

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

Subject Name: Cleaner Production and Waste Utilization

Subject Code:171304

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	University Exam(E)	University Exam(P)	Mid Sem Exam(Theory) (M)	Practical (Internal)
4	2	0	6	70	30	30	20

Sr No	Course Contents
CLEANER PRODUCTION:	
1	Cleaner production concept Theory of cleaner production, Effect of CP on Industrial economy
2	Cleaner Methodology Six steps methodology for CP, Designation of cleaner production team, Analyze process steps, generating cleaner production opportunities, selecting cleaner production solutions, Implementation, maintaining cleaner production
3	Good House Keeping What is good Housekeeping? What is needed to implement good house keeping? Check lists for GHK
4	Energy Audit Methodology Introduction preliminary or walk-through energy Audit, Detailed energy audit
5	Financial Analysis Cleaner Production
6	Case Studies
WASTE UTILIZATION	
7	Recycling & Reuse: Concept and application
8	Recycling and reuse of liquid industrial waste in different industries.
9	Recycling and reuse of solid industrial waste
10	Waste Heat recovery from flue gases
11	Bio management for waste utilization

List of Term work:

1. Assignment based on concept of cleaner production
2. Assignment based on CP methodology.
3. Assignment on Energy audit of industries.
4. Assignment on Good Housekeeping concept.
5. Case studies regarding success stories in Cleaner Production.
6. Case studies on waste utilization from specific industries.
7. Assignment on waste heat recovery from flue gases.

Reference Books:

1. NCPC manual
2. Industrial Water Pollution Origins, Characterises and Treatment by Nelson Nemarow