

IM 112- Manufacturing Technology

Hour: Lecture: 1 Hrs.

Tutorial: 2 Hrs.

lab - 2 Credit: 2.

Coordinator: Mona Fouad

Text Book:

- T.F. Waters and F.Waters, "Fundamentals of Manufacturing for Engineers", Taylor & Francis, latest edition.

Specific course information

- a. This course identifies the different types of industries, production techniques, management and organization structure, the different types of hazards and dangers and how to prevent them. Also it clarifies the meaning of production planning and control and cost calculations.
- b. Prerequisite: None
- c. Designation: Required

Specific goals for the course:

- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to identify, formulate, and solve engineering problems.
- An understanding of professional and ethical responsibility.
- A knowledge of contemporary issues within and outside the mechanical engineering profession.
- An ability to use the techniques, skills, and modern engineering tools necessary for mechanical engineering practice.

Course instruction outcomes:

- The students will be able to understand the different stages or phases for engineering materials processing.
- The students will learn the basic concepts of metal forming and casting, understanding the concepts of metal machining and welding techniques and associated applications, learning different measuring techniques and how they can be used for quality control purposes.

Student outcomes:

C, E, F, J, K

Topics Covered:

- Production of steel and cast iron.
- Forming operations (Rolling – Drawing – Extrusion –Forging).

- Heat treatment operations (Hardening-Annealing-Tempering-Nor realizing).
- Cutting tools (Geometry & materials).
- Mechanics of metal cutting and turning operations.
- Cutting fluids (Function – Type – Selection).
- Sand casting (Pattern design & mould preparations).
- Centrifugal casting, die casting and aspects of the casting process.
- Gas and Electric arc welding.
- Electric resistance and pressure welding and aspects of the welding process.
- Standards of measurements, Measuring Instruments.
- Measuring Instruments (Vernier, micrometer, dial gauge, block gauges).
- Measuring methods (Indirect and comparative measurements).
- Final Exam.

Course / credit hours	Math & Basic Sciences	Engineering Topics	General Education
Manufacturing Technology /3	1	1	