

**PMI5I103 PROCESS EQUIPMENT SELECTION & DESIGN (3-1)**  
**(Professional Core Paper)**

**Module I**

**(10 hours)**

Brief review of mineral engineering unit operations and the ranges of equipment ordinarily used for them. Introduction to various methodologies involved in the selection and sizing of various mineral processing units. Selection and sizing of reciprocating and non-reciprocating crushers. Selection and sizing of rod mills, different types ball mills, autogenous mills and semi autogenous mills

**Module II**

**(08 hours)**

Selection and sizing of various size separators such as screens and hydraulic classifiers including limitations involved. Selection and sizing of High Tension Roll Separators and choices of configurations. Study of the effect of earlier operations.

**Module III**

**(10 hours)**

Selection of size reduction equipment especially for coal beneficiation and coal handling plants. Partial deshaling in the size reduction circuit based on differences in breakage properties.

**Module IV**

**(08 hours)**

Various mineral beneficiation equipments for treating coal and minerals such as jigs, flotation machines, and shakings tables.

**Text Books**

1. Mineral Processing Design & Operation by A.Gupta&D.S.Yan - Elsevier 2006
2. Recent Advances in Mineral Processing Plant Design by Malhotra et al - © 2009 Society for Mining, Metallurgy, and Exploration (SME)

**References:**

1. The Open Mineral Processing Journal, ISSN 1874-8414, <http://www.benthamscience.com/open/tompj/>
2. Handbook of Mineral Dressing by A.F.Taggart - John Wiley and Sons, New York. 1956
3. Mineral Dressing by A.M.Gaudin - McCraw-Hill, 1957
4. Ore Dressing by R.H.Richards (4 volumes) – Engineering & Mining Journal 1909
5. Ore Dressing Principles and Practice by T.Simon – McGraw Hill Co., 1924
6. A Text Book of Ore Dressing by S.J.Truscott – London Macmillan. 1923
7. Handbook of Ore Dressing by A.F.Taggart - John Wiley and Sons, New York. 1956
8. Handbook of Ore Dressing by A.W.Allen – McGraw Hill Co., 1920
9. Complete Technology Book on Mineral Processing by NPSC Board – Asia Pacific Business Press 2008