# Skilled Trades and Agriculture

**Certificate of Proficiency**

| Degree | Required Credit Hours |
|---|---|
| Agriculture Business | 9 |
| Animal Science | 9 |
| Carpentry | 6 |
| CNC Operator | 14 |
| Commercial Vehicle Driving | 7 |
| Compact Equipment Operator | 8 |
| Drafting and Design | 12 |
| Drywall Installation and Finishing | 12 |
| Heating, Ventilation, and Air Conditioning | 15 |
| Heavy Equipment Operations | 15 |
| Masonry | 12 |
| Plant Science | 9 |
| Skilled Trades | 13-15 |
| Soil Science | 9 |
| Welding | 13 |

**Technical Certificate**

| Degree | Required Credit Hours |
|---|---|
| Agriculture Business | 30 |
| Agriculture Technology | 24 |
| Air Conditioning, Heating, and Refrigeration Technology | 30 |
| CNC Production Technician | 35 |
| Heavy Equipment Operations | 22 |
| Mechatronics | 27 |
| Skilled Trades | 31 |
| Welding Technology | 28 |

**Associate of Applied Science**

| Degree | Required Credit Hours |
|---|---|
| **General Technology** | 60 |
| **Industrial Technology** | 60 |

**Associate of Science**

| Degree | Required Credit Hours |
|---|---|
| **Agriculture Business** | 60 |
| **Agriculture Technology** | 60 |

## Certificate of Proficiency Agriculture Business

### Program Learning Outcomes

- Apply principles of agricultural economics, including supply and demand, market dynamics, and policy, to analyze agribusiness challenges.
- Communicate effectively in professional agricultural contexts through oral presentations and written reports.
- Use critical thinking to evaluate agricultural markets, production strategies, and economic decision-making processes.
- Collaborate with peers and industry professionals to integrate knowledge of agribusiness and connect classroom learning to real-world applications.
- Demonstrate professional and academic skills that prepare for successful careers in agricultural business.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Introduction to Agriculture Business** | AGEC 19203 | 3 |
| **Making Connections in Agriculture** | AGRI 19003 | 3 |
| **Oral Communication** | SPCH 10003 | 3 |

**Total Credit Hours Required for Credential Completion: 9**

## Certificate of Proficiency Animal Science

**Program Learning Objectives**

- Analyze concepts in animal science, including nutrition, reproduction, and management, to address challenges in animal agriculture.
- Communicate effectively about animal science and agricultural topics through professional presentations and discussions.
- Apply critical thinking to evaluate the economic, social, and ethical aspects of animal production systems.
- Collaborate with peers, industry experts, and the community to integrate knowledge from animal science into practical agricultural applications.
- Demonstrate skills in utilizing academic and professional resources to advance knowledge and career readiness in animal agriculture.

**Program Requirements**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Making Connections in Agriculture** | AGRI 19003 | 3 |
| **Introduction to Animal Science** | ANSC 19303 | 3 |
| **Oral Communication** | SPCH 10003 | 3 |

**Total Credit Hours Required for Credential Completion: 9**

## Certificate of Proficiency Carpentry

### Program Learning Outcomes

- Demonstrate the safe and proper use of hand and power tools.
- Demonstrate proficiency in material selection and assembly of basic wood framing.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Carpentry I** | CTTE 10206 | 6 |

**Total Credit Hours Required for Credential Completion: 6**

## Certificate of Proficiency CNC Operator

### Program Learning Outcomes

- Demonstrate workplace safety protocols and organization in a CNC machining environment.
- Set up and operate CNC machines for both lathe and milling operations.
- Interpret basic blueprints and perform basic metrology to ensure precise manufacturing outcomes.
- Solve basic job-related math problems necessary for CNC operations.
- Perform appropriate maintenance and troubleshooting on CNC machines to ensure optimal operation and minimize downtime.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **CNC Operator I** | MSTE 10147 | 7 |
| **CNC Operator II** | MSTE 10237 | 7 |

**Total Credit Hours Required for Credential Completion: 14**

## Certificate of Proficiency Commercial Vehicle Driving

**Program Learning Outcomes**

- Understand vehicle safety and accident prevention procedures.
- Understand and comply with vehicle operating regulations.
- Demonstrate proper cargo handling and documentation procedures.
- Demonstrate trip planning preparation procedures.
- Demonstrate vehicle inspection procedures.
- Demonstrate basic vehicle control procedures.
- Perform vehicle maintenance and servicing procedures.
- Demonstrate backing skills and basic vehicle maneuvers.
- Demonstrate coupling and uncoupling skills.
- Demonstrate road driving skills.
- Demonstrate hazardous driving skills.
- Apply concepts learned for obtaining a Commercial Driver's License (CDL).

**Program Requirements**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Commercial Vehicle Driving** | TRDR 19107 | 7 |

**Total Credit Hours Required for Credential Completion: 7**

## Certificate of Proficiency Compact Equipment Operator

**Program Learning Outcomes**

- Apply industry-approved safety practices during the operation of compact equipment.
- Conduct thorough equipment inspections to ensure proper maintenance for compact equipment.
- Efficiently operate compact equipment to complete various tasks.
- Apply problem-solving skills and communicate effectively in a simulated and real-world scenarios.
- Demonstrate specific techniques required for efficient earthmoving and material handling using compact equipment.

**Program Requirements**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| Compact Track Excavator Operator | CTTE 14004 | 4 |
| Compact Track Loader Operator | CTTE 14104 | 4 |

**Total Credit Hours Required for Credential Completion: 8**

## Certificate of Proficiency Drafting and Design

**Program Learning Outcomes**

- Demonstrate proficiency in mechanical and electrical computer-aided drafting using AutoCAD, showcasing technical skills and precision.
- Develop effective communication and collaboration skills for team-based drafting projects.
- Master the correct use of drafting tools and equipment, emphasizing safety practices in the workplace.
- Apply critical mathematical concepts, integrate AutoCAD seamlessly, and exhibit problem-solving and project management abilities in compliance with industry standards.

**Program Requirements**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Computer Aided Drafting and Design** | AMST 20303 | 3 |
| **Technical Methods** | TECH 10153 | 3 |
| **Engineering Drawings** | TECH 10253 | 3 |
| **Industrial Safety** | TECH 20053 | 3 |

**Total Credit Hours Require for Credential Completion: 12**

## Certificate of Proficiency Drywall and Finishing

**Program Learning Outcomes**

- Apply technical knowledge and skills to install, tape, and plaster drywall in both interior and exterior construction projects.
- Receive instruction in drywall handling, transport, cutting, mounting, taping, spackling, finishing, and other relevant techniques.
- Develop expertise in job analysis and estimation, considering factors such as materials, time, and labor.
- Acquire knowledge in site safety, including awareness of potential hazards and implementation of safety measures.
- Gain proficiency in the operation and maintenance of tools used in drywall installation.
- Interpret blueprints and specifications related to drywall construction, ensuring accurate implementation of project requirements.
- Familiarize oneself with applicable codes and standards governing drywall installation.
- Demonstrate the safe application of technical knowledge and skills through participation in a comprehensive project-based learning environment.

**Program Requirements**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Drywall Installation and Finishing** | CTTE 10306 | 6 |
| **Technical Methods** | TECH 10153 | 3 |
| **Industrial Safety** | TECH 20053 | 3 |

**Total Credit Hours Required for Credential Completion: 12**

## Certificate of Proficiency Heating, Ventilation, and Air Conditioning

**Program Learning Outcomes**

- Demonstrate basic understanding of Occupational Safety and Health Administration policies and procedures.
- Identify physical, mental, and industrial hazards in the workplace.
- Organize technical information appropriately using computer-based applications.
- Effectively demonstrate safe use of precision measuring devices.
- Identify quantities using engineering notation, metric prefixes, and units of measurement.
- Given circuit parameters, solve for current flow, voltages, resistances, and power.
- Given component parts, construct series and parallel circuits.
- Demonstrate use of a multi-meter to measure current, voltage, and resistance.
- Demonstrate use of an oscilloscope to measure frequency (cycles per second) and determine RMS and peak voltage values.

**Program Requirements**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **HVAC Fundamentals** | HVAC 10503 | 3 |
| **Technical Methods** | TECH 10153 | 3 |
| **DC Electricity** | TECH 10353 | 3 |
| **AC Electricity** | TECH 10453 | 3 |
| **Industrial Safety** | TECH 20053 | 3 |

**Total Credit Hours Required for Credential Completion: 15**

## Certificate of Proficiency Heavy Equipment Operations

### Program Learning Outcomes

- Apply industry-standard safety practices, including the use of personal protective equipment (PPE), to safely operate heavy equipment such as compact track loaders, bulldozers, cranes, or commercial vehicles.
- Conduct equipment inspections, perform basic maintenance, and identify mechanical issues to ensure proper functionality of heavy machinery.
- Demonstrate operational proficiency in heavy equipment, including start-up, shut-down, material handling, and earthmoving tasks, in simulated and real-world environments.
- Apply effective teamwork and communication skills in collaborative equipment operation scenarios.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Compact Track Excavator Operator** | CTTE 14004 | 4 |
| **Compact Track Loader Operator** | CTTE 14104 | 4 |

### Program Concentrations

Students must select and complete one of the following concentration tracks for credential completion.

### Heavy Machinery Concentration

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Track Dozer Operator** | CTTE 14204 | 4 |
| **Crane Operator** | CTTE 14303 | 3 |

### Commercial Vehicle Driving Concentration

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Commercial Vehicle Driving** | TRDR 19107 | 7 |

**Total Credit Hours Required for Credential Completion: 15**

## Certificate of Proficiency Masonry

**Program Learning Outcomes**

- Apply technical knowledge and skills in the laying and/or setting of exterior brick, concrete block, hard tile, or related materials using hand tools such as trowels, levels, hammers, chisels, etc.
- Receive introductory instruction in technical mathematics, emphasizing foundational mathematical concepts relevant to masonry work.
- Learn blueprint reading skills to interpret construction plans and specifications for accurate implementation of masonry projects.
- Gain expertise in structural masonry, including the construction and placement of load-bearing elements.
- Acquire skills in decorative masonry, exploring techniques to enhance the aesthetic appeal of masonry structures.
- Study foundations, reinforcement methods, and mortar preparation to ensure structural integrity and stability.
- Develop proficiency in cutting and finishing techniques for precise and polished masonry work.
- Familiarize oneself with applicable codes and standards governing masonry construction.
- Demonstrate the safe application of technical knowledge and skills through participation in a comprehensive project-based learning environment.

**Program Requirements**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Masonry I** | CTTE 10106 | 6 |
| **Technical Methods** | TECH 10153 | 3 |
| **Industrial Safety** | TECH 20053 | 3 |

**Total Credit Hours Required for Credential Completion: 12**

## Certificate of Proficiency Plant Science

**Program Learning Outcomes**

- Analyze plant growth, development, and environmental impacts using foundational plant science principles.
- Deliver professional presentations on agricultural and plant science topics with effective oral communication skills.
- Apply critical thinking to evaluate plant ecosystems, land use, and crop management practices.
- Collaborate with peers, industry experts, and the community to connect academic knowledge with real-world agricultural applications.
- Demonstrate academic and professional skills necessary for career readiness in agriculture.

**Program Requirements**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Making Connections in Agriculture** | AGRI 19003 | 3 |
| **Introduction to Plant Science** | PTSC 29103 | 3 |
| **Oral Communication** | SPCH 10003 | 3 |

**Total Credit Hours Required for Credential Completion: 9**

## Certificate of Proficiency Skilled Trades

### Program Learning Outcomes

- Demonstrate the safe and proper use of hand and power tools.
- Interpret engineering drawings.
- Demonstrate proficiency in material selection and assembly of basic framing (Construction Concentration).
- Select appropriate materials and components to properly install electrical circuitry (Mechatronics Concentration).
- Demonstrate proficiency in measuring, cutting, and shaping metal using thermal cutting equipment (Welding Concentration).

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Technical Methods** | TECH 10153 | 3 |
| **Engineering Drawings** | TECH 10253 | 3 |
| **Industrial Safety** | TECH 20053 | 3 |

### Program Concentrations

Students must select and complete one of the following concentration tracks for credential completion.

### Construction Concentration

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Carpentry I** | CTTE 10206 | 6 |

### Mechatronics Concentration

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **DC Electricity** | TECH 10353 | 3 |
| **AC Electricity** | TECH 10453 | 3 |

### Welding Concentration

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Introduction to Thermal Cutting** | WELD 10084 | 4 |

**Total Credit Hours Required for Credential Completion: 13-15**

## Certificate of Proficiency Soil Science

**Program Learning Outcomes**

- Analyze soil properties and management practices to support sustainable agriculture.
- Deliver professional presentations on agricultural topics using effective communication skills.
- Apply critical thinking to interpret soil data and solve agricultural challenges.
- Collaborate with peers and industry professionals to connect learning with real-world applications.
- Utilize academic and professional resources to advance skills in soil science and agriculture.

**Program Requirements**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Making Connections in Agriculture** | AGRI 19003 | 3 |
| **Soils** | CSES 20203 | 3 |
| **Oral Communication** | SPCH 10003 | 3 |

**Total Credit Hours Required for Credential Completion: 9**

## Certificate of Proficiency Welding

### Program Learning Outcomes

- Demonstrate basic understanding of Occupational Safety and Health Administration policies and procedures.
- Identify physical, mental, and industrial hazards in the workplace.
- Organize technical information appropriately using computer-based applications.
- Solve mathematical problems to properly convert units of measurement based upon industrial applications.
- Effectively demonstrate safe use of precision measuring devices.
- Interpret construction and electrical blueprints.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Technical Methods** | TECH 10153 | 3 |
| **Engineering Drawings** | TECH 10253 | 3 |
| **Industrial Safety** | TECH 20053 | 3 |
| **Welding 1** | WELD 11084 | 4 |

**Total Credit Hours Required for Credential Completion: 13**

## Technical Certificate Agriculture Business

### Program Learning Outcomes

- Analyze agricultural markets, financial statements, and economic trends to make informed business decisions in agricultural operations.
- Use computer software, accounting systems, and communication tools to manage and present information effectively in agricultural business settings.
- Evaluate the legal and regulatory environments impacting agricultural businesses and apply ethical decision-making to business practices.
- Apply mathematical reasoning to solve quantitative problems related to agricultural finance, production, and management.
- Develop and deliver professional oral and written presentations that effectively communicate agricultural business concepts to diverse audiences.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Principles of Accounting I** | ACCT 10003 | 3 |
| **Principles of Accounting II** | ACCT 10103 | 3 |
| **Introduction to Agriculture Business** | AGEC 19203 | 3 |
| **Making Connections in Agriculture** | AGRI 19003 | 3 |
| **Legal Environment of Business** | BLAW 20003 | 3 |
| **Business Statistics** | BUSI 21003 | 3 |
| **Macroeconomics** | ECON 21003 | 3 |
| **English Composition I** | ENGL 10103 | 3 |
| **College Algebra** | MATH 11003 | 3 |
| **Oral Communication** | SPCH 10003 | 3 |

**Total Credit Hours Required for Credential Completion: 30**

## Technical Certificate Agriculture Technology

### Program Learning Outcomes

- Apply foundational knowledge in soil science, plant science, animal science, and agricultural business to address challenges in agricultural technology.
- Communicate effectively through written and oral presentations, demonstrating proficiency in agricultural terminology and concepts.
- Use critical thinking and quantitative skills to analyze data, evaluate systems, and develop sustainable solutions in agricultural operations.
- Integrate knowledge across agricultural disciplines to solve real-world problems and adapt to advancements in agricultural technology.
- Demonstrate professional readiness through collaboration, effective resource management, and preparation for careers in modern agriculture.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Introduction to Agriculture Business** | AGEC 19203 | 3 |
| **Making Connections in Agriculture** | AGRI 19003 | 3 |
| **Introduction to Animal Science** | ANSC 19303 | 3 |
| **Soils** | CSES 20203 | 3 |
| **English Composition I** | ENGL 10103 | 3 |
| **College Algebra** | MATH 11003 | 3 |
| **Introduction to Plant Science** | PTSC 29103 | 3 |
| **Oral Communication** | SPCH 10003 | 3 |

**Total Credit Hours Required for Credential Completion: 24**

## Technical Certificate Air Conditioning, Heating, and Refrigeration Technology

### Program Learning Outcomes

- Understand the basic properties of the arithmetic of signed numbers, fractions, and decimals as well as the fundamental operations of algebra.
- Understand the basic principles of geometry including formulas for calculating area and volume of polygons.
- Understand the properties of solving elementary algebraic equations, manipulating formulas, ratios and proportions, and translating words into algebraic symbols.
- Understand the basic properties of right-angle trigonometry.
- Understand basic statistics.
- Read and follow basic instructions.
- Effectively use Standard English and technology to correspond professionally within the standard guidelines of business writing
- Identify and resolve problems by investigating appropriate courses of action
- Support different points of view with clarity, good research, credible evidence, and academic argument.
- Resolve conflicts by using sound reasoning.
- Demonstrate a commitment to excellence and good teamwork.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Internship** | BUSI 2653 | 3 |
| **Technical Writing for the Workplace** | ENGL 20203 | 3 |
| **HVAC Fundamentals** | HVAC 10503 | 3 |
| **HVAC Controls** | HVAC 11503 | 3 |
| **HVAC Troubleshooting** | HVAC 12503 | 3 |
| **Technical Methods** | TECH 10153 | 3 |
| **DC Electricity** | TECH 10353 | 3 |
| **AC Electricity** | TECH 10453 | 3 |
| **Industrial Safety** | TECH 20053 | 3 |

### Math Requirement

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Technical Math** | MATH 10103 | 3 |
| **College Algebra** | MATH 11003 | 3 |

**Total Credit Hours Required for Credential Completion: 30**

## Technical Certificate CNC Production Technician

### Program Learning Outcomes

- Program and set up CNC machining equipment for the accurate production of parts, ensuring adherence to blueprint specifications.
- Set up and produce parts using manual mills and lathes.
- Solve advanced job-related math problems and apply mathematical concepts necessary for CNC machining.
- Demonstrate professional conduct through communication and teamwork.
- Perform appropriate maintenance and troubleshooting on CNC equipment to ensure optimal operation and minimize downtime.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Technical Writing for the Workplace** | ENGL 20203 | 3 |
| **Technical Math*** | MATH 10103 | 3 |
| **CNC Operator I** | MSTE 10147 | 7 |
| **CNC Operator II** | MSTE 10237 | 7 |
| **CNC Production Technician I** | MSTE 10337 | 7 |
| **CNC Production Technician II** | MSTE 10437 | 7 |

**Or higher-level math course*

**Total Credit Hours Required for Program Completion: 34**

## Technical Certificate Heavy Equipment Operations

### Program Learning Outcomes

- Apply industry-standard safety practices, including the use of personal protective equipment (PPE), to safely operate heavy equipment such as compact track loaders, bulldozers, cranes, or commercial vehicles.
- Conduct equipment inspections, perform basic maintenance, and identify mechanical issues to ensure proper functionality of heavy machinery.
- Demonstrate operational proficiency in heavy equipment, including start-up, shut-down, material handling, and earthmoving tasks, in simulated and real-world environments.
- Apply effective teamwork and communication skills in collaborative equipment operation scenarios.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Compact Track Excavator Operator** | CTTE 14004 | 4 |
| **Compact Track Loader Operator** | CTTE 14104 | 4 |
| **Track Dozer Operator** | CTTE 14204 | 4 |
| **Crane Operator** | CTTE 14303 | 3 |
| **Commercial Vehicle Driving** | TRDR 19107 | 7 |

**Total Credit Hours Required for Credential Completion: 22**

## Technical Certificate Mechatronics

### Program Learning Outcomes

- Apply electrical circuitry principles and demonstrate advanced programming skills for mechatronics projects.
- Proficiently interface with various sensors and showcase expertise in actuating servo motors within embedded robotic systems.
- Demonstrate proficiency in serial communications, autonomously controlling and managing robotic systems through successful project integration.
- Apply lower-level programming concepts to solve real-world exercises, demonstrating practical skills.
- Demonstrate competence in utilizing computer numerical control machines, while exhibiting knowledge of safety practices and integrating diverse technical skills for complex mechatronics problem-solving.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Computer Aided Drafting and Design** | AMST 20303 | 3 |
| **Robotics** | AMST 21303 | 3 |
| **Technical Methods** | TECH 10153 | 3 |
| **Engineering Drawings** | TECH 10253 | 3 |
| **DC Electricity** | TECH 10353 | 3 |
| **AC Electricity** | TECH 10453 | 3 |
| **Industrial Safety** | TECH 20053 | 3 |

### English and Writing Requirement

3-4 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **English Composition I** | ENGL 10103 | 3 |
| **Technical Writing for the Workplace** | ENGL 20203 | 3 |

### Math Requirement

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Technical Math** | MATH 10103 | 3 |
| **College Algebra** | MATH 11003 | 3 |

**Total Credit Hours Required for Credential Completion: 27**

## Technical Certificate Skilled Trades

### Program Learning Outcomes

- Apply safety principles and protocols in industrial, construction, and electrical settings to ensure safe and effective work environments.
- Utilize technical math, engineering drawings, and computer-aided drafting tools to solve trade-specific problems and create industry-standard designs.
- Operate hand tools, power tools, and specialized equipment with proficiency to perform tasks in carpentry, drafting, and electrical work.
- Interpret and produce detailed blueprints and schematics for construction and industrial applications.
- Communicate technical information effectively through written reports, technical drawings, and workplace correspondence.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Computer Aided Drafting and Design** | AMST 20303 | 3 |
| **Carpentry I** | CTTE 10206 | 6 |
| **Technical Writing for the Workplace** | ENGL 20203 | 3 |
| **Technical Math** | MATH 10103 | 3 |
| **Technical Methods** | TECH 10153 | 3 |
| **Engineering Drawings** | TECH 10253 | 3 |
| **DC Electricity** | TECH 10353 | 3 |
| **AC Electricity** | TECH 10453 | 3 |
| **Industrial Safety** | TECH 20053 | 3 |

**Total Credit Hours Required for Credential Completion: 30**

## Technical Certificate Welding Technology

### Program Learning Objectives

- Create part designs, floor plan layouts, and assemblies on computer aided drafting software.
- Understand the basic properties of the arithmetic of signed numbers, fractions, and decimals as well as the fundamental operations of algebra.
- Understand the basic principles of geometry including formulas for calculating area and volume of polygons.
- Understand the properties of solving elementary algebraic equations, manipulating formulas, ratios and proportions, and translating words into algebraic symbols
- Understand the basic properties of right-angle trigonometry.
- Understand basic statistics.
- Read and follow basic instructions.
- Effectively use Standard English and technology to correspond professionally within the standard guidelines of business writing.
- Identify and resolve problems by investigating appropriate courses of action.
- Support different points of view with clarity, good research, credible evidence, and academic argument.
- Resolve conflicts by using sound reasoning.
- Demonstrate a commitment to excellence and good teamwork.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| Technical Writing for the Workplace | ENGL 20203 | 3 |
| Technical Methods | TECH 10153 | 3 |
| Engineering Drawings | TECH 10253 | 3 |
| Industrial Safety | TECH 20053 | 3 |
| Welding 1 | WELD 11084 | 4 |
| Welding 2 | WELD 12084 | 4 |
| Welding 3 | WELD 13084 | 4 |

### Math Requirement

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| Technical Math | MATH 10103 | 3 |
| College Algebra | MATH 11003 | 3 |

**Total Credit Hours Required for Credential Completion: 27**

## Associate of Applied Science General Technology

### Program Learning Objectives

- Improve communication skills, which include listening, speaking, writing, and reading.
- Increase proficiency with computation skills including understanding and applying mathematical concepts and reasoning as well as analyzing and using numerical data.
- Develop professional work habits, ethics, and interpersonal skills.
- Acquire and apply technical skills relevant to the select technical fields.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **English Composition I** | ENGL 10103 | 3 |

### Computer Science Requirement

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Computer Software Applications** | BUSI 10563 | 3 |
| **Introduction to Computers** | CPSI 10003 | 3 |

### English and Writing Requirement

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Technical Writing for the Workplace** | ENGL 20203 | 3 |
| **English Composition II** | ENGL 10203 | 3 |

### Math Requirement

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Technical Math** | MATH 10103 | 3 |
| **College Algebra** | MATH 11003 | 3 |
| **Quantitative Literacy** | MATH 11103 | 3 |

**Social Science Requirement**

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **World Civilization I** | HIST 11103 | 3 |
| **World Civilization II** | HIST 11203 | 3 |
| **United States History I** | HIST 21103 | 3 |
| **Arkansas History** | HIST 25503 | 3 |
| **United States Government** | PLSC 20003 | 3 |

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Cultural Anthropology** | ANTH 20103 | 3 |
| **Macroeconomics** | ECON 21003 | 3 |
| **Microeconomics** | ECON 22003 | 3 |
| **Introduction to Cultural Geography** | GEOG 21103 | 3 |
| **General Psychology** | PSYC 11003 | 3 |
| **Abnormal Psychology** | PSYC 21003 | 3 |
| **Developmental Psychology** | PSYC 21003 | 3 |
| **Principles of Sociology** | SOCI 10103 | 3 |

**Program Technical/Occupational Core**

Students must complete 42 credit hours from any of the following technical/occupational majors:

- Business
- CNC Production Technician
- Computer Technology
- Cosmetology
- Cybersecurity
- Entrepreneurship
- Heavy Equipment Operations
- Management and Supervision
- Mechatronics
- Software Development
- Skilled Trades

**Total Credit Hours Required for Credential Completion: 60**

## Associate of Applied Science Industrial Technology

### Program Learning Outcomes

- The student will gain a basic knowledge of the components of a Programmable Logic Control (PLC) system.
- The student will learn basic techniques to troubleshoot a PLC system.
- The student will gain basic knowledge about ladder logic diagrams.
- The student will learn basic procedures for programming a PLC.
- Know and apply physics laws and principles to situations likely to be encountered in the Industrial Technology environment.
- Synthesize understanding of physics laws and principles by applying knowledge to new and theoretical situations.
- Apply teamwork, problem solving, and troubleshooting skills to complete exercises and laboratory experiments efficiently, effectively, and creatively.
- Identify various components of an industrial motor control circuit.
- The student will demonstrate basic techniques for troubleshooting an industrial motor control circuit.
- Demonstrate fundamental knowledge about industrial symbols and diagrams.
- Display competency in connecting basic circuits for time delays, level controls, and rotation reversals for industrial motor control.
- The student will gain a basic knowledge of delta and WYE transformer connections used in power distribution systems.
- Reinforce essential Industrial Technology knowledge and skills through a Capstone based project.
- Apply knowledge and skills from previous courses to conceive, design, build, test, and operate an industrial machine.
- Respond appropriately to various rhetorical situations, purposes, and audiences.
- Use writing and reading for inquiry, learning, thinking, and communicating.
- Integrate original ideas with those of others.
- Develop flexible strategies for generating, revising, editing, and proof-reading.
- Use collaborative writing processes.
- Demonstrate knowledge of structure, paragraphing, tone, mechanics, syntax, grammar, and documentation
- Create and format Word documents, tables, and graphics.
- Create and format Excel workbooks and charts, and use Excel functions and tables.
- Create Access databases, tables, queries, forms, and reports.
- Create and format PowerPoint presentations, and present data using tables, charts, and animation.

**Program Requirements**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Computer Aided Drafting and Design** | AMST 20303 | 3 |
| **Fluid Power** | AMST 20403 | 3 |
| **Programmable Logic Controllers** | AMST 20504 | 4 |
| **English Composition I** | ENGL 10103 | 3 |
| **Technical Writing for the Workplace** | ENGL 20203 | 3 |
| **Technical Math** | MATH 10103 | 3 |
| **Technical Methods** | TECH 10153 | 3 |
| **Engineering Drawings** | TECH 10253 | 3 |
| **DC Electricity** | TECH 10353 | 3 |
| **AC Electricity** | TECH 10453 | 3 |
| **Industrial Safety** | TECH 20053 | 3 |
| **Electronic Motor Control** | TECH 20153 | 3 |
| **Industrial Technology Capstone** | TECH 21054 | 4 |
| **Foundations of Personal Finance** | UNIV 10071 | 1 |

**Computer Science Requirement**

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Computer Software Applications** | BUSI 10563 | 3 |
| **Digital Literacy** | BUSI 10663 | 3 |

**Social Science Requirement**

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Cultural Anthropology** | ANTH 20103 | 3 |
| **Macroeconomics** | ECON 21003 | 3 |
| **Microeconomics** | ECON 22003 | 3 |
| **Introduction to Cultural Geography** | GEOG 21103 | 3 |
| **World Civilization I** | HIST 11103 | 3 |
| **World Civilization II** | HIST 11203 | 3 |
| **United States History I** | HIST 21103 | 3 |
| **United States History II** | HIST 21203 | 3 |
| **United States Government** | PLSC 20003 | 3 |
| **General Psychology** | PSYC 11003 | 3 |

| | | |
|---|---|---|
| **Abnormal Psychology** | PSYC 21003 | 3 |
| **Developmental Psychology** | PSYC 21003 | 3 |
| **Principles of Sociology** | SOCI 10103 | 3 |
| **Social Problems** | SOCI 20103 | 3 |

**Program Concentrations**

Students must select and complete one of the following concentration tracks for credential completion.

**Construction Concentration**

12 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Masonry I** | CTTE 10106 | 6 |
| **Carpentry I** | CTTE 10206 | 6 |
| **Drywall Installation and Finishing** | CTTE 10306 | 6 |

**Heating, Ventilation, and Air Conditioning Concentration**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Internship** | BUSI 26543 | 3 |
| **HVAC Fundamentals** | HVAC 10503 | 3 |
| **HVAC Controls** | HVAC 11503 | 3 |
| **HVAC Troubleshooting** | HVAC 12503 | 3 |

**Mechatronics Concentration**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Robotics** | AMST 21303 | 3 |
| **Introduction to CNC Machinery** | AMST 22333 | 3 |
| **Internship** | BUSI 26543 | 3 |
| **Mechanical Drive Systems** | TECH 24303 | 3 |

**Welding Concentration**

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Welding 1** | WELD 11084 | 4 |
| **Welding 2** | WELD 12084 | 4 |

| | | |
|---|---|---|
| **Welding 3** | WELD 13084 | 4 |

**Total Credit Hours Required for Credential Completion: 60**

## Associate of Science Agriculture Business

### Program Learning Outcomes

- Analyze agricultural markets, financial data, and economic trends to make informed decisions in agricultural business operations.
- Use computer software, accounting systems, and statistical tools to solve business challenges and manage agricultural data.
- Apply principles of biology, chemistry, and business law to address agricultural production and management issues.
- Develop and deliver effective oral and written presentations that communicate agricultural business concepts to diverse audiences.
- Evaluate the impact of cultural, historical, and social factors on agricultural practices and business operations.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Principles of Accounting I** | ACCT 10003 | 3 |
| **Principles of Accounting II** | ACCT 10103 | 3 |
| **Agriculture Science Lab** | AGRI 19001 | 1 |
| **Making Connections in Agriculture** | AGRI 19003 | 3 |
| **Introduction to Agriculture Business** | AGRI 19203 | 3 |
| **Legal Environment of Business** | BLAW 20003 | 3 |
| **Biology for Majors Lab** | BIOL 10101 | 1 |
| **Biology for Majors** | BIOL 10103 | 3 |
| **Business Statistics** | BUSI 21003 | 3 |
| **College Chemistry I Lab** | CHEM 14101 | 1 |
| **College Chemistry I** | CHEM 14103 | 3 |
| **Macroeconomics** | ECON 21003 | 3 |
| **English Composition I** | ENGL 10103 | 3 |
| **English Composition II** | ENGL 10203 | 3 |
| **College Algebra** | MATH 11003 | 3 |
| **Oral Communication** | SPCH 10003 | 3 |

### Agriculture Requirement

6 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Introduction to Animal Science** | ANSC 19303 | 3 |
| **Soils** | CSEC 20203 | 3 |
| **Introduction to Plant Science** | PTSC 29103 | 3 |

**Fine Arts and Humanities Requirement**

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Visual Art** | ARHS 10003 | 3 |
| **Music** | MUSC 10003 | 3 |
| **Theater** | THTR 10003 | 3 |

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **World Literature I** | ENGL 21103 | 3 |
| **World Literature II** | ENGL 21203 | 3 |
| **Introduction to Philosophy** | PHIL 11003 | 3 |

**Social Science Requirement**

6 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Introduction to Cultural Geography** | GEOG 21103 | 3 |
| **World Civilization I** | HIST 11103 | 3 |
| **World Civilization II** | HIST 11203 | 3 |
| **United States History I** | HIST 21103 | 3 |
| **United States History II** | HIST 21203 | 3 |
| **United States Government** | PLSC 20003 | 3 |
| **Principles of Sociology** | SOCI 10103 | 3 |

**Total Credit Hours Required for Credential Completion: 60**

## Associate of Science Agriculture Technology

### Program Learning Outcomes

- Evaluate agricultural systems by applying principles of soil science, plant science, and animal science to recommend solutions for sustainable operations.
- Use mathematical reasoning and technical tools, such as data analysis and industry software, to solve practical problems in agricultural business and production.
- Develop written and oral presentations that synthesize research, data, and technical knowledge to address agricultural challenges effectively.
- Collaborate on projects that assess agricultural practices, demonstrating the ability to integrate business principles with environmental and production goals.
- Analyze the impacts of agricultural policies and market trends through research and evaluation, demonstrating informed decision-making and ethical responsibility.

### Program Requirements

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Agriculture Science Lab** | AGRI 19001 | 1 |
| **Making Connections in Agriculture** | AGRI 19003 | 3 |
| **Introduction to Agriculture Business** | AGRI 19203 | 3 |
| **Agriculture Internship** | AGRI 29303 | 3 |
| **Introduction to Animal Science** | ANSC 19303 | 3 |
| **Biology for Majors Lab** | BIOL 10101 | 1 |
| **Biology for Majors** | BIOL 10103 | 3 |
| **Statistics** | BUSI 21003 | 3 |
| **College Chemistry I Lab** | CHEM 14101 | 1 |
| **College Chemistry I** | CHEM 14103 | 3 |
| **Soils** | CSEC 20203 | 3 |
| **Macroeconomics** | ECON 21003 | 3 |
| **English Composition I** | ENGL 10103 | 3 |
| **English Composition II** | ENGL 10203 | 3 |
| **College Algebra** | MATH 11003 | 3 |
| **Introduction to Plant Science** | PTSC 29103 | 3 |
| **Oral Communication** | SPCH 10003 | 3 |

**Fine Arts and Humanities Requirement**

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Visual Art** | ARHS 10003 | 3 |
| **Music** | MUSC 10003 | 3 |
| **Theater** | THTR 10003 | 3 |

3 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **World Literature I** | ENGL 21103 | 3 |
| **World Literature II** | ENGL 21203 | 3 |
| **Introduction to Philosophy** | PHIL 11003 | 3 |

**Social Science Requirement**

9 credit hours from the following required:

| Course Name | Course Number | Credit Hours |
|---|---|---|
| **Introduction to Cultural Geography** | GEOG 21103 | 3 |
| **World Civilization I** | HIST 11103 | 3 |
| **World Civilization II** | HIST 11203 | 3 |
| **United States History I** | HIST 21103 | 3 |
| **United States History II** | HIST 21203 | 3 |
| **United States Government** | PLSC 20003 | 3 |
| **Principles of Sociology** | SOCI 10103 | 3 |

**Total Credit Hours Required for Credential Completion: 60**