

**Short Certificate - Applied Technology:
Air Conditioning and Refrigeration (HVAC) option**

This program emphasizes the fundamental principles for air conditioning, heating and refrigeration. Instruction is provided in the theory and principles of refrigeration and heat transfer, HVAC/R system components, common, and specialty tools for HVAC/R, and application of the concepts of basic compression refrigeration. Upon completion, students should identify system components and understand their functions, identify and use common and specialty HVAC/R tools, and maintain components of a basic compression refrigeration system.

	credit hours
Required courses.....	22
ACR 111 Principles of Refrigeration	3
ACR 112 HVACR Service Procedures	3
ACR 113 Refrigeration Piping Practices	3
ACR 119 Fundamentals of Gas Heating Systems	3
ACR120 Fundamentals of Electric Heating Systems.....	3
ACR121 Principles of Electricity for HVACR	3
ACR 148 Heat Pump Systems	3
ACR 183 Special Topics in Air Conditioning and Refrigeration.....	1
Total	22

Certificate - Applied Technology: Automotive Manufacturing option

This program prepares individuals to apply basic engineering principles and technical skills to the identification and resolution of production problems in the manufacture of products. This program includes instruction in machine operations, production line operations, engineering analysis, systems analysis, instrumentation, physical controls, automation, computer-aided manufacturing (CAM), manufacturing planning, quality control, and informational infrastructure.

	credit hours
Required general education courses	12
ENG 101 English Composition I	3
MTH 100 Intermediate College Algebra or higher level MTH.....	3
SPH 106 Fundamentals of Oral Communication	3
or SPH 107 Fundamentals of Public Speaking	3
CIS 146 Microcomputer Applications	3
Required Automotive Manufacturing courses.	45
ADM 100 Industrial Safety	3
ADM101 Precision Measurement	3
ADM 102 Computer Aided Design	3
ADM 103 Intro to Computer Integrated Manufacturing/Material Processes	3
ADM 104 Introduction to Thermal/Electrical Principles	3
ADM 105 Fluid Systems	3
ADM 106 Quality Control Concepts	3
INT 101 DC Fundamentals	3
INT 103 AC Fundamentals	3
INT 117 Industrial Mechanics	3
INT 184 Intro to Programmable Logic Controllers	3
INT 284 Advanced Programmable Logic Controllers.....	3
INT 288 Applied Programmable Logic Controllers	3

INT 253	Industrial Robotics	3
INT 134	Prin. of Industrial Maintenance Welding and Metal Cutting Techniques	3
Additional certificate requirements		3
*ORI 101	Orientation to College	1
WKO 101	Workplace Skills Development	2
Total		60

Short Certificate - Applied Technology: Automotive Manufacturing option

This program prepares individuals to apply basic engineering principles and technical skills to the identification and resolution of production problems in the manufacture of products. This program includes instruction in machine operations, production line operations, engineering analysis, systems analysis, instrumentation, physical controls, automation, computer-aided manufacturing (CAM), manufacturing planning, quality control, and informational infrastructure.

	credit hours
Required courses.....	24
INT 101 DC Fundamentals	3
INT 103 AC Fundamentals	3
INT 117 Industrial Mechanics	3
INT 184 Intro to Programmable Logic Controllers	3
INT 284 Advanced Programmable Logic Controllers.....	3
INT 288 Applied Programmable Logic Controllers	3
INT 253 Industrial Robotics.....	3
INT 134 Prin. of Industrial Maintenance Welding and Metal Cutting Techniques	3
Total	24

Certificate - Applied Technology: Industrial Maintenance option

This program prepares individuals to apply technical knowledge and skills to repair and maintain industrial machinery and equipment such as cranes, pumps, engines and motors, pneumatic tools, conveyor systems, production machinery, marine deck machinery, and steam propulsion, refinery, and pipeline-distribution systems.

	credit hours
Required general education courses	12
ENG 101 English Composition I	3
MTH 100 Intermediate College Algebra or higher level MTH.....	3
SPH 106 Fundamentals of Oral Communication	3
or SPH 107 Fundamentals of Public Speaking	3
CIS 146 Microcomputer Applications	3
Required Industrial Maintenance courses	45
ADM 100 Industrial Safety	3
ADM101 Precision Measurement	3
ADM 102 Computer Aided Design	3
ADM 103 Intro to Computer Integrated Manufacturing/Material Processes	3
ADM 104 Introduction to Thermal/Electrical Principles	3
ADM 105 Fluid Systems	3
ADM 106 Quality Control Concepts	3