

GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. SEMESTER : VII
ENVIRONMENTAL SCIENCE AND ENGINEERING

Subject Name: Industrial waste management

Subject Code:173701

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	University Exam(E)	University Exam(P)	Mid Sem Exam(Theory) (M)	Practical (Internal)
4	2	2	8	70	30	30	20

Sr No	Course Contents
1	Introduction: Core activities and supporting activities and waste generation, Process mapping approach for understanding waste generation, Environmental standards applicable to industrial units, Other environmental functions relating to waste management.
2	Core Industrial Activities and Wastes Generation: Paper and pulp mills, Dairy units, Sugar mills, Distilleries, Textile dyeing and finishing units, Tanneries, Metal surface finishing industries.
3	Supporting Industrial Activities and Wastes Generation: Water treatment and supply systems including soft water, RO water and DM water units, Power systems and captive power units like DG sets and turbines, Boilers and steam systems, Amenities and work environment, Housekeeping, Effluent treatment plants.
4	Waste Minimization: Source reduction, Waste segregation schemes, Waste recycling and reuse, Pretreatment of wastes; USEPA's waste management hierarchy Multimedia and integrated approaches to waste management, Pollution prevention programs.
5	Waste Treatment and Disposal: Overview of waste treatment technologies, Domestic wastewater and trade effluent treatment plants, Operation and control of wastewater treatment plants and air pollution control systems, Disposal of treated effluents, Scrap management, Storm water management, Management and handling of solid and hazardous wastes.

TEXT BOOKS:

1. M.N.Rao & A.K.Dutta, "Wastewater Treatment", Oxford - IBH Publication, 1995.
2. W .W. Eckenfelder Jr., "Industrial Water Pollution Control", McGraw-Hill Book Company, New Delhi, 2000.

REFERENCES BOOKS:

1. T.T.Shen, "Industrial Pollution Prevention", Springer, 1999.
2. R.L.Stephenson and J.B.Blackburn, Jr., "Industrial Wastewater Systems Hand book", Lewis Publisher, New Yark, 1998
3. H.M.Freeman, "Industrial Pollution Prevention Hand Book", McGraw-Hill Inc., New Delhi, 1995.
4. Bishop, P.L., "Pollution Prevention: Fundamental & Practice", McGraw-Hill, 2000.