Course Type	Course Code	Name of Course	L	T	P	Credit
DC	MEC209	Production Technology	3	0	0	9

Course Objective

- To provide basic understanding on the technologies involved in Manufacturing processes
- To impart knowledge about the process and applications of metal casing, forming and welding.

Learning Outcomes

Upon successful completion of this course, students will:

- have a broad understanding of the different Processes and their applications.
- be able to select proper process and their parameters and equipment for manufacturing a component.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Metal casting: Principle & review of casting processes, Design of patterns, moulds and cores, types and properties of moulding sand, riser and gating system design, solidification and cooling of casting. Casting defects & remedies and inspection.	10	A complete understanding on casting processes. Students will be able to design pattern, core and gating system.
2	Metal Forming Processes: Elastic & plastic deformation, yield criteria, hot working and cold working, Bulk deformation processes: applications, operations, equipment and load estimation for Bulk deformation processes (forging, rolling, extrusion, drawing).	11	A complete understanding of metal forming process. Students will be able to estimate the required force for different forming processes.
3	Sheet Metal working: applications, operations, equipment and load estimation of Sheet metal processes (shearing, deep drawing, bending), Introduction to Punch and die arrangements.	6	Will understand applications of sheet metal works. Students will be able to design the tools for different sheet metal operations.
4	Joining processes: Broad classification of welding processes, working principle, characteristics and application of important welding processes, Precision welding processes and welding defects. Welding inspection techniques.	10	A complete understanding about different welding process. The students will able to choose the appropriate joining process as per the applications.
5	Working principle, characteristics and application of Brazing, soldering and abrasive bonding.	5	Understanding about the joining process for dissimilar materials.

Text Books:

1. Manufacturing Science: Ghosh and Mallick, East-West Press Private Limited. 2nd Edition, 2010

Reference Books:

1. Materials and Processes in Manufacturing, Degarmo, J. T. Black, Prentice Hall of India Pvt Ltd. 11th Edition, 2017
2. Manufacturing Processes for Engineering Materials, Kalpakjian and Schmid, Prentice Hall. 6th Edition, 2016
3. Fundamentals of modern manufacturing processes, M. P. Groover, Wiley India, 3rd Edition, 2009
4. Machining and Metal Working Handbook, Ronal A Walsh and Denis Cormier McGraw Hill Publication. 3rd Edition, 2005