

**Maulana Abul Kalam Azad University of Technology, West Bengal**  
(Formerly West Bengal University of Technology)  
**Syllabus for B. Tech in Mechanical Engineering**  
(Applicable from the academic session 2018-2019)

<b>Subject Code :</b> PC-ME302	<b>Category:</b> Professional Core courses
<b>Subject Name :</b> Manufacturing Processes	<b>Semester :</b> Third
<b>L-T-P : 3-1-0</b>	<b>Credit:4</b>
<b>Pre-Requisites:</b> No-prerequisite	

**Course Objective:**

To motivate and challenge students to understand and develop an appreciation of the processes in correlation with material properties which change the shape, size and form of the raw materials into the desirable product by conventional or unconventional manufacturing methods

**Course Content:**

<b>Module No.</b>	<b>Description of Topic</b>	<b>Contact Hrs.</b>
1	Conventional Manufacturing processes: Casting and moulding: Metal casting processes and equipment, Heat transfer and solidification, shrinkage, riser design, casting defects and residual stresses.	10
2	Introduction to bulk and sheet metal forming, plastic deformation and yield criteria; fundamentals of hot and cold working processes; load estimation for bulk forming(forging, rolling, extrusion, drawing) and sheet forming (shearing, deep drawing, bending) principles of powder metallurgy.	10
3	Machining: Single and multi-point machining; Orthogonal machining, cutting tool geometry of SPTT, milling cutter and drill, conversion of rake and clearance angles within ASA and ISO systems, various force components: Chip formation, Tool wear and tool life, Surface finish and integrity, Machinability, Cutting tool materials, Cutting fluids, Coating; Turning, Drilling, Milling and finishing processes, Introduction to CNC machining.	14
5	Joining/fastening processes: Physics of welding, brazing and soldering; design considerations in welding, Solid and liquid state joining processes; Adhesive bonding.	8

**Course Outcomes:**

Upon completion of this course, students will be able to understand the different conventional and unconventional manufacturing methods employed for making different products

**Learning Resources:**

1. Kalpakjian and Schmid, Manufacturing Processes for Engineering Materials (5th Edition)- Pearson India, 2014
2. Mikell P. Groover, Fundamentals of Modern Manufacturing: Materials, Processes, and Systems, Wiley Publication.
3. Degarmo, Black &Kohser, Materials and Processes in Manufacturing, Wiley Publication.