting depth, width, and direction; part production; and inspection.

**Objectives:**

- Demonstrate safe operation of a precision lathe machine.
- Demonstrate proper machine maintenance and workstation cleanup.
- Demonstrate proper tool selection and application.
- Demonstrate proper work holding device selection and setup.
- Demonstrate efficient speeds and feeds for lathe tooling.
- Perform accurate facing operations.
- Perform accurate turning operations.
- Perform accurate chamfer/taper turning operations.
- Perform accurate hole-forming operations for size and location.



**Utah System of Higher Education**  
Manual Machining Technology  
FY2026 / 15 Credits (450 Clock-Hours)

- Perform accurate threading operations.
- Perform accurate knurling operations.
- Perform calculations needed to operate precision machine.
- Inspect and document finish dimension using various metrology.

---

**Mill Concepts****3 Credits / 90 Clock-Hours**

The Mill Concepts course introduces students to essential material cutting concepts using a milling machine. Topics include clamping and locating work pieces; selecting cutting tools and holders; milling speeds and feeds; applying cutting depth, width, and direction; part production; and inspection.

**Objectives:**

- Demonstrate safe operation of a milling machine.
- Demonstrate use of indicators relating to aligning work holding and figuring.
- Demonstrate proper machine maintenance and workstation cleanup.
- Demonstrate proper work holding device selection and setup.
- Demonstrate efficient speeds and feeds for mill tooling.
- Perform accurate milling of pockets, windows, and slots.
- Perform accurate hole-forming, mill operations for size and location.
- Perform accurate angle milling.
- Create and evaluate milled surface finishes.
- Perform calculations needed to operate precision machine.
- Inspect and document finish dimension using various metrology.

---

**Process Control****3 Credits / 90 Clock-Hours**

Process Control provides practice reading blueprints and technical drawings to create and inspect a part or assembly. This class will teach practical theory and provide hands-on experience in the proper use of common and advanced measuring tools found in the inspection room.

**Objectives:**

- Interpret basic blueprint symbols, line types, and views.
- Analyze title blocks and apply the data found there to the inspection process.
- Describe the basic Geometric Dimensioning and Tolerance (GD&T) symbols.
- Perform calculations needed in regards to process control.
- Demonstrate the proper use of micrometers, calipers, and other gaging tools required for part inspection.

---

**Grinding Concepts****3 Credits / 90 Clock-Hours**

Grinding Concepts familiarizes students with the safe and proper operation of pedestal, surface and cylindrical grinders.

**Objectives:**

- Analyze and properly select, balance, and dress grinding wheels.
- Demonstrate proper grinding techniques of cutting tools.
- Demonstrate proper clamping and holding techniques when grinding parallel and perpendicular surfaces using surface grinders.
- Demonstrate proper grinding techniques using the cylindrical grinder.
- Demonstrate proper adjusting, oiling, and lubricating grinding machines for preventative maintenance.



**Utah System of Higher Education**  
**Pharmacy Technician**  
**FY2026 / 13 Credits (450 Clock-Hours)**

<b>Pharmacy Technician</b>			
Institutions: Bridgerland, Davis, Dixie, Mountainland, Ogden-Weber, Salt Lake, Southwest, Tooele, Uintah Basin, USU-Eastern			
<i>Certificate of Program Completion (Catalog Year: 2026, 13 Credits/450 Clock-Hours Required, CIP: 51.0805)</i>			
<b>Aligned (13 Credits/480 Clock-Hours)</b>		<b>Credits</b>	<b>Clock-Hours</b>
TEPT 1010	Introduction to Pharmacy	3	90
TEPT 1100	Community Pharmacy Practice	3	90
TEPT 1110	Institutional Pharmacy Practice	3	90
<b>Externship Course (Choose one course based on program level)</b>		<b>Credits</b>	<b>Clock-Hours</b>
<b>Advanced Level Program</b>			
TEPT 1900	Pharmacy Technician Externship	4	210
<b>Entry Level Program</b>			
TEPT 1910	Pharmacy Technician Externship	4	180
<b>Non-Aligned Electives</b>		<b>Credits</b>	<b>Clock-Hours</b>
<b>Bridgerland Technical College (4 Credits/120 Clock-Hours)</b>			
TEPT 1200	Advanced Community Pharmacy Practice	1	30
TEPT 1210	Advanced Institutional Pharmacy Practice	3	90
<b>Davis Technical College (4 Credits/120 Clock-Hours)</b>			
TEPT 1500	Pharmacy Technician Math	1	30
WKSK 1600	Pharmacy Technician Workplace Skills	1	30
WKSK 1500	Job Seeking Skills	1	30
TEPT 1630	Pharmacy Comprehension	1	30
<b>Dixie Technical College (4 Credits/120 Clock-Hours)</b>			
TEPT 1510	Pharmacy Calculations	1	30
TEPT 1520	Medications	2	60
TEPT 1601	National Exam and Licensure Preparation	1	30
<b>Ogden-Weber Technical College (4 Credits/120 Clock-Hours)</b>			
TEPT 1520	Pharmacy Calculations	2	60
TEPT 1300	Clinical Pharmacology	2	60
<b>Salt Lake Community College (4 Credits/120 Clock-Hours)</b>			
TEPT 1310	Advanced Pharmacy Technology Skills	4	120
<b>Southwest Technical College (4 Credits/120 Clock-Hours)</b>			
TEPT 1520	Pharmacy Calculations	2	60
TEPT 1610	Pharmacy Review	1	30
TEPT 1220	Sterile Compounding	1	30
<b>Tooele Technical College (4 Credits/120 Clock-Hours)</b>			
TEPT 1230	Extemporaneous, Nonsterile Compounding	2	60
TEPT 1240	Sterile & Hazardous Compounding	2	60
<b>Uintah Basin Technical College (4 Credits/120 Clock-Hours)</b>			
TEPT 1230	Extemporaneous, Nonsterile Compounding	2	60
TEPT 1240	Sterile & Hazardous Compounding	2	60
<b>Utah State University - Eastern (4 Credits/120 Clock-Hours)</b>			
TEPT 1320	Pharmacology	3	90
TEPT 1620	National Exam and State Licensure Readiness	1	30



**Utah System of Higher Education**  
 Advanced Emergency Medical Technician  
 FY2026/ 7Credits (210 Clock-Hours)

<b>Advanced Emergency Medical Technician</b>			
Institutions: Bridgerland, Davis, Dixie, Mountainland, Salt Lake, Southwest, Snow, Tooele			
<i>Certificate of Program Completion (Catalog Year: 2026, 7 Credits/210 Clock-Hours Required, CIP: 51.0904)</i>			
<b>Aligned (6 Credits/186 Clock-Hours)</b>		<b>Credits</b>	<b>Clock-Hours</b>
TEEM 1201	Advanced Emergency Medical Technician	7	210
<b>Non-Aligned (Electives)</b>			
<b>Southwest Technical College</b>			
TEEM 1900	AEMT Field Experience	0	12



**Utah System of Higher Education**  
Advanced Emergency Medical Technician  
FY2026/ 7Credits (210 Clock-Hours)

**PROGRAM DESCRIPTION**

Advanced Emergency Medical Technicians provide basic and limited advanced emergency medical care and transportation of critical and emergent patients who access the emergency medical system (EMS). Advanced Emergency Medical Technicians (AEMTs) possess the fundamental knowledge and skills necessary to provide patient care and transportation. Advanced Emergency Medical Technicians function as part of a comprehensive EMS response, under medical oversight. Advanced Emergency Medical Technicians perform interventions with the basic and advanced equipment typically found on an ambulance. Advanced Emergency Medical Technicians function as a link between the scene and the emergency health care system.

**Objectives:**

- Demonstrate comprehensive knowledge of EMS and perform in accordance with operational roles, prioritizing safety and addressing legal and ethical considerations when providing emergency care.
- Integrate and apply comprehensive knowledge of airway, respiratory, and circulatory anatomy and physiology into EMS practice to assess and manage patients, ensuring optimal airway, mechanical ventilation, and respiration across all age groups.
- Utilize scene information and interpret patient assessment findings to guide and provide emergency care and transportation for patients with acute injuries, illnesses, shock, respiratory or cardiac failure/arrest, and post-resuscitation management.
- Utilize medical terminology for effective communication with healthcare professionals.
- Apply foundational EMS principles and knowledge of lifespan development to assess, manage, and provide emergency care and transportation during health emergencies and for patients with special needs.
- Demonstrate expertise in administering AEMT-carried medications in emergency scenarios.

**ALIGNED COURSE DESCRIPTIONS**

**Advanced Emergency Medical Technician**

**7 Credits/210 Clock-Hours**

Advanced Emergency Medical Technicians provide basic and limited advanced emergency medical care and transportation for critical and emergent patients who access the emergency medical system (EMS). Advanced Emergency Medical Technicians (AEMTs) possess the basic knowledge and skills necessary to provide patient care and transportation. Advanced Emergency Medical Technicians function as part of a comprehensive EMS response, under medical oversight. Advanced Emergency Medical Technicians perform interventions with the basic and advanced equipment typically found on an ambulance. The Advanced Emergency Medical Technician is a link from the scene to the emergency health care system.

**Objectives:**

- Demonstrate comprehensive knowledge of EMS and perform in accordance with operational roles, prioritizing safety and addressing legal and ethical considerations when providing emergency care.
- Integrate and apply comprehensive knowledge of airway, respiratory, and circulatory anatomy and physiology into EMS practice to assess and manage patients, ensuring optimal airway, mechanical ventilation, and respiration across all age groups.



**Utah System of Higher Education**  
Advanced Emergency Medical Technician  
FY2026/ 7Credits (210 Clock-Hours)

- Utilize scene information and interpret patient assessment findings to guide and provide emergency care and transportation for patients with acute injuries, illnesses, shock, respiratory or cardiac failure/arrest, and post-resuscitation management.
- Utilize medical terminology for effective communication with healthcare professionals.
- Apply foundational EMS principles and knowledge of lifespan development to assess, manage, and provide emergency care and transportation during health emergencies and for patients with special needs.
- Demonstrate expertise in administering AEMT-carried medications in emergency scenarios.

**NON-ALIGNED (ELECTIVE) COURSES**

**Southwest Technical College**

**Field Experience**

**0 Credits/12 Clock-Hours**

---

This course provides students with field education experiences to enhance knowledge and skills learned in the Advanced Emergency Medical Technician course.

Objectives:

- Observe patient care in the pre-hospital setting.
- Evaluate the patient care plan outcomes.
- Discuss the functions of the local EMS system.





**Utah System of Higher Education**  
 Emergency Medical Technician  
 FY2025 / 6 Credits (180 Clock-Hours)

<b>Emergency Medical Technician</b>				
Institutions: Bridgerland, Davis, Dixie, Mountainland, Salt Lake, Snow, Southwest, Tooele, USU-Eastern				
<i>Certificate of Program Completion (Catalog Year: 2025, 6 Credits/180 Clock-Hours Required, CIP: 51.0904)</i>				
<b>Aligned (6 Credits/186 Clock-Hours)</b>			<b>Credits</b>	<b>Clock-Hours</b>
TEEM 1011	Emergency Medical Technician		6	180
<b>Non-Aligned (Electives)</b>				
<b>Southwest Technical College</b>				
TEEM 1901	EMT Field Experience		0	12



**Utah System of Higher Education**  
Emergency Medical Technician  
FY2025 / 6 Credits (180 Clock-Hours)

**PROGRAM DESCRIPTION**

The Emergency Medical Technician program provides training for out-of-hospital emergency medical care and transportation of critical and emergent patients who access the emergency medical services (EMS) system. Emergency Medical Technicians (EMTs) have basic knowledge and skills necessary to stabilize and safely transport patients ranging from non-emergency and routine medical transports to life threatening emergencies. EMTs function as part of a comprehensive EMS response system, under medical oversight. EMTs perform interventions with the basic equipment typically found on an ambulance. EMTs are a critical link between the scene of an emergency and the health care system.

**Objectives:**

- Apply fundamental knowledge of the anatomy and function of all human systems to the practice of EMS.
- Use foundational anatomical and medical terms and abbreviations in written and oral communication with colleagues and other health care professionals.
- Apply fundamental knowledge of the pathophysiology of respiration and perfusion to patient assessment and management.
- Apply fundamental knowledge of lifespan development to patient assessment and management.
- Properly administer or assist in administering medications to a patient during an emergency.
- Utilize fundamental knowledge of the EMS system, safety/well-being of the EMT, and medical/legal and ethical issues to the provision of emergency care.
- Apply knowledge (fundamental depth, foundational breadth) of anatomy and physiology to patient assessment and management to assure a patent airway, adequate mechanical ventilation, and respiration for patients of all ages.
- Interpret scene information and patient assessment findings (scene size-up, primary and secondary assessment, patient history, reassessment) to guide emergency management.
- Provide basic emergency care and transportation based on assessment findings for an acutely ill patient.
- Apply a fundamental knowledge of the causes, pathophysiology, and management of shock, respiratory failure or arrest, cardiac failure or arrest, and post-resuscitation management.
- Provide basic emergency care and transportation based on assessment findings for an acutely injured patient.
- Utilize principles of growth, development, aging and assessment findings to provide basic emergency care and transportation for a patient with special needs.
- Perform in accordance with operational roles and responsibilities to ensure patient, public, and personnel safety when responding to an emergency.

**ALIGNED COURSE DESCRIPTIONS**

**Emergency Medical Technician**

**6 Credits/180 Clock-Hours**

The Emergency Medical Technician course provides training on out of hospital emergency medical care and transportation for critical and emergent patients who access the emergency medical services (EMS) system. Emergency Medical Technicians (EMTs) have basic knowledge and skills necessary to stabilize and safely transport patients ranging from non-emergency and routine medical transports to life threatening emergencies. EMTs function as part of a comprehensive EMS response system, under medical oversight. EMTs perform interventions with the basic equipment typically found on an ambulance. EMTs are a critical link between the scene of an emergency and the health care system.

March 22, 2024



**Utah System of Higher Education**  
Emergency Medical Technician  
FY2025 / 6 Credits (180 Clock-Hours)

**Objectives:**

- Apply fundamental knowledge of the anatomy and function of all human systems to the practice of EMS.
- Use foundational anatomical and medical terms and abbreviations in written and oral communication with colleagues and other health care professionals.
- Apply fundamental knowledge of the pathophysiology of respiration and perfusion to patient assessment and management.
- Apply fundamental knowledge of lifespan development to patient assessment and management.
- Use simple knowledge of the principles of illness and injury prevention in emergency care.
- Properly administer or assist in administering medications to a patient in an emergency.
- Apply fundamental knowledge of the EMS system, safety/well-being of the EMT, and medical/legal and ethical issues to the provision of emergency care.
- Apply knowledge (fundamental depth, foundational breadth) of anatomy and physiology to patient assessment and management to assure a patent airway, adequate mechanical ventilation, and respiration for patients of all ages.
- Interpret scene information and patient assessment findings including scene size-up, primary and secondary assessment, patient history, and reassessment, to guide emergency management.
- Provide basic emergency care and transportation based on assessment findings for an acutely ill patient.
- Apply a fundamental knowledge of the causes, pathophysiology, and management of shock, respiratory failure or arrest, cardiac failure or arrest, and post-resuscitation management.
- Provide basic emergency care and transportation based on assessment findings for an acutely injured patient.
- Utilize principles of growth, development, aging and assessment findings to provide basic emergency care and transportation for a patient with special needs.
- Perform in accordance with operational roles and responsibilities to ensure patient, public, and personnel safety when responding to an emergency.

**NON-ALIGNED (ELECTIVE) COURSES**

**Southwest Technical College**

**Field Experience**

**0 Credits/12 Clock-Hours**

---

This course provides students with field education experiences to enhance knowledge and skills learned in the Emergency Medical Technician course.

**Objectives:**

- Observe patient care in the pre-hospital setting.
- Evaluate the patient care plan outcomes.
- Discuss the functions of the local EMS system.