

GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)

V - SEMESTER

Course Title: Material Recycling

(Course Code: 1353403)

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

Module.	Topics	Hours
Module 1	Waste Management 1.1 Introduction to Waste Management 1.2 Benefits of reducing wastes	1 h
Module 2	Classification of Wastes 2.1 Household waste 2.1.1 Solid Wastes 2.1.2 Liquid Wastes 2.1.3 Bio degradable and Non-bio degradable 2.2 Industrial Wastes 2.2.1 Solid - Hazardous and Non hazardous. 2.2.2 Liquid - Hazardous and Non hazardous. 2.3 Bio medical wastes 2.4 E-Waste 2.5 Methods adopted in disposing the above wastes	4 h
Module 3	Recycling 3.1 Introduction to Recycling 3.2 Benefits of Recycling 3.3 Major waste generating activities in Metal Industry 3.4 Scrap generated in Sheet metal processing industries	2 h
Module 4	Benefits of Recycling 4.1 Generates Industries 4.2 Create Jobs 4.3 Impact on Environment	
Module 5	Methods of collecting Recyclable material 5.1 Curbside collection 5.2 Drop off Centres 5.3 Buy back Centres 5.4 Direct from Processing Industry	2 h
Module 6	Classification of Steel Scrap 6.1 Common grades of Steel Scrap 6.2 Common grades of Cast Iron Scrap 6.3 Common grades of Stainless Steel Scrap 6.4 Common grades of Non-ferrous Scrap 6.5 Use of above scraps by Recycling process	4 h

Module 7	Steel scrap Sorting and Preparation 7.1 Manual Sorting 7.2 Magnetic separation 7.3 Eddy current Separation 7.4 Colour, Density, Spark, Observation 7.5 Chemical analysis 7.6 Spectroscopic Testing	4 h
Module 8	Material handling methods in Steel scrap recycling plants	2 h
Module 9	Compacting, Packing and Labelling methods in Steel scrap recycling plants	2 h
Module 10	Study of Recycling Process at Toyota Tsusho	2 h