

# MANUFACTURING TECHNOLOGY (MTE)

## **MTE 1101 | Introduction to Manufacturing**

Lecture Credit: 3

Gives students a broad understanding of manufacturing and the role of the manufacturing technician. Students learn how manufacturing is important to Colorado and the U.S. Topics covered include manufacturing concepts, principles, and processes, cost elements, tools and techniques, safety, current trends and manufacturing in the future.

## **MTE 1200 | Manufacturing Processes**

Lecture Credit: 3

Provides the student an overview of the different methods, tools and machines which are used to manufacture industrial and consumer products.

## **MTE 1220 | Lean Manufacturing - Practices & Processes**

Lecture Credit: 3

Provides a study of the Toyota Production System (TPS), also known as Lean Manufacturing, Just-in- Time (JIT), Demand Flow, or Build-to-Order. The course covers the build-to-forecast batch-process method and compares it with TPS. The students study and develop in the lab the following TPS concepts/methods: customer expectations, seven fundamental wastes, plan-do-check-act cycle, kanban system and kanban types, material flow, group technology, manufacturing cells, point-of-use storage and support, and setup/changeover time reduction. This course also covers application of the following problem solving tools: flowchart, cause-and-effect diagram, check sheet, pareto chart, root cause analysis, statistical process control. Students investigate the basics of high-mix, low-volume manufacturing.

**Prerequisite:** MAT 1140 or higher, with a grade of C or better

## **MTE 2076 | Special Topics**

Provides students with a vehicle to pursue in depth exploration of special topics of interest.

**Prerequisite:** Chair approval

*Note: Special topics courses range from 0-12 credits and vary in learning type. Please see your program chair for more information about your options.*

## **MTE 2310 | Design for Manufacturability**

Lecture Credit: 3

Provides students with an understanding on how to design a product for test, assembly, service, rebuild/reuse/recycle, postponement and several other product attributes. The student learns the role and development of design specifications, the importance and benefits of DFM, the design rules and their application, the design/manufacturing integration, the concept of designed-in quality, the role of design tolerances, the need for standard part use and the application and importance of concurrent engineering practices. In addition the student learns the application of tools CAD, CAM, CAB, PDMS and CIM in product development.

**Prerequisite:** MAC 1002 or MTE 1200 with a grade of C or better