

<b>5<sup>th</sup> Semester</b>	<b>RML5C001</b>	<b>Coal Geology and Coal Preparation</b>	<b>L-T-P 3-0-0</b>	<b>3 Credits</b>
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**Module I:** (8 hours)

Introduction: Types of solid fuel, Origin and formation of coal, Petrographic constituents of coal, coal geology, mineral matter in coal, classification and grading of Indian coal, chemical and physical properties of coal, plastic/coking properties of coal, thermal decomposition of coal, selection, testing and utilization of coking and Non-coking coal.

**Module II:** (8 hours)

Analysis of coal: proximate and ultimate; Crushing of coal: Various types of coal size reduction process and their significance.

Screening of coal: Classification of coal using various screens and their efficiency.

**Module III:** (8 hours)

Necessity, scope and application of coal preparation, washability characteristics of coal, Sink - float tests and washability studies, effect of mining methods on size, quality and washability.

Performance evaluation: partition curve, misplacement, Meyers curve, probable error in separation, imperfection, yield reduction factor, organic efficiency.

**Module IV:** (8 hours)

Gravity separation: Jigs, Heavy media separation, media requirement and recovery systems; Different types of bath – their merits, demerits and application; Heavy media cyclones – construction and operating principles; Choice between the washers  
Dry beneficiation of coal

**Module V:** (8 hours)

Challenges in fine coal cleaning, Froth-Flotation, water-only cyclone, Vorsyl separators, oil – agglomeration. Product disposal and miscellaneous methods, coal preparation economics, coal preparation flow sheets, modern developments.

**Books:**

- [1] Osborne Dave, “The coal handbook: Towards cleaner production”, Volume-1 and Volume-2, Woodhead Publishing Limited
- [2] Subba Rao D.V., Gouricharan T., Coal Processing and Utilization, CRC Press