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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Class</th>
<th>Lab</th>
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<td>MAC-112</td>
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<td>MAC-151</td>
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<td>MAC-152</td>
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This course provides additional instruction and practice in the use of precision measuring tools, lathes, milling machines, and grinders. Emphasis is placed on setup and operation of machine tools including the selection and use of work holding devices, speeds, feeds, cutting tools, and coolants. Upon completion, students should be able to perform basic procedures on precision grinders and advanced operations of measuring, layout, drilling, sawing, turning, and milling.

Minimum State Prerequisites: None
Minimum State Corequisites: None

This course introduces the concepts and capabilities of computer numerical control machine tools. Topics include setup, operation, and basic applications. Upon completion, students should be able to explain operator safety, machine protection, data input, program preparation, and program storage.

Minimum State Prerequisites: None
Minimum State Corequisites: None

This course introduces the programming, setup, and operation of CNC turning centers. Topics include programming formats, control functions, program editing, part production, and inspection. Upon completion, students should be able to manufacture simple parts using CNC turning centers.

Minimum State Prerequisites: None Take MAC-121;
Minimum State Corequisites: None

This course introduces the manual programming, setup, and operation of CNC machining centers. Topics include programming formats, control functions, program editing, part production, and inspection. Upon completion, students should be able to manufacture simple parts using CNC machining centers.

Minimum State Prerequisites: None Take MAC-121;
Minimum State Corequisites: None

This course provides an introduction to a variety of material-working processes that are common to the machining industry. Topics include safety, process-specific machining equipment, measurement devices, set-up and layout instruments, and common shop practices. Upon completion, students should be able to safely demonstrate basic machining operations, accurately measure components, and effectively use layout instruments.

Minimum State Prerequisites: None
Minimum State Corequisites: None

This course provides an introduction to a variety of material-working processes, in a laboratory setting, that are common to the machining industry. Topics include safety, process-specific machining equipment, measurement devices, set-up and layout instruments, and common shop practices. Upon completion, students should be able to safely demonstrate basic machining operations, accurately measure components, and effectively use layout instruments.

Minimum State Prerequisites: None Take MAC-141;
Minimum State Corequisites: None

This course introduces basic calculations as they relate to machining occupations. Emphasis is placed on basic calculations and their applications in the machine shop. Upon completion, students should be able to perform basic shop calculations.

Minimum State Prerequisites: None
Minimum State Corequisites: None

This course combines mathematical functions with practical machine shop applications and problems. Emphasis is placed on gear ratios, lead screws, indexing problems, and their applications in the machine shop. Upon completion, students should be able to calculate solutions to machining problems.

Minimum State Prerequisites: None Take MAC-151;
Minimum State Corequisites: None
MAC-171 Measure/Material and Safety

Class 0 Lab 2 Clinical 0 Work 0 Credit 1

This course introduces precision measuring instruments, process control and adjustment, inspection, material handling and workplace safety. Topics include properly identifying and handling various measurement instruments and materials, process control, adjustment and improvement, personal protective equipment (PPE) and OSHA safety regulations. Upon completion, students should be able to safely demonstrate effective measurement techniques, identify and handle various materials, and explain safe industry practices.

Minimum State Prerequisites: None
Minimum State Corequisites: None

MAC-224 Advanced CNC Milling

Class 1 Lab 3 Clinical 0 Work 0 Credit 2

This course covers advanced methods in setup and operation of CNC machining centers. Emphasis is placed on programming and production of complex parts. Upon completion, students should be able to demonstrate skills in programming, operations, and setup of CNC machining centers.

Minimum State Prerequisites: None Take MAC-124; Minimum State Corequisites: None

MAC-233 Appl in CNC Machining Appl in CNC Machining

Class 2 Lab 12 Clinical 0 Work 0 Credit 6

This capstone course provides students the opportunity to apply skills learned throughout the curriculum. Emphasis is placed on production of parts and assemblies using modern CNC machine tools. Upon completion, students should be able to manufacture complex parts using a variety of CNC machine tools.

Minimum State Prerequisites: None Take MAC-112(S22988) MAC-122 MAC-224(S23000) MEC-231(S20658);
Minimum State Corequisites: None

MAC-241 Jigs & Fixtures I

Class 2 Lab 6 Clinical 0 Work 0 Credit 4

This course introduces the application and use of jigs and fixtures. Emphasis is placed on design and manufacture of simple jigs and fixtures. Upon completion, students should be able to design and build simple jigs and fixtures.

Minimum State Prerequisites: Take MAC-112
Minimum State Corequisites: None

MAC-247 Production Tooling

Class 2 Lab 0 Clinical 0 Work 0 Credit 2

This course provides advanced study in tooling currently utilized in the production of metal parts. Emphasis is placed on the proper use of tooling used on CNC and other production machine tools. Upon completion, students should be able to choose proper tool grades based on manufacturing requirements and troubleshoot carbide tooling problems.

Minimum State Prerequisites: None Take MAC-111;
Minimum State Corequisites: None