

MANUFACTURING TECHNOLOGY

The Manufacturing Technology Department offers the opportunity for students to excel by providing the latest information and technology in both the lecture and laboratory settings. The Manufacturing Technology program has included the most modern software and hardware to provide a good environment for learning. The inclusion of new computer controlled laser technology and continuing the use of general manufacturing process technology gives the students access to industrial tools and technologies found in industry. A comprehensive set of undergraduate courses are offered for students interested in working toward the completion of proficiency awards in CNC Operation and Manufacturing Applications, transfer classes for university credit and general interest courses for the returning student looking for skill improvement and employment in local industry.

MT V01 Manufacturing Support 2 Units

This entry-level course is designed for limited-English-speaking students seeking training and/or employment within the manufacturing industry. Emphasis will be on common shop terminology. Selective machine tools and measuring tool vocabulary will be covered in detail.

Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

Degree Applicability: Applies to Associate Degree

AA/AS GE: None

Transfer Credit: None

MT V02 Applied Machining I 2 Units

In-Class Hours: 17.5 lecture, 52.5 laboratory

Advisories/Rec Prep: DRFT V02A or WEL V02

This entry-level course is designed for students with or without any machining experience interested in job-skill preparation as applied to safely operating engine lathes and mills in a manufacturing setting. Intro to CNC (computer numerical control).

Grade Modes: Letter Graded

Field Trips: May be required

Degree Applicability: Applies to Associate Degree

AA/AS GE: None

Transfer Credit: None

MT V03 Applied Machining II 2 Units

Advisories/Rec Prep: MT V02

This course consists of a series of lecture and enhanced laboratory activities as applied to operating conventional mills and lathes and introduces students to selective CNC-based (Computer Numerical Control) technology. Machining lab projects are structured around OJT (On-The-Job-Training) principles. The course is open to students interested in further machining related job skill preparation.

Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

Degree Applicability: Applies to Associate Degree

AA/AS GE: None

Transfer Credit: None

MT V04 Measurements and Computations 3 Units

Same-As: DRFT V04

In-Class Hours: 52.5 lecture

This course is the occupational application of measurements and computations as used by technology students. Topics include geometric shape calculations, practical trigonometry, areas, volumes, ratio and proportion, units and conversions, decimals and fractions and applied algebra.

Grade Modes: Letter Graded

Degree Applicability: Applies to Associate Degree

AA/AS GE: None

Transfer Credit: None

MT V05 CNC Machining I 2 Units

In-Class Hours: 17.5 lecture, 52.5 laboratory

This course is an introduction to the general principles of Computer Numerical Control (CNC) machining as applied to machining centers in the manufacturing environment. The focus of the course will be on OJT (On-the-Job-Training) principles as applied to CNC machine operator training. Topics will also include: fundamentals of measurement, current industry-standard blueprint reading, CNC tooling, accessories nomenclature, and machine tool setups and operation.

Grade Modes: Letter Graded

Field Trips: May be required

Degree Applicability: Applies to Associate Degree

AA/AS GE: None

Transfer Credit: None

MT V06 CNC Machining II 2 Units

In-Class Hours: 17.5 lecture, 52.5 laboratory

Prerequisites: MT V05

This course is an extension of the introductory Computer Numerical Control(CNC)operator training with the focus on extended CNC machining principles as applied to turning centers. The teaching delivery system is modeled after OJT (On-the-Job-Training) principles and covers extended principles of blueprint reading, precision measuring tools, and first article inspection per industry standard (ASME Y14.5).

Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

Degree Applicability: Applies to Associate Degree

AA/AS GE: None

Transfer Credit: None

MT V07 CNC Machining III 2 Units

In-Class Hours: 17.5 lecture, 52.5 laboratory

Prerequisites: MT V06

This course is designed as an advanced general Computer Numerical Control (CNC) machining operation course. The course emphasis is on the OJT (On-the-Job-Training) principles where lab activities encompass the processing of actual parts from the industry. Upon successful completion of this course students are expected to be proficient in job entry-level skills for operating machining and turning centers. Additional training is also provided in the proficiency of blueprint reading per ASME Y14.5 standard as well as processing first article inspection during the production cycle run.

Grade Modes: Letter Graded

Degree Applicability: Applies to Associate Degree

AA/AS GE: None

Transfer Credit: None

MT V08 Computer Numerical Control (CNC) Programming 3 Units*In-Class Hours:* 35.0 lecture, 52.5 laboratory*Advisories/Rec Prep:* MT V02

This course is an introduction to Computer Numerical Control (CNC) parts programming. Topics will include: CNC concepts, axis nomenclature, tooling, programming formats, manufacturing processes, Computer Aided Manufacturing (CAM), CNC milling and turning, program editing, speeds and feeds, and machine shop safety.

Grade Modes: Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None**MT V10 Quality Control and Mechanical Inspection 2 Units***In-Class Hours:* 17.5 lecture, 52.5 laboratory*Advisories/Rec Prep:* MT V02

This is an introductory course dealing with the quality control field with special emphasis on part inspection/verification processes as applied to CMM & OM (coordinate measuring machine & optical measurement) technology. Open-end (surface plate) mechanical inspection principles are also covered.

Grade Modes: Letter Graded**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None**MT V15 Manufacturing Processes 3 Units***Formerly:* MT 15*In-Class Hours:* 35.0 lecture, 52.5 laboratory*Advisories/Rec Prep:* MT V02

This course introduces modern manufacturing processes and systems. The course will also cover various manufacturing materials, techniques of machining, casting, forming, and industrial design.

Grade Modes: Letter Graded**Field Trips:** Will be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** CSU**UC Credit Limitations:** None**CSU GE-Breadth:** None**IGETC:** None**MT V18 Manufacturing Projects and Applications 2 Units***In-Class Hours:* 17.5 lecture, 52.5 laboratory*Prerequisites:* MT V05 and MT V15

This course is an integration of previously acquired knowledge through assignment of projects in the areas of manufacturing, industrial design, flexible manufacturing applications, computer aided design, and computer aided manufacturing (CAD/CAM). Topics will include set up and operation of computer numerical control (CNC) lathes, mills, manufacturing processes, and design principles.

Grade Modes: Pass/No Pass Grading**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** None**MT V35 Production Machining and Tooling Design Techniques 3 Units***Formerly:* MS V35*In-Class Hours:* 35.0 lecture, 52.5 laboratory*Prerequisites:* MT V05

This class covers production machining techniques. Topics include: production planning; production tooling design; setup and manufacturing planning; job costing and time/scheduling calculations; inspection; and blueprint reading for multiple-part manufacturing products. Computer applications in manufacturing planning is covered using computer aided design and manufacturing software (CAD/CAM), word processing and spread-sheet applications.

Grade Modes: Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** CSU**UC Credit Limitations:** None**CSU GE-Breadth:** None**IGETC:** None

- Advanced Manufacturing, Associate in Science (<http://catalog.vcccd.edu/ventura/programs-courses/manufacturing-technology/advanced-manufacturing-as/>)
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