

# MANUFACTURING TECHNOLOGY (MNTC)

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## **MNTC 208. SURVEY OF ELECTRICITY. 4 Credits.**

**Pre-requisites:** MATH 142 or MATH 161 or MATH 162; PHYS 100 or PHYS 110 or PHYS 121 or PHYS 131 or PHYS 151; with grades  $\geq$ C.

Introduces the student to direct current, alternating current (including residential wiring), and amplifying devices.

## **MNTC 301. METALLIC PROCESSES. 5 Credits.**

**Pre-requisites:** MATH 142, MATH 161, MATH 162, METC 110 or MENG 217; all  $\geq$ C.

Metallic Processes is a comprehensive basic course in technical metals which is designed to survey metalworking materials and processes which have been developed by modern industry. The course provides opportunity to learn the theories and scientific principles basic to the application of metalworking tools and procedures.

## **MNTC 320. NON-METALLIC PROCESSES. 5 Credits.**

**Pre-requisites:** MATH 142, MATH 161, MATH 162, METC 110, MENG 217 or; all  $\geq$ C.

Survey of non-metallic materials (such as woods, plastics, and ceramics) and the industrial processes utilized to convert raw materials into finished products. Course includes characteristics and properties of non-metallic materials and utilization of industrial tools and processing equipment.

## **MNTC 399. DIRECTED STUDY. 1-5 Credits.**

**Cross-listed:** APTC 399, CMTC 399, DNTC 399, TECH 399.

**Pre-requisites:** permission of the instructor, department chair and college dean.

Directed Study.

## **MNTC 402. MACHINE TOOL I. 5 Credits.**

**Pre-requisites:** MATH 142 or MATH 161 or MATH 162; MENG 217 and, MNTC 301; all with grades  $\geq$ C.

A comprehensive course in machine tool operations, both conventional and CNC. Course includes cutting operations, precision measurement, set up, and CNC programming.

## **MNTC 404. COMPUTER NUMERICAL CONTROL. 5 Credits.**

**Pre-requisites:** MATH 142 or MATH 161 or MATH 162; MNTC 301, MNTC 402, MENG 217; all with grades  $\geq$ C.

This course provides the learner with experience utilizing CNC processes. Programming methods will include manual, CAM software and conversational languages.

## **MNTC 406. WELDING TECHNOLOGY. 4 Credits.**

**Pre-requisites:** MATH 142 or MATH 161 or MATH 162, MNTC 301  $\geq$ C or permission of the instructor.

Theory and practice of welding ferrous and non-ferrous metals. Practice in oxyacetylene, shielded metal arc and inert gas processes.

## **MNTC 430. MACHINE TOOL II. 5 Credits.**

**Pre-requisites:** MATH 142 or MATH 161 or MATH 162; MNTC 301, MNTC 402, MNTC 404, MENG 217; all with grades  $\geq$ C.

Application and theory in the design, development and function of tooling, dies, molds, jigs, and fixtures. Laboratory experiences provide a problem solving approach to development of prototypes in both unit and mass production applications.

## **MNTC 439. TOPICS IN MANUFACTURING. 5 Credits.**

**Notes:** An authorized elective substitution for MNTC 495. This course is only offered during the summer quarter.

**Pre-requisites:** TECH 331, TECH 462: all with grades  $\geq$ C, and junior standing.

This course explores topics in manufacturing that are beyond the scope of the regular program course curriculum. It allows for a more in-depth coverage through lecture, discussion, and explorations of the manufacturing world as students prepare to enter the work force.

## **MNTC 490. SENIOR CAPSTONE: PRODUCTION LAB. 4 Credits.**

**Cross-listed:** APTC 490, CMTC 490, DNTC 490, TECH 490.

**Notes:** the course will simulate a real world design team concept by utilizing a design group that contains members of different program majors.

**Pre-requisites:** senior standing.

**Satisfies:** a university graduation requirement—senior capstone.

The course simulates the real world situation that graduates face. Students will work in teams to apply techniques of production management, product design/development, plant layout, scheduling, cost accounting, assembly, inspection and quality control to produce a product. Learning to deal with the team dynamics is a valuable learning process. Each student team produces a new product and a final written report to demonstrate how the process and goals of the course have been realized.

## **MNTC 491. SENIOR PROJECT. 4-6 Credits.**

**Cross-listed:** APTC 491, CMTC 491, DNTC 491, TECH 491.

**Pre-requisites:** senior standing.

Independent and/or group study and implementation of a design and development project. (variable time).

## **MNTC 495. INTERNSHIP. 1-15 Credits.**

**Cross-listed:** APTC 495, CMTC 495, DNTC 495, TECH 495.

**Notes:** Graded Pass/Fail. This course may be repeated.

**Pre-requisites:** junior or senior status and permission of the instructor, department chair and dean.

A maximum of 5 credits may be earned toward electives for a Technology major. Students considering electives for a Technology minor should consult with their departmental advisor.

## **MNTC 496. EXPERIMENTAL COURSE. 1-6 Credits.**

**Cross-listed:** APTC 496, CMTC 496, DNTC 496, TECH 496.

Experimental Course.

## **MNTC 497. WORKSHOP, SHORT COURSE, CONFERENCE, SEMINAR. 1-6 Credits.**

**Cross-listed:** APTC 497, CMTC 497, DNTC 497, TECH 497.

Workshop, short course, conference, or seminar.

## **MNTC 498. SEMINAR. 1-6 Credits.**

**Cross-listed:** APTC 498, CMTC 498, DNTC 498, TECH 498.

Seminar.

## **MNTC 499. DIRECTED STUDY. 1-5 Credits.**

**Cross-listed:** APTC 499, CMTC 499, DNTC 499, TECH 499.

**Pre-requisites:** permission of the instructor, department chair and college dean.

Designed for students wanting to pursue a subject beyond the scope of regular courses.