ME 222 Manufacturing Technology 1 (3-0-0-6)

Introduction to manufacturing processes: Moulding materials and mould design; Pattern types and design. Casting processes: sand casting, investment casting, pressure die casting, centrifugal casting, continuous casting; Casting analysis; Casting defects and their remedies. Metal forming Processes: Various metal forming techniques and their analysis, viz., forging, rolling, extrusion, wire drawing, sheet metal working; Super plastic deformation; Metal forming defects. Metal joining processes: brazing, soldering, welding: Solid state welding; resistance welding; arc welding; gas welding; Welding defects. Polymer fabrication methods viz., Injection moulding, Compression moulding, Transfer moulding, Thermoforming. Composite fabrication methods viz., Compression moulding, Vacuum moulding, Prepreg fabrication, Filament winding. Additive manufacturing. Powder metallurgy and its applications.

Texts:

[1] A. Ghosh and A. K. Mallik, Manufacturing Science, Wiley Eastern, 2010
[2] P. N. Rao, Manufacturing Technology: Foundry, Forming And Welding, Tata McGraw Hill, 2017.
[3] M. P. Groover, Introduction to Manufacturing Processes, Wiley, 2011

References:

[1] J. S. Campbell, Principles of Manufacturing Materials and Processes, Tata McGraw Hill, 1995.
[2] M. C. Flemings, Solidification Processing, Tata McGraw Hill, 1982.
[3] P. C. Pandey and C. K. Singh, Production Engineering Sciences, Standard Publishers Ltd., 2013.
[4] S. Kalpakjian and S. R. Schmid, Manufacturing Processes for Engineering Materials, Pearson education, 6th edition, 2016.