

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma in Mechatronics Engineering

Semester: 3

Subject Code

Subject Name MANUFACTURING ENGINEERING - I

Sr. No.	Course content
1	INTRODUCTION TO MANUFACTURING PROCESSES : 1.1 Nature, role and scope of manufacturing processes. 1.2 Basic principle of mechanical working and its Terminology. 1.3 Role of metal working, metal casting and metal joining processes.
2	METAL WORKING PROCESSES : 2.1 Hot and cold working processes. 2.2 Working principles, equipments used and their specifications, process parameters and applications of: - Rolling

4	METAL JOINING PROCESSES : 4.1 Introduction and classification. 4.2 Welding-working principle, setup sketch, specifications of equipment, functions of each element, process parameters for various materials, safety precautions for following: - Gas welding(Oxy-acetylene, Air-acetylene, oxy-hydrogen and LPG Oxygen) - Arc welding (Carbon arc, metal arc, MIG, TIG, flux coated arc and Submerged arc) - Resistance welding (Butt, spot, seam, projection and percussion) - Thermit welding. - Forged welding. 4.3 Soldering-working principle, setup sketch, specifications of equipment-tools and consumables, functions of each element, process parameters for various materials and safety precautions. 4.4 Brazing-working principle, setup sketch, specifications of equipment-tools and consumables, functions of each element, process parameters for various materials and safety precautions. 4.5 Adhesive joining-process, applications 4.6 Fastening process- process, applications 4.7 Recent trends in metal joining - Electron beam welding - Laser beam welding - Ultrasonic welding 4.8 Welding Techniques / methods of joining non-homogeneous metals
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Reference Books :

Sr. No.	Name of Books	Authors
1.	Workshop Technology I & II	- J.A.Schey
2.	Workshop Technology I & II	- Raghuwanshi
3.	Workshop Technology I, II & III	- W.A.J. Chapman
4.	Manufacturing Processes	- M.L.Begman
5.	Production Technology	- R.K.Jain and S.C.Gupta
6.	Welding Engineering	- B.E.Rossi
7.	Audles Welding Guide	- F.D.Graham
8.	Foundry Engineering	- P.L.Jain
9.	Principle of Foundry	- Jain & Gupta
10.	Manufacturing Processes	- S.E.Rusinof
11.	Production Technology	- H.H.Marshall