



## Industrial Machine/Maintenance Technology

### Student Learning Outcomes

- 1 Communication- The student will demonstrate the ability to communicate effectively using written and/or oral communication.
- 2 Information Literacy- The student will recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.
- 3 Problem Solving- The student will demonstrate the ability to analyze information and solve problems.
- 4 Workplace Skills - Demonstrates a mastery of workplace skills/soft skills, exhibits initiative, adapts to varied situations

### Program Outcomes

- 1 Demonstrate proper techniques and practices in the repair, installation and maintenance of industrial equipment and systems.
- 2 Demonstrate the ability to program and operate automated manufacturing equipment
- 3 Apply problem solving and critical thinking skills to troubleshoot hydraulic, pneumatic and electrical industrial systems
- 4 Apply safe and approved practices in the workplace
- 5 Demonstrate the ability to use a Snap-On 575 Digital Multimeter.

**Associate of Applied Sciences, Industrial Machine/Maintenance Technology Total Credits 63****Fall**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
IND 111	<b>Foundations of Manufacturing</b>	2	Technical Studies
IND 115	<b>Industrial Safety</b>	1	Technical Studies
IND 117	<b>Variable Speed Motor Control</b>	3	Technical Studies
IND 150	<b>Manufacturing Equipment and Tools</b>	2	Technical Studies
IND 122	<b>AC/DC Circuits</b>	4	Technical Studies
AVC 110	<b>Safety/OSHA 10</b>	1	Technical Studies
MTH	<b>Math Elective*</b>	3	General Studies
PDV 115	<b>Work Ethics</b>	2	General Studies

**Spring**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
IND 109	<b>Programmable Logic Controls</b>	3	Technical Studies
IND 116	<b>Advanced Motor Controls</b>	3	Technical Studies
IND 131	<b>Industrial Programmable Logic Controls (PLC)</b>	3	Technical Studies
IND 137	<b>Industrial Schematics</b>	2	Technical Studies
IND 143	<b>Electrical System Troubleshooting</b>	3	Technical Studies

**Summer**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
IND 147	<b>Fluid Power I</b>	3	Technical Studies
	<b>Technical Electives**</b>	3	Elective

**Fall**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
IND 121	<b>Mechanical Systems Reliability</b>	3	Technical Studies
IND 130	<b>Mechanical Systems</b>	3	Technical Studies
IND 132	<b>Industrial Process Control</b>	3	Technical Studies
IND 152	<b>Predictive Maintenance</b>	2	Technical Studies
IND 157	<b>Preventative Maintenance</b>	2	Technical Studies

**Spring**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
ENG 101	<b>Composition I*</b>	3	General Studies
SPH 111	<b>Interpersonal Communication*</b>	3	General Studies

	<b>Humanities Elective *</b>	3	General Studies
	<b>Social Science Elective*</b>	3	General Studies

**\*\*Technical Electives**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
IND 160	<b>Fluid Power II</b>		Elective
IND 165	<b>Industrial Process Control II</b>		Elective
IND 139	<b>CNC Operation for Maintenance Applications</b>		Technical Studies
IND 175	<b>Advanced CNC Maintenance Applications</b>		Elective
IND 170	<b>CNC Installation</b>		Elective
ROB 100	<b>Introduction to Robotics</b>		Technical Studies

\* **Kansas Systemwide General Education**

**Technical Certificate, Industrial Machine /Maintenance Technology**

**Total Credits 51**

**Fall**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
IND 111	<b>Foundations of Manufacturing</b>	2	Technical Studies
IND 115	<b>Industrial Safety</b>	1	Technical Studies
IND 117	<b>Variable Speed Motor Control</b>	3	Technical Studies
IND 150	<b>Manufacturing Equipment and Tools</b>	2	Technical Studies
IND 122	<b>AC/DC Circuits</b>	4	Technical Studies
AVC 110	<b>Safety/OSHA 10</b>	1	Technical Studies
MTH	<b>Math Elective*</b>	3	General Studies
PDV 115	<b>Work Ethics</b>	2	General Studies

**Spring**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
IND 109	<b>Programmable Logic Controls</b>	3	Technical Studies
IND 116	<b>Advanced Motor Controls</b>	3	Technical Studies
IND 131	<b>Industrial Programmable Logic Controls (PLC)</b>	3	Technical Studies
IND 137	<b>Industrial Schematics</b>	2	Technical Studies
IND 143	<b>Electrical System Troubleshooting</b>	3	Technical Studies

**Summer**

Course #	Course Title	Credits	Function
IND 147	Fluid Power I	3	Technical Studies
	Technical Electives**	3	Elective

**Fall**

Course #	Course Title	Credits	Function
IND 121	Mechanical Systems Reliability	3	Technical Studies
IND 130	Mechanical Systems	3	Technical Studies
IND 132	Industrial Process Control	3	Technical Studies
IND 152	Predictive Maintenance	2	Technical Studies
IND 157	Preventative Maintenance	2	Technical Studies

**\*\*Technical Electives**

Course #	Course Title	Credits	Function
IND 160	Fluid Power II		Elective
IND 165	Industrial Process Control II		Elective
IND 139	CNC Operation for Maintenance Applications		Technical Studies
IND 175	Advanced CNC Maintenance Applications		Elective
IND 170	CNC Installation		Elective
ROB 100	Introduction to Robotics		Technical Studies

**\* Kansas Systemwide General Education****Technical Certificate, Industrial Machine/Maintenance Technology****Total Credits 44****Fall**

Course #	Course Title	Credits	Function
IND 109	Programmable Logic Controls	3	Technical Studies
IND 115	Industrial Safety	1	Technical Studies
IND 121	Mechanical Systems Reliability	3	Technical Studies
IND 122	AC/DC Circuits	4	Technical Studies
IND 130	Mechanical Systems	3	Technical Studies
IND 147	Fluid Power I	3	Technical Studies
IND 150	Manufacturing Equipment and Tools	2	Technical Studies
AVC 110	Safety/OSHA 10	1	Technical Studies
MTH	Math Elective*	3	General Studies

PDV 115	Work Ethics	2	General Studies
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### Spring

Course #	Course Title	Credits	Function
IND 111	Foundations of Manufacturing	2	Technical Studies
IND 116	Advanced Motor Controls	3	Technical Studies
IND 117	Variable Speed Motor Control	3	Technical Studies
IND 131	Industrial Programmable Logic Controls (PLC)	3	Technical Studies
IND 137	Industrial Schematics	2	Technical Studies
IND 143	Electrical System Troubleshooting	3	Technical Studies
	Technical Electives**	3	Elective

### \*\*Technical Electives

Course #	Course Title	Credits	Function
IND 160	Fluid Power II		Elective
IND 165	Industrial Process Control II		Elective
IND 139	CNC Operation for Maintenance Applications		Technical Studies
IND 175	Advanced CNC Maintenance Applications		Elective
IND 170	CNC Installation		Elective
ROB 100	Introduction to Robotics		Technical Studies

### \* Kansas Systemwide General Education

Technical Certificate, Industrial Machine/Maintenance Technology

Total Credits 28

### Fall

Course #	Course Title	Credits	Function
IND 109	Programmable Logic Controls	3	Technical Studies
IND 115	Industrial Safety	1	Technical Studies
IND 121	Mechanical Systems Reliability	3	Technical Studies
IND 122	AC/DC Circuits	4	Technical Studies
IND 130	Mechanical Systems	3	Technical Studies
IND 147	Fluid Power I	3	Technical Studies
IND 150	Manufacturing Equipment and Tools	2	Technical Studies
AVC 110	Safety/OSHA 10	1	Technical Studies
MTH	Math Elective*	3	General Studies
PDV 115	Work Ethics	2	General Studies

**Spring**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
	<b>Technical Electives**</b>	3	Elective

**\*\*Technical Electives**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
IND 160	<b>Fluid Power II</b>		Elective
IND 165	<b>Industrial Process Control II</b>		Elective
IND 139	<b>CNC Operation for Maintenance Applications</b>		Technical Studies
IND 175	<b>Advanced CNC Maintenance Applications</b>		Elective
IND 170	<b>CNC Installation</b>		Elective
IND 111	<b>Foundations of Manufacturing</b>		Elective
ROB 100	<b>Introduction to Robotics</b>		Technical Studies

\* **Kansas Systemwide General Education**