

<b>7<sup>th</sup> Semester</b>	<b>RML7D003</b>	<b>Fuel, Furnaces and Refractories</b>	<b>L-T-P 3-0-0</b>	<b>3 Credits</b>
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**Module-I:****(10 hours)**

Definition of Fuel; Types of Fuel; Conventional and Non-conventional Fuel; Types of Energy Resources; Potential of Energy Resources and their exploitation

**Module-II:****(06 hours)**

Types of solid fuels. Origin and formation of coal. Classification of Coal.

**Module-III:****(10 hours)**

Types of furnaces and classification, Industrial application of furnaces, design and construction aspects of furnaces. Chimney design, process efficiency.

**Module-IV:****(10 hours)**

Refractories: refractory material and characterization, types of Refractories and their application in boilers and furnace construction. Properties and testing methods of Refractories. Manufacture of fire basic bricks, acidic and neutral Refractories, refractory mortars, cements and monoliths, special refractory and ceramics. Role of refractories in energy conservation in furnaces.

**Books:**

- [1] Elements of Fuels, Furnaces and Refractories by O.P. Gupta, Khanna Publ., 1997
- [2] Fuels and Refractories Book by J.D. Gilchrist