

## **PPE5H002FUEL AND ENERGY TECHNOLOGY**

### **Module – I**

Fuels :

Solid Fuels : Coal - Origin, Chemical composition, calorific value, Classifications, Characteristics & distribution of Indian coals, Storage and spontaneous combustion of coal, Coal washing and blending, Petrographic constituents of coal, Carbonization of coal, manufacture and properties of metallurgical coke, recovery of by-products.

### **Module – II**

Liquid Fuels :

Origin and composition of crude oil, crude oil distillation and its products with special reference to gasoline, Kerosene and diesel oil, cracking and reforming, Coaltar distillation Products, Shale oil. Gaseous Fuels : Natural gas, coal gas. Coke oven and blast furnace gas, Manufacture of Water gas and producer gas, Carburetted water gas.

### **Module – III**

Synthetic Fuels :

Hydrogenation of coal, Fischer – Tropsch synthesis, Introduction. Nuclear fuels and nuclear reactors, moderators and structural materials.

Combustion : Combustion of solids fuels, Pulverized coal. Calculation of volumes and weights of air necessary for combustion of fuels, gas analysis.

### **Books :**

1. *Fuels and Combustion - S. Sarkar*
2. *Elements of Fuel Technology - Himus*
3. *Solid, Liquid and gaseous fuel - Brame and King.*
4. *Elements of Fuels, Furnaces and Refractories, O. P. Gupta*