

GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)

IV - SEMESTER

Course Title: Heat Treatment

(Course Code: 1343404)

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

Module.	Topics	Hours
Module 1	Introduction 1.1 Effect of Heat Treatment on the properties of steel 1.2 Explanation of the following 1.2.1 Lower and Upper critical temperature 1.2.2 Hypereutectoid, Eutectoid and Hypereutectoid steel 1.2.3 Microstructure of steel	3 h
Module 2	Heat Treatment Processes 2.1 Process, structural change and application of the following 2.1.1 Annealing 2.1.2 Tempering 2.1.3 Hardening 2.1.4 Normalizing 2.1.5 Case /Surface Hardening Carburising Flame hardening. Induction hardening 2.1.6 Vacuum Hardening 2.1.7 Inert atmosphere Heat Treatment	8 h
Module 3	Heat Treatment Recommendation for Tool elements	4 h
Module 4	Surface Treatment 4.1 Principle of Electroplating 4.2 Principle of Passivation 4.3 Process and application of the following 4.3.1 Cadmium Plating 4.3.2 Silver Plating 4.3.3 Zinc Phosphating 4.3.4 Aluminium anodizing coating 4.3.5 Aluminium anodizing 4.3.6 Titanium anodizing	5 h