ACADEMIC PROGRAM & COURSE INFORMATION

Auto Collision Repair

Auto Collision Repair Certificate

First Semester	Credits
ACR 110 Paint & Refinishing 1	3
ACR 115 Paint & Refinishing 2	3
ACR 130 Non-Structural Analysis & Damage Repair 1	4
ACR 135 Non-Structural Analysis & Damage Repair 2	4
ACR 150 Structural Analysis & Damage Repair 1	2
ACR 155 Structural Analysis & Damage Repair 2	2
TOTAL CREDITS:	**18**

Second Semester	Credits
ACR 120 Paint & Refinishing 3	3
ACR 125 Paint & Refinishing 4	4
ACR 140 Non-Structural Analysis & Damage Repair 3	4
ACR 145 Non-Structural Analysis & Damage Repair 4	5
ACR 160 Structural Analysis & Damage Repair 3	3
ACR 165 Structural Analysis & Damage Repair 4	3
TOTAL CREDITS:	**22**
TOTAL CERTIFICATE CREDITS:	**40**

Admission Criteria

Prior to enrollment student must:

- Successfully complete preadmission testing

Associate of Applied Science Degree: 60 Credits. To complete the Associate of Applied Science Degree, a student must enroll in the **ACR 170 Mechanical & Electrical** 3 credit hour course, select 15 credits from the General Education requirements found in the Degree and Certification Information section, plus earn an additional 2 credit hours by enrolling in a general education, continuing education or technical course elective. Visit with your instructor or the Vice President of Student Services for possible options.

The Auto Collision Repair program is accredited by the National Automotive Technicians Education Foundation (NATEF), a division of the National Institute of Automotive Service Excellence (ASE).

In just 9 short months Automotive Collision Repair graduates will have the skills necessary to begin a new and exciting career in the collision repair field. Students will work with certified instructors to learn all aspects of the collision repair process from start to finish. Students will learn estimating skills on the most current computerized estimating system, frame measuring with laser and sonar computerized equipment and frame straightening with two 3 post frame machines.

Students will gain skills in automotive welding, dent repair, parts replacement and door glass and regulator repair and replacement as well as plastic repair. Students will also learn the proper surface preparation, which is an important step to ensuring a successful paint job. We will then move on to learning refinishing skills with the latest HVLP spray guns, Students will be spraying with basecoat clear coat urethane paints, tri stage pearl finishes as well as the newest waterborne paint technology and UV light activated finishes. All of this spraying will be done in two state of the art heated spray booths. You will be working on real live customer projects in a real collision shop atmosphere preparing you for a rewarding career as an Automotive Collision Repair Technician.

This is an ASE certified NATEF program. Instructors are Master ASE Certified.

Career Opportunities: Automotive Body and Paint Shops, Automotive Dealers, Paint and Supply Stores, Metal Shops, Paint Shops, Manufacturing Companies

Auto Collision Repair Course Descriptions

First Semester

ACR 110 Paint & Refinishing 1, 3 credits.

This course will give the student basic knowledge of the automotive refinishing industry. Students will be introduced to the safety requirements needed for personal protection as well as an overview of the equipment and materials used in the automotive refinishing industry.

ACR 115 Paint & Refinishing 2, 3 credits. (Prerequisites: ACR 110 Paint & Refinishing 1)

In this course the student will be able to identify the safety equipment needed to perform spraying operations. Explain and demonstrate proper spraying operation as well as selecting the proper materials needed for particular projects. Paint mil thickness and paint removal and surface preparation will be emphasized as well.

ACR 130 Non-Structural Analysis & Damage Repair 1, 4 credits.

Students will be instructed in the various career opportunities in the Collision Repair field, as well as the basic vehicle construction in unibody, space frame, and body over frame vehicles. Students will also be instructed in all safety aspects of collision repair. Students will also receive

entry level instruction in Automotive plastics, Welding, cutting, metal straightening techniques, body fillers, outer body panel replacements/adjustments, and finally they will be introduced to interpreting damage reports.

ACR 135 Non-Structural Analysis & Damage Repair 2, 4 credits. (Prerequisites: ACR 130 Non-Structural Analysis & Damage Repair 1)

Students will take the skills and information from ACR 130 to the next level in ACR 135. This will include welding, cutting, metal finish, body filler, panel replacement and adjustment, and plastid repair. Identifying trim and hardware to be protected will be critical as this is the last course in non-structural before students will begin working on live customer work.

ACR 150 Structural Analysis & Damage Repair 1, 2 credits.

Upon the completion of this course the student will be able to identify structural panels of the vehicle and learn special procedures for their replacement or repair including restoring corrosion protection. The replacement of stationary glass, structural measuring equipment, and applied welding is included in the course.

ACR 155 Structural Analysis & Damage Repair 2, 2 credits. (Prerequisites: ACR 150 Structural Analysis & Damage Repair 1)

In this course students will perform BOF (body over frame) as well as unibody structural measuring, develop a damage repair plan from this inspection as well as actually performing the repair as needed. Welding and cutting repair procedures will also be performed as needed for a specific application.

Second Semester

ACR 120 Paint & Refinishing 3, 3 credits. (Prerequisites: ACR 115 Paint & Refinishing 2)

During this course students will learn final surface preparation, as well as correct masking procedures to properly prepare a project for refinishing. Students will then learn the correct ratios and procedures for properly and safely mixing materials needed for projects. Students will also learn and apply the skills necessary for proper spray gun operation as well as identifying and correcting paint defects.

ACR 125 Paint & Refinishing 4, 4 credits. (Prerequisites: ACR 120 Paint & Refinishing 3)

Students will take the knowledge and skills gained from previous courses and apply them to actual customer projects. Students will gain skills in color theory and tinting used for color matching, as well as procedures for and spot and blend repairs. Removing paint defects, final assembly and detailing to prepare project for delivery will be emphasizes as well.

ACR 140 Non-Structural Analysis & Damage Repair 3, 4 credits. (Prerequisites: ACR 135 Non-Structural Analysis & Damage Repair 2)

Students will expand on all the knowledge and skills developed in ACR 130 and ACR 135 while working on live projects in the shops area including welding, cutting, metal finish, body filler,

panel replacement and alignment, and plastic parts repairs. Door skin replacement will also be covered and performed on a practice door in this course.

ACR 145 Non-Structural Analysis & Damage Repair 4, 5 credits. (Prerequisites: ACR 140 Non-Structural Analysis & Damage Repair 3)

Students will expand on all the knowledge and skills developed in ACR 130, ACR 135, and ACR 140 while working on live projects in the shop area including welding, cutting, metal finish, body filler, panel replacement and alignment, and plastic part repairs. Extensive plastic parts identification and repair procedures will also be covered and performed in this course.

ACR 160 Structural Analysis & Damage Repair 3, 3 credits. (Prerequisites: ACR 155 Structural Analysis & Damage Repair 2)

This is an intermediate course where all the knowledge gained in ACR 150 and ACR 155 will be used to perform repairs on BOF (body over frame) and unibody practice vehicles. Structural sectioning installation of fixed structural glass and the importance of restoring the vehicle to pre accident condition will all be covered and performed.

ACR 165 Structural Analysis & Damage Repair 4, 3 credits. (Prerequisites: ACR 160 Structural Analysis & Damage Repair 3)

This is an advanced course where students will sue all the skills gained in the previous 3 structural repair courses and apply it to live customer work in the shop. Analyzing and repairing full frame vehicles as well as unibody, sectioning, installing structural glass, and welding of structural components.

ACR 170 Mechanical and Electrical Components, 3 credits. (Prerequisites: Successful completion of all Certificate core courses; required only for AAS Degree completion)

This course involves the basic analysis, repair and replacement of suspension and steering components along with angles and pivot-point alignment involved in proper steering alignment. This class also includes classroom and laboratory instruction on basic electricity, use of test equipment, schematic reading, general automotive electronics and the repair of electrical components commonly damaged during a collision. Minor mechanical analysis will be discussed as well.

Automotive Technology

Automotive Technology Certificate*

First Semester	Credits
AUT 100 Shop Safety/Management	1
AUT 109 Steering and Suspension 1	2
AUT 110 Steering and Suspension 2	2
AUT 135 Electrical 1	3
AUT 140 Electrical 2	2
A**UT 131** Engine Performance 1	3
TOTAL CREDITS:	**13**

Second Semester	Credits
AUT 160 Hybrid/Electric Vehicles	1
AUT 230 Engine Performance 2	7
AUT 250 Electrical 3	5
AUT 155 Automotive Diesel Technologies	1
TOTAL CREDITS:	**14**

Third Semester	Credits
AUT 240 Automatic Transmissions and Transaxles	6
AUT 115 Engine Repair 1	2
AUT 120 Engine Repair 2	3
AUT 221 Manual Drive Train 1	1
TOTAL CREDITS:	**12**

Fourth Semester	Credits
AUT 222 Manual Drive Train 2	3
AUT 210 Automotive HVAC	4
AUT 260 ASE Preparation	1
AUT 145 Brakes 1	3
AUT 150 Brakes 2	2
TOTAL CREDITS:	**13**
TOTAL Certificate:	**52**

*This is just a suggested guide for enrolling in courses.

Admission Criteria

Prior to enrollment student must:

- Successfully complete preadmission testing

- Interview with an Automotive Technology instructor

Associate of Applied Science Degree: 67 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the Degree and Certification Information section. Visit with your instructor or the Vice President of Student Services for possible options.

At Salina Tech, ASE certified master technicians with over 30 combined years in the industry provide training and mentor students. The major areas of car repair are taught: Engine Fundamentals, Repair and Performance, Automatic and Manual Transmission and Transaxle, Automotive Heating and Air Conditioning, Brakes, Transfer Case and Driveline, Basic and Advanced Electricity and Electronic Systems, Steering and Suspension, Alignment Technology, and Automotive Body Electronics as well as preparation for ASE certification and employment skills. Our shop facilities are top notch and equipped with the latest tools and equipment. Students work on customer's cars with real problems providing instructor-supervised service throughout the eighteen months of the program.

The Automotive Technology program is accredited by the National Automotive Technicians Education Foundation (NATEF), a division of the National Institute of Automotive Service Excellence (ASE),

High school students must start the Automotive Technology program as juniors.

Career Opportunities: General Mechanic, Front End Specialist, Transmission Specialist, Parts Person, Brake Specialist, Tune-up Specialist, Service Writer, Factory Representative

Automotive Technology Course Descriptions

First Year/First Semester

AUT 100 Shop Safety/Management, 1 credits.

This course provides students with an understanding of current safety regulations, established safety practices, hazard recognition, and the impact of behavior and environment on injury prevention. Students will also learn to complete repair Orders, order parts, do vehicle inspections and manage a tool room.

AUT 135 Electrical 1, 3 credits.

In this course students will: complete service work orders; describe the relationship between voltage, ohms and amperage; perform basic electrical circuit repairs; identify electrical system faults; identify basic wiring diagram symbols, components, and legend information; perform basic electrical circuit measurements using a DVOM; describe basic circuit characteristics of series, parallel and series parallel circuits through a variety of classroom and shop learning and assessment activities.

AUT 140 Electrical 2, 2 credits. (Prerequisites: AUT 135 Electrical 1)

In this course students will: perform battery diagnosis; perform battery service; perform starting system diagnosis; perform starting system repair; perform charging system diagnosis; perform charging system repair; identify current flow on starting and charging system diagrams through a variety of learning and assessment activities.

AUT 109 Steering and Suspension 1, 2 credits.

Upon completion of this course the student will have an understanding of theory and practical application of front and rear suspension and complete steering systems and alignment. This includes the study of alignment angles, suspension, steering gears, shock and strut assemblies and the basic causes for tire and wheel unbalance. The application of fraction and degrees, ratios and geometry as it applies to alignment.

AUT 110 Steering and Suspension 2, 2 credits. (Prerequisites: AUT 109 Steering and Suspension 1)

In this course students will perform complex diagnostics and repair on steering and suspension systems. Additionally, students will perform pre-alignment inspection and complex repairs of wheel and tire systems.

AUT 131 Engine Performance 1, 3 credits.

In this course students will: complete work order and check history; identify engine mechanical integrity; explore the fundamentals of fuel system theory; identify fuel system concerns; explore the fundamentals of ignition theory; identify ignition system concerns; identify induction system concerns; identify exhaust system concerns; identify engine mechanical integrity through a variety of learning and assessment activities.

First Year/Second Semester

AUT 250 Electrical 3, 5 credits. (Prerequisites: AUT 135 Electrical 1 and AUT 140 Electrical 2)

Through a variety of learning and assessment activities students can: diagnose open circuit problems; diagnose short circuit problems; diagnose grounded circuit problems; diagnose high resistance problems; identify computer circuit problems using various test equipment; identify current flow on lighting, gauges, warning devices, driver information systems, horns, wiper/washer and accessory circuits on wiring diagrams; diagnose computer circuit problems using test equipment; repair computer circuit problems using test equipment; diagnose CAN/BUS systems; repair CAN/BUS systems; identify low/high voltage circuits and disconnects on hybrid vehicles.

AUT 160 Hybrid Electrical Vehicles, 1 credit

As the price for fossil fuel rises many vehicle manufacturers have advanced the use of hybrid/electric technology in their car & truck lines. This course covers the different types of systems used in today's hybrid/electric vehicles along with the safety precautions that are a must

when servicing these vehicles. Honda, Toyota, Ford, GM, Chrysler, BMW, & Zenn vehicles will be covered in this course.

AUT 230 Engine Performance 2, 7 credits (Prerequisites: AUT 131 Engine Performance 1)

In this course students will: Perform battery diagnosis; perform battery service; perform starting system diagnosis; perform starting system repair; perform charging system diagnosis; perform charging system repair; identify current flow on starting and charging system diagrams through a variety of learning and assessment activities.

AUT 155 Automotive Diesel Technologies, 1 credit.

In this course students will develop a basic understanding of diesel engine operation and be able to do basic repairs to automotive diesel engines.

Second Year/Third Semester

AUT 240 Automatic Transmissions and Transaxles, 6 credits.

Upon completion of this course the student will have an understanding of theory and operation of automatic transmissions and transaxles. Included will be the principal of hydrodynamics, friction materials apply devices, sealing compound, and final drive assemblies. Practical application of this class will include shop practices and service procedures for automatic transmission overhaul procedures.

AUT 115 Engine Repair 1, 2 credits.

Through a variety of learning and assessment activities students can: explore the theory and operation of internal combustion engine; demonstrate the basic ability to inspect and repair engine lubrication; and demonstrate the basic ability to inspect and repair engine cooling systems.

AUT 120 Engine Repair 2, 3 credits. (Prerequisites: AUT 115 Engine Repair 1)

Through a variety of learning and assessment activities students can: demonstrate the ability to remove an automotive engine; demonstrate the ability to install an automotive engine; demonstrate the basic ability to inspect and repair cylinder head, valve trains and timing defects; demonstrate the ability to disassemble short block; demonstrate the ability to inspect short block; inspect a cylinder head and valve train; repair a cylinder head and valve train; perform advanced level engine diagnosis.

AUT 221 Manual Drive Train 1, 1 credit

Through a variety of learning and assessment activities students can: determine the general transfer case diagnosis procedures; explore the fundamentals of transfer case operation; explore the fundamentals of transfer case removal, inspection and repair according to service specifications. Conduct the diagnosis, inspection and replacement of drive axle shafts and supporting components; conduct the diagnosis, inspection adjustment and repair of four- and all-wheel drive components.

Second Year/Fourth Semester

AUT 222 Manual Drive Train 2, 3 credits. (Prerequisites: AUT 221 Manual Drive Train I)

Through a variety of learning and assessment activities students can: determine the general drive train diagnosis procedures; explore the fundamentals of clutch operation; explore the fundamentals of clutch removal, inspection and repair; determine the power flow of the manual transmission and transaxle; perform fundamental manual transmission and transaxle inspection and repair according to service specifications; perform fundamental differential inspection and repair according to service specifications; perform fundamental diagnosis, inspection and replacement of drive axle shafts and supporting components; perform fundamental diagnosis, inspection, adjustment and repair of four- and all-wheel drive components; diagnose drive train issues; diagnose clutch concerns; perform the removal, inspection and/or repair of the clutch and its components; conduct a transmission and transaxle inspection and repair according to service specifications; conduct a differential inspection and repair according to service specifications; conduct the diagnosis, inspection and replacement of drive axle shafts and supporting components; conduct the diagnosis, inspection, adjustment and repair of four- and all-wheel drive components.

AUT 210 Automotive HVAC, 4 credits.

Through a variety of learning and assessment activities students can: explore the fundamentals of automotive HVAC operations and environmental concerns, identify the appropriate refrigerant recovery and recycling guidelines; service refrigerant, recycling and handling systems; document fundamental heating and air conditioning system concerns; perform fundamental diagnostics of A/C systems; perform fundamental diagnostics of refrigeration systems components; perform fundamental repairs of refrigeration systems components; perform fundamental diagnostics of heating, ventilation, and engine cooling systems; perform fundamental repairs of heating, ventilation, and engine cooling systems; perform fundamental diagnostics of operating systems and related controls; perform fundamental repairs of operating systems and related controls; perform complex diagnostics of A/C Systems; document complex heating and air conditioning system concerns; perform complex diagnostics of refrigeration system components; perform complex repairs of refrigeration system components; perform complex diagnostics of heating, ventilation, and engine cooling systems.

AUT 260 ASE Preparation, 1 credit.

In this course the expectations an employer would require of a good employee will be covered—time management, productivity, attendance, etc. The ASE certification process will be discussed and students will do practice tests for the ASE exam.

AUT 145 Brakes 1, 3 credits.

In this course students will examine the components of the drum and disc braking systems. Through classroom and shop learning experiences, students will diagnose, inspect and repair brakes, bearings and hub assemblies.

AUT 150 Brakes 2, 2 credits. (Prerequisites: AUT 145 Brakes 1)

In this course students will: determine necessary brake system correction; conduct system pressure tests utilizing service specifications; perform diagnosis and correction for poor stopping, pulling or dragging concerns caused by malfunctions in the hydraulic system; conduct inspection, fabrication and/or replacement of brake lines and hoses; diagnose poor stopping noise vibration, pulling, grabbing, dragging or pedal pulsation concerns; perform service specifications pertaining to the removal, cleaning and refinishing procedures on brake drums; perform drum brake repair and replacement procedures; diagnose poor stopping noise vibration, pulling, grabbing, dragging or pedal pulsation concerns; perform disc brake repair and replacement procedures; machine rotor according to service specifications; perform caliper piston retraction where applicable; Inspect and test power assist systems; determine necessary action on wheel bearing noise, wheel shimmy and vibration concern diagnoses; perform the removal, inspection and replacement of bearing and hub assemblies through a variety of classroom and lab/shop learning and assessment activities.

Business Administrative Technology

Business Administrative Technology Certificate

First Semester	Credits
BAT 149 Introduction to Computers	3
BAT 112 Word Processing	3
BAT 120 Administrative Procedures	3
BAT 192 Business Accounting	3
BAT 160 Business Communications	3
BAT 135 Business Math	2
BAT 125 PowerPoint	1
BAT 170 Technology for Professionals	2
TOTAL CREDITS:	**20**

Second Semester	Credits
BAT 122 Desktop Publishing	3
BAT 153 Spreadsheet Management	3
BAT 173 Database Management	3
BAT 193 Accounting II	4
BAT 186 Business Law/Ethics	3
BAT 190 Business Internship	2
TOTAL CREDITS:	**18**
TOTAL CERTIFICATE CREDITS:	**38**

Admission Criteria

Prior to enrollment student must:

- Successfully complete preadmission testing
- Interview with the Business Administrative Technology instructor

Associate of Applied Science Degree: 60 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the Degree and Certification Information section plus 7 additional electives. Visit with your instructor or the Vice President of Student Services for possible options.

Prepare to become a successful administrative professional at Salina Tech. Use a variety of office equipment, such as fax machines, photocopiers, scanners, PDAs, audio-visual equipment and videoconferencing and telephone systems. The program includes instruction in creating spreadsheets; composing correspondence; managing databases; and producing and editing

presentations, reports, and documents using desktop publishing software and digital graphics. Some administrative professionals perform highly specialized work requiring knowledge of technical terminology and procedures. Many Business Administrative Technology students develop the skills they need to become entrepreneurs, department supervisors and office managers. Enroll in our nine-month program and train to be a polished professional in the office setting you choose.

Career Opportunities: Legal, Computer Support, Banking, Medical Insurance, Hotel/Restaurant Management, Accounting Firms, Industrial Firms, Schools and Colleges

Business Administrative Technology Course Descriptions

First Semester

BAT 112 Word Processing, 3 credits. (Prerequisites: BAT 149)

This course provides students with an understanding and use of word processing in a realistic business environment. Topics include: preparation of newsletters, letters, mailing labels, creation of outlines, tables, forms; and integration of word processing software with other software programs. This course may be used to prepare for a MOS Word exam.

BAT 135 Business Math, 2 credits.

This course offers a realistic experience with business applications typically performed on electronic calculators or other 10-key office machine keypads. Students will learn to manage their time, become familiar with business forms, develop accuracy in machine operation, and expand and refine math skills.

BAT 149 Introduction to Computers, 3 credits.

This coures is designed to acquaint students with both the hardware and software that make up a computer system. Exercises include formatting data disks, saving and deleting files, creating and deleting folders and subfolders, introduction of the types of software used in business today, use of Windows Explorer, My Computer, and Control Panel to adjust computer settings. Windows 7 will be covered. Students will learn proper keyboarding procedures and techniques. Practice exercises in using correct letter, memo and report formats will be used.

BAT 120 Administrative Procedures, 3 credits.

The world of work is more diverse than ever before and that diversity is expected to continue to increase. The international world we now live in is accessible immediately by going online or using call centers, for example. This world demands that administrative professionals have not only technology skills but also a broad range of human-relation and critical-thinking skills. It is imperative to learn to live in this fast-paced, ever-changing world.

BAT 192 Business Accounting, 3 credits.

Business Accounting includes the theory and practice associated with double-entry accounting. Special emphasis is placed on the preparation of the documents necessary to complete the accounting cycle. Topics include: transactions, journals, financial statements, schedules, adjustments/closing entries, accounting cycle, cash control, bank reconciliation, and payroll. Computerized accounting software is used.

BAT 160 Business Communications, 3 credits. (Prerequisite is to have an experience in Windows environment. Experience using Word and Excel are highly recommended.)

Business Communications is designed to cover the communication skills that are necessary in a high technology global business environment. These skills include competencies in oral and written communication; an awareness of international, legal, and ethical issues; and the ability to work collaboratively on group projects.

BAT 125 PowerPoint, 1 credit. (Prerequisite is to have an experience in Windows environment. Experience using Word and Excel are highly recommended.)

This course provides individuals with an understanding and use of PowerPoint in a realistic business environment. Individuals will prepare and deliver multimedia PowerPoint presentations for a specific business, educational or personal needs. Students in this class will be starting at different levels of computer expertise, so course lessons will include information for beginners as well as opportunities for more experienced computer users to build their own existing skills.

BAT 170 Technology for Professionals, 2 credits. (Prerequisite is to have an experience in Windows environment.)

Learn integrated, innovative solutions for managing your time and information, connecting across boundaries, and remaining in control of the information that reaches you. Quickly search your communications, organize your work, organize your notes, use powerful search features to find what you are looking for quickly, and better share your information with others — all from one place. Learn to manage information overload and work together more effectively!

Second Semester

BAT 122 Desktop Publishing, 3 credits. (Prerequisites BAT 149, BAT 112, and BAT 160 or instructor permission)

This course teaches design and fosters creativity while learning techniques and features of Microsoft Publisher. Students learn through lecture, discussion and hands-on practice principles of layout and design as well as integrated software packages, specifically Microsoft Office. Students develop original projects for this course.

BAT 153 Spreadsheet Management, 3 credits. (Prerequisite is BAT 149, BAT 112, and BAT 192 or instructor permission)

Students will become productive Excel users through lecture, discussion and hands-on practice -- learning to create professional reports that perform business or personal calculations; display financial or scientific calculations; complete lists and management tasks; financial forecasts and

scenarios; and chart design and editing. Students will complete three original projects for this course. This course may be used for the preparation of a MOS Excel exam.

BAT 173 Database Management, 3 credits. (Prerequisite is BAT 149, BAT 112, and BAT 153 or instructor permission)

This course provides students with an understanding and use of relational database software in a realistic business environment. Topics include: relational database objects, enhancements of forms and reports, analysis and manipulations of data, and integration of database software with other software programs. This course may be used to prepare for MOS Access Certification.

BAT 193 Accounting II, 4 credits. (Prerequisite: BAT 192)

In this second semester course, accounting fundamentals learned in Business Accounting are reinforced and enhanced by using five practice sets that require analyzing information; creating transactions; verifying accuracy; making corrections as necessary; preparing a variety of reports; and completing an audit test with the focus on attention to detail; analysis; research; critical thinking and problem solving skills.

BAT 186 Business Law/Ethics, 3 credits. (Prerequisite is BAT 149 and BAT 112 or instructor permission)

Understanding law is an important part of keeping a business running, from making decisions about organizational structure to making contracts and managing potential liabilities. This class explores basic legal structures and explains the legal reasons for many common business practices. Students are encouraged to use legal reasoning and common sense in resolving issues.

BAT 190 Business Internship, 2 credits. (Course must be taken in final semester prior to graduation. Prerequisite is instructor permission, 3.0 or higher in all BAT courses taken, and attendance review.)

The 2nd Semester Internship course will be a combination of on-campus; student-assigned work and off-campus work sites with the purpose of providing practice work experience, which allows the instructor to assess student ability to transfer skills to real world applications/uses. The instructor will assign work to students (which may be completed in the department or on site) and evaluate performance along with the training sponsor (person for whom the work is being done). A formal training plan and application will be completed for each student going off site. Training sponsor evaluations will be completed for each training station by sponsor for each off-site location, and instructors will conduct site visits for each off-site location regularly. Additional forms to be completed may include time charts, type of work forms, etc.

Commercial and Advertising Art

Commercial and Advertising Art Certificate

First Semester	Credits
CAA 101 Communication Media	4
CAA 140 Typography	4
CAA 110 Computer Drawing Techniques	4
CAA 150 Graphic Design I	4
TOTAL CREDITS:	16

Second Semester	Credits
CAA 151 Graphic Design II	4
CAA 102 Design and Color I	4
CAA 111 Computer Illustration I	4
CAA 131 Computer Illustration II	3
TOTAL CREDITS:	15

Third Semester	Credits
CAA 230 Multimedia I	4
CAA 220 Web Design I	4
CAA 218 Advertising Design	3
CAA 200 Color Design & Color Theory	4
TOTAL CREDITS:	15

Fourth Semester	Credits
CAA 215 Advanced Design	3
CAA 221 Web Design II	3
CAA 231 Multimedia II	3
CAA 202 Printing & Reproduction	4
TOTAL CREDITS:	13
TOTAL CERTIFICATE CREDITS:	59

Admission Criteria

Prior to enrollment student must:

- Successfully complete preadmission testing
- Interview with the CAA instructor

Associate of Applied Science Degree: 74 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the degree and Certification Information section. Visit with your instructor or Student Services for possible options.

Commercial Advertising Artists—or graphic artists—plan, analyze, and create visual and multimedia solutions to advertising problems. Using print, electronic, and film media in a variety of methods such as color, type, illustration, photography, animation, and various print and layout techniques, they develop the overall layout and production design of magazines, newspapers, and other publications using state of the art software programs and technology. They also produce promotional displays, packaging, and marketing brochures for products and services, design distinctive logos for products and businesses, and develop signs and signage systems for business, organizations, or individuals. They may also develop material for Internet Web pages, interactive media, and multimedia projects. In our affordable, 18- month program, Salina Tech students gain the skills to utilize specialized computer software, multimedia tools, and advertising design theory they need for a career in the nation's second largest industry—Commercial Advertising Art.

Career Opportunities: Advertising Agencies, In-House Marketing Departments, Package Design, Multimedia and Web Design, Retail Identity, Publishing Companies, Service Bureaus, Catalogs and Magazines, Screen Printing, Vinyl Graphics Production, Production Houses/Printing Industry, Document support departments for industries such as: Newspapers, Magazine, Financial, Fashion, Health Care, Manufacturing, Television

Candidates for a Technical Certificate or Associate of Applied Science Degree must have a C or above in all program courses. Prerequisites require a C or above.

Commercial and Advertising Art Course Descriptions

First Year/ First Semester

CAA 101 Communication Media, 4 credits.

This beginning course presents communication theory based on the printed word. The course covers the basics of the software packages used to create page layout and image editing. Students have the opportunity to develop a solid working knowledge of the software and understand basic layout techniques and image editing that conveys a visual message to the target audience. Students examine the processes involved in coordinating art and typography with verbal and visual content. Brochures, newsletters, catalogs, and magazine pages are just a few of the topics that will be covered.

CAA 110 Computer Drawing Techniques, 4 credits.

This course introduces the computer as a medium to create two dimensional images and illustrations through the use of the top software packages in the industry. Students will be introduced to production and fine art concepts of illustrating to create identity concepts. Personal approach, style, and consistency are stressed in problem solving as they learn to use the software packages for their illustration assignments.

CAA 140 Typography, 4 credits.

Typography is a foundations course. The course is an in depth study of the practices and uses of typography in design. This course covers the various aspects of mechanical production specifications and standards as well as the visual communications applications that designers

must master to fully communicate visually with type. Methods and strategies for creation of type and or the utilization of typography for graphic design projects prepare students with knowledge and skills needed in the advanced design courses.

CAA 150 Graphic Design I, 4 credits.

This is a foundation level course covering theory and aspects of advertising design. The students will have the opportunity to explore the developing of advertising strategies, concepts, designs, and pre-press solutions with deadlines required. From logos to book covers and visual identity and branding, the students examine the 2D realm of advertising design with critiques by the instructor acting as art director. Projects from this course should begin to be of portfolio quality.

First Year/Second Semester

CAA 102 Design and Color I, 4 credits. (Prerequisite: CAA 101 Advertising Design)

This course applies the study of color, color applications, and composition for the creation of graphic design and enhanced imagery. Students are expected to learn how to emphasize color as a language in their graphics and design work through analysis of color theory and production restrictions. It will provide students with an overview of the use of color in visual communications as well prepare them with knowledge and skills needed in the advanced design course.

CAA 111 Computer Illustration I, 4 credits. (Prerequisite: CAA 110 Computer Drawing Techniques)

The course expands on the course work of CAA 110. It is designed to strengthen product awareness through illustrations and in-depth study of labels. Students will further expand their working knowledge of preproduction practices for graphic illustrations. Tricks from the industry to develop speed and consistency of work will also be presented. Furniture, apparel, canned/sacked goods, and animals will be part of the required list of illustrations in this course.

CAA 131 Computer Illustration II, 3 credits. (Prerequisite: CAA 140 Typography)

Composition and eye flow will be studied as it relates to fine art illustration and graphic advertisement illustrations. Aspects of developing visual significance, from formulating the idea to utilizing innovative printing techniques are reviewed. Form and design are revealed through a number of projects. Computer generated washes, gels, overlays, and lighting will be used to enhance and round out the students' images. Formulas for lighting and softening edges and achieving artistic and 3-D effects will also be utilized.

CAA 151 Graphic Design II, 4 credits. (Prerequisites: CAA 140 Typography, CAA 150 Graphic Design I)

Graphic Design II is a foundations course. The course is an introduction to design theory and processes for graphic design and advertising applications from concept to execution. It will provide students with an overview of the visual communications profession as well prepare them with knowledge and skills needed in the advanced design course.

Second Year/First Semester

CAA 200 Color Design and Color Theory, 4 credits. (Prerequisite: CAA 102 Design and Color I)

Students must have intermediate to advanced levels in the following software: Adobe Indesign, Adobe Photoshop, & Adobe Illustrator)

This course addresses advanced techniques in digital image creation, management and distribution. The emphasis is on color and digital technologies. Course topics such as electronic calibrations for output, production of pdf, vector and raster-based file management, manipulation, transfer, storage and usage in design/e-production scenarios prepare studios for the production environment.

CAA 218 Advertising Design, 3 credits. (Prerequisite: CAA 151 Graphic Design II)

Students must have intermediate to advanced levels in the following software: Adobe Indesign, Adobe Photoshop, & Adobe Illustrator)

This course is an advanced design course focused on advertising. Processes of advertising communications design such as creative brief writing, concept development, brand positioning, client/agency relationship, copywriting, and research methods. Study of cultural, social, and psychological aspects of advertising design, including targeting consumers and affecting consumer behaviors are applied through development of advertising design for various media, including print, broadcast, direct mail, packaging, and point-of-purchase.

CAA 220 Web Design I, 4 credits. (Prerequisites: CAA 102 Design and Color I, CAA 151 Graphic Design II)

Students must have intermediate to advanced levels in the following software: Adobe Indesign, Adobe Photoshop, & Adobe Illustrator)

This course introduces students to the Internet as a design vehicle for publishing and advertising. Primary focus is on how the internet is set up, browser and platform considerations. Visual design as well as navigational design for the internet and file preparations for web pages will be explored. Programs for web animation and design and web graphic optimization such as Flash and Dreamweaver will also be covered.

CAA 230 Multimedia I, 4 credits. (Prerequisites: CAA 131 Computer Illustration II, CAA 151 Graphic Design II)

Students must have intermediate to advanced levels in the following software: Adobe Indesign, Adobe Photoshop)

This course is the study of photography with emphasis on its application by graphic designers. Photography basics such as cameras, exposure, metering, focus, depth of field, lenses, basic lighting, design elements and composition are covered. Students are introduced to the equipment used in studio photography, learn the fundamentals of studio lighting, and gain understanding in the use of the equipment and techniques to execute standard professional assignments and

achieve more creative control. Emphasis is placed on gaining technical skills, mastering necessary techniques with camera and studio lighting to obtain the desire aesthetic effect.

Second Year/Second Semester

CAA 202 Printing and Reproduction, 4 credits. (Prerequisite: CAA 218 Advertising Design)

Students must have intermediate to advanced levels in the following software: Adobe Indesign, Adobe Photoshop, & Adobe Illustrator)

Printing and Reproduction provides the advanced design student with the working knowledge and skills to execute design for final output in a variety of printing technologies. Each printing technology is suited for specific applications. Students will learn how to discern the proper technology to produce the desired outcome. They will also gain understanding of the limitations of different technologies to guide the design solution and prepare files for seamless integration into the reproduction workflow.

CAA 215 Advanced Design, 3 credits. (Prerequisite: CAA 218 Advertising Design)

Students must have intermediate to advanced levels in the following software's: Adobe Indesign, Adobe Photoshop, & Adobe Illustrator)

Students learn the aspects of putting together a portfolio. The mechanisms necessary to develop and maintain a viable graphic design portfolio image through trend analysis with an agency style mind set. This course focuses on technical and material requirements, enabling students to problem solve and address. Production issues specific to logo development, ads, direct mail, magazine advertisement campaigns, and on-line marketing identification.

CAA 221 Web Design II, 3 credits. (Prerequisite: CAA 220 Web Design I)

Students must have intermediate to advanced levels in the following software: Adobe Indesign, Adobe Photoshop, & Adobe Illustrator)

This course is an in-depth web design course that focuses on the creation of complete web sites. Students will develop their own web sites. Sites will include interactive communications animations and advanced rollovers and scripts. Programs such as Photoshop and Dreamweaver along with Flash will be used. The purpose of this course is to unify design and interactivity for communications.

CAA 231 Multimedia II, 3 credits. (Prerequisite: CAA 230 Multimedia I)

This course is an introduction to video production and editing. Students will learn basics of pre production, production and post production of video. This will include writing and preparing scripts. Setting up production schedule, video camera techniques and lighting for video skills will be addressed as well as acquiring and editing audio tracks for video. This course will also include use of computer and software to edit video and sound to enhance the final product.

Computer Aided Drafting

Computer Aided Drafting Certificate

First Semester	Credits
CAD 125 Drafting Technology	4
CAD 170 Computer Aided Drafting I	3
CAD 171 Computer Aided Drafting II	3
CAD 123 Parametric Modeling	3
CAD 150 CAD Math	3
CAD 120 Descriptive Geometry	3
TOTAL CREDITS:	**19**

Second Semester	Credits
CAD 130 Architectural Drafting I	7
CAD 140 Structural Steel Detailing	3
CAD 131 Architectural Drafting II	7
CAD 145 Civil Drafting	6
TOTAL CREDITS:	**23**
TOTAL CERTIFICATE CREDITS:	**42**

Admission Criteria

Prior to enrollment student must:

- Successfully complete preadmission testing
  - COMPASS testing (Students who score 50 or higher in reading and 40 in Pre-Algebra for math should be successful in the CAD program.)
- Interview with the CAD instructor

Associate of Applied Science Degree: 60 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the Degree and Certification Information section plus 3 credits from other technical education courses. Visit with your instructor or the Vice President of Student Services for possible options.

Drafters design products like computer parts, hand tools, toys, cars, and airplanes. Also, structures such as houses, hospitals, stadiums, or schools—if it must be manufactured, built, or handcrafted—a blueprint or technical drawing must be generated before any construction or manufacturing can begin. Some drafters work with civil engineers to survey a landscape and create infrastructure such as bridges, highways, dams, airports, or railways. People provide ideas or specific plans for a product or structure and CAD technicians create the blueprint. Sometimes drafters will be involved in the surveying, measuring, or data collection about a product or structure before the plan is designed. With CAD systems, drafters store drawings electronically so that they can be viewed, printed, or programmed directly into automated manufacturing systems.

Career Opportunities: Ag-Related Industries (Manufacturing, Designers), Construction Companies, Civil Engineering Firms, City, County and State Engineering Offices, Labs or Fields, Electrical Specialist Engineering, Recreational Industries, Mechanical Engineering Firms, Architectural Engineering Firms.

Computer Aided Drafting Course Descriptions

First Semester

CAD 125 Drafting Technology, 4 credits.

Basic concepts and skills of mechanical drawing, use and knowledge of drafting tools, supplies, and equipment are covered. Mechanical drafting fundamentals will be presented, along with an explanation of standard drafting practices are taught. Topics covered will include drafting equipment, media, sketching, lettering and lines, geometric construction, multi-views, auxiliary views, sections, pictorials, and dimensioning. Practical and realistic math problems associated with drafting topics will also be covered.

CAD 170 Computer Aided Drafting I, 3 credits.

Computer Aided Drafting I explores the fundamentals of computer-aided drafting (CAD) with emphasis placed on drawing set-up, creating and modifying geometry, storing and retrieving predefined shapes; placing, rotating, and scaling objects; adding text and dimensions; using layers and coordinate systems; as well as using computer input and output devices.

CAD 171 Computer Aided Drafting II, 3 credits. (Prerequisite: CAD 170)

Computer Aided Drafting II emphasizes advanced CAD techniques, including CAD system customization. The student will be introduced to advanced applications used to customize and program a CAD system. Skills learned include, but are not limited to, menu and toolbar customization, use of accelerators, aliases and scripts, importing and exporting files, attribute data, and introduction to data base links.

CAD 123 Parametric Modeling, 3 credits.

Creation of 2D parametric profiles that will be transformed into 3D models will be taught. Models will be used to create drawings that are similar to those used in the industry. Presentation drawings of these models will be included within this course curriculum.

CAD 150 CAD MATH, 3 credits.

Students learn how to interpret mathematical symbols and notations, simplify expressions, factor polynomials, solve equations (including absolute value, quadratic and systems of linear equations), perform operations on radical expressions, write equations of lines and evaluate functions.

CAD 120 Descriptive Geometry, 3 credits.

The descriptive geometry branch of geometry is concerned with the two-dimensional representation of three-dimensional objects. By means of such representations, geometrical

problems in three-dimensions may be solved in the plane. The graphical analysis of points, lines, and planes that are used in the development of Euclidean plan geometry problems will be covered. Terms, definitions, and axioms will be discussed during the scope of this course. Algebraic functions will be applied to specific problems to compute and determine measurement results. Students will use critical thinking, problem-solving, mathematical calculations, and appropriate technology to solve spatial problems. This course will use hands-on activities to reinforce descriptive geometry theorems.

Second Semester

CAD 130 Architectural Drafting I, 7 credits. (Prerequisite: CAD 125 or previous AutoCAD experience)

This course prepares students in the area of architectural drafting for an entry level position under an architect or engineer. Students develop a complete set of residential floor plans using the latest AutoCAD software.

CAD 131 Architectural Drafting II, 7 credits. (Prerequisite: CAD 130)

This course builds on the foundation of Architectural Drafting I. Students develop a complete set of commercial floor plans using the latest AutoCAD software.

CAD 140 Structural Steel Detailing, 3 credits. (Prerequisite: CAD 125 or previous AutoCAD experience)

This course prepares the student in the area of structural steel drafting for an entry level position. Students cover proper symbols and terminology.

CAD 145 Civil Drafting, 6 credits. (Prerequisite: CAD 125 or previous AutoCAD experience)

Students learn to identify and draw different types of maps, identify different types of surveys, and calculate leveling fields, global positioning systems, map symbols, and legal descriptions.

Construction Technology

Construction Technology Certificate

First Semester	Credits	Second Semester	Credits
ENV 102 Safety Orientation (OSHA-10)	1	**CON 137** Windows, Doors, & Stairs	3
CON 101 Introductory Craft Skills	3	**CON 132** Roof Framing	3
CON 105 Construction Math	2	**CON 115** Intermediate Carpentry	3
CON 111 Carpentry Basics	4	**CON 175** Steel Framing & Drywall	3
CON 152 Construction Skills	5	**CON 165** Insulation/Roofing/ Exterior Finish	3
CON 157 Concrete Applications	4	**CON 125** Floors, Walls & Ceiling, Framing	4
		TOTAL CREDITS:	**19**
TOTAL CREDITS:	**19**	**TOTAL CERTIFICATE CREDITS:**	**38**

Admission Criteria

Prior to enrollment student must:

- Complete preadmission COMPASS testing and Differential Aptitude Test
- Interview with the Construction instructor

Associate of Applied Science Degree: 60 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the Degree and Certification Information section plus 9 credits from other technical education courses. Visit with your instructor or the Vice President of Student Services for possible options.

The nine-month Construction Technology program at Salina Tech is aligned with today's industry standards. Commercial and residential building techniques are incorporated to give graduates a broad range of career choices. Important skills such as power and hand tool use, skid loader and backhoe operation, and all phases of concrete work are developed. Other instruction areas covered are; flooring, wall and roof framing, interior and exterior finishing, painting, design, drywall, ventilation, insulation and cabinet installation. Students learn to work with blueprints and building codes and increase employability skills by working with customers as

they perform construction projects in the Salina area and on campus. Often students use this experience as a stepping stone to a construction science or engineering bachelor's degree.

Career Opportunities: Structural Framing, Exterior/Interior Finishing, Concrete Forming/Finishing, Carpentry, Construction

Construction Technology Course Descriptions

First Semester

ENV 102 Safety Orientation (OSHA 10), 1 credit.

This course provides students with an understanding of current safety regulations, established safety practices, hazard recognition, and the impact of behavior and environment on injury prevention.

CON 101 Introductory Craft Skills, 3 credits.

This course follows the NCCER modules for: Basic Safety, Introduction to Construction Math, Introduction to Hand Tools, Introduction to Power Tools, and Introduction to Blueprints, Basic Rigging, Basic Communication Skills, and Basic Employability Skills.

CON 105 Construction Mathematics 2 credits.

Math is the language of Construction. It is the one "tool" that solves nearly any problem on-the-job involving accuracy, efficiency or safety. This course provides students with an understanding of the basic mathematics skills required of construction workers.

CON 111 Carpentry Basics, 4 credits.

This course follows the NCCER modules for: Orientation to the Trade, Building Materials, Fasteners, and Adhesives, Hand and Power Tools, and Reading Plans and Elevations.

CON 125 Floors, Walls and Ceiling Framing, 4 credits.

This course follows the NCCER modules for: Floor Systems, Wall and Ceiling Framing, and Introduction to Concrete, Reinforcing Materials, and Forms.

CON 152 Construction Skills, 5 credits.

This course will cover blueprints and building code regulations, building layout, use of various measuring, leveling, and layout tools; role of construction in a green environment; uses of light equipment; oxyfuel welding applications; and skills for the crew leader.

CON 157 Concrete Applications, 4 credits.

This course will cover concrete footings, foundations, forming and flatwork. Concrete mixing, reinforcement, finishing and curing will be covered along with site preparation, properties of concrete and the proper use of tools. Proper safety practices will be emphasized.

Second Semester

CON 137 Windows, Doors and Stairs, 3 credits.

This course follows the NCCER module for windows and exterior doors and basic stair layout.

CON 132 Roof Framing, 3 credits.

This course follows the NCCER module for roof framing.

CON 115 Intermediate Carpentry, 3 credits.

This course will further learning from Basic Carpentry. Emphasis will be placed on doors, hardware, trims, and cabinet making and installation.

CON 175 Steel Framing and Drywall, 3 credits.

This course will prepare students to identify various types of drywall, estimate material needs and install, finish and texture drywall. In addition students will be able to layout and construct steel framing.

CON 165 Insulation/Roofing/Exterior Finish, 3 credits.

This course will cover proper selection of insulation and insulation installation methods. Students will be instructed on the stage of construction which completes the exterior of the building including roofs. Students will be able to estimate materials needed for insulation, exterior finish and roofing.

Dental Assistant

Dental Assistant Certificate

First Semester	Credits	Second Semester	Credits
DEN 101 Fundamentals in Dental Assisting	2	**DEN 207** Dental Office Procedures	3
DEN 111 Dental Health Education	2	**DEN 227** Dental Materials II	2
DEN 121 Anatomy for Dental Assisting	3	**DEN 232** Chairside Assisting II	2
DEN 127 Dental Materials I	4	**DEN 237** Dental Radiology II	2
DEN 132 Chairside Assisting I	6	**DEN 241** Clinical Experience	8
DEN 137 Dental Radiology I	2	**DEN 245** Dental Science	2
DEN 141 Pre Clinical	3	**TOTAL CREDITS:**	**19**
TOTAL CREDITS:	**22**	**TOTAL CERTIFICATE CREDITS:**	**41**

Admission Requirements – Completed by August 1

- Be 17 years of age or older and must be 18 years of age by the start of second semester
- Successfully complete preadmission testing
    - Score 60 or higher on the ACT Compass for reading and 20 or higher on the ACT Compass for math
- Take any other applicable admissions assessments
- Complete a personal interview and Dental Assistant Department orientation
- Complete a four hour observation in a dental office
- Complete first Hepatitis B immunization prior to August first

Program Requirements

Clinical Participation

- Students must earn a minimum of a "C" in all of the first semester courses
- Students must maintain a minimum of a "C" in all second semester courses
- Students must have a minimum of 90% attendance in the program

- Students must pass CPR prior to clinical participation

***Note*:**

- It is strongly recommended that students work a limited number of hours due to the heavy curriculum load that is required by this program.
- Students are responsible for their own transportation to clinicals.
- Background and drug testing may be conducted.

Associate of Applied Science Degree: 60 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the Degree and Certification Information section plus 4 additional electives. Visit with your instructor or the Vice President of Student Services for possible options.

The Program is recognized throughout the nation as being accredited by the Council on Dental Accreditation of the American Dental Association (CODA).

The updated technology and equipment, large labs, and highly qualified, dedicated staff set the Salina Tech Dental Assistant program apart from other programs in Kansas. Students learn to provide dental care in chairside assisting, dental radiology, office procedures, lab procedures and dental health education. During their nine months of instruction, dental assistants also gain knowledge of the field in dental science, anatomy for dental assistants, and dental materials. The student in the Dental Assistant program will gain over 300 hours of clinical experience at a variety of dental offices. Graduates of the program may choose to go on to pursue a degree in dental hygiene. Call today for information-this program fills up fast!

Career Opportunities: the types of practice settings include solo and group dental practices. Specialty practices that may include: Oral and Maxiofacial Surgery, Pediatric Dentistry, Endodontics, Periodontics, Prosthodontics, Dental assistants may also choose to work for a dental supply house, the public health sector, an insurance company processing dental claims, a dental laboratory, another type of medical or hospital setting.

Dental Assistant Course Descriptions

First Semester

DEN 101 Fundamentals in Dental Assisting, 2 credits.
Introduction to the career of dental assisting includes: dental terminology and spelling; education requirements, functions and credentials of all dental team members; ethics and statues; communication skills; professionalism and job seeking skills. Introductory business office procedures, greeting and receiving patients, telephone technique, filing and patient record management are also included.

DEN 111 Dental Health Education, 2 credits.
This coures is an introduction to dental health education, basic nutrition, and patient teaching. Included will be a study of periodontal disease, its risks and preventative measures. Basic skills of oral hygiene instruction, fluoride treatments and coronal polishing of the teeth will be implemented.

DEN 121 Anatomy for Dental Assisting, 3 credits.
This course covers identification and function of human body systems, the development of the oral cavity and teeth and supporting structures. The permanent and primary dentitions are covered as well as the major anatomic landmarks of the head and neck.

DEN127 Dental Materials I, 4 credits.
This course includes identification of materials used in general dentistry. Physical and chemical properties, requirements and limitations, functions and classification will be determined. Proper manipulation of materials, their uses and proper storage will be practiced. Various lab procedures will be studied and practiced so the student will understand the importance of each step in a procedure. The student will be instructed in and expected to demonstrate the safe operation of laboratory equipment.

DEN 132 Chairside Assisting I, 6 credits.
This course gives an introduction to the operation and care of major dental equipment, identification and care of hand and rotary instruments, and safety factors relating to instruments and equipment. Introduction and practice of basic duties and responsibilities include: seating and dismissing the dental patient, oral evacuation, retraction, and instrument transfer. The study of dental anesthesia and restorative dentistry with practice in application of matrix bands and rubber dams will also be covered. Also included is a study of the introductory principles of microbiology, classification and characteristics of microbes with primary consideration to pathogenic microorganisms, causes of disease, transmission of infectious diseases, immune response, universal precautions, handling of hazardous materials and infection control techniques according to OSHA and ADA guidelines.

DEN 137 Dental Radiology I, 2 credits.
Introduction to the basic principles of diagnostic radiography, history and properties of x-radiation, x-ray equipment, protective measures and regulations, bisecting and/or paralleling techniques, extraoral radiology, infection control, anatomical landmarks and pathology. Instruction and laboratory techniques include exposure, processing, mounting and evaluation of dental films using the DXXTR manikin.

DEN 141 Pre Clinical, 3 credits.
This course is an introduction to the clinical aspects of the dental office. Students will observe in area dental offices and begin to practice and apply the clinical and laboratory skills learned in the course.

Second Semester

DEN 207 Dental Office Procedures, 3 credits.
This course will provide instruction and dental charting, recording services rendered, supply and inventory control, appointment control and recall, accounts receivable, collections, expenses and disbursements, banking procedures, dental insurance, and job seeking skills.

DEN 227 Dental Materials II, 2 credits. (Prerequisite: DEN 127)
This course is a continuation of Dental Materials I and will include identification of materials used in general dentistry and dental laboratory procedures. Physical and chemical properties, requirements and limitations, functions and classifications will be determined. Proper manipulation of materials, their uses and proper storage will be practiced. Various laboratory procedures, construction of base plates and bite rims, bleaching trays, and a retainer will be practiced so the student will understand the importance of each operation in a procedure. The student will be instructed in and expected to demonstrate the safe operation of laboratory equipment.

DEN 232 Chairside Assisting II, 2 credits. (Prerequisite: DEN 132)
This course is a continuation of Chairside Assisting I. This course will provide a foundation for assisting in the remaining dental specialties: fixed prosthodontics, oral and maxillofacial surgery, endodontics, periodontics, removable prosthodontics, orthodontics and dentofacial orthopedics, and pediatric dentistry. Procedures, instruments and materials involved in these areas will be studied.

DEN 237 Dental Radiology II, 2 credits. (Prerequisite: DEN 137)
Students will recognize anatomical structures, diseases of the dental pulp and the oral soft tissues on radiographs. This course also includes a review of x-ray production, quality control, and assurance of diagnostic radiographs. This course will involve more intensive experience in exposing, processing and mounting intraoral films using the Dxxtr manikin and patients. Students will be closely supervised and evaluation will be made of each completed survey. Radiographic safety and infection control procedures are emphasized.

DEN 241 Clinical Experience, 8 credits. (Prerequisite: Hepatitis B vaccination, CPR and HIPPA Training, 90% attendance record and a "C" average.)
In a variety of dental practice settings (both general and specialty), the student will demonstrate the principles of chair side assisting, dental laboratory procedures and business office procedures.

DEN 245 Dental Science, 2 credits.
This course will provide the student with knowledge of emergencies that may arise in the dental setting. The student will be expected to recognize signs and symptoms of emergencies and will assist in delivery of suggested treatment. Basic first aid and skills in taking and recording vital signs will be covered. Students will be introduced to common drugs used in dentistry, indications, contraindications, dosages and methods of administration and storage. This course will also provide instruction in normal and oral pathological conditions.

Diesel Technology

Diesel Technology Certificate

Fall Semester Courses*	Credits
DST 105 Basic Engines	7
DST 120 Electrical Systems	8
TOTAL CREDITS:	**15**

Fall Semester Courses*	Credits
DST 205 Torque Converters & Power Shift Transmissions	7
DST 210 Hydraulics, Hydrostatic Drive, Steering & Suspension Systems	8
TOTAL CREDITS:	**15**

Spring Semester Courses*	Credits
DST 110 Basic Power Trains and Cab Air Conditioning	8
DST 115 Brakes-Hydraulic and Air	7
TOTAL CREDITS:	**15**

Spring Semester Courses*	Credits
DST 215 Diesel Fuel Injection Systems	7
DST 220 Major Diesel Engine Overhaul, Dyno Testing & Tune-Up	7
TOTAL CREDITS:	**14**
TOTAL CERTIFICATE CREDITS:	**59**

*Students must meet with a Diesel Technology instructor to develop a 2 year plan of study.

Admission Criteria

Prior to enrollment student must:

- Successfully complete preadmission testing
- Interview with a Diesel instructor to develop a plan of study

Associate of Applied Science Degree: 74 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the Degree and Certification Information. Visit with your instructor or the Vice President of Student Services for possible options. The Diesel Technology program is accredited by the National

Automotive Technicians Education Foundation (NATEF), a division of the National Institute of Automotive Service Excellence (ASE).

High school students must start the Diesel Technology program as juniors.

Diesel technicians repair and maintain the diesel engines that power transportation equipment such as semi-trucks, buses and locomotives, mobile equipment, including bulldozers, cranes, road graders, farm tractors, and combines. Technicians must be versatile to adapt to needs of customers and new technologies including the use of a variety of electronic and computerized testing equipment to pinpoint and analyze malfunctions in electrical systems and engines. Diesel careers can take you from a repair shop, to a farmer's field or construction site, to a company maintaining their vehicle fleet, to the transportation authority of a large city or railway, to working on semi-trucks, or to an agricultural implement dealership. Technicians may work on a vehicle's electrical system one day and do major engine repairs the next. In eighteen months Salina Tech Diesel Technology students are trained in this high tech field through classes, and hands-on projects in our top-of-the-line facilities.

This is an ASE certified NATEF program. Instructors are Master ASE Certified.

Career Opportunities: Service Representative, Sales and Parts Representative, Small Business Owner, Fuel Injection Specialist, Diesel Technician, Service Manager, Store Manager

Diesel Technology Course Descriptions

First Year/First Semester

DST 105 Basic Engines, 7 credits.

This course covers theory of operation, principles and construction of two and four stroke cycle, single and multiple cylinder engines. It includes timing the engine to factory specifications. Disassembly, inspect, measuring all parts and compare to factory specifications. Reassemble and make all adjustments. Performance is exhibited by assembly adjustment, and running the engine.

OR

DST 120 Electrical Systems, 8 credits. (Pre-requisite: Basic Engines)

Basic electrical principles and application of magnetism and electromagnetism including the design, operation, and testing of lead acid batteries are taught. Course material also includes the use and operation of electrical meters: principles of operation and testing procedures for cranking motors, switches, drives and operation, testing, and repair of AC charging systems.

First Year/Second Semester

DST 205 Torque Converters and Power Shift Transmissions, 7 credits.

Instruction includes principles and application of the operation, disassembly, and failure analysis, rebuilding, testing, and troubleshooting of torque converters, countershaft and planetary power shift transmissions. Manual, automatic, and electronic shifting in valve controls is covered.

OR

DST 210 Hydraulics, Hydrostatic Drive, Steering, and Suspension Systems, 8 credits.

Students learn the principles and application of operation, disassembly, failure analysis, rebuilding, testing, and troubleshooting for pumps, actuators, reservoirs, lines, fittings, fluids, hydrostatic drives, steering systems, and pilot operated systems and electronic hydraulics.

Second Year/First Semester

DST 110 Basic Power Trains and Cab Air Conditioning, 8 credits.

This course covers the theory of power transmissions from the engine to the rear wheels including clutch, transmission, drive line, differential, and rear axle. Disassembly, inspection, adjustments, and reassembly of single and double countershaft transmission and differential are covered. The diagnostic theory, identification of components, and service of cab air conditioning will be studied.

OR

DST 115 Brakes– Hydraulic and Air, 7 credits.

Students study the theory of hydraulic and air brakes, disassemble and reassemble, inspection of master cylinder, wheel cylinders, brake assembles, and power brake units. Also included in this section are the operation, inspection and troubleshooting of air compressors, foot and hand valves, relays, tractor protection valves, air driers, moisture ejectors, cam type, wedge type air disc brakes, air brake chambers, spring brake chambers and trailer air brake systems.

Second Year/Second Semester

DST 215 Diesel Fuel Injection Systems, 7 credits.

This course covers the principles, applications, and operations of removing, testing, rebuilding calibrating, timing and installation of the four major diesel fuel injection systems including: distribution pumps, inline diesel pumps, PT pump/injectors, and unit injection systems. Course material also includes the operation and troubleshooting of electronic fuel systems.

OR

DST 220 Major Diesel Engine Overhaul, Dyno-Testing & Tune-up, 7 credits. (Prerequisite: DSL 105)

This course is designed to cover the diagnosis and dyno testing for the major engine overhaul of various diesel engines (tune-up/overheads) including parts estimate, flat rate overhaul hours, removing, disassemble, failure analyses, rebuilding, dyno break-in installation and final touch-up painting of the overhauled engine.

Electrical Technology

Electrical Technology Certificate

First Semester	Credits
CON 101 Introductory Craft Skills	3
ENV 102 Safety Orientation (OSHA 10)	1
ELT 140 NEC 1	4
ELT 108 Blueprint Reading	2
ELT 111 Residential Wiring 1	4
TOTAL CREDITS:	14

Second Semester	Credits
ELT 141 NEC 2	2
ELT 160 Commercial Wiring 1	4
ELT 250 Generators & Emergency Systems	4
ELT 220 Motor Control	4
TOTAL CREDITS:	14

Third Semester	Credits
ELT 150 Transformers	2
ELT 255 Advanced Automation & Controls	2
ELT 205 Industrial Wiring 1	2
ELT 107 AC/DC Circuits 1	4
ELT 240 NEC 3	2
ELT 230 Troubleshooting	2
TOTAL CREDITS:	14

Fourth Semester	Credits
ELT 225 PLC 1 (Programmable Logic Control)	4
ELT 206 Industrial Wiring II	2
ELT 260 Journeyman's Exam Prep	4
ELT 270 OJT/Internship OR ELT 275 Construction/Maintenance Management Skills	4
TOTAL CREDITS:	14
TOTAL CERTIFICATE CREDITS:	56

Admission Criteria

Prior to enrollment student must:

- Successfully complete preadmission testing

Associate of Applied Science Degree: 71 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the Degree and Certification Information. Visit with your instructor or the Vice President of Student Services for possible options.

Electricians repair, install and maintain residential, commercial and industrial electrical systems. Electricians usually start their work by reading blueprints that show the locations of circuits, outlets, load centers, panel boards, and other equipment. Electricians connect all types of wires to circuit breakers, transformers, outlets, or other components. Hand tools such as conduit benders, screwdrivers, pliers, knives, hacksaws, and wire strippers, as well as power tools such as drill and saws are used. They pull wires or cables through conduits (pipe or tubing). Electricians may install coaxial or fiber optic cable for telecommunications equipment and electronic controls for industrial uses. By the end of this program, students should be prepared to take the Journeyman's Exam.

CAREER OPPORTUNITIES: Journeyman Maintenance Electrician, Journeyman Electrician, Water Plant Electrician, Industrial Electrician, High Voltage Electrician, Electrical and Instrumentation Technician, Plant Electrician, Self-Employed

Electrical Technology Course Descriptions

First Year/First Semester

CON 101 Introductory Craft Services, 3 credits.

This course follows the NCCER modules for: Basic Safety, Introduction to Construction Math, Introduction to Hand Tools, Introduction to Power Tools, Introduction to Blueprints, Basic Rigging, Basic Communication Skills, and Basic Employability Skills.

ENV 102 Safety Orientation (OSHA 10), 1 credit.

This course provides students with an understanding of current safety regulations, established safety practices, hazard recognition, and the impact of behavior and environment on injury prevention.

ELT 140 NEC 1, 4 credits.

This course covers the first part of the National Electrical Code on residential and commercial wiring. This will include definitions, requirements for electrical installation, wiring design and protection, methods and materials, equipment for general use, special equipment, and condition.

ELT 108 Blueprint Reading, 2 credits.

This course will cover all the symbols and schematics needed for an electrician to correctly install, maintain, and troubleshoot residential, commercial, or industrial wiring according to plans and electrical equipment.

ELT 111 Residential Wiring 1, 4 credits.

This course will cover the basics of residential electrical wiring. Students will learn both theory of electricity as well as how to install and troubleshoot wiring problems.

First Year/Second Semester

ELT 141 NEC 2, 2 credits. (Prerequisite: ELT 140 NEC 1)

This course covers the second part of the National Electrical Code on industrial wiring. This will include definitions, requirements for electrical installation, wiring design and protection, methods and materials, equipment for general use, special equipment, and condition.

ELT 160 Commercial Wiring 1, 4 credits.

This course covers all aspects of commercial wiring. Included in this course will be reading of commercial blueprints, applying knowledge to hands-on applications of commercial wiring techniques, and safety.

ELT 220 Motor Control, 4 credits. (Prerequisite: ELT 107 AC/DC Circuits 1)

Students will learn construction and operation of pilot devices, motor starters, control circuits, direct current, single-phase and three-phase motors. Basic motor control circuits are constructed from a schematic or ladder diagram. Students also troubleshoot basic motor control circuits. Current and overload protection for motors is studied as well.

ELT 250 Generators and Emergency Systems 4 credits.

Students will learn to work with installation, termination, and testing of various voice, data, and video cabling systems. They will understand the installation of electric circuits in health care facilities, including the requirements for life safety and critical circuits. In addition, the course covers the NEC requirements for electric generators and storage batteries. Fire alarm control units, Digital Alarm Communicator Systems (DACS), wiring for alarm initiating and notification devices, and alarm system maintenance will also be covered.

Second Year/First Semester

ELT 150 Transformers, 2 credits. (Prerequisite: ELT 107 AC/DC Circuits 1)

In this course students will learn the basic electrical and magnetic principles as applied to transformers as well as advanced principles of transformer operations. The course will also cover safety, standards for electrical devices, maintenance, and troubleshooting.

ELT 205 Industrial Wiring 1, 2 credits.

This course covers all aspects of industrial wiring. Included in this course will be reading of industrial blueprints, applying knowledge to hands-on applications of industrial wiring techniques, safety, conduit bending and systems, and sizing of feeders and circuits for motor systems.

ELT 107 AC/DC Circuits 1, 4 credits.

This course is an introduction to electrical and electronic components, symbols, and the global language used in electrical and electronics. Students receive computer-based, modular training simultaneously with practical experience reading schematic diagrams, constructing circuits, and test procedures of operating characteristics used in AC/ DC circuits. Students will measure frequency and voltages with meters and oscilloscopes and learn about frequency reactive devices.

ELT 240 NEC 3, 2 credits. (Prerequisite: ELT 141 NEC 2)

This course covers the second part of the National Electrical Code on industrial wiring. This will include definitions, requirements for electrical installation, wiring design and protection, methods and materials, equipment for general use, special equipment, and condition.

ELT 230 Troubleshooting, 2 credits. (Prerequisite: ELT 111 Residential Wiring 1 or ELT 160 Commercial Wiring 1)
In this course students will learn how to deal with customers, observe system operations, formulate a plan, read and interpret schematics and perform operational checks.

ELT 255 Advanced Automation and Controls, 2 credits

Upon completion of the course, students will have a comprehensive overview of applications and operating principles of solid-state controls, reducing-voltage starters, and adjustable frequency drives. The course covers a basic overview of HVAC systems and their controls, electrical troubleshooting and NEC requirements.

Second Year/Second Semester

ELT 225 PLC I (Programmable Logic Control), 4 credits. (Prerequisite: ELT 220 Motor Control)
This course will cover additional motor control features such as programmable logic controllers (PLCs), relays, timers, sensing devices, system integration, and preventive maintenance and troubleshooting.

ELT 206 Industrial Wiring II, 2 credits. (Prerequisite: ELT 205 Industrial Wiring 1)

This course continues the learning began in Industrial Wiring 1 by moving on to more advanced skills.

ELT 260 Journeyman's Exam Prep, 4 credits.

This course will prepare the student to take the Journeyman Electrician Exam. The course will cover all components of the exam—terminology, formulas, wiring methods, over current protection, calculations and sample examinations.

ELT 270 OJT/Internship, 4 credits. (Prerequisite: Instructor permission)

Students will apply classroom knowledge to an actual work situation. OJT/Internship will provide students with on-the-job experience under the supervision of professionals in the

industry. The work will be developed cooperatively with area employers, college staff, and each student to provide a variety of actual job experiences directly related to the student's career goals.

Electronic Engineering Technology

Electronic Engineering Technology Certificate

First Semester	Credits
ENV 102 Safety Orientation (OSHA 10)	1
EET 105 DC Circuits	4
EET 106 AC Circuits	4
EET 110 Solid State Fundamentals	4
EET 115 Digital Circuits	4
TOTAL CREDITS:	17

Second Semester	Credits
EET 210 Industrial Electronics	4
EET 220 Microcontrollers	4
EET 230 Programmable Logic Controls	4
EET 240 Digital Communications	4
EET 116 Digital Systems	4
TOTAL CREDITS:	**20**
TOTAL CREDITS FOR TECHNICAL CERTIFICATE	**37**

Admission Criteria

Prior to enrollment student must:

- Successfully complete preadmission testing

Associate of Applied Science Degree: 60 Credits. To complete the Associate of Applied Science Degree, select 15 additional credits from the General Education requirements found in the Degree and Certification Information section and 8 additional technical and/or general education elective credits. Visit with your instructor or the Vice President of Student Services for possible options.

The Electronic Engineering Technology program provides training in complex electronic equipment. These complex pieces of electronic equipment are installed, maintained, and repaired by electrical and electronics installers and repairers.

Salina Tech's 10-month program can prepare you for **career opportunities** in: Aircraft Industry, Computer Industry, Medical Electronics, Automated Manufacturing, Cross-Functional Technician, Military Bio-Medical Technician, Industrial Automation, Mobile Communications, Broadcast Engineer, Industrial Electronics, Oil and Gas Industry, Business Machine Servicing, Industrial Equipment Servicing, Telephone Industry, Communications Technician, Instrumentation/Process Controls, Water/Wastewater Treatment Technician.

Electronic Engineering Technology Course Descriptions

ENV 102 Safety Orientation (OSHA-10), 1 credit.

During this course students are familiarized with a wide range of integrated devices, their characteristics and the circuits in which they are used. Students receive practical experience on integrated device characteristics, how they are used in the design of circuits and troubleshooting problems.

EET 105 DC Circuits, 4 credits

This course is an introduction to electronic components, symbols, and the global language used in electronics. Students receive Hands on and Lecture Based instruction simultaneously with practical experience reading schematic diagrams, analyzing and constructing circuits, and test procedures of electronic operating characteristics used in DC electronics and electricity. This course will also introduce students to electronic components, symbols, soldering techniques, and the global language used in electronics.

EET 106 AC Circuits, 4 credits.

Students receive Hands on and Lecture Based instruction simultaneously with practical experience reading schematic diagrams, analyzing and constructing circuits, and test procedures of electronic operating characteristics used in AC electronics and electricity. This course will provide an in depth coverage of AC signal characteristics, Reactive circuits, Filtration, and AC Circuit analysis. A brief introduction to three phase theory will be included as time permits

EET 110 Solid State Fundamentals, 4 credits (Prerequisite EET 105)

Solid State Fundamentals will introduce and characterize semiconductor devices including diodes, transistors, operational amplifiers, silicon controlled rectifiers, and Triacs. Power supply design and amplifier characteristics will be emphasized throughout the class.

EET 115 Digital Circuits, 4 credits.

During this course students are familiarized with a wide range of digital devices, their characteristics and the circuits that they are used in. Students will receive practical experience on digital device characteristics, how they are used in the design of circuits and troubleshooting problems. This course will provide the foundation used to understand advanced digital systems.

EET 116 Digital Systems, 4 credits, (Prerequisite EET 115)

During this course students are familiarized with a wide range of digital devices, their characteristics and the circuits that they are used in. Students will receive practical experience on digital device characteristics, how they are used in the design of circuits and troubleshooting problems. Significant time will be spent developing an understanding of sequential logic, memory devices and analog/digital conversion methods.

EET 210 Industrial Electronics, 4 credits (Prerequisite EET 110/ EET 116)

This course integrates the content of EET 110 and EET 116. It provides an introduction to power and industrial electronics. The course will focus on Operational Amplifiers, Analog to Digital and Digital to Analog Conversions, and power interfaces used commonly in industrial motor controls and industrial electronics. In addition, principles of electronics manufacturing techniques will be integrated with the accompanying laboratory activities.

EET 220 Microcontrollers, 5 credits

This course introduces the student to concepts of microprocessor programming (including Assembly Language) and gives the student a foundation in microprocessor applications. This phase presents a working knowledge of microprocessor programming and interfacing along with an understanding of digital-to-analog conversion, analog-to-digital conversion, analog signal conditioning, sensors, transducers, and many other facets.

EET 230 Programmable Logic Controllers, 4 credits

This course gives students a background in programmable logic controller theory, implementation, and troubleshooting.

EET 240 Digital Communications, 4 credits (Prerequisite EET 106/ EET 110)

The communication spectrum has been greatly expanded by the use of "wireless" communication. This phase is designed to teach the fundamentals and intermediate techniques of Radio Frequency (RF) communications. This course introduces the student to methods of generating and receiving AM (amplitude modulated) and FM (frequency modulated) signals, antennas, transition lines, and satellite communications.

Environmental Technology

Clean water is essential for everyday life. Environmental technicians and water treatment plant and system operators treat water so that it is safe to drink as well as remove harmful pollutants from domestic and industrial liquid waste so that it is safe to return to the earth. Industrial facilities that send their wastes to municipal treatment plants must meet certain minimum standards to ensure that the wastes have been adequately pretreated and will not damage municipal treatment facilities. Plant operators must be familiar with the guidelines established by Federal regulations and how they affect their plant. In addition, operators must be aware of any guidelines imposed by the State or locality in which the plant operates. Employment is concentrated in local government and private water, sewage, and other systems utilities. Through Salina Tech's 16-week environmental technology program and workshop options municipalities or businesses can train new employees and update the skills of the current workforce.

Associate of Applied Science Degree:

This program does not offer an Associate of Applied Science degree at this time.

Environmental Technology Course Descriptions

ENV 105 Wastewater Treatment Plant Operation & Maintenance, 6 credits

ENV 110 Wastewater Treatment Plant Operation & Maintenance JSI, 10 credits

This 16-week class is for Wastewater Treatment Facility operators and collection system personnel who want to learn more about operation and maintenance of Wastewater Treatment Facilities. Topics such as design, operation, safety, collection systems, wastewater characteristics, treatment units, maintenance, basic and applied math and lab will be discussed.

This course will help to prepare wastewater and collection system personnel for certification, as well as improve their knowledge and help them to work safely. The Job Specific Instruction (JSI) provides the student hands-on training at his or her plant site.

ENV 155 Collection Systems Operations & Maintenance, 6 credits

ENV 160 Collection Systems Operations & Maintenance JSI, 10 credits

This 16-week class is for collection system personnel and wastewater operators who want to learn more about their collection systems. The class will cover topics such as Basic Terminology; Purpose, Components and Design; Street Safety; Confined Space Safety; Manhole Inspection; CCTV Inspection; Smoke Testing, and more. Also, collection systems math and basic wastewater treatment topics will be discussed. This course will help to prepare collection system personnel for Collection Systems certification, as well as improve their knowledge and help them to work safely. The Job Specific Instruction (JSI) provides the student hands-on training at his or her plant site.

Heating Ventilation and Air Conditioning

HVAC Certificate

First Semester	Credits	Second Semester	Credits
HVA 105 Basic Fundamentals & Cycles of Refrigeration	11	**HVA 115** Domestic & Commercial Refrigeration	11
		HVA 125 Summer & Winter Air Conditioning	11
HVA 110 Basic Electricity & Electrical Components	11	**TOTAL CREDITS:**	**22**
TOTAL CREDITS:	**22**	**TOTAL CERTIFICATE CREDITS:**	**44**

Admission Requirements:

Prior to enrollment student must:

- Successfully complete preadmission testing
    - Score a minimum of 30 on the Differential Aptitude Test (DAT)

Associate of Applied Science Degree: 62 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the Degree and Certification Information section plus 3 credits from other technical education courses. Visit with your instructor or the Vice President of Student Services for possible options.

Heating and air-conditioning systems control the temperature, humidity, and the total air quality in residential and commercial buildings. Refrigeration makes it possible to store and transport food, medicine, and other perishable items. Heating, air-conditioning, and refrigeration technicians install, maintain, and repair such systems. Salina Tech HVAC students work on a variety of new and old furnaces, air conditioners, heat pumps, reach-in and walk-in coolers, ice machines and sheet metal equipment. Diagnosing problems, controlling computerized systems, repairing and charging units, and building duct work are among some of the areas covered in the shop and at customer work sites. Over 14 years of knowledge and experience from our instructor readies graduates in nine months to work in residential or commercial settings earning competitive wages.

Career Opportunities: Commercial and Domestic, Service Technician, Service Manager, Business Owner, Installers

HVAC Course Descriptions

First Semester

HVA 105 Basic Fundamentals and Cycles of Refrigeration, 11 credits.

This course covers the theory and operation of the basic refrigeration cycle, refrigerant metering devices, including capillary tubes, thermostatic expansion, and automatic expansion valves, basic sheet metal and math.

HVA 110 Basic Electricity and Electrical Components, 11 credits.

The course covers theory, operation, and construction of controls and circuits using capacitors, relays, switches, and control devices. Series and parallel circuits, schematic diagram reading, use of meters and electrical measuring devices, system check out procedures, and volt meter and Ohm meter troubleshooting methods are included.

Second Semester

HVA 115 Domestic and Commercial Refrigeration, 11 credits. (Prerequisite: HVA 105 Basic Fundamentals and Cycles of Refrigeration)

Theory, operation and construction of various types of refrigerators, freezers, icemakers, commercial walk-in and reach-in refrigerators and freezers are covered. Complete service analysis on all types of systems, components wiring analysis by use of meters, schematics, and systematic troubleshooting and repair procedure is taught.

HVA 125 Summer and Winter Air Conditioning, 11 credits. (Prerequisite: HVA 110 Basic Electricity and Electrical Components)

The course includes theory, operation, and repair of gas and electrical furnaces. Instruction includes troubleshooting, system analysis, and repair of window and central air conditioners, compressor identification and replacement, control components, fan motors, various types of compressors, proper cleaning, charging and maintenance procedures, methods and sources for repairs, parts and source alternatives.

Machine Tool Technology

Machine Tool Technology Certificate

First Semester	Credits
ENV 102 Safety Orientation(OSHA 10)	1
MTT 105 Machine Tool Math	3
MTT 111 Bench Work	1
MTT 116 Print Reading	3
MTT 122 Quality Control & Inspection	1
MTT 140 Machining I	3
MTT 135 Machine Tool Processes	1
MTT 230 CNC Operations I	2
TOTAL CREDITS	**15**

Second Semester	Credits
MTT 210 Metallurgy	1
MTT 215 Machining II	3
MTT 220 Machining III	3
MTT 225 Machining IV	3
MTT 231 CNC Operations II	3
MTT235 Workplace Ethics	2
TOTAL CREDITS:	**15**
TOTAL CERTIFICATE CREDITS	**30**

Admission Criteria:

Prior to enrollment student must:

- Successfully complete preadmission testing
- Interview with the Machine Tool Technology instructor after testing

Associate of Applied Science Degree: 60 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the Degree and Certification Information section plus **15 credits** from other technical education programs. Visit with your instructor or the Vice President of Student Services for possible options.

Machinists are an integral part of the manufacturing process. Because the technology of machining is changing rapidly, machinists must learn to operate a wide range of machines. Some newer machines use lasers, water jets, or electrified wires to cut the piece of material—generally different types of metals, plastics, or woods. They use lathes, milling machines, and machining centers, to produce precision metal parts. Although they may produce large quantities of one part, they often produce one-of-a-kind items. Machinists plan and carry out the operations needed to make products that meet precise specifications laid out by drafters, architects, engineers, and programmers, or mechanics who must fabricate a part or product. Salina Tech's

nine-month program and hands-on learning opportunities includes CNC machine, lathe, and milling process learning that creates competitive graduates for today's machining industries.

Career Opportunities: Assembly Person, Machine Operator, Machinist, Tool and Die Maker, Tool Room Technician, Methods and Standards, Quality Control, CNC Operator, CNC Programmer, Management

Machine Tool Technology Course Descriptions

First Semester

MTT 105 Machine Tool Math, 3 credits.

This course covers applications of Algebra, Analytic Geometry and Trigonometry to Machine Tool Technology.

ENV 102 Safety Orientation (OSHA 10), 1 credits.

During this course students are familiarized with a wide range of integrated devices, their characteristics and the circuits in which they are used. Students receive practical experience on integrated device characteristics, how they are used in the design of circuits and troubleshooting problems.

MTT235 Workplace Ethics, 2 credits

Students study human relations and professional development that exists in today's rapidly changing world so that they become better prepared for living and working in a complex society. Topics include human relations, job acquisition, job retention, job advancement and professional image skills.

MTT 111 Bench Work, 1 credit (Prerequisite: ENV 102 Safety Orientation (OSHA 10)

Students will be provided the opportunity to learn and practice benchwork skills such as filing, drilling, tapping, deburring and layout for projects. They will gain valuable practical experience in the use of various hand tools by producing basic benchwork projects. Topics will include safety, print reading, job planning, and quality control.

MTT 116 Print Reading, 3 credits

Students will learn to identify basic lines, views and abbreviations used in blueprints, interpret basic 3D sketches using orthographic projections and blueprints, determine dimensions of features of simple parts, sketch simple parts with dimensional measurements, determine dimensions of a multi-feature part, interpret GDT symbols, frames and datums.

MTT 122 Quality Control & Inspection, 1 credit

Students are introduced to the science of dimensional metrology and its applications to ensure form and function of machined parts and assemblies using semi-precision and precision measuring instruments.

MTT 210 Metallurgy, 1 credit

Students learn the metallurgical terms and definitions in an effort to understand the behavior and service of metals in industry. Characteristics during heating, cooling, shaping, forming, and the stress related to their mechanical properties are covered, as well as the theory behind alloys, heat treatment processes and wear resistance.

MTT 135 Machine Tool Processes, 1 credit (Prerequisite: ENV 102 Environmental Safety OSHA-10)

Students learn to conduct a job hazard analysis for a machine tool group, analyze blueprints to layout parts and materials, select hand tools and common machine shop, mechanical hardware for specific applications, prescribe cutting tools for assigned operations, calculate stock size to minimize drop, machine parts to specifications outlined in machine handbooks, summarize preparations for machining operations, and apply precautions to minimize hazards for work with lathes, mills, drills and grinders.

MTT 140 Machining I, 3 credits (Prerequisite: ENV 102, Environmental Safety (OSHA-10

Students will learn to conduct job hazard analysis for conventional mills and lathes, develop math skills for machine tool operations, perform preventive maintenance and housekeeping on conventional mills and lathes, select work holding devices for mills, lathes and other machine tools, calculate feeds and speeds, remove material using milling and turning processes, align milling head, use a vertical mill to center drill, drill and ream holes, change tools and tool holders on milling machines, and maintain saws and grinders.

MTT 215 Machining II, 3 credits (Prerequisite: MTT 140 Machining I)

Students learn to perform basic trigonometric functions, and perform other procedures such as I.D. boring and facing operations, planning a sequence for machining operations, aligning work pieces, use work holding devices, jigs and fixtures, performing threading operations on lathes, machining keyways on a vertical mill, inspecting and dressing grinding wheels, performing O.D. & I.D. tapering operations, machining parts using milling cutters and milling machines, and tapping holes on a vertical mill.

MTT 220 Machining III, 3 credits (Prerequisite: MTT 140 Machining I, MTT 215 Machining II)

The student focus for this course is machining parts using a variety of manual and/or CNC machine tools. Students learn to set up and operate the rotary table, dividing head and offset boring head on the vertical spindle milling machine. They also learn to explain and demonstrate OD and ID taper operations, set up and use steady rest and face plates, machine OD and ID acme threads, machine OD and ID pipe threads on the lathe, and perform OD and ID grooving and part off operations.

MTT 225 Machining IV, 3 credits (Prerequisite: MTT 140 Machining I, MTT 215 Machining II, MTT 220 Machining III)

The student focus for this course is machining parts using a variety of manual and/or CNC machine tools. Students learn to set up and perform tool post grinding applications on the engine lathe. They also set up and perform grinding operations on the horizontal reciprocating surface grinder. Additionally, students gain practical experience in advanced machine tool operations such as multiple fixture offsets, 3-D milling, 4-axis machining and problem solving of machining deficiencies.

MTT 230 CNC Operations I, 2 credits (Prerequisites: ENV 102 Environmental Safety OSHA-10)

Students will become acquainted with the history of Numerical Control (NC) and Computer Numerical Control (CNC) machines and will be introduced to a CNC machine used in the precision machining trades.

MTT 23I CNC Operations II, 3 credits (Prerequisites: ENV 102 Environmental Safety OSHA-10, MTT 230)

Students will become acquainted with the history of Numerical Control (NC) and Computer Numerical Control (CNC) machines and will be introduced to a CNC machine used in the precision machining trades. They will gain practical experience in the application of "G" codes and "M" Codes, writing CNC machine programs, and machine setup and operation.

Medical Assistant

Medical Assistant Certificate

First Semester	Credits
MED 101 Professional Issues	2
MED 103 Medical Terminology	3
MED 110 Human Body & Disease	3
MED 111 Patient Care I	3
MED 113 Administrative Aspects I	4
MED 115 Insurance Billing and Coding	3
MED 117 Pharmacology	3
TOTAL CREDITS:	**21**

Second Semester	Credits
MED 120 Diagnostic Procedures	2
MED 121 Patient Care II	4
MED 123 Administrative Aspects II	4
MED 125 Clinical Laboratory Procedures	4
MED 131 Clinicals for the Medical Assistant	4
TOTAL CREDITS:	**18**
TOTAL CERTIFICATE CREDITS:	**39**

Admission Criteria – Completed by August 1

- Be 17 years of age or older and 18 years of age at program completion
- Successfully complete preadmission testing
- Complete a personal interview with instructor
- Participate in Medical Assistant department orientation
- CNA licensure is **preferred** prior to enrollment in Medical Assistant
- Complete a four hour observation in a medical office, clinic, or Salina Health Care, Salina, Kansas
- Complete first Hepatitis B immunization prior to August 1

Program Requirements

Clinical Participation

- Students must earn a minimum of a "C" in the following first semester courses: Patient Care I, Pharmacology, Human Body, and Professional Issues

- Students must maintain a minimum of a "C" in the following second semester courses: Patient Care II, Diagnostic Procedures, Medical Office Lab
- Students must have a minimum of 90% attendance in the program.

***Note*:**

- It is strongly recommended that students work a limited number of hours due to the heavy curriculum load that is required by this program.
- Students are responsible for their own transportation to clinicals.
- Background and drug testing may be conducted.

Associate of Applied Science Degree: 60 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the Degree and Certification Information section plus 6 credits from other technical education courses. Visit with your instructor or the Vice President of Student Services for possible options.

Medical assistants perform tasks to help keep the offices of physicians, and other health practitioners, laboratories, clinics, hospitals, surgery centers, and other organizations such as American Red Cross Blood Banks running smoothly. They can perform administrative tasks like updating and filing medical records and arranging for hospital admissions as well as other general office procedures like managing multi-line phones and patient waiting room. Common clinical tasks also include taking medical histories and recording vital signs, explaining treatment procedures to patients, preparing patients for examinations, collecting specimens and performing basic laboratory tests, and sterilizing medical instruments. They instruct patients about medications and diets, prepare and administer medications as directed by a physician, telephone prescriptions to a pharmacy, draw blood, prepare patients for x-rays, take electrocardiograms, give shots, remove sutures, and change dressings.

Career Opportunities: Medical Assistants work in many different health care settings such as Hospitals, Emergency Clinics, Labratories, Pharmicies, Specialty Doctors Offices, and in Long-Term Care Facilities.

Medical Assistant Course Descriptions

First Semester

MED 101 Professional Issues, 2 credits.

This course focuses on the basic concept of professional practice of medicine and the role and function of the medical assistant. Students discuss the personal and professional characteristics and legal and ethical standards for medical assistants, explore professional and personal therapeutic communication, and address time management and goal setting.

MED 103 Medical Terminology, 3 credits.

The content of this course focuses on the introduction to medical terminology. Vocabulary is explored to structure of word, prefixes, suffixes and root words. Emphasis is on proper usage,

pronunciation, spelling and definition of each of the structures commonly used in the medical field.

MED 110 Human Body, 3 credits.

This course focuses on the basic structure and function of the human body, from cells through systems to the human organism, with emphasis on the interaction of systems and physiological functions.

MED 111 Patient Care I, 3 credits.

This course introduces basic clinical skills necessary for medical assistants. Presents aseptic practices for the medical office and studies patient interaction such an interviewing, obtaining, evaluating and documenting vital signs and assisting with basic physical exams and testing.

MED 113 Administrative Aspects I, 4 credits.

This course contains the administrative skills of the health care team member. These skills include effective telephone techniques, scheduling patients for appointments, management of facilities, records management, and use of office equipment.

MED 115 Insurance Billing and Coding, 3 credits.

This course is designed to educate the health care team member with the mechanics of submission of electronic/paper insurance claim forms and current industry coding for medical office treatments and procedures.

MED 117 Pharmacology, 3 credits.

Focus is on the medical assistant's role in the calculation, preparation and administration of various medications. Studies include administration of injectable, topical, oral and buccal medications. Return demonstrations are also required.

Second Semester

MED 120 Diagnostic Procedures, 2 credits.

Course content focuses on the specialized procedures associated with the human body systems covered in MA 110 Human Body.

MED 121 Patient Care II, 4 credits. (Prerequisites: MED 111 Patient Care I and MED 117 Pharmacology)

This course focuses on expanding the knowledge gained in MED 111 Patient Care I and MED 117 Pharmacology. It presents more complex and independent procedures performed by the medical assistant. Minor surgical procedures, physical therapy, sterile procedures, emergency procedures and medication administration by injection and intravenous are addressed.

MED 123 Administrative Aspects II, 4 credits. (Prerequisites: MED 113 Administrative Aspects I)

This course combines previous coursework as an introduction to the expanded role of the medical assistant as the medical office manager. Students produce and edit medical transcriptions from a series of taped reports and prepare a variety of medical documents. Professional communications, job-seeking and interviewing skills, expanded practice in topics covered in Administrative Aspects I and other skills include effective telephone techniques, scheduling patients for appointments, management of facilities, records management, and use of office equipment.

MED 125 Clinical Laboratory Procedures, 4 credits. (Prerequisites: minimum grade of C in all program coursework and attendance rate of 90%)

This course addresses the role and function of the professional in the clinical laboratory setting. Topics include safety, Clinical Laboratory Improvement Act of 1988 (CLIA) government regulations, and quality assurance in the laboratory. Students learn concepts and perform procedures in the different departments of the laboratory, including specimen collection, and performance of CLIA 88 low –and/or moderate-complexity testing. Students demonstrate competency in a wide variety of techniques used to collect, process and test specimens.

MED 131 Clinicals for the Medical Assistant, 4 credits. (Prerequisite: Hepatitis B vaccination, 90% attendance record and a "C" average in program coursework.)

This is the application phase of the Medical Assistant program which is designed to give students an opportunity to apply and practice the principles and procedures learned while participating in supervised, non-remunerative clinical experiences in physicians' offices and clinics. Students are expected to adapt to the rules and routines of the individual medical office. Evaluation is based on the student's preparation for duties, active participation, attendance and professionalism.

Welding Technology

Welding Technology Certificate

First Semester	Credits	Second Semester	Credits
ENV 102 Safety Orientation (OSHA- 10)	1	**WEL 116** Gas Tungsten Arc Welding I	3
WEL 111 Shielded Metal Arc Welding I	3	**WEL 216** Gas Tungsten Arc Welding II	3
WEL 112 Shielded Metal Arc Welding II	3	**WEL 115** Gas Metal Arc Welding I	3
WEL 101 Welding Math	3	**WEL 215** Gas Metal Arc Welding II	3
WEL 105 Welding Theory	2	**WEL 223** Core Wire Welding	3
WEL150 Welding Blueprint Reading	3	**WEL 120** Fabrication and Production	4
WEL 106 Cutting Processing	3		
TOTAL CREDITS:	**18**	**TOTAL CREDITS:**	**19**
		TOTAL CERTIFICATE CREDITS:	**37**

Admission Criteria:

Prior to enrollment student must:

- Successfully complete preadmission testing

Associate of Applied Science Degree: 60 Credits. To complete the Associate of Applied Science Degree, select 15 more credits from the General Education requirements found in the Degree and Certification Information section plus **WEL 121 Welding Specialization** for 3 credits and **WEL 110 Oxy-Fuel Welding** for 2 credits. Visit with your instructor or the Vice President of Student Services for possible options.

Welding is the most common way of permanently joining metal parts. Welding also is used to join beams when constructing buildings, bridges, and other structures and to join pipes in pipelines, power plants, and refineries. Skilled welders plan work from blueprints and determine how best to join the parts. Welders select and set up welding equipment, execute the planned welds, and examine welds to ensure that they meet standards or specifications. At Salina Tech welders learn to perform many different types of welds commonly used in various manufacturing

industries in Kansas as well as across the nation. Students learn industry standards from our experienced instructor and hands-on practice with customer projects. Sign up today for our nine-month welding program and advance your career with valuable training and experience.

Career Opportunities: General Welders, Maintenance Welders, Production Welders, General Layout Technicians, Cutters, Burners, and Fabricators

Welding Technology Course Descriptions

First Semester

ENV 102 Safety Orientation (OSHA-10), 1 credit.

During this course students are familiarized with a wide range of integrated devices, their characteristics and the circuits in which they are used. Students receive practical experience on integrated device characteristics, how they are used in the design of circuits and troubleshooting problems.

WEL 105 Welding Theory, 2 credits.

This course prepares students to work in industrial welding shop settings. Students study the cause and prevention of accidents in shop and industry. First aid and emergency procedures are covered. Safety, housekeeping, proper use and maintenance of tools and equipment are emphasized.

WEL 101 Welding Math, 3 credits.

The course covers basic mathematical skills common related to welding content areas. Mathematical applications of the skills will be a focus in this course.

WEL 150 Welding Blueprint Reading, 3 credits.

This course is an introduction to blueprint reading and drawing procedures used in the production and fabrication areas of the welding industry. This course involves shape description, size description, and freehand sketching. It incorporates the reading and drawing of welding symbols as well as interpretation of industrial drawings used in the welding industry. The course includes applied math for welders, consisting of a review of fractions, decimals, percentages, ratio/proportion calculations, and tape measure reading. This course also includes applications to live welding projects.

WEL 106 Cutting Processes, 3 credits.

This course introduces metal cutting and includes cutting of ferrous and nonferrous materials with manual, motor driven, and oxy-fuel shape cutting equipment. Also included are plasma-arc cutting (PAC) and carbon arc cutting (CAC-A). Safety, equipment and the basic fundamentals of cutting processes are introduced.

WEL 111 Shielded Metal Arc Welding I, 3 credits.

This course includes hands on application of industrial welding components including safety, identification, set up, and use of shielded metal arc welding (SMAW) equipment. Students perform a variety of welds in the flat and horizontal positions with various electrodes.

WEL 112 Shielded Metal Arc Welding II, 3 credits. (Prerequisite: WEL 105 and WEL 111)

This course continues the study of shielded metal arc welding providing more in-depth instruction on the identification, set up, and use of shielded metal arc welding in an industrial setting. The course reviews safety and equipment maintenance.

Second Semester

WEL 115 Gas Metal Arc Welding I, 3 credits. (Prerequisite: WEL 105 Welding Theory)

This course includes instruction on proper equipment set up, the development of technical and manipulative skills, and performance of correct safety precautions and techniques utilized in gas metal arc welding (GMAW).

WEL 215 Gas Metal Arc Welding II, 3 credits. (Prerequisites: WELD 105 Welding Theory and WELD 115 Gas Metal Arc Welding I)

This course continues the development of skills and knowledge of gas metal arc welding. It includes a review of safety precautions and procedures and proper equipment set up. Advanced techniques on joint preparation and welding in all positions are emphasized.

WEL 223 Core Wire Welding, 3 credits. (Prerequisites: WELD 105 Welding Theory and WELD 115 Gas Metal Arc Welding I)

This course provides instruction in the use of a variety of core wire electrodes. The student develops skills and knowledge in using various metals and joints and in performing various welds in all positions.

WEL 116 Gas Tungsten Arc Welding I, 3 credits. (Prerequisites: (WELD 105 Welding Theory)

This course introduces the basic principles and fundamentals of gas tungsten arc welding. Students learn to safely set the power source of Gas Tungsten Arc Welding (GTAW) equipment to the correct parameters. Students perform GTAW welds on various metals, and in multiple positions, meeting industry standards.

WEL 216 Gas Tungsten Arc Welding II, 3 credits. (Prerequisites: WELD 105 Welding Theory and WELD 116 Gas Tungsten Arc Welding I)

This course continues the study of the principles and fundamentals of gas tungsten arc welding. Students review procedures to safely set the power source of a Gas Tungsten Arc Welding (GTAW) to the correct parameters. Students continue to develop their skills in performing GTAW welds on various metals, and in multiple positions, meeting industry standards.

WEL 120 Fabrication and Production, 4 credits.

This course covers welding processes used in industry, including arc, oxyacetylene, MIG, soldering, brazing, fabrication, and spot welding Testing, safety procedures and robotic equipment are also covered in the course.

GENERAL EDUCATION COURSES

CSA 105 Introduction to Computer Applications & Concepts, 3 credits.

This course is an overview of basic computer operations, computer applications, ethics, and hardware. Skills gained in this course will provide a foundation for using technology in other courses.

ENG 100 Technical Communications, 3 credits.

This course provides an introduction to professional and technical writing appropriate to students' field of study and future professional lives. It emphasizes thorough practice in the organization and writing of technical documents, locating and using appropriate information, communicating with others, and career seeking skills.

ENG 101 English Composition I, 3 credits

This course is an introduction to expository writing emphasizing expression of ideas, structure, organization, development, and grammatical correctness. It focuses on practice in researching, revising, and editing. This course provides instruction and practice in the principles of written composition and critical thinking and research. Emphasis is on improving the student's ability to write clearly and effectively, to read critically to gather materials and synthesize them into one's own work. The successful student will be able to write a clear, well-organized paper using documentation when appropriate.

HUM 101 Ethics in the Workplace, 3 credits.

This course explores issues of ethics in our everyday life with focus on the challenges encountered in the workplace. The topics will range from personal to professional issues.

MAT 101 Technical Math, 3 credits.

This course covers basic mathematical skills common to all technical areas. Mathematical applications of the skills will be a focus in this course.

MAT 105 Intermediate Algebra, 3 credits.

The focus of this course is to prepare the student for College Algebra. Students will learn how to perform common calculations in several applied occupational fields. Prerequisite: ACT Compass Math testing, C or better in Technical Math, or test out of Technical Math with 80% or better on a comprehensive course exam.

MAT 150 College Algebra, 3 credits. (Prerequisite: C or better in Intermediate Algebra, ACT Compass Math Test.)

Students will learn how to interpret mathematical symbols and notations, simplify expressions, factor polynomials, solve equations (including absolute value, quadratic and systems of linear equations), perform operations on radical expressions, write equations of lines and evaluate functions.

PSY 101 General Psychology, 3 credits.

This General Psychology course provides an introduction to the scientific study of human behavior as it applies to daily living. The scope of this course includes history, basic theories, and biological bases of behavior, development, cognitive processes, individual awareness, motivation, emotion, personal adjustment and social psychology.

COM 105 Public Speaking, 3 credits.

This course will emphasize the fundamental basics of good private and public speaking experiences. The course will cover speech organization, development of ideas, delivery, listening, peer and audience analysis, and understanding of all types of public speeches.

CONTINUING EDUCATION COURSES

Continuing Education courses taken for college credit may be used as electives toward a degree. Students are encouraged to work with an advisor when they are ready to develop a plan of study that leads to a certificate or degree program.

AUTOMOTIVE COLLISION & REPAIR

Body Service Operations (2 Credits)

In this course students will learn and apply their knowledge in shop removing and reinstalling bolted automotive parts. The students will remove and reinstall fenders, hoods, deck lids, bumper assemblies and grilles. Students will also be instructed on door service. Some of the skills that will be learned and applied will include: proper care and safety, removing the interior door trim to service the window regulator, door glass, door latch/lock, inside and outside door handles, mirrors, and other related door parts.

Detailing (2 Credits)

In this students will be instructed on how to correct paint related problems whether it is a factory finish or a vehicle that has been refinished. Color sanding, buffing, compounding, polishing, and hand glaze will all be learned and applied by students. Cleaning the entire vehicle including jambs, engine compartment, wheels and tires, and interior will also be learned. Students will also learn how to apply vinyl decals and pinstripes to further "dress up" a vehicle for further customer satisfaction.

Auto Body Detailing Certificate

- Detailing (2 Credits)
- Employability Skills (1 Credit)

Auto Body Service Operations Certificate

- Body Service Operations (2 Credits)
- Employability Skills (1 Credit)

AUTOMOTIVE TECHNOLOGY

Brakes 1 (3 Credits)

In this course students will examine the components of the drum and disc braking systems. Through classroom and shop learning experiences, students will diagnose, inspect and repair brakes, bearings and hub assemblies.

Brakes 2 (2 Credits)

In this course students will: determine necessary brake system correction; conduct system pressure tests utilizing service specifications; perform diagnosis and correction for poor stopping, pulling or dragging concerns caused by malfunctions in the hydraulic system; conduct inspection, fabrication and/or replacement of brake lines and hoses; diagnose poor stopping noise

vibration, pulling, grabbing, dragging or pedal pulsation concerns; perform service specifications pertaining to the removal, cleaning and refinishing procedures on brake drums; perform drum brake repair and replacement procedures; diagnose poor stopping noise vibration, pulling, grabbing, dragging or pedal pulsation concerns; perform disc brake repair and replacement procedures; machine rotor according to service specifications; perform caliper piston retraction where applicable; Inspect and test power assist systems; determine necessary action on wheel bearing noise, wheel shimmy and vibration concern diagnoses; perform the removal, inspection and replacement of bearing and hub assemblies through a variety of classroom and lab/shop learning and assessment activities.

Small Engine Repair (2 Credits)

Students will receive instruction and practical "hands-on" experience in electronics, carburetion tune-up, and maintenance of two and four stroke engines. This is an excellent class for those who would like to work in the Small Engine Repair business of perhaps just learn how to save money by repairing their own equipment.

Steering & Suspension 1 (2 Credits)

In this course students will: document fundamental suspension system concerns; perform fundamental diagnostics of steering systems; perform fundamental repairs of steering systems; perform fundamental diagnostics of suspension systems; perform fundamental repairs of suspension systems; determine the need for wheel alignment and adjustment; perform fundamental diagnostics of wheel and tire systems; perform fundamental repairs of wheel and tire systems through a variety of learning and assessment activities.

Steering & Suspension 2 (2 Credits)

Pre-Requisite: Steering & Suspension 1. In this course students will perform complex diagnostics and repair on steering and suspension systems. Additionally, students will perform pre-alignment inspection and complex repairs of wheel and tire systems.

Automotive Brakes Technician Certificate

- Brakes 1 (3 Credits)
- Brakes 2 (2 Credits)
- Employability Skills (1 Credit)

Automotive Alignment Steering & Suspension Technician Certificate

- Steering & Suspension I (2 Credits)
- Steering & Suspension II (2 Credits)
- Employability Skills (1 Credit)
- Alignment Technology (2 Credits)

BUSINESS

Business Communications (3 Credits)

Business Communications is designed to cover the communication skills necessary in a high technology global business environment. These skills include competencies in oral and written communication; an awareness of international, legal, and ethical issues; and the ability to work collaboratively on group projects.

Introduction to Computers (1 Credit)

The course is a brief introduction to computers to include: computer hardware, software, Microsoft Office application skills, keyboarding skills, the Internet and Internet searching, careers and computer ethics.

Word Processing (Word) (1 Credit)
Beginning students will learn to perform basic editing and printing; work with the Word screen layout, create, modify, save and print documents; format margins, tabs, and paragraphs; and use Word's writing aids such as spell check, and the built-in thesaurus.

Wordprocessing II (Word) (1 Credit)

Intermediate Students will learn to work with the more advanced features of wordprocessing. Topics covered include: sections and columns, table formatting, borders and shading; working with Excel data; creating and modifying styles, headers and footers; printing labels and envelopes; working with graphics and objects; and template basics.

Spreadsheets Management (Excel) (3 Credits)

Students will become productive Excel users by learning to create professional reports that perform business or personal calculations; display financial or scientific calculations; complete lists management tasks; financial forecasts and scenarios; and chart design and editing. Students will complete three original projects for this course. This course may be used for the preparation of a MOS Excel exam.

QuickBooks Computerized Accounting (2 Credits) (Prerequisite: Accounting Fundamentals Class or prior knowledge of accounting basics.)

Reinforce your understanding of fundamental accounting principles as you master the features of the popular QuickBooks Pro Accounting Program. The course features hands-on, step by step procedures for all the basic operations of computerized accounting. Students will gain the knowledge and skills needed to effectively set up and manage both personal and small business accounts with QuickBooks Pro.

Accounting Fundamentals Certificate

- Spreadsheets Management (Excel) (3 Credits)
- Business Accounting (3 Credits)
- Accounting II (Quick Books) (4 Credits)

Billing and Coding Specialist Certificate (9 Credits)

- Medical Terminology (3 credits)
- Medical Billing and Reimbursement (3 Credits)
- Medical Coding (3 Credits)

Computerized Business Applications Certificate

- Business Communications (3 Credits)
- Introduction to Computers (1 Credit)
- Word Processing (Word) (3 Credits)
- Spreadsheets Management (Excel) (3 Credits)

Medical Office Procedures (3 Credits)

- Employability Skills (1 Credits)
- Administrative Aspects (3 Credits)

CAD DRAFTING

COMPUTER AIDED DRAFTING 1 (3 Credits)

Computer-Aided Drafting 1 explores the fundamentals of computer-aided drafting (CAD) with emphasis placed on drawing set-up, creating and modifying geometry, storing and retrieving predefined shapes, placing, rotating and scaling objects, adding text and dimensions, using layers and coordinate systems as well as using computer input and output devices.

INTERMEDIATE 3-D MODELING (1 Credit)

Learn the essential skills required to take Solid Works 3-D Modeling to the next level. Lessons covered include: top down assembly modeling, using configurations, design tables, and equations to build intelligent models and assemblies.

ADVANCED 3-D MODELING (1 Credit)

Advanced part modeling using multi bodies and surfaces, will be covered, as well as, 2-D to 3-D conversion of existing CAD drawings. This class will also take an in-depth look at several add-on modules including: sheet metal, toolbox, photo works, and animator.

Basic Computer Aided Drafting (CAD)

- CertificateComputer Aided Drafting I (3Credits)
- Parametric Modeling (Solidworks) (3 Credits)

COMMERCIAL AND ADVERTISING ART

CAA 110 Computer Drawing Techniques, (4 Credits)

This course introduces the computer as a medium to create two dimensional images and illustrations through the use of the top software packages in the industry. Students will be introduced to production and fine art concepts of illustrating to create identity concepts. Personal approach, style, and consistency are stressed in problem solving as they learn to use the software packages for their illustration assignments.

Introduction to Photo Editing (1 Credit)

Participants will learn the basics of photo editing and how to work with some of the most used and powerful graphics editing tools. Although this class is taught using Photoshop (CS2), owners of any version of Photoshop Elements or any other image editing program will learn techniques and theories that will apply. Feel free to bring your own laptop and work on projects with your own computer

DIESEL TECHNOLOGY

Brake Inspection (0 Credits)

Students will gain the information and skills necessary to become a Certified Brake Inspector as per FMCSA 49 CFR 396 Inspection, Repair and Maintenance Section 396.25. Course content includes the identification and operation of all air brake components (compressors, air valves, and foundation)

Commercial Driver's License (CDL) (1 Credit)

This class prepares students for the Commercial Driver's License written exam and hands on pre-test inspection. Practice written tests for all CDL endorsements are part of the course. Upon successful completion of the course students may sit for the written CDL Exam at the Kansas Department of Motor Vehicle Office located at: 2910 Arnold Street, Salina, KS. 67401.

(Students must pass the CDL written exams and purchase a practice permit before they can schedule driving practice at Salina Area Technical College and/or schedule the actual drive test through the DMV.) **Call 785-309-3100 for additional rates.

Fork Lift Training (1 Credit)

Forklift operator training consists of a combination of lecture and practical demonstrations and exercises and must include an evaluation of operator performance in the workplace. Truck-related and workplace-related topics are included, along with the requirements of the OSHA standard.

Employability Skills (1 Credit)

This course prepares students for future employment by providing them with the information and skills to get a job and be successful on the job.

ELECTRICAL TECHNOLOGY

Electrical Wiring (2 Credits)

This class is designed for the beginner as well as those who are familiar with electricity. It provides a good mixture of classroom interaction and hands-on wiring. Students will receive instruction on wire types, sizes, and grounding; single pole and 3-way switches, receptacles, and lights; service entry panels, breakers and fuses. Participants will practice hands on wiring in individual work stations and learn the practical use of the "National Electrical Code Book".

ENVIRONMENTAL TECHNOLOGY

Wastewater Treatment Plant Operations & Maintenance (4 Credits)

This course will equip wastewater operators and other personnel with the skills necessary to operate and maintain their wastewater treatment facilities and collection systems.

Water & Wastewater Math (1 Credit)

This workshop is for operators who want to learn basic water and wastewater math skills. Participants will learn skills, techniques, tips, and tricks that will help them better understand and solve wastewater math. This is not just a workshop where a math problem is put up on the board, and you are expected to solve the problem on your own. Participants in this workshop will learn several steps they can apply to any math problem they encounter, and will be able to use the knowledge gained for "real life" problem solving. Bring a pencil and/or pen and a calculator; we will be solving typical water/wastewater math problems.

Basic Activated Sludge (1 Credit)

This workshop presents a brief discussion of activated sludge basics. Main topics include: field observations and field and lab tests that are used to evaluate the condition of the activated sludge process. Both classroom and small group field exercises that demonstrate specific evaluation tools and procedures are featured. In addition, you will learn how to analyze the information that is collected during field exercises to determine the process controls settings that will provide efficient, reliable process performance.

OSHA 10

The 10-hour OSHA Program is intended to provide a variety of training on General Industry safety and health to the entry level worker. In addition to the required topics, class topics may be customized to fit specific industry needs.

Trench & Excavation for the Competent Person (.5 Credit)

This 8 hour course is designed for day to day trench and excavation work and covers OSHA 1926.651 Subpart (P); OSHA 1926.51 Subpart (P); and OSHA 1926.652 Subpart (P). Classroom study and hands-on-training in a mobile trench simulator will be provided. Competent Person trainees may include: Safety Personnel, Engineers, Labor Workers, Heavy Equipment Operators, Supervisors and Crew Foreman.

Confined Space Entry (.5 Credit)

Taught by Certified Professional Instructors, this training has been recognized by OSHA and is required training for: Entry Personnel, Authorized Attendants and Entry Supervisors.

This 8 hour course combines classroom and hands-on training and covers OSHA Title 29 CFR 1910.146, including: definition of a confined space and permit required confined spaces, duties of the entry personnel, authorized attendants and entry supervisor. Atmosphere testing, ventilation, personal protective clothing, fall protection and lockout/tagout will also be covered.

Wastewater Stabilization Pond (1 Credit)

Attendees of this workshop will learn about the different types of wastewater ponds, their history, different applications, safety, troubleshooting, and typical math problems. Also, other topics such as wastewater characteristics, confined space, and Biochemical Oxygen Demand (BOD) will be covered. The attendees will learn about how to tell if a pond is "sick" or healthy, and what to do if a pond is not healthy. The workshop participants will take a pond tour; and using actual samples collected from the pond during the tour, will apply the information gained from the workshop toward troubleshooting the pond. As the participants will be walking around the pond facility, please dress appropriately for the weather and for walking outdoors around a wastewater pond facility. Be sure to bring a pencil/pen and a calculator, as we will also be doing wastewater math.

Wastewater Treatment Plant Operations & Maintenance Certificate (4 Credits)

Potable Water Treatment Plant Operations & Maintenance Certificate (4 Credits)

HEALTH OCCUPATIONS

Home Health Aide (1 Credit)

Pre-Requisite: Students must be currently certified as a Nurse Aide in the State of Kansas and pass a standardized reading test. Areas covered in this state-approved course include how to recognize and adopt nursing care skills from an institutional setting to a home environment. Core concepts include: orientation to home care management, mother and baby care, nutrition, working with people, special procedures, and emergency care.

Certified Medication Aide (CMA) (6 Credits)

Pre-Requisite: Current CNA and standardized reading comprehension test. This course meets the requirements for becoming a CMA in the state of Kansas and includes instruction in roles and responsibilities, how to prepare, administer, and record medications, major actions and side effects, common medical abbreviations, how drugs affect the different systems of the body, mathematics, and weights and measures. The course includes 25 hours of clinical practice.

Certified Medication Aide Up-Date (1 Credit)

This course has been approved by the Kansas Department of Health and Environment for the required Continuing Education Units for CMAs.

Certified Nursing Aide (CNA) (7 Credits) (Pre-requisite: Standardized Reading and Vocabulary Test.)

This course meets all requirements for becoming a Certified Nursing Assistant in the State of Kansas. Students are given a basic introduction to the anatomy and physiology of each body system. The age related changes and common abnormalities are presented along with related nursing-care guidelines and step-by-step procedures in taking vital signs; observing and recording elements of nutrition and feeding; admitting, transferring and dismissing residents; care of the critically ill and dying; infant and child care; changing bed linens; lifting and positioning residents and clients; and much more.

CNA Refresher Course (1 Credit)

This course is provided for CNAs who have not worked as nursing assistant for a period of 24 or more consecutive months and wish to become eligible to work again by being reinstated in the Kansas Nurse Aide Registry. The course consists of five classroom hours and five laboratory/clinical hours. Subjects covered include: CNA responsibilities, communications, resident's rights, safety, infection control, bed making, personal care skills, transfers, positioning and turning, and measuring and recording vital signs.

Emergency Medical Technician - Basic (15 Credits) (Pre-requisite: 17 years of age, current on immunizations.)
This course addresses information considered to be the responsibility of the EMT-B according to the USDOT National Standard Curriculum for the EMT-B and Kansas Authorized Activities for the EMT-B. Students will learn pre-hospital treatment of traumatic and medical emergencies.

Emergency Medical Technician - Intermediate (4 Credits) (Pre-Requisite: EMT-Basic Certification.)
This course instructs the currently certified Emergency Medical Technician in advanced patient assessment and intravenous therapy skills, and prepares students for the EMT-I state exam.

HEARTSAVER FIRST AID (.25 Credits)

The Heart Saver First Aid Course includes instruction on how to manage illness and injuries in the first few minutes until professional help arrives. Course content includes: General Principles, Medical Emergencies, and Injury Emergencies. The course is recommended for those who have a duty to respond to a first aid or cardiac emergency because of job responsibilities, or regulatory requirements. Upon successful completion of the course and required skills test, participants will receive the Heartsaver First Aid Course Completion Card.

HEARTSAVER CPR (.25 Credits)

The Heart Saver CPR course includes: CPR, relief of choking, and use of barrier devices, for adults, children, and infants. The course is recommended for those who have a duty to respond to a cardiac emergency because of job responsibilities, or regulatory requirements. Upon successful completion of the course and required skills test, participants will receive the Heartsaver CPR Course Completion Card.

Medical Terminology (3 Credits)

The content of this course focuses on the introduction to medical terminology. Study includes the structure of word, prefixes, suffixes and root words. Emphasis is on proper usage, pronunciation, spelling and definition of each of the structures commonly used in the medical field.

Administrative Aspects (3 Credits) (Pre-requisite: Completion (≤ 70%) or concurrent enrollment in Medical Terminology.)

This course contains the administrative skills of the health care team member. These skills include effective telephone techniques, scheduling patients for appointments, management of facilities, records management, and use of office equipment.

Medical Billing and Reimbursement (3 Credits) (Pre-Requisite: Completion (≤ 70%) or concurrent enrollment in MA 103 Medical Terminology.)

This course is designed to educate the health care team member with the mechanics of submission of electronic/paper insurance claim forms and current industry coding for medical office treatments and procedures.

Paid Nutrition Assistant (.75 Credit)

This 12 hour KDHE approved nutrition assistant course provides training required for those individuals who wish to become paid nutrition assistants. Upon successful completion of this course you will be qualified to provide assistance with eating to the residence of an adult care home under the supervision of a registered professional or licensed practical nurse. Course content includes roles and responsibilities of a nutrition assistant; working as a member of a team; creating a home environment in a facility; residents rights; residents with special needs; a safe dining experience (infection control, food safety, emergencies); fundamentals of good nutrition and documentation. *Paid Nutrition Assistant Class is scheduled by arrangement only and may be conducted either at your facility or on the SATC campus.*

REHABILITATION AIDE (2 Credits)

Prerequisite: must be Certified Nurse Aide, must maintain an 85% attendance to complete the class. This course is based on the rehabilitation team approach which includes: Nursing staff, Occupational Therapist, Physical Therapist, and Speech-Language Pathologist. Certified Nurse Aides will learn the information needed for implementing a successful Rehabilitative Aide Program. Hands-on demonstrations and clinical practice will make up a large part of this course. Students will also receive reference information about diagnoses, and precautions.

HEATING VENTILATING AND AIR CONDITIONING

Gas Furnaces (2 Credits)

Pre-Requisite: HVAC Fundamentals 1 & 2. This course is Part 3 of the HVAC Certificate Program that is designed to prepare the student for entry level employment in the air conditioning and heating industry. This course introduces the student to the concepts of heat and the principles of heat flow. Lessons include heat loss from structures, a review of the fundamentals of heat load calculations, ducted warm air systems, duct sizing and layout, air

filtration, humidification, a fundamental approach to control systems, customer relations, and a review of safety and codes.

The course explores the concepts of heating with gas. Also Included in this unit of study are lessons related to combustion chemistry, heating fuels, burners and accessories, burner types and components (including natural gas-burning and LP gas-burning equipment), start-up and combustion efficiency testing, gas burner controls, ignition systems for infrared heaters, gas heating equipment maintenance, troubleshooting, and condensing furnaces.

The HVAC Gas Furnaces course provides essential information that every service technician must possess to become effective. An emphasis is placed on understanding the sequence of operation of the equipment being serviced. Four different ignition systems are covered in depth (HSI, DSI, HSP, and spark-to-pilot), with diagnostic procedures on each.

HVAC Fundamentals 1 (3 Credits)

This course includes a comprehensive introduction to refrigeration and air conditioning. Topics covered include basic and major system components, including hermetic, semi-hermetic, and open compressors, as well as condensers, evaporator and refrigerant-metering devices. It also covers fundamental concepts of electricity and magnetism as they pertain to resistor conductors, power supplies, circuit protection devices, and transformers.

HVAC Fundamentals 2 (3 Credits)

Pre-Requisite: HVAC Fundamentals 1. This course covers refrigeration system accessories, desiccants and driers, defrosting methods, refrigeration system controls, and piping. It also includes instruction on compressor replacement, and system evacuation, electric motors in refrigeration systems, motor capacitors and protectors, thermostats, relays, contractors and starters, test equipment and troubleshooting, pressure and enthalpy diagrams, heat transfer, residential air conditioning, and a review of safety codes.

Refrigerant Gasses Recovery (5 Credits)

This combination Workshop and Certification Test will permit participants to meet the requirements of the 1990 Clean Air Act and EPA regulations. Topics covered include: ozone depletion, health impacts, Clean Air Act, recovery and recycling equipment procedures, refrigerant handling safety and new refrigerants.

HVAC Certificate

- HVAC Fundamentals I (3 Credits)
- HVAC Fundamentals II (3 Credits)
- Gas Furnaces (2 Credits)

INDUSTRIAL MAINTENANCE TECHNOLOGY (Certificate only)

Introduction to Automated Processes (2 Credits)

This course gives students an introduction to Automated Processes. Students will use and calculate formulas for friction and force, torque, rpm, power, and efficiency. They will identify

different belts, gears, and bearings for proper use in automated systems. Students will also be able to identify various controls and sensors used to protect property and personnel.

AC/DC Circuits I (2 Credits)

This course is an introduction to electrical and electronics components, symbols, and the global language that are used in electrical and electronics. Students receive computer-based, modular training simultaneously with practical experience reading schematic diagrams, construction circuits, and test procedures of operating characteristics used in AC/DC circuits. Students will measure voltages, amperages, resistances, and check continuity with meters.

Motor Controllers (2 Credits)

Students will learn construction and operation of pilot devices, motor starters, control circuits, direct current, single-phase and three-phase motors. Basic motor control circuits are constructed from a schematic of ladder diagram. Students also troubleshoot basic motor control circuits. Current and overload protection for motors is studied as well.

AC/DC Circuits II (2 Credits)

This course is an intermediate class to electrical and electronics components, symbols, and the global language that are used in electrical and electronics. Students receive computer-based, modular training simultaneously with practical experience reading schematic diagrams, construction circuits, and test procedures of operating characteristics used in AC/DC circuits. Students will measure voltages, amperages, resistances, and check continuity with meters.

Robotics (2 Credits)

This course gives students an introduction to basic robotic concepts. Students gain a working knowledge of safety and terminology related to the use of robots. Alternate methods of movement and motion control techniques are also included. Today with increased automation in manufacturing and process controls, an understanding of multiple control techniques are necessary for students to succeed.

Programmable Logic Control I (2 Credits)

This course will cover additional control features such as programmable logic controllers (PLC's), relays, timers, sensing devices, system integration, and preventive maintenance and troubleshooting.

Residential Wiring I (3 Credits)

This course will cover the basics of residential electrical wiring. Students will learn both theory of electricity as well as how to install and troubleshoot wiring problems.

Fabrication and Production (4 Credits)

This course covers welding processes used in industry. It includes arc, oxyacetylene, MIG, fabrication, spot welding, testing, and safety procedures. Upon completion of this course, the student should be able to understand basic procedures and produce quality work that meets

industry standards. Demonstration of safe handling of equipment will be required. These tasks will be completed with the expectancy of 80% accuracy or better based on performance and written test.

Manufacturing Skills (MSC) Certificate

- Blueprint Reading/geometric Dimensioning & Tolerances (2 Credits)
- Precision Measurement & Quality Control (2 Credits)
- Applied Shop Mathematics I (2 Credits)
- Occupational Safety & Health (1 Credit)
- Employability Skills (1 Credit)

MACHINE TOOL TECHNOLOGY

Basic Engine Lathe Fundamentals (3 Credits)

While working in the shop or on the job, students will be able to identify types and parts of the lathe, lathe accessories, lathe operations and tooling, and freehand grind tools. Students will also be able to calculate speeds and feeds, and depth of cuts.

Intermediate Engine Lathe Operation (2 Credits)

While working in the shop or on the job, students will be able to perform proper maintenance procedures, calculate tapers and American National thread forms. The student will also be able to determine the main influences on the selection of work holding, sequence of operations, method of operations, and tool materials. The student will be able to align lathe centers, and set up and machine work pieces according to blue print specifications. The student will be able to groove, undercut, thread, and taper.

Basic Milling Machine Operation (3 Credits)

While working in the shop or on the job, students will be able to define milling machine terms and identify milling machine parts, types, operations and functions. Students will also be able to follow guidelines for the safe operation of milling machines and identify various types of cutting tool and applications; determine cutting tool variables; calculate and set correct cutting speeds, RPMs, and feed rates.

Applied Shop Mathematics 1 (2 Credits)

This course provides for the study of basic math calculations of whole numbers, fractions, and decimals, inch/millimeter conversions, calculating X-R values and calculating percentages.

Precision Measurement & Quality Control (2 Credits)

This course provides for the study of the basic measuring tools used in manufacturing today. This course will provide the student with proficiency through using and reading basic measuring devices.

Blueprint Reading (1 Credit)

This course provides for the study of basic blueprint reading and reading engineering drawings.

Basic CNC (6 Credits)

While working in the shop or on the job, students will be able to identify the safety guidelines and principles of numerically controlled machining. The student will be able to demonstrate an understanding of the coordinate system used in numerical control, basic axis movements, NC machine operations, cutter center line offsets, the NC programming process, and programming codes.

Blueprint Reading/Geometric Dimensioning & Tolerances (2 Credits)

This course provides for the study of basic blueprint reading and reading engineering drawings. This course will develop the employee's ability to locate and interpret dimensions on engineering drawings.

Basic Engine Lathe Operation Certificate

- Blueprint Reading (1 Credit)
- Precision Measurement & Quality Control (2 Credits)
- Basic Engine Lathe Fundamentals (4 Credits)
- Intermediate Engine Lathe Operation (4 Credits)

Basic Milling Machine Operation Certificate

- Blueprint Reading (1 Credit)
- Precision Measurement & Quality Control (2 Credits)
- Basic Milling Machine Operation (6 Credits)

CNC Machining Fundamentals Certificate

- Blueprint Reading (1 Credits)
- Precision Measurement & Quality Control (2 Credits)
- Basic CNC (6 Credits)

WELDING

Metal Inert Gas Welding (MIG) (3 Credits)

This course will cover the knowledge and skills necessary to safely use gas metal arc welding processes and equipment in an industrial welding shop. Topics presented include: General Safety, Welding Theory, and Quality Control. Skills gained in this course can be used to seek employment as an entry-level production welder in fabrication and manufacturing industries.

Petroleum Liquid & Gas Pipe Welding (SMAW) (3 Credits) (Pre-requisite: Welding certificate or SMAW Structural Welding.)

This course is intended for welders whom have had training or experience (preferably both) of Shielded Metal Arc Welding in the flat, horizontal, vertical, and overhead positions. With this in mind instruction will proceed into the fabrication, joint design, and welding of pipe in the 5G (flat, vertical, and overhead) and 6G (flat, vertical, horizontal, overhead) test positions. All technical requirements of this course will come from the American Petroleum Institute 1104 and the American Welding Society D1.1 codebooks in which are the requirements of industry for the welding of pipe in which petroleum products (liquid and gas) are conveyed from one location to another. Upon successful completion of this course student will have the knowledge and skills (with practice) of passing a weld test in the industry. Safety will be covered on all aspects of this course along with demonstrations of all procedures.

Structural Welding (SMAW) (2 Credits)
Pre-Requisite: Welding Experience. This course covers structural welding and the performance qualifications needed for the process of Shielded Metal Arc Welding. Welding test plates in the 1G-4G positions, joint geometry, and detail design will be taught using AWS D1.1 details for fit-up and welding. Also course will cover GMAW (Gas Metal Arc Welding) for those who would like the 1G and 2G positions. Upon successful completion of the course students will have gained the knowledge and skills required to pass welding test in the 1G-4G positions (flat, horizontal, vertical, and overhead).

Blueprint Reading/Welding Math (1 Credit)

The Welding Blueprint Reading course is an introduction to blueprint reading and drawing procedures used in the production areas of the welding industry. The course involves shape description, size description, and freehand sketching. It incorporates the reading and drawing of welding symbols as well as interpretation of industrial drawings used in the welding industry. Applied math for welders, is also included in the course and consists of a review of fractions, decimals, percentages, ratio/proportion calculations, and tape measure reading.

Occupational Safety & Health (1 Credit)

This course provides students with an understanding of current safety regulations, established safety practices, hazard recognition, and the impact of behavior and environment on injury prevention.

Introduction to Fabrication & Production (2 Credits)

This course prepares students for future employment by providing them with the information and skills to get a job and be successful on the job.

Mig Welding For Employment Certificate

- Blueprint Reading/welding Math (1 Credit)
- Employability Skills (1 Credit)
- Metal Inert Gas Welding (MIG) (3 Credits)

Pipe Welding Certificate

- Structural Welding (SMAW) (2 Credits)
- Petroleum Liquid & Gas Pipe Welding (SMAW) (3 Credits)

Metal Fabrication & Production Certificate

- Employability Skills (1 Credit)
- Applied Shop Mathematics (2 Credits)
- Introduction to Fabrication & Production (2 Credits)