IC141 Product Realization Technology

Credits: 2-0-3-4

Prerequisite: Consent of the faculty member

Students intended for: B.Tech

Elective or Core: Core Semester: Even/Odd

Course objective: The aim of the course is to introduce various processes of converting materials into products.

Course content:

- **Introduction:** Engineering materials, their manufacturability and application [2hrs]
- **Machining**: Lathe, drilling, milling and grinding machines and their operations. [5 hrs]
- **Casting**: Pattern materials, pattern types, allowances, molding sand, composition and properties, cores, casting defects and their remedies, plastic parts molding [7 hrs]
- **Joining**: Welding fundamentals, types of welded joints, types of welding processes, gas welding process, manual metal welding, welding defects and remedies, Soldering and brazing, their applications in electronics industry [6 hrs]
- **Forming**: Forging, rolling, extrusion, wire drawing and tube drawing, sheet metal operations, forging defects and remedies [6 hrs]
- **Advanced Manufacturing Processes**: Introduction to advanced manufacturing techniques and their applications [4 hrs]

Suggested Books

Materials and Processes in Manufacturing, E. Paul DeGarmo, JT. Black, R. A. Kohser, Prentice Hall of India Pvt. Ltd.- New Delhi (ISBN 81-203-1243-0) 1997

Manufacturing Engineering and Technology, S. Kalpakjain, S.R. Schmid, Pearson Education, New Delhi, (ISBN 81-7808-157-1) 2000

Fundamentals of Modern Manufacturing, Mikell P. Grover, John Willey and Sons Inc (ISBN 0-471-40051-3) 2002

Processes and Materials of Manufacturing, R.A. Lindberg, Prentico Hall India Ltd. (ISBN 81-203-0663-5) 1990

Manufacturing Technology (Vol 1 and 2), P.N. Rao, Tata McGraw Hill New Delhi (ISBN 0074631802) 1998