

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.E. SEMESTER : V**  
**ENVIRONMENTAL SCIENCE & TECHNOLOGY**

**Subject Name: Basics of Fuels**

**Subject Code: 153503**

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	University Exam(E)	University Exam(P)	Mid Sem Exam(Theory) (M)	Practical (Internal)
3	0	2	5	70	0	30	50

Sr No	Course Contents
1	Fuel: Types, characteristics and calorific values. Characteristics and analysis of solid fuels such as coal, peat, agro wastes, forest wastes, animal wastes , lignin, bagasse, etc.
2	Some aspects of municipal waste as fuel. Analysis of flue gasses generated by these fuels.
3	Crude oil and basic refining process. Analysis and characteristics of liquid fuels such as petrol, diesel, kerosene, boiler oil, furnace oil, aviation fuel etc. Aspects of fuels made by blending ethanol. Biodiesel. Thermal efficiency of the liquid fuels. Oil spillage and problems associated with them.
4	Characteristics of gaseous fuels such as biogas. Gasification of coal and other substrates. Environmental aspects of burning fuels.

**REFERENCE BOOKS:**

1. Fuels & Combustion , Samir Sarkar, Orient Longmann, 2003
2. Fuels & Combustion, E F Nino and T G Nino, Rex Book Stores,1997
3. Fuels & Combustion, Sharma and Mohan, Tata Mc Graw Hill, 1984
4. Fuels & Combustion, Haslam, General Books LLC, 2010