

Career Technical Education

Manufacturing and Technology

Course Title	Prerequisite	Grade Level	Length of Course	Credits Per Year	Meets Graduation Requirement in:
Manufacturing & Engineering Tech 2A	Technical Design 1	10-12	1 semester	0.5	CTE, AA, EL

This is a project based course where students will go through all of the steps of producing a product that incorporates fine **woodworking, electronic and CNC** set up and operation. Student will learn how to set up the manufacturing process for production. Students are required to practice all shop safety rules.

Manufacturing & Engineering Tech 2B	Technical Design 1 Man & Eng 1A Welding also recommended	10-12	1 semester	0.5	CTE, AA, EL
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3 credits of MAN 110: Manufacturing Processes

\$ There is a fee to the college to receive the college credit

This is a project based course. Using **Metal Stock** students will go through all of the steps of Fabricating or Milling a product from plans to a finished marketable product. Students will perform market and manufacturing process research then set up the manufacturing process for producing their product. Through the completion of the course students will learn the required setups and operations of hand and power tools; inspecting and quality control, and CNC programming. Students may be required to work in two or three person teams, but all students will be required to demonstrate their individual competencies. Students are required to practice all shop safety rules.

Concepts also covered include: design processes, properties of material, free enterprise, marketing principles and career exploration.

Design Processes 1	None	9-12	1 year	1.0	CTE,AA, EL
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This course outlines the principles of computer aided design. The class allows students to build computer 2-2 and 3-d modeling skills. Students use CNC and rapid prototyping to produce actual models of their two and three dimensional designs.

Design Processes 2	None	10-12	1 semester	0.5	CTE,AA, EL
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4 credits of MAN 115: Design Processes 1 – There is a fee to the college to receive college credit

This course applies principles of CAD design and builds on computer solid modeling skills developed in Technical Design 1. This course introduces students to the engineering design process and the properties of good design. Students will plan, complete and document a number of analysis-based designs. Student skills will be developed in the design reports and technical drawings using computer-aided design. This course content will be covered through a series of hands-on activities where students have the opportunity to use CNC and rapid prototype equipment to produce actual products from dimensional designs.