

# MIT - MANUFACTURING AND INDUSTRIAL ENGINEERING TECHNOLOGY

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## **MIT 2500 Machine Tool Laboratory Cr. 1**

Laboratory experiences in manufacturing processes, machine tools, and mechanization. Calibration and part-setup. Offered Fall, Winter.

**Prerequisites:** ET 2140 with a minimum grade of C-

## **MIT 3520 Manufacturing Processes Theory Cr. 3**

Fundamentals of material manufacturing processes in the context of their applications in industry. Emphasis on the nature and deformation behavior of materials commonly used in manufacturing, basic processes used in transforming them into useful products, the scientific theories underlying those processes, and criteria for selecting particular processes for industrial manufacturing operations. Offered Fall, Winter.

**Prerequisites:** CHM 1020 with a minimum grade of C-

## **MIT 3600 Process Engineering Cr. 3**

Processing functions. Methods of manufacturing analysis. Manufacturing sequence, mechanization. Selection of tooling and equipment. Planning the process of manufacture. Offered Yearly.

**Prerequisites:** MIT 3520 with a minimum grade of C-

## **MIT 4700 Computer-Aided Design and Manufacturing Cr. 3**

Fundamentals of computer-aided manufacturing using computer software. Two- and three-dimensional applications programming, numerical control and programming. Offered Fall.

**Prerequisites:** MIT 3600 with a minimum grade of C-

**Course Material Fees:** \$25

## **MIT 4800 Quality Control Cr. 4**

Introduction to total quality systems design and to basic analytical techniques for quality control. Offered Intermittently.

**Prerequisites:** ET 3850 with a minimum grade of C-

## **MIT 4990 Guided Study Cr. 1-6**

Supervised study and instruction in the field selected by the student. Offered Intermittently.

**Repeatable for 6 Credits**

## **MIT 5500 Machine Tool Laboratory Cr. 1**

Laboratory experiences in manufacturing processes, machine tools, and mechanization. Calibration and part-setup. Offered Fall, Winter.

**Prerequisites:** ET 2140 with a minimum grade of C-

## **MIT 5700 Industrial Robots Modeling and Simulation Cr. 4**

Topics include: the direct kinematic problem (homogeneous transformation matrices, composite homogeneous transformation matrix, links, joints and their parameters, the Denavit-Hartenberg representation, kinematic equations for manipulators); the inverse kinematic problem (geometric approach applied for 2DOF, 3DOF, 4DOF, 5DOF, and 6DOF manipulators; modeling, simulation and off-line programming of industrial robots and cobots (collaborative robots); and current trends and research in industrial robotics and cobotics. Offered Winter.

**Prerequisites:** ET 3430 with a minimum grade of C-

## **MIT 7700 Robotics and Flexible Manufacturing Cr. 4**

Kinematics, dynamics and controls of the manipulators, their design and applications in flexible manufacturing cells. Computer-integrated manufacturing. Offered Intermittently.

**Prerequisite:** ET 7430 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.