Skilled Trades and Agriculture

Agriculture Degrees and Certificates	Required Credit Hours
Certificate of Proficiency Agriculture Business	9
Technical Certificate Agriculture Business	30
Associate of Science Agriculture Business	60

Farm and Ranch Management Degrees and Certificates	Required Credit Hours
Certificate of Proficiency Agriculture Drone Technology	12
Technical Certificate Precision Agriculture	30
Associate of Applied Science Farm and Ranch Management	60

Skilled Trades Degrees and Certificates	Required Credit Hours
Certificate of Proficiency Carpentry	6
Certificate of Proficiency Skilled Trades	13-15
Certificate of Proficiency Basic Machining	12
Technical Certificate Industrial Maintenance	30
Certificate of Proficiency Heating, Ventilation, and Air Conditioning	15
Technical Certificate Air Conditioning, Heating, and Refrigeration Technology	30
Certificate of Proficiency Welding	13
Technical Certificate Welding Technology	28
Associate of Applied Science Industrial Technology	60
Transportation and Equipment Degrees	**Required Credit Hours**
Certificate of Proficiency Commercial Vehicle Driving	7

Skilled Trades Degrees and Certificates	Required Credit Hours
Certificate of Proficiency Compact Equipment Operator	8
Certificate of Proficiency Heavy Equipment Operator	15
Technical Certificate Heavy Equipment Operator	22

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

Suggested Course Sequence

Term	Course Name	Course Number	Total Credit Hours
Fall	Introduction to Agriculture Business Making Connections in Agriculture Oral Communication	AGEC 19203 AGRI 19003 SPCH 10003	9

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

Suggested Course Sequence – Technical Certificate Agriculture Business

Term	Course Name	Course Number	Total Credit Hours
Fall	Making Connections in Agriculture	AGRI 19003	15
	Introduction to Agriculture Business	AGEC 19203	
	College Algebra	MATH 11003	
	Legal Environment of Business	BLAW 20003	
	Principles of Accounting I	ACCT 10003	
Spring	Oral Communication	SPCH 10003	15
	Principles of Accounting II	ACCT 10103	
	English Composition I	ENGL 10103	
	Macroeconomics	ECON 21003	
	Statistics	BUSI 21003	

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
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 **Biology for Majors**	BIOL 10101 BIOL 10103	1 3
Business Statistics	BUSI 21003	3
College Chemistry I Lab **College Chemistry I**	CHEM 14101 CHEM 14103	1 3
Soils	CSES 20203	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
Foundations of Personal Finance	UNIV 10071	1

Agriculture Requirement

3 credit hours from the following required:

Course Name	Course Number	Credit Hours
Crop Production (Spring Only)	AGRI 26103	3
Livestock Production	AGRI 28103	3

Fine Arts 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 Sciences 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

Suggested Course Sequence – Associate of Science Agriculture Business

Term	Course Name	Course Number	Total Credit Hours
1st Fall	Making Connections in Agriculture	AGRI 19003	15
	Introduction to Agriculture Business	AGEC 19203	
	College Algebra	MATH 11003	
	Legal Environment of Business	BLAW 20003	
	Principles of Accounting I	ACCT 10003	
1st Spring	Oral Communication	SPCH 10003	15
	Principles of Accounting II	ACCT 10103	
	English Composition I	ENGL 10103	
	Macroeconomics	ECON 21003	
	Business Statistics	BUSI 21003	
2nd Fall	Soils	CSES 20203	16
	English Composition II	ENGL 10203	
	College Chemistry Lecture I	CHEM 14103	
	College Chemistry Lab I	CHEM 14101	
	Fine Arts Requirement		
	Social Sciences Requirement		
2nd Spring	Agriculture Requirement		14
	Humanities Requirement		
	Biology for Majors Lecture	BIOL 10103	
	Biology for Majors Lab	BIOL 10101	
	Social Sciences Requirement		
	Foundations of Personal Finance	UNIV 10071	

Certificate of Proficiency Agriculture Drone Technology

Program Learning Outcomes

- Demonstrate foundational knowledge of Geographic Information Systems (GIS), remote sensing, and Unmanned Aerial Systems (UAS) to collect, analyze, and interpret agricultural data.
- Apply critical thinking and problem-solving skills to implement precision agriculture techniques, including data-driven decision-making to optimize crop and livestock management.
- Operate drones and remote sensing equipment safely and effectively, ensuring compliance with regulations and best practices in agricultural contexts.
- Collaborate with peers, industry professionals, and community stakeholders to develop practical applications of agricultural technology.

Program Requirements

Course Name	Course Number	Credit Hours
Making Connections in Agriculture	AGRI 19003	3
Precision Agriculture I	AGRI 12103	3
Unmanned Aerial Systems	AGRI 14103	3
Fundamentals of Remote Sensing and Imagery Analysis	AGRI 24103	3

Total Credit Hours Require for Credential Completion: 12

Suggested Course Sequence

Term	Course Name	Course Number	Total Credit Hours
Fall	Making Connections in Agriculture Precision Agriculture I Unmanned Aerial Systems Fund. of Remote Sensing and Imagery Analysis	AGRI 19003 AGRI 12103 AGRI 14103 AGRI 24103	12

Technical Certificate Precision Agriculture

Program Learning Outcomes

- Demonstrate safe and effective use of agricultural equipment, tools, and precision technologies.
- Apply precision agriculture technologies including GPS, GIS, remote sensing, and data management tools.
- Perform basic troubleshooting, maintenance, and operation of agricultural machinery and mechanical systems.
- Interpret and analyze agricultural production data.
- Communicate technical agricultural information effectively.

Program Requirements

Course Name	Course Number	Credit Hours
Making Connections in Agriculture	AGRI 19003	3
Farm and Ranch Safety	AGRI 10103	3
Agricultural Operations I	AGRI 11103	3
Agricultural Operations II	AGRI 11203	3
Precision Agriculture I	AGRI 12103	3
Agricultural Mechanics and Equipment	AGRI 10203	3
Technical Writing for the Workplace	ENGL 20203	3
Technical Mathematics	MATH 10103	3
Oral Communication	SPCH 10003	3

Agriculture Requirement

3 credit hours from the following required:

Course Name	Course Number	Credit Hours
Crop Production	AGRI 26103	3
Livestock Production	AGRI 28103	3

Total Credit Hours Required for Credential Completion: 30

Suggested Course Sequence – Technical Certificate Precision Agriculture

Term	Course Name	Course Number	Total Credit Hours
Fall	Farm and Ranch Safety	AGRI 10103	15
	Making Connections in Agriculture	AGRI 19003	
	Agricultural Operations I	AGRI 11103	
	Precision Agriculture I	AGRI 12103	
	Oral Communications	SPCH 10003	
Spring	Agricultural Operations II	AGRI 11203	15
	Agriculture Requirement		
	Agricultural Mechanics and Equipment	AGRI 10203	
	Technical Mathematics	MATH 10103	
	Technical Writing for the Workplace	ENGL 20203	

Associate of Applied Science Farm and Ranch Management (FARM)

Program Learning Outcomes

- Operate and maintain agricultural equipment and machinery safely while applying industry safety standards and protocols.
- Apply precision agriculture technologies including GPS, GIS, remote sensing, and data management tools to optimize crop and livestock production systems.
- Implement integrated crop or livestock management practices including nutrient management, pest control, and sustainable production strategies.
- Develop and analyze farm business plans, financial statements, and production records to support data-driven management decisions.
- Demonstrate technical proficiency within a chosen concentration area through applied projects and hands-on assessments.

Program Requirements

Course Name	Course Number	Credit Hours
Making Connections in Agriculture	AGRI 19003	3
Farm and Ranch Safety	AGRI 10103	3
Agriculture Mechanics and Equipment	AGRI 10203	3
Farm and Operations Management	AGRI 20103	3
Agricultural Operations I	AGRI 11103	3
Agricultural Operations II	AGRI 11203	3
Agricultural Operations III	AGRI 11303	3
Agriculture Internship	AGRI 29303	3
Precision Agriculture I	AGRI 12103	3
Precision Agriculture II	AGRI 22103	3
Unmanned Aerial Systems	AGRI 14103	3
Fundamentals of Remote Sensing and Imagery Analysis	AGRI 24103	3
Technical Writing for the Workplace	ENGL 20203	3
Technical Mathematics	MATH 10103	3
Oral Communication	SPCH 10003	3
United States Government	PLSC 20003	3

Program Concentrations

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

Livestock and Poultry Concentration

Course Name	Course Number	Credit Hours
Livestock Production	AGRI 28103	3
Poultry Production	AGRI 27103	3
Animal Nutrition	AGRI 28203	3
Animal Health	AGRI 28303	3

Crops Concentration

Course Name	Course Number	Credit Hours
Crop Production	AGRI 26103	3
Soils	CSES 20203	3
Crop Management	AGRI 26203	3
Pest Management	AGRI 26303	3

Total Credit Hours Required for Credential Completion: 60

Suggested Course Sequence – Associate of Applied Science FARM Livestock and Poultry Concentration

Term	Course Name	Course Number	Total Credit Hours
1st Fall	Making Connections in Agriculture	AGRI 19003	15
	Agricultural Operations I	AGRI 11103	
	Precision Agriculture I	AGRI 12103	
	Unmanned Aerial Systems	AGRI 14103	
	Farm and Ranch Safety	AGRI 10103	
1st Spring	Agricultural Operations II	AGRI 11203	15
	Livestock Production	AGRI 28103	
	Agricultural Mechanics and Equipment	AGRI 10203	
	Technical Writing for the Workplace	ENGL 20203	
	Technical Mathematics	MATH 10103	
2nd Fall	Agricultural Operations III	AGRI 11303	15
	Fund. of Remote Sensing and Imagery Analysis	AGRI 24103	
	Precision Agriculture II	AGRI 22103	
	Poultry Production	AGRI 27103	
	Oral Communications	SPCH 10003	
2nd Spring	Agriculture Internship	AGRI 29303	15
	Farm and Operations Management	AGRI 20103	
	Animal Nutrition	AGRI 28203	
	Animal Health	AGRI 28303	
	United States Government	PLSC 20003	

Suggested Course Sequence – Associate of Applied Science FARM Crop Concentration

Term	Course Name	Course Number	Total Credit Hours
1st Fall	Making Connections in Agriculture	AGRI 19003	15
	Agricultural Operations I	AGRI 11103	
	Precision Agriculture I	AGRI 12103	
	Unmanned Aerial Systems	AGRI 14103	
	Farm and Ranch Safety	AGRI 10103	
1st Spring	Agricultural Operations II	AGRI 11203	15
	Crop Production	AGRI 26203	
	Agricultural Mechanics and Equipment	AGRI 10203	
	Technical Writing for the Workplace	ENGL 20203	
	Technical Mathematics	MATH 10103	
2nd Fall	Agricultural Operations III	AGRI 11303	15
	Fund. of Remote Sensing and Imagery Analysis	AGRI 24103	
	Precision Agriculture II	AGRI 22103	
	Soils	CSES 20203	
	Oral Communications	SPCH 10003	
2nd Spring	Agriculture Internship	AGRI 29303	15
	Farm and Operations Management	AGRI 20103	
	Crop Management	AGRI 26203	
	Pest Management	AGRI 26303	
	United States Government	PLSC 20003	

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

This certificate is currently offered only to concurrently enrolled high school students.

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

Construction and Welding Concentrations are currently offered only to concurrently enrolled high school students.

Construction Concentration

Course Name	Course Number	Credit Hours
Carpentry I	CTTE 10206	6

Welding Concentration

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

Total Credit Hours Required for Credential Completion: 13-15

This certificate is currently offered only to concurrently enrolled high school students.

Certificate of Proficiency Basic Machining

Program Learning Outcomes

- Apply industry-standard safety practices in industrial and maintenance environments.
- Interpret basic technical drawings and documentation.
- Use technical methods and foundational math skills to support maintenance tasks.
- Demonstrate entry-level machining and measurement skills.

Program Requirements

Course Name	Course Number	Credit Hours
Basic Machining	MSTE 12003	3
Technical Methods	TECH 10253	3
Engineering Drawings	TECH 10153	3
Industrial Safety	TECH 20053	3

Total Credit Hours Required for Credential Completion: 12

Suggested Course Sequence

Term	Course Name	Course Number	Total Credit Hours
Fall	Basic Machining Technical Methods Engineering Drawings Industrial Safety	MSTE 12003 TECH 10153 TECH 10253 TECH 20053	12

Technical Certificate Industrial Maintenance

Program Learning Outcomes

- Demonstrate safe work practices and compliance with industry safety standards in industrial environments.
- Interpret technical documents, drawings, and specifications relevant to maintenance tasks.
- Communicate effectively in a technical workplace using appropriate written and digital tools
- Apply fundamental machining, welding, carpentry, and masonry skills to support maintenance and repair activities.
- Utilize basic technical methods and problem-solving skills to address common industrial maintenance issues.
- Demonstrate digital literacy skills relevant to modern industrial and maintenance operations.

Program Requirements

Course Name	Course Number	Credit Hours
Basic Machining	MSTE 12003	3
Engineering Drawings	TECH 10253	3
Technical Methods	TECH 10153	3
Industrial Safety	TECH 20053	3
Basic Carpentry and Masonry	CTTE 10103	3
Maintenance Welding	WELD 10053	3
Technical Writing for the Workplace	ENGL 20203	3
Technical Mathematics	MATH 10103	3
Digital Literacy	BUSI 10663	3

Total Credit Hours Required for Credential Completion: 27

Suggested Course Sequence – Technical Certificate Industrial Maintenance

Term	Course Name	Course Number	Total Credit Hours
Fall	Basic Machining	MSTE 12003	15
	Engineering Drawings	TECH 10253	
	Technical Methods	TECH 10153	
	Industrial Safety	TECH 20053	
	Technical Mathematics	MATH 10103	
Spring	Basic Carpentry and Masonry	CTTE 10103	12
	Technical Writing for the Workplace	ENGL 29293	
	Digital Literacy	BUSI 10063	
	Maintenance Welding	WELD 10053	

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

Suggested Course Sequence

Term	Course Name	Course Number	Total Credit Hours
Fall	HVAC Fundamentals Technical Methods DC Electricity AC Electricity Industrial Safety	HVAC 10503 TECH 10153 TECH 10353 TECH 10453 TECH 20053	15

Technical Certificate Air Conditioning, Heating, and Refrigeration Technology

Program Learning Outcomes

- Demonstrate a comprehensive understanding of OSHA safety standards and EPA 608 regulations by consistently applying safe workplace practices and proper refrigerant handling, recovery, and disposal techniques.
- Diagnose, troubleshoot, and repair mechanical and electrical malfunctions within residential and light commercial HVAC systems, including air conditioners, heating units, and heat pumps.
- Apply principles of AC/DC electricity and engineering notation to construct, analyze, and test electrical circuits using multimeters and oscilloscopes to manage HVAC system controls.
- Interpret and create technical drawings and schematics to guide system installations, while utilizing professional technical communication skills to document findings and interface with stakeholders.
- Solve real-world industrial problems related to system load, sizing, and equipment calibration by calculating algebraic and geometric variables found in technical mathematical formulas.

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 Mathematics	MATH 10103	3
College Algebra	MATH 11003	3

Total Credit Hours Required for Credential Completion: 30

Suggested Course Sequence – Technical Certificate Air Conditioning, Heating, and Refrigeration Technology

Term	Course Name	Course Number	Total Credit Hours
Fall	HVAC Fundamentals	HVAC 10503	15
	Technical Methods	TECH 10153	
	DC Electricity	TECH 10353	
	AC Electricity	TECH 10453	
	Industrial Safety	TECH 20053	
Spring	Internship	BUSI 26543	15
	Technical Writing for the Workplace	ENGL 20203	
	HVAC Controls	HVAC 11503	
	HVAC Troubleshooting	HVAC 12503	
	Technical Math	MATH 10103	

Certificate of Proficiency Welding

Program Learning Outcomes

- Demonstrate competency in GMAW processes and safety standards.
- Interpret blueprints and welding symbols for fabrication projects.
- Apply basic measurement, cutting, and fabrication techniques used in manufacturing.
- Operate and maintain welding equipment following OSHA and industry standards.

Program Requirements

Course Name	Course Number	Credit Hours
Technical Methods	TECH 10153	3
Engineering Drawings	TECH 10253	3
Industrial Safety	TECH 20053	3
Gas Metal Arc Welding	WELD 12084	4

Total Credit Hours Required for Credential Completion: 13

Suggested Course Sequence

Term	Course Name	Course Number	Total Credit Hours
Fall or Spring	Technical Methods Engineering Drawings Industrial Safety Gas Metal Arc Welding	TECH 10153 TECH 10253 TECH 20053 WELD 12084	13

Technical Certificate Welding Technology

Program Learning Objectives

- Demonstrate proficiency in Shielded Metal Arc Welding (SMAW) and Gas Tungsten Arc Welding (GTAW) techniques.
- Apply workplace safety practices and procedures consistent with OSHA and industry standards.
- Interpret and utilize blueprints, welding symbols, and fabrication drawings in project applications.
- Select and apply appropriate welding processes and materials for various industrial and fabrication settings.
- Communicate effectively and demonstrate workplace professionalism essential for success in welding-related careers.

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
Technical Mathematics	MATH 10103	3
Sheet Metal Arc Welding	WELD 11084	4
Gas Tungsten Arc Welding	WELD 13084	4

Welding Requirement

4 credit hours from the following required:

Course Name	Course Number	Credit Hours
Gas Metal Arc Welding	WELD 12084	4
Pipe and Tube Welding	WELD 14084	4

Total Credit Hours Required for Credential Completion: 27

Suggested Course Sequence – Technical Certificate Welding Technology – Manufacturing Focused Elective Choice

Term	Course Name	Course Number	Total Credit Hours
Fall	Technical Mathematics	MATH 10103	16
	Technical Methods	TECH 10153	
	Engineering Drawings	TECH 10253	
	Industrial Safety	TECH 20053	
	Gas Metal Arc Welding	WELD 12084	
Spring	Technical Writing for the Workplace	ENGL 20203	11
	Shielded Metal Arc Welding	WELD 11084	
	Gas Tungsten Arc Welding	WELD 13084	

Suggested Course Sequence – Technical Certificate Welding Technology – Construction and Pipe Focused Elective Choice

Term	Course Name	Course Number	Total Credit Hours
Fall	Technical Mathematics	MATH 10103	16
	Technical Methods	TECH 10153	
	Engineering Drawings	TECH 10253	
	Industrial Safety	TECH 20053	
	Shielded Metal Arc Welding	WELD 11084	
Spring	Technical Writing for the Workplace	ENGL 20203	11
	Gas Tungsten Arc Welding	WELD 13084	
	Pipe and Tube Welding	WELD 14084	

Associate of Applied Science Industrial Technology

Program Learning Outcomes

- Apply safety procedures, workplace protocols, and quality assurance practices in industrial environments.
- Demonstrate proficiency in interpreting blueprints, technical drawings, and schematics to solve job-related problems.
- Utilize tools, equipment, and technologies common to industrial and manufacturing settings.
- Apply mathematical, mechanical, and electrical principles to troubleshoot and repair systems.
- Demonstrate effective communication, teamwork, and professional conduct in diverse workplace settings.
- Integrate problem-solving and critical-thinking skills to plan, design, and implement industrial projects.
- Demonstrate technical proficiency within a chosen concentration area through applied projects and hands-on assessments.

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
Digital Literacy	BUSI 10663	3
English Composition I	ENGL 10103	3
Technical Writing for the Workplace	ENGL 20203	3
Technical Mathematics	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
Electric Motor Control	TECH 20153	3
Industrial Technology Capstone	TECH 21054	4
Foundations of Personal Finance	UNIV 10071	1

Computer Sciences 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 Sciences 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:

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

Industrial Maintenance

Course Name	Course Number	Credit Hours
Basic Machining	MSTE 12003	3
Basic Carpentry and Masonry	CTTE 10103	3
Maintenance Welding	WELD 10083	3
Preventative Maintenance and Troubleshooting	AMST 24003	3

Welding

Course Name	Course Number	Credit Hours
Shielded Metal Arc Welding	WELD 11084	4
Gas Metal Arc Welding or **Pipe and Tube Welding**	WELD 12084 or WELD 14084	4
Gas Tungsten Arc Welding	WELD 13084	4

Total Credit Hours Required for Credential Completion: 60

Suggested Course Sequence – Associate of Applied Science Industrial Technology Industrial Maintenance Concentration

Term	Course Name	Course Number	Total Credit Hours
1st Fall	Technical Mathematics Basic Machining Engineering Drawings Technical Methods Industrial Safety	MATH 10103 MSTE 12003 TECH 10253 TECH 10153 TECH 20053	15
1st Spring	Basic Carpentry and Masonry Technical Writing for the Workplace Maintenance Welding Computer Science Requirement Social Science Requirement	CTTE 10103 ENGL 20203 WELD 10083	15
2nd Fall	Computer Aided Drafting and Design English Composition I DC Electricity AC Electricity Personal Finance	AMST 20203 ENGL 10103 TECH 10353 TECH 10453 UNIV 10071	13
2nd Spring	Fluid Power Programmable Logic Controllers Preventative Maint. and Troubleshooting Electric Motor Control Industrial Technology Capstone	AMST 20403 AMST 20504 AMST 24003 TECH 21053 TECH 21054	17

Suggested Course Sequence – Associate of Applied Science Industrial Technology Heating, Ventilation, and Air Conditioning Concentration

Term	Course Name	Course Number	Total Credit Hours
1st Fall	HVAC Fundamentals Technical Methods DC Electricity AC Electricity Industrial Safety	HVAC 10503 TECH 10153 TECH 10353 TECH 10453 TECH 20053	15
1st Spring	Internship Technical Writing for the Workplace HVAC Controls HVAC Troubleshooting Technical Mathematics	BUSI 26543 ENGL 20203 HVAC 11503 HVAC 12503 MATH 10103	15
2nd Fall	Computer Aided Drafting and Design English Composition I Engineering Drawings Computer Science Requirement Social Science Requirement	AMST 20303 ENGL 10103 TECH 10253	15
2nd Spring	Fluid Power Programmable Logic Controllers Electric Motor Control Industrial Technology Capstone Personal Finance	AMST 20403 AMST 20504 TECH 20153 TECH 21054 UNIV 10071	15

Suggested Course Sequence – Associate of Applied Science Industrial Technology Welding Concentration - Manufacturing

Term	Course Name	Course Number	Total Credit Hours
1st Fall	Technical Math Technical Methods Engineering Drawings Industrial Safety Gas Metal Arc Welding	MATH 10103 TECH 10153 TECH 10253 TECH 20053 WELD 12084	16
1st Spring	Digital Literacy Technical Writing for the Workplace Personal Finance Shielded Metal Arc Welding Gas Tungsten Arc Welding	BUSI 10663 ENGL 20203 UNIV 10071 WELD 11084 WELD 13084	15
2nd Fall	Computer Aided Drafting and Design English Composition I DC Electricity AC Electricity Social Science Requirement	AMST 20303 ENGL 10103 TECH 10353 TECH 10453	15
2nd Spring	Fluid Power Programmable Logic Controllers Electric Motor Control Industrial Technology Capstone	AMST 20403 AMST 20504 TECH 20153 TECH 21054	14

Suggested Course Sequence – Associate of Applied Science Industrial Technology Welding Concentration - Construction

Term	Course Name	Course Number	Total Credit Hours
1st Fall	Technical Math Technical Methods Engineering Drawings Industrial Safety Gas Metal Arc Welding	MATH 10103 TECH 10153 TECH 10253 TECH 20053 WELD 12084	16
1st Spring	Digital Literacy Technical Writing for the Workplace Personal Finance Shielded Metal Arc Welding Gas Tungsten Arc Welding	BUSI 10663 ENGL 20203 UNIV 10071 WELD 11084 WELD 13084	15
2nd Fall	Computer Aided Drafting and Design English Composition I DC Electricity AC Electricity Social Science Requirement	AMST 20303 ENGL 10103 TECH 10353 TECH 10453	15
2nd Spring	Fluid Power Programmable Logic Controllers Electric Motor Control Industrial Technology Capstone	AMST 20403 AMST 20504 TECH 20153 TECH 21054	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

Suggested Course Sequence

Term	Course Name	Course Number	Total Credit Hours
Fall or Spring or Summer	Commercial Vehicle Driving	TRDR 19107	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

Suggested Course Sequence

Term	Course Name	Course Number	Total Credit Hours
Fall	Compact Track Excavator Operator Compact Track Loader Operator	CTTE 14004 CTTE 14104	14

Certificate of Proficiency Heavy Equipment Operator

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

Suggested Course Sequence – Certificate of Proficiency Heavy Equipment Operator – Heavy Machinery

Term	Course Name	Course Number	Total Credit Hours
Fall	Compact Track Excavator Operator Compact Track Loader Operator	CTTE 14004 CTTE 14104	8
Spring	Track Dozer Operator Crane Operator	CTTE 14204 CTTE 14303	7

Suggested Course Sequence – Certificate of Proficiency Heavy Equipment Operator – Commercial Vehicle Driving

Term	Course Name	Course Number	Total Credit Hours
Fall	Compact Track Excavator Operator Compact Track Loader Operator	CTTE 14004 CTTE 14104	8
Spring	Commercial Vehicle Driving	TRDR 19107	7

Technical Certificate Heavy Equipment Operator

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

Suggested Course Sequence

Term	Course Name	Course Number	Total Credit Hours
Fall	Compact Track Excavator Operator Compact Track Loader Operator	CTTE 14004 CTTE 14104	8
Spring	Track Dozer Operator Crane Operator	CTTE 14204 CTTE 14303	7
Summer	Commercial Vehicle Driving	TRDR 19107	7