

# HEAVY EQUIPMENT AND INDUSTRIAL SYSTEMS OPERATION AND MAINTENANCE, CERTIFICATE OF ACHIEVEMENT

The Certificate of Achievement in Heavy Equipment and Industrial Systems Operation and Maintenance is designed to prepare students to develop the core technical skills necessary to meet the needs and challenges within the various industries utilizing these skills, including agricultural production, processing and industrial manufacturing. Students will integrate and apply concepts from the areas of heavy equipment operations, maintenance, small and compact engines, welding, electrical, and fluid power as applied to the technological sectors of agriculture and industrial technology.

Students who complete this certificate will be prepared for careers in a variety of occupations related to agricultural power equipment and industrial processing systems such as farm and heavy equipment operators, mechanics and service technicians, agricultural processing equipment operators and industrial machinery technicians and mechanics.

Course ID	Title	Units/ Hours
<b>Required Core Courses (19 units):</b>		
AG V13	Agricultural and Industrial Computer Applications	3
AIT V01	Introduction to Heavy Equipment: Operation and Maintenance	3
AIT V03	Fluid Power: Hydraulics and Pneumatics	3
AIT V04	Industrial Electrical Systems	3
MT V04	Measurements and Computations	3
MT V18	Manufacturing Projects and Applications	2
WEL V01	Introduction to Welding	2
<b>Required Emphasis Courses (10 units):</b>		
AG V05	Agricultural Farm Power: Operation and Maintenance	3
AIT V02	Small Gasoline and Compact Diesel Engines	3
AIT V05	Introduction to Agricultural and Industrial Systems	4
<b>TOTAL</b>		<b>29 units</b>

## One-Year Plan:

<b>Year 1</b>		
<b>Fall Semester</b>		<b>Units/Hours</b>
AG V05	Agricultural Farm Power: Operation and Maintenance	3
AG V13	Agricultural and Industrial Computer Applications	3
AIT V01	Introduction to Heavy Equipment: Operation and Maintenance	3
MT V04	Measurements and Computations	3

WEL V01	Introduction to Welding	2
<b>Units/Hours</b>		<b>14</b>
<b>Spring Semester</b>		
AIT V02	Small Gasoline and Compact Diesel Engines	3
AIT V03	Fluid Power: Hydraulics and Pneumatics	3
AIT V04	Industrial Electrical Systems	3
AIT V05	Introduction to Agricultural and Industrial Systems	4
MT V18	Manufacturing Projects and Applications	2
<b>Units/Hours</b>		<b>15</b>
<b>Total Units/Hours</b>		<b>29</b>

## Two-Year Plan:

<b>Year 1</b>		
<b>Fall Semester</b>		<b>Units/Hours</b>
AG V13	Agricultural and Industrial Computer Applications	3
MT V04	Measurements and Computations	3
WEL V01	Introduction to Welding	2
<b>Units/Hours</b>		<b>8</b>
<b>Spring Semester</b>		
AIT V02	Small Gasoline and Compact Diesel Engines	3
AIT V03	Fluid Power: Hydraulics and Pneumatics	3
AIT V04	Industrial Electrical Systems	3
<b>Units/Hours</b>		<b>9</b>
<b>Year 2</b>		
<b>Fall Semester</b>		
AG V05	Agricultural Farm Power: Operation and Maintenance	3
AIT V01	Introduction to Heavy Equipment: Operation and Maintenance	3
<b>Units/Hours</b>		<b>6</b>
<b>Spring Semester</b>		
AIT V05	Introduction to Agricultural and Industrial Systems	4
MT V18	Manufacturing Projects and Applications	2
<b>Units/Hours</b>		<b>6</b>
<b>Total Units/Hours</b>		<b>29</b>

Upon successful completion of this program, students will be able to:

- Apply safe practices and procedures within agricultural and industrial equipment and systems settings.
- Identify equipment parts and functions using correct terminology for heavy equipment, small engines and industrial systems.
- Identify and select appropriate equipment and or/systems for use in agricultural and industrial applications.