

## ADVANCED TECHNOLOGY AND MANUFACTURING ACADEMY

### 1st Year Program of Studies

*Courses in blue articulate into associate of applied science degree (AAS).*

Fall Semester	Credit	Spring Semester	Credit
<b>MCHN 1343</b> <b>Machine Shop Math</b> Technical, applied mathematics necessary for future machine shop related courses.	3	<b>RBTC 1305</b> <b>Robotic Fundamentals</b> Introduction to flexible automation to include installation, repair, maintenance, & development.	3
<b>MCHN 1270</b> <b>MSSC &amp; OSHA 10</b> <i>*10hr OSHA</i> <i>*MSSC Safety</i> Study of fundamentals in manufacturing environment and provides instructional information to prepare students to attain MSSC Safety certification.	2	<b>MCHN 1438</b> <b>Basic Machine Shop I</b> Introduction to student machining fundamentals to include lathe, milling machine, drill press, power saw, and bench grinder. Emphasis is placed on shop safety, housekeeping, and preventative maintenance.	4
<b>INMT 2303</b> <b>Pumps Compressors/Mechanical Drives</b> Study of theory and operations of various types of pumps and compressors to include mechanical power transmission systems.	3		
<b>Fall Semester Total</b>	<b>8</b>	<b>Spring Semester Total</b>	<b>7</b>
<b>Year 1 Total</b>	<b>Level I Certificate of Completion</b> <i>Industrial Maintenance Assistant</i>		<b>15</b>

### 1st Year Summer

Summer Semester	Credit
<b>MCHN 2486</b> <b>Internship</b>	4
<b>Summer Semester Total</b>	<b>4</b>

### 2nd Year Program of Studies

*Courses in blue articulate into associate of applied science degree (AAS).*

Fall Semester   <i>Production Tool Operator/Maintenance Associate</i>	Credit	[ OR ]	Fall Semester   <i>Manufacturing Maintenance Associate</i>	Credit
<b>MCHN 1320</b> <b>Precision Tools &amp; Measurements</b> <i>*MSSC Quality</i> Emphasis on the identification, selection, and application of various types of precision instruments.	3		<b>CETT 1409</b> <b>DC-AC Circuits</b> Fundamentals of DC circuits and AC circuits operation including Ohm's Law, Kirchoff's Laws, networks, transformers, resonance, phasors, and circuit analysis techniques.	4
<b>MCHN 1302</b> <b>Print Reading for Machine Trades</b> Study of blueprints for machining trades with emphasis on machine drawings.	4		<b>ELMT 1305</b> <b>Basic Fluid Power</b> <i>*MSSC Quality</i> Basic fluid power course includes vacuum systems, pneumatic & hydraulic systems, fluid power symbols, operating theory, electrical & manual controls.	3
	<b>7</b>			<b>7</b>
Spring Semester   <i>Production Tool Operator/Maintenance Associate</i>	Credit		Spring Semester   <i>Manufacturing Maintenance Associate</i>	Credit
<b>MCHN 2303</b> <b>Fundamentals of CNC Machine Controls</b> Programming and operation of CNC machine shop equipment.	4		<b>INTC 1357</b> <b>AC/DC Motor Control</b> Study of electrical motors with emphasis on starting, speed control & stopping systems.	4
<b>MCHN 1426</b> <b>Introduction to CAM</b> Study of CAM software with emphasis on tool geometry, tool selection, and tool library.	4		<b>RBTC 1347</b> <b>Electromechanical Devices</b> Study of basic electro-mechanical devices found in robotic systems.	4
<b>Spring Semester Total</b>	<b>8</b>		<b>Spring Semester Total</b>	<b>8</b>
<b>Year 2 Total</b>	<b>Level I Certificate of Completion</b> <i>Production Tool Operator/Maintenance Associate</i>		<b>Level I Certificate of Completion</b> <i>Manufacturing Maintenance Associate</i>	
	<b>15</b>		<b>15</b>	

### Two Year Program of Studies: 11 Courses totaling 34 credit hours

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**Level I Certificate of Completion**  
*Production Tool Operator / Maintenance Associate*

**ASSOCIATE OF APPLIED SCIENCES**

**CNC Manufacturing Technician**

*Courses in blue articulate into associate of applied science (AAS) degree.*

Semester 1	Credit
MCHN 1320 Precision Tools & Measurements	3
MCHN 1302 Print Reading for Machine Trades	3
MCHN 1438 Basic Machine Shop	4
MATH 1332 Contemporary Math or Mathematics Core 20	3
<b>1st Semester Total</b>	<b>13</b>
Semester 2	Credit
ENGL 1301 Composition 1301 or Core 10	3
MCHN 1352 Intermediate Machining I	3
ITSC 1301 Introduction to Computers or COSC 1301	3
MCHN 2303 Fundamentals of CNC Machine Controls	3
<b>2nd Semester Total</b>	<b>12</b>
Semester 3	Credit
MCHN 1426 Introduction to CAM	4
QCTC 1243 Quality Assurance	2
<b>3rd Semester Total</b>	<b>6</b>
Semester 4	Credit
MCHN 2431 Operation of CNC Turning Centers	4
MCHN 2434 Operation of CNC Machining Centers	4
MCHN 1330 Statistical Process Control for Machinist	3
RBTC 1305 Robotic Fundamentals	3
<b>4th Semester Total</b>	<b>14</b>
Semester 5	Credit
MCHN 2435 Advanced CNC Machining	4
ARTS 1301 Art Appreciation or Creative Arts (Core 50)	3
ECON 1301 Introduction to Economics	3
PHYS 1305 Introductory Physics I Lecture	3
MCHN 2266 Practicum	2
<b>5th Semester Total</b>	<b>15</b>
<b>Program Total</b>	<b>60</b>

DC/AA: 13	Total AAS Hours: 60
Hours needed Post DC/AA: 47	General Academics: 18
	Specific Hours: 24

**Level I Certificate of Completion**  
*Manufacturing Maintenance Associate*

**ASSOCIATE OF APPLIED SCIENCES**

**Automated Industrial Process**

*Courses in blue articulate into associate of applied science (AAS) degree.*

Semester 1	Credit
CETT 1409 AC/DC Circuits	4
ELMT 1305 Basic Fluid Power	3
ECON 1301 Introduction to Economics	3
- Select Course 1 in Specialization	3
<b>1st Semester Total</b>	<b>13</b>
Semester 2	Credit
ENGL 1301 Composition I	3
INTC 1357 AC/DC Motor Control	3
RBTC 1347 Electromechanical Devices	3
- Select Course 2 in Specialization	4
<b>2nd Semester Total</b>	<b>13</b>
Semester 3	Credit
ARTS 1301 Art Appreciation	3
- Select Course 3 in Specialization	3
<b>3rd Semester Total</b>	<b>6</b>
Semester 4	Credit
RBTC 1305 Robotic Fundamentals	3
INTC 2433 Instrumentation Systems Installation	4
RBTC 1301 Programmable Logic Controllers	3
- Select Course 4 in Specialization	4
<b>4th Semester Total</b>	<b>14</b>
Semester 5	Credit
MATH 1314 College Algebra or Math Core 20	3
INTC 2330 Instrumentation Systems Installation	3
PHYS 1301 Programmable Logic Controllers	3
- Select Course 4 in Specialization	3
INTC 2288 Internship or EECT 2266	2
<b>5th Semester Total</b>	<b>14</b>
<b>Program Total</b>	<b>60</b>

DC/AA: 13	Total AAS Hours: 60
Hours needed Post DC/AA: 47	General Academics: 12
	Specific Hours: 35