MCC
MONROE COMMUNITY COLLEGE

APPLIED TECHNOLOGIES DEPARTMENT

PRECISION MACHINING & TOOLING

www.monroecc.edu

THERE'S MORE TO YOU. THERE'S MORE TO MCC.

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Department of Labor Information

Type of Work

From your automobile to the space shuttle, every man-made thing around you ultimately has its roots in the tooling and machining industry. The Precision Tooling and Machining programs at MCC enable you to pursue a variety of career options including mold maker, machinist, tool and die maker, machine-builder to name just a few. There are similarities in the core skills that you will learn. The differences lie in how you apply your newly learned skills. The following is specific information about three of the fastest growing disciplines in the industry:

Machinists

Machinists use machine tools, such as lathes, milling machines, and machining centers, to produce precision metal parts. Although they may produce large quantities of one part, precision machinists often produce small batches or one-of-a-kind items. They use their knowledge of the working properties of metals and their skill with machine tools to plan and carry out the operations needed to make machined products that meet precise specifications.

Before they machine a part, machinists must carefully plan and prepare the operation. These workers first review prints or written specifications for a job. Next, they calculate where to cut or bore into the work piece (the piece of metal that is being shaped), how fast to feed the metal into the machine, and how much metal to remove. They then select tools and materials for the job, plan the sequence of cutting and finishing operations.

They position the metal stock on the machine tool—drill press, lathe, milling machine, or other type of machine—set the controls, and make the cuts. During the machining process, they must constantly monitor the feed rate and speed of the machine. Machinists also ensure that the work piece is being properly lubricated and cooled.

Tool & Die Makers

Tool and die makers are among the most highly skilled workers in manufacturing. These workers produce tools, dies, and special guiding and holding devices that enable machines to manufacture a variety of products we use daily—from clothing and furniture to heavy equipment and parts for aircraft.

Toolmakers craft precision tools and machines that are used to cut, shape, and form metal and other materials. They also produce jigs and fixtures (devices that hold metal while it is bored, stamped, or drilled) and gauges and other measuring devices. Die makers construct metal forms (dies) that are used to shape metal in stamping and forging operations. They also make metal molds for die-casting and for molding plastics, ceramics, and composite materials. Some tool and die makers craft prototypes of parts, and then determine how best to manufacture the part. In addition to developing,

designing, and producing new tools and dies, these workers also may repair worn or damaged tools, dies, gauges, jigs, and fixtures.

To perform these functions, tool and die makers employ many types of machine tools and precision measuring instruments. They also must be familiar with the machining properties, such as hardness and heat tolerance, of a wide variety of common metals and alloys. As a result, tool and die makers are knowledgeable in machining operations, mathematics, and print reading. In fact, tool and die makers often are considered highly specialized machinists. The main difference between tool and die makers and machinists is that machinists normally make a single part during the production process, while tool and die makers make parts and machines used in the production process.

Modern technology has changed the ways in which tool and die makers perform their jobs. Today, for example, these workers often use computer-aided design (CAD) to develop products and parts. Computer-controlled machine tool operators or machinists normally operate CNC machines; however, tool and die makers are also trained in both operating CNC machines and writing CNC programs, and they may perform either task.

Mold Maker

Mold makers are highly skilled workers that utilize many different types of machining processes to produce various types of plastic molds. These molds are made of different types of steel which are used to product most plastic parts used in today's consumer goods. The metal molds are extremely precise and form the vaity that is later filled with injected plastic to create the actual part. Many different types of machining processes, CNC Milling, EDM Wire and EDM sinker, grinding and boring operations are all necessary. Mold Makers learn these skills in a 4 or 5 year apprenticeship and go to school in the evening for math, print reading, machine theory and CNC training. Mold makers rely heavily on CNC machines and CAD/CAM software to create the sophisticated part geometry that is necessary to build a mold.

Department of Labor Information

Training, Other Qualifications & Advancement

Machinists

Machinists train in apprenticeship programs, vocational schools, or community or technical colleges. Experience with machine tools is helpful. In fact, many entrants previously have worked as machine setters, operators, or tenders. Persons interested in becoming machinists should be mechanically inclined, have good problem-solving abilities, be able to work independently, and be able to do highly accurate work (tolerances may reach 1/10,000th of an inch) that requires concentration and physical effort.

Courses in mathematics (especially trigonometry), print reading, metalworking are highly recommended. Apprenticeship programs consist of shop training and related classroom instruction lasting up to 4 years. In shop training, apprentices work full time, and are supervised by an experienced machinist while learning to operate various machine tools. Classroom instruction includes math, materials science, print reading, mechanical drawing, and quality and safety practices. In addition, as machine shops have increased their use of computer-controlled equipment, training in the operation and programming of CNC machine tools has become essential. Apprenticeship classes are taught in cooperation with local community or vocational colleges. A growing number of machinists learn the trade through 2-year associate degree programs at community or technical colleges. Graduates of these programs still need significant on-the-job experience before they are fully qualified.

Machinists can advance in several ways. Experienced machinists may become CNC programmers, tool and die makers, or mold makers, or be promoted to supervisory or administrative positions in their firms. A few open their own shops.

Tool & Die Makers

Most tool and die makers learn their trade through 4 or 5 years of education and training in formal apprenticeships or postsecondary programs. Apprenticeship programs include a mix of classroom instruction and job experience and often require about 5 years to complete. According to most employers these apprenticeship programs are the best way to learn all aspects of tool and die making. A growing number of tool and die makers receive most of their formal classroom training from community and technical colleges, sometimes in conjunction with an apprenticeship program.

Even after completing their apprenticeship, tool and die makers still need years of experience to become highly skilled. Most specialize in making certain types of tools, molds, or dies.

Tool and die maker trainees learn to operate milling machines, lathes, grinders, wire electrical discharge machines, and other machine tools. They also learn to use hand tools for fitting and assembling gauges, and other mechanical and metal-forming equipment. In addition, they study metalworking processes, such as heat treating and plating. Classroom training usually consists of tool designing, tool programming, print reading, and mathematics courses, including algebra, geometry, trigonometry, and basic statistics. Tool and die makers increasingly must have good computer skills to work with CAD/CAM technology, CNC machine tools, and computerized measuring machines.

There are several ways for skilled workers to advance. Some move into supervisory and administrative positions in their firms; many obtain their college degree and go into engineering or tool design; and some may start their own companies.

Department of Labor Information

Job Outlook

Machinists, Tool & Die Makers, Mold Makers

Participation is any three of these programs at MCC provides students with the background skills that can be applied in any of these fields.

Job opportunities for machinists, tool and die makers and mold makers should continue to be excellent. The number of workers obtaining the skills and knowledge necessary to fill these jobs is expected to be less than the number of job openings arising each year from employment growth and from the need to replace experienced workers who transfer to other occupations or retire.

These individuals will become more efficient as a result of the expanded use of and improvements in technologies such as CNC machine tools, autoloaders, and high-speed machining. Due to modern production techniques, employers prefer workers, who have a wide range of skills and are capable of performing almost any task.

Most work in manufacturing industries, such as machinery manufacturing, transportation equipment manufacturing (motor vehicle parts and aerospace products and parts), fabricated metal products, as well as plastics product manufacturing.

Although they are found throughout the country, jobs are most plentiful in the Midwest, Northeast, and West, where many of the metalworking industries are located.

Program Information

Precision Tooling

Certificate Program

FIRST SEMESTER

Course Number	*Course Description*	*Credit Hours*
TAM 121	Mathematics for Machinists I	3
TAM 131	Machine Shop Print Reading I	3
TAM 101	Machine Shop Theory I	3
TAM 141	Machine Shop Lab	3
TAM 105	Machine project Lab OR Program Technical Elective*	3
	Total	**15**

SECOND SEMESTER

Course Number	*Course Description*	*Credit Hours*
TAM 123	Mathematics for Machinists II	3
TAM 132	Machine Shop Print Reading II	3
TAM 139	Machine Shop Theory II	3
TAM 142	CNC-Mill Set-up OR	3
TAM 143	CNC-Lathe Set-up	
TAM 205	CNC Machining Project Lab OR Program General Elective**	2-3
ENG 101	English Composition OR	
3		
ENG 200	Advanced Composition	
	Total	**17-18**

Technical Elective*

TAM 115	Principles of Metallurgy
TAM 151	Geometric Dimensioning and Tolerancing for Machinists
TAM 241	Advanced Machine Shop Lab
TAM 251	Statistical process Control (SPC) for Machinists

General Elective**

BUS 104	Introduction to Business
CRC 101	Practical Computer Literacy
ECO 103	Personal Money Management
ENG 251	Technical Communications

Additional Recommended Courses for Apprenticeship Training

TAM 135	Drafting for Machinists I
TAM 155	Toolroom Technology I
TAM 156	Tool room Technology II
TAM 242	Machine Shop Practice IV

Note:
Students currently working in the precision machining industry may substitute a program technical elective for TAM 105 and a program general elective for TAM 205 based on work experience and approval of a faculty advisor.

All students enrolled in the Certificate program should take the MCC AccuPlacer exam for advisement prior to registration. It is recommended that students have a minimum of two years high school math or place at the level of MTH 104 or higher on the AccuPlacer exam prior to enrolling in this program. Please seek advisement from the TAM Coordinator or a faculty advisor prior to registration. Call 585.292.3700 for an appointment or for advisement times.

Program Information

Precision Machining A.A.S. Degree Requirements

Humanities – 6 Credit Hours

Course Number	*Course Description*	*Credit Hours*
ENG 101	College Composition OR	3
ENG 200	Advanced Composition	
SPT 140	Introduction to Speech Communication	3

Social Sciences – 6 Credit Hours

Course Number	*Course Description*	*Credit Hours*
ECO 101	Introduction to Economics	3
	Social Science Elective	3

Natural Science & Mathematics – 9-10 Credit Hours

Course Number	*Course Description*	*Credit Hours*
	Mathematics Elective**	3-4
	Natural Science Elective	3
	Mathematics**/Natural Science Elective	3

Tooling & Machining – 42 Credit Hours

Course Number	*Course Description*	*Credit Hours*
TAM 101	Machine Shop Theory I	3
TAM 105	Machine Project Lab OR	3
	Program Technical Elective*	
TAM 121	Mathematics for Machinists I	3
TAM 123	Mathematics for Machinists II	3
TAM 131	Machine Shop Print Reading I	3
TAM 132	Machine Shop Print Reading II	3
TAM 139	CNC Vertical machine tool Programming I	3
TAM 141	Machine Shop Laboratory	3
TAM 142	CNC Mill Set-up OR	3
TAM 143	Lathe Set-up	
TAM 155	Tool and Fixture Design	3

TAM 205	CNC Machine Project Laboratory OR Program Technical Elective *	3
TAM 241	Advanced Machine Shop Laboratory	3
TAM 245	Computer Aided Manufacturing	3
TAM 255	Computer Aided Manufacturing Laboratory OR Program Technical Elective*	3

Physical/Health Education – 2 Credit Hours

Course Number	*Course Description*	*Credit Hours*
	Physical/Health Education	3

TAM Program Technical Electives

Course Number	*Course Description*	*Credit Hours*
TAM 115	Principles of Metallurgy (2)	3
TAM 142	CNC Mill Set-up (1, 2)	3
TAM 143	CNC Lathe Set-up (2)	3
TAM 151	Geometric Dimensioning & Tolerancing for Machinists (1, 2)	3
TAM 156	Advanced tool Room Processes (2)	3
TAM 251	Statistical Process Control (SPC) for Machinists (1)	3

(1) – Fall Course Offering; (2) Spring Course Offering

*Students currently working in the precision machining industry may substitute a program elective for TAM 105, TAM 205 and TAM 255, based on work experience and approval of a faculty advisor.

** Mathematics elective should be selected with guidance from faculty advisor. MTH 104, MTH 140, MTH 141 or MTH 160 or higher will be accepted. Those contemplating a higher level degree should seek advisement for transfer information.

Note – All students enrolled in the program should take the MCC placement exam for advisement prior to registration. It is recommended that students have a minimum of 2 years of high school math or place MTH 104 or higher on the placement exam prior to enrolling in this program. Please seek advisement from the TAM Coordinator or faculty prior to registration. Call 585.292.3700 for advisement times.

Program Information

Apprentice Training Machine Trades A.A.S. Degree Requirements

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Humanities – 6 Credit Hours

Course Number	*Course Description*	*Credit Hours*
ENG 101	English Composition or	3
ENG 200	Advanced Composition	
	Humanities Elective	3

Social Science – 6 Credit Hours

Course Number	*Course Description*	*Credit Hours*
	Social Sciences Electives	6

Natural Science & Mathematics – 6 Credit Hours**

Course Number	*Course Description*	*Credit Hours*
Minimum of 3 credit hours in mathematics and 3 credit hours in Natural Science is required.		6

Technical Related Instruction Required Courses – 33 Credit Hours

Course Number	*Course Description*	*Credit Hours*
TAM 101	Machine Shop Theory I	3
TAM 105	Machine Project Lab or	3
	Program Technical Elective*	
TAM 121	Mathematics for Machinists I	3
TAM 123	Mathematics for Machinists II	3
TAM 131	Machine Shop Print Reading I	3
TAM 132	Machine Shop Print Reading II	3
TAM 139	Machine Shop Theory II	3
TAM 141	Machine Shop Lab	3
TAM 142	CNC-Mill Set-up or	3
TAM 143	CNC-Lathe Set-up	
TAM 205	CNC Machining Project Lab or	3
	Program General elective*	
	TAM Elective	3
	Total	**33**

Elective – 3 Credit Hours

Course Number	*Course Description*	*Credit Hours*
	Elective***	3

Supervised Apprentice Experience – 12 Credit Hours

Course Number	*Course Description*		*Credit Hours*
TAM 171	Machine Trades Apprentice Training I		3
TAM 172	Machine Trades Apprentice Training II		3
TAM 173	Machine Trades Apprentice Training III		3
TAM 174	Machine Trades Apprentice Training IV		3
		Total	12
		Total Credits	**66**

Program Technical Elective*

Course Number	*Course Description*
TAM 241	Advanced Machine Shop Lab
TAM 115	Principles of Metallurgy
TAM 251	Statistical Process Control (SPC) for Machinists
TAM 151	Geometric Dimensioning & Tolerancing for Machinists

General Elective*

Course Number	*Course Description*
BUS 104	Introduction to Business
CRC 101	Practical Computer Literacy
ECO 103	Personal Money Management
ENG 251	Technical Writing

Other Recommended Courses

Course Number	*Course Description*
TAM 135	Drafting for Machinists I
TAM 155	Toolroom Technology I
TAM 156	Toolroom Technology II
TAM 242	Machine Shop Practice IV

*Students currently working in the precision machining industry may substitute a program technical elective for TAM 105 and a program general elective for TAM 205 based on work experience, per approval of a faculty advisor.
**Mathematics elective will be selected with the guidance of a faculty advisor. MTH 104 or higher will be accepted. Those contemplating a higher level degree should seek advisement for transfer information.
***Any Humanities, Social Science, Mathematics or Natural Science course.

Note: All students enrolled in the program should take the MCC AccuPlacer exam for advisement prior to registration. It is recommended that students have a minimum of two years high school math or place MTH 104 or higher on the AccuPlacer exam prior to enrolling in this program. Please see advisement from the TAM Coordinator or faculty prior to registration. Call 383.292.3700 for an appointment or for advisement times.

Details

Estimated Costs

SEMESTER	BOOKS	TUITION/FEES	SUBTOTAL
1	$300.00	$1,491.25	$1,791.25
2	$300.00	$1,491.25	$1,791.25
		Approximate Total	$3,582.50

Approximate total breakdown of tuition and fees per semester:

Tuition	$1,300.00	
Student Activity Fee	$ 88.25	
Lab/Service Fee	$	60.00
Health Fee	$ 5.00	
Insurance Fee	$ 3.00	
Red Cross Fee	$ 5.00	
Parking Fee	$ 30.00	
Total	$1,491.25	

The fees noted above are based on the 2004 – 2005 school year and are subject to change and do not include a graduation fee and other minor charges.

Note: For out-of-county students: In-county rate will be charged for New York State students when the student secures out-of-county charge-back authorization from the home community college or county treasurer by filling out a Certificate of Residence Form.

Other Cost Considerations
Room and Board (MCC Dorms Available)
Mileage Costs
Miscellaneous Costs

Note: Students may request financial aid information by supplying your name and address to:

Financial Aid Office
Monroe Community College
1000 East Henrietta Road
Rochester, NY 14623

Or Call:

585-292-2556

Details

Course Descriptions

TAM 101 Machine Theory I 3 Credits
A survey course of basic machine theory. Examines the types, operation, and usage of common machines and machine tools. Covered are the lathe, milling machine, surface grinders, bench tools, and measurement and layout tools. Focus is upon machine operations of cutting, turning, drilling, sawing, and grinding. Three class hours.

TAM 105 Machine Project Laboratory 3 Credits
This course will provide students with the opportunity to apply knowledge and develop machine operation skills through the creation of a variety of projects. The student will be required to demonstrate skill proficiency by completing the following machine shop projects: three step shaft, test shaft, test block, bolster plate, fly-cutter, extended tool holder, die stock, parallel clamp, sine bar, and vee-block. Nine laboratory hours. *Prerequisites: TAM 101, TAM 121, TAM 131, or permission of Department Chairperson*

TAM 115 Principles of Metallurgy 3 Credits
Covers the basic principles of metallurgy and how they relate to the strength and hardening processes of steels, tool steels, and other alloys. Topics covered include steel production, steel testing and pyrometry, alloy theory, heat treatment, surface treatments, and steel types. Three class hours.

TAM 121 Mathematics for Machinists I 3 Credits
A basic mathematics course for beginning machinists. It is designed to acquaint the entry-level tooling and machining student with the mathematical concepts, terms, and formulas required to function as a machinist. The emphasis of the course is upon application of mathematical principles to the machine trades and developing mathematical/mechanical problem solving skills. Three class hours.

TAM 123 Mathematics for Machinists II 3 Credits
An advanced mathematics course for machinists. This course builds upon mathematical concepts and skills gained in mathematics for machinists. The students will learn how mathematics is applied in mechanisms and fixtures. The focus is upon those mathematical and shape related applications necessary for design, layout and machining accurate parts. Three class hours. *Prerequisite: TAM 121.*

TAM 131 Machine Shop Print Reading I 3 Credits
The objective of this course is to develop an understanding of both simple and complex parts and the mechanisms, graphically described on blueprints. To differentiate between the various line types, multi-view representation and determination if key dimensions involving the given tolerances. The student will be able to develop the ability to visualize a completed part from a drawing. Three class hours.

TAM 132 Machine Shop Print Reading II 3 Credits
Students will be able to solve complex blueprint problems related to tool and shop applications. Section views, surface textures, screw threads, geometric tolerancing, steel identification, fasteners, castings, and coatings will be examined. Three class hours. *Prerequisite: TAM 131.*

TAM 135 Drafting for Machinists I 3 Credits
Introduction to basic drafting techniques with an emphasis on machine drafting. An overview of drafting, tools and equipment, sketching, lettering, geometric construction, dimensioning, multiview and pictorial drawing are covered. Three class hours.

TAM 139 CNC Vertical Machine Tool Programming I 3 Credits
Basic understanding of the fundamental concepts and principles of computer numerical controlled machining and programming is the objective of this course. Students will study the CNC applications of common machines, the applications of appropriate mathematics to these machines, and basic programming processes and techniques. Students will be able to write a simple program. Three class hours. *Prerequisites: TAM 101, TAM 121, TAM 131, TAM 141.*

TAM 141 Machine Shop Laboratory 3 Credits
Application of the fundamental concepts and processes covered in basic machine theory. Through creation of a series of machine parts, students will acquire basic tooling and machining skills. They will be required to layout and machine parts through use of the lathe, milling machine, drill press, and other machine and bench tools. Three class hours. *Prerequisite: TAM 101 or permission of instructor.*

TAM 142 CNC Mill Set-up 3 Credits
Students will apply Computer Numerical Control (CNC) operating, set-up, and minor programming skills to produce components to specifications on various types of CNC milling equipment. There will be demonstrations and short student projects. Three class hours. *Prerequisites: TAM 101, TAM 121, TAM 131, TAM 139, TAM 141.*

TAM 143 CNC Lathe Set-up 3 Credits
The student will learn the basics about Computer Numerical Control (CNC) lathes, understanding part programs, operator skills, basic set-up skills, and advanced set-up skills. Students will use a variety of instructional media to learn the concepts of CNC. Three class hours. *Prerequisites: TAM 101, TAM 121, TAM 131, TAM 139 and TAM 141.*

TAM 151 Geometric Dimensioning and Tolerancing for Machinists 3 Credits
Features interpretation of engineering drawings relative to the application of G.D. & T., the effect on manufacturing methods, verification procedures, and a comparison to and conversion to the coordinate system. Topics include G.D. & T. terms and symbols, true positioning concepts and assembly applications, angularity, parallelism, perpendicularity, datum axes, counterplanes, and actual geometric conditions and locations. Three class hours. *Prerequisite: TAM 131*

TAM 155 Tool and Fixture Design 3 Credits

The students will learn the basics of jig and fixture design. The types, functions and classifications of fixtures
will be reviewed. Design economics will be explored and applied. There will be a complete review of different tool types including fixture plates, plate jigs, angle plate fixtures, channel, box, and vise jaw fixtures. Students will design and sketch various tools to demonstrate understanding. Three class hours. *Prerequisites: TAM 101, TAM 141.*

TAM 156 Advanced Tool Room Processes 3 Credits
The manufacturing technologies available for tool room production will be explored. Their effect on the design and manufacturing of tools, jigs and fixtures will be examined. Likewise their impact on the economics and ergonomics will be explained. Metal bonding, laser machining, water jet cutting, will be studied. Industrial visitations will be an integral part of the course and will assist students in visualizing tooling applications. Three class hours.
Prerequisites: TAM 101, TAM 141.

TAM 171 Machine Trades Apprentice Training I 3 Credits
This is the first year course of the students Machine Trades Apprenticeship on-the-job training experience. The course covers a minimum of 2000 hours of on-site training delivered in accordance with the Department of Labor and other structured apprenticeship training program requirements for Machine Trades Apprentices.

TAM 172 Machine Trades Apprentice Training II 3 Credits
This is the second year of the students Machine Trades Apprenticeship on-the-job training experience. The course covers a minimum of 2000 hours of on-site training delivered in accordance with the Department of Labor and other structured apprenticeship training program requirements for Machine Trades Apprentices.
Prerequisite: TAM 171

TAM 173 Machine Trades Apprentice Training III 3 Credits
This is the third year of the students Machine Trades Apprenticeship on-the-job training experience. The course covers a minimum of 2000 hours of on-site training delivered in accordance with the Department of Labor and other structured apprenticeship training program requirements for Machine Trades Apprentices.
Prerequisite: TAM 172

TAM 174 Machine Trades Apprentice Training IV 3 Credits
This is the fourth year of the students Machine Trades Apprenticeship on-the-job training experience. The course covers a minimum of 2000 hours of on-site training delivered in accordance with the Department of Labor and other structured apprenticeship training program requirements for Machine Trades Apprentices.
Prerequisite: TAM 173

TAM 205 CNC Machining Project Laboratory 3 Credits
The students will apply CNC operating, set-up, and programming skills on various types of CNC equipment. It will involve writing part programs, setting up the machines and producing parts to specifications. Debugging, troubleshooting and program improvements will be required. This course is offered during the day schedule only. Six laboratory hours.
Prerequisites: TAM 101, TAM 105, TAM 121; co requisite: TAM 139.

TAM 241 Advanced Machine Shop Laboratory 3 Credits
Designed as an opportunity for further enhancement of skills developed in TAM 141. Emphasis is placed on developing high level skills to accomplish complex and precision machining operations. Advanced topics include precision layout and tools, quality control, and precision machine processes. Three class hours.
Prerequisites: TAM 101, TAM 141.

TAM 242 Machine Shop Practice IV 3 Credits
Intended for experienced machinists, this course will enable students to develop skills to build high precision tooling from advanced engineering drawings. Traditional and CNC machines will be utilized to create tools, dies, and fixtures that are extremely precise and have close fits and tolerances. Three class hours.
Prerequisites: TAM 101, TAM 141, TAM 241.

TAM 245 Computer Aided Manufacturing 3 Credits
This course teaches the basics of computer aided manufacturing. Students will be able to create part drawings, select tooling needed to manufacture the part, and generate the tool paths. They will be able to verify tool paths, post process paths for various controllers, and edit the tool path output. This will be done through a series of projects and lab exercises. Three class hours.
Prerequisite(s): TAM 101, TAM 123, TAM 132, TAM 139, and TAM 142 or 143. Co requisite: TAM 255.

TAM 246 Computer Aided Manufacturing 2 3 Credits
Building on the basic skills learned in TAM 245, this course expands the student's skills in the areas of tool path modifications, program verification, advanced contouring, and advanced pocketing. Three class hours. *Prerequisite: TAM 245*
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TAM 251 Statistical Process Control for Machinists 3 Credits
An applied statistical process control course for the worker involved in precision parts manufacture. Included in this course is the rationale/need for SPC, Demming philosophy, XBar and range charts, histograms, capability calculations, and attribute charts. Automatic data collection will be done on a Genesis statistical process control data collector and analyzer machine. Three class hours.
Prerequisites: TAM 101, TAM 121, TAM 131, TAM 141.

TAM 255 Computer Aided Manufacturing Laboratory 2 Credits
Students will apply the work developed in TAM 245. This will involve the setup and operation of various CNC equipment to manufacture parts. Vertical machining centers, CNC lathe, and EDM equipment could be used in this laboratory. Tooling problems, material differences, and program editing and revisions will be included in this course. The goal is to have complete support documents with the accurate manufactured parts. Six laboratory hours.
Prerequisite(s): TAM 139, TAM 142, TAM 155, TAM 241 and TAM 245.

Contact Information

MCC Precision Tooling & Machining Contacts

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