

## 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 &amp; 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 Machining Trade</b> Study of blueprints for machining trades with emphasis on machine drawings.	3		<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>6</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.	3		<b>INTC 1357</b> <b>AC/DC Motor Control</b> Study of electrical motors with emphasis on starting, speed control & stopping systems.	3
<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.	3
<b>Spring Semester Total</b>	<b>7</b>		<b>Spring Semester Total</b>	<b>6</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>13</b>		<b>13</b>	

### Two Year Program of Studies: 10 Courses totaling 32 credit hours

The Alamo Colleges do not discriminate on the basis of race, religion, color, national origin, sex, age, or disability with respect to access, employment programs, or services. Inquiries or complaints concerning these matters should be brought to the attention of: Director of Employee Services, Title IX Coordinator, (210) 485-0200.

**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 I	4
MATH 1332 Contemporary Math or Mathematics Core 20	3
<b>1st Semester Total</b>	<b>13</b>
Semester 2	Credit
ENGL 1301 Composition I or Communication 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-Machine Tool Technology/Machinist	2
<b>5th Semester Total</b>	<b>15</b>
<b>Program Total</b>	<b>60</b>

DC/AA: 19	Total AAS Hours: 60
Hours needed Post DC/AA: 41	General Academics: 18
	Specific Hours: 42

**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 1305 Introductory Physics I Lecture	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: 18	Total AAS Hours: 60
Hours needed Post DC/AA: 42	General Academics: 15
	Specific Hours: 45