

GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)

III - SEMESTER

Course Title: Manufacturing Engineering - II

(Course Code: 1333401)

Diploma Programme in which this course is offered	Semester in which offered
Mechanical (Manufacturing Technology)	Third Semester

Module.	Topics	Hours
Module 1	Extrusion 1.1 Introduction 1.2 Direct extrusion 1.3 Indirect extrusion 1.4 Hot extrusion 1.5 Cold extrusion 1.6 Extruded components used in Auto Industry	4 h
Module 2	Rolling 2.1 Introduction 2.2 Rolling Sequence - Ingot to Bar, Shape, Plate, Sheet / Strip 2.3 Rolling Mills - Fundamentals 2.4 Grain Structure in Rolling 2.5 Hot Rolling and Cold Rolling - Advantages and Disadvantages 2.6 Rolling Defects and Remedies	4 h
Module 3	Forging 3.1 Fundamentals of Hot and Cold Forging 3.2 Forging process 3.3 Properties of Forged components 3.4 Forging Defects - Causes and Remedies 3.5 Difference between Hot Forging and Cold Forging 3.6 Inspection of Forged components 3.7 Forged components used in Auto Industry	6 h
Module 4	Welding 4.1 Introduction to Welding 4.1.1 Arc Welding 4.1.2 AC and DC Welding 4.2 DC Arc Welding 4.2.1 DC Arc Welding machine and Accessories 4.2.2 Welding Parameters 4.2.3 Straight polarity machine setting and Reverse polarity - Advantages 4.2.4 Specification and Application of Welding Rods 4.2.5 Defects in DC Arc Welding - Causes and Remedies 4.3 MIG Welding 4.3.1 MIG Welding machine and Accessories 4.3.2 MIG Welding Process 4.3.3 MIG Welding Parameters	12 h

	<ul style="list-style-type: none">4.3.4 Machine Setting4.3.5 Types, Specifications and Application of MIG Welding Wires4.3.6 Defects in MIG Welding - Causes and Remedies4.4 Inspection and Testing of Welded Joints<ul style="list-style-type: none">4.4.1 Visual Inspection4.4.2 Non Destructive Testing<ul style="list-style-type: none">4.4.2.1 Dye Penetration Test4.4.2.2 Magnetic Particle Test4.4.3 Destructive Testing	
Module 5	Casting <ul style="list-style-type: none">5.1 Sand Casting<ul style="list-style-type: none">5.1.1 Casting process - Process Description5.1.2 Cast components used in Auto Industry5.2 Investment Casting5.3 Die Casting<ul style="list-style-type: none">5.3.1 Basics of pressure Die casting5.3.2 Die Cast components used in Auto Industry	6 h