

3 rd Semester	RMN3C001	Mining Geology	L-T-P 3-0-0	3 CREDITS
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Module - I (08 hours)

Science of Geology and Earth Forming processes – Interior structure of the earth; Plate Tectonics; Landforms formed by river, wind, glacial, underground water and wave actions.

Module – II (10 hours)

Mineralogy – Classification of minerals; Physical properties of common rock and ore forming minerals (Quartz, Feldspar, Hornblende, Muscovite, Biotite, Olivine, Calcite, Dolomite, Tourmaline, Corundum; Pyrite, Chalcopyrite, Cuprite; Galena, Sphalerite, Heamatite, Magnetite, Pyrolousite; Psilomelane; Native Copper; Malachite, Azurite; etc); Introduction to Optical Properties of rock forming minerals.

Module – III (12 hours)

Petrology – Formation of igneous rock; Bowen's reaction series; Forms of igneous rocks; structure and texture of igneous rock; Classification of Igneous rock; Formation of Sedimentary rocks; Structure and texture of sedimentary rocks; Classification sedimentary rocks; Processes of Metamorphism; structure and texture of metamorphic rocks; Metamorphic Facies; Petrography of common igneous, sedimentary and metamorphic rocks.

Module – IV (08 hours)

Structural geology: Attitude of planar and linear structures, Definition, classification and importance of fault, fold, joint and unconformities. Identification of fault, fold, joint and unconformities in the field.

Module –V (07 hours)

Stratigraphy: Principles and concept of stratigraphy, Stratigraphy units and correlation; Stratigraphy of Dharwar, Cuddapah; Vindhyan; Gondwana and Tertiary rocks of India with special reference to economic mineral deposits

BOOKS:

- Edward J. Tarbuck, Frederick K. Lutgens, Dennis G. Tasa, *Earth: An Introduction to Physical Geology*, Pearson 12th edition, 2016.
- Kent C. Condie, *Earth as an Evolving Planetary System*, Academic Press; 2nd edition, Second Edition, 2010.
- William Lowrie, *Fundamental of Geophysics*, Cambridge University Press, 2nd edition, 2007.
- Charles Fletcher, *Physical Geology: The Science of Earth*, John Wiley & Sons, 2nd Edition, 2010.
- John D. Winter, *Principles of Igneous and Metamorphic Petrology*, Prentice Hall; 2nd edition, 2009.
- Ravindra Kumar, *Fundamentals of Historical Geology and Stratigraphy of India*, New Age International, 1st edition, 1998.

B.Tech (Mining Engineering) Syllabus from Admission Batch 2018-19 *3rd Semester*

- M. S. Krishnan, *Geology of India and Burma*, C.B.S. Publ. and Distributors, Delhi, 1982.
- S. Boggs, *Principles of Sedimentology and Stratigraphy*, Prentice Hall, 2001.
- Myron G. Best, *Igneous and Metamorphic Petrology*, Wiley-Blackwell; 2nd edition, 2002.
- Haakon Fossen, *Structural Geology*, Cambridge University Press; 1st edition, 2010.
- G. H. Davis, S. J. Reynolds, C. F. Kluth, *Structural Geology of Rocks and Regions*, Wiley; 3rd edition, 2011.
- P. K. Mukherjee, *A Text Book of Geology*, The World Press Pvt. Ltd., 2013.
- H. H. Read, *Rutley's Elements of Mineralogy*, CBS Publishers and Distributors, 26th Edition, 1984
- G. B. Mahapatra, *Text Book of Physical Geology*, CBS Publishers and Distributors, 2015
- M. P. Billings, *Structural Geology*, Pearson., 3rd Edition, 2016
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