



**Dr. Babasaheb Ambedkar Marathwada University,  
Aurangabad.**

**SYLLABUS OF  
B.Sc. Third Year  
(Geology)  
Semester V & VI**

**[ Effective from June – 2011- 2012 & Onwards ]**



**Dr. Babasaheb Ambedkar Marathwada University –  
Aurangabad**

**B.Sc. – III Year Geology**

**Semester V**

**Semester V**

**Paper XVII**

**Indian Geology**

Sr. No.	Syllabus	No. of lectures
1.	General review of stratigraphical units of Peninsular and Extra peninsular India.	01
2.	<p>Distribution, classification, Lithology, fossil content if any and economic importance of the following major groups of Peninsular and Extra peninsular India.</p> <p>a) Archaeans:- Sargur, Dharwar and associated Intrusives, Sausar, Sakoli, Chilpighat, Iron ore group, Bundel Khand gneiss, Banded Gneissic complex, Aravalli, Raialo.</p> <p>b) Cuddapah, Kurnool, Vindhyan, Kaladgi, Kamthee.</p> <p>c) Gondwanas, Umaria marine beds.</p> <p>d) Jurassics of Kutch Cretaceous of Tiruchirapalli Cuddalore and Rajahmundry sandstones</p> <p>e) Deccan traps. Occurrence, Distribution, Lithology Varieties of basalts and their field characters. Intertrappean and Infratrappean beds. Lameta and Bagh beds</p> <p>f) Geology of Spiti, Geology of Kashmir, Petroliferous formation of Assam.</p> <p>g) Siwaliks, Mammalian fossils and their extinction.</p> <p>h) Pleistocene- Karewas of Kashmir.</p>	<p>20</p> <p>06</p> <p>03</p> <p>04</p> <p>04</p> <p>03</p> <p>02</p> <p>02</p>
	Total	45

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**B.Sc. – III Year Geology**

**Semester V**

**Paper XVIII**

**Economic Geology**

Sr. No.	Syllabus	No. of lectures
1.	Magma as a source of mineral deposits	02
2.	Processes of formation of Mineral deposits. a) Magmatic concentration b) Metasomatism and Metamorphism c) Hydrothermal Processes. i) Cavity filling deposits ii) Replacement deposits d) Oxidation and Supergene Sulphide enrichment. e) Sedimentation. f) Residual and Mechanical Concentration. g) Evaporation and Sublimation	<b>25</b>
3.	Economic mineral deposits of India. a) Geological, geographical distribution of following mineral deposits. Iron, manganese, Chromites, Copper, Lead, Zinc, Gold, Bauxite, Barytes, Gypsum, Asbestos and Mica. b) Occurrence, formation and distribution of petroleum and natural gas and coal deposits. c) Precious and Semi precious Gemstones	<b>18</b>
	Total	<b>45</b>

## Semester VI

### Paper XIX

### Applied Geology – I

Sr. No.	Syllabus	No. of lectures
1.	Introduction to various Geoexploration techniques employed in the prospecting of useful human resources in the earth crust	02
2.	Geo-chemical and Geo-botanical method of prospective method Geophysical methods of prospecting a) Gravity method b) Magnetic method c) Seismic reflection method, seismic refraction method d) Electrical resistivity methods e) Radioactive method and	15
3.	Introduction to Remote sensing Remote sensing techniques as employed in surface mapping	05
4.	Well logging and subsurface mapping	02
5.	Impact of Geoexploration on the environment	02
6.	Application of Geology in the construction of major civil Engineering structures	03
7.	Geological investigations for civil Engineering projects and selection of suitable sites such as a) Major dams, reservoirs and tunnels	04
8.	Problems of land slide, stability of slope and effective measures to stop such calamity	03
9.	Engineering properties of rocks	04
10.	Methods of Drilling and techniques of preservation of cores effectively	05
<b>Total</b>		<b>45</b>

## Semester VI

**Paper XX**

### Applied Geology – II

Sr. No.	Syllabus	No. of lectures
1.	Hydrological cycle, concept of Hydrology, Hydrogeology and Geohydrology	02
2.	Hydrological properties of Rocks, Porosity, Permeability, Storativity, Transmissivity, Specific yield, Safe yields, Storage coefficient	10
3.	Aquifers and their classification	04
4.	Movement of Ground Water Darcy's Law	03
5.	Well inventory and preparation of static water level and hydrogeological maps	05
6.	Occurrence of Groundwater in Igneous, sedimentary and metamorphic rocks	
7.	Concept of watershed Management, soil conservation measures, water conservation structures, importance of hydrogeology in watershed development.	10
8.	Hydrogeological characters, occurrence and availability of ground water in Deccan basaltic rocks	04
9.	Hydrochemical parameters of ground water	02
<b>Total</b>		<b>45</b>

## Semester VI

### Paper XXI (Practical) Economic Geology

Sr. No.	Syllabus	No. of lectures
A	Identification of following ore industrial minerals in land specimens Magnetite, Hematite, Pyrite, Laterite, Limonite, Goethite, Pyrolusite, Psilomelane, Rhodonite, Rhodrosite, Chalcopyrite, Cuprite, Bornite, Covellite, Chalcocite, Malachite, Azurite, Chromite, Galena, Sphalerite, Bauxite, Stibnite, Cassiterite, Wolframite, Realgar, Orpiment, Baryte, Magnesite, Gypsum, Mica, Talc, Kyanite, Asbestos and Semiprecious Stones.	04
B	Important occurrences of various economics minerals petroleum and coal to be depicted in the map of India	04
C	Normative calculations of saturated rocks	07
	<b>Total</b>	<b>15</b>

### Paper XXII (Practical) Stratigraphy of Structural Geology

Sr. No.	Syllabus	No. of lectures
A	Depiction of various stratigraphic units in the map of India	05
B	Advanced structural maps, Completion of outcrops	07
C	Depiction of petroliferous basins in the map of India	03
	<b>Total</b>	<b>15</b>

**Paper XXIII Practical – Remote Sensing and Engineering Geology**

<b>Sr. No.</b>	<b>Syllabus</b>	<b>No. of lectures</b>
A	Study of Satellite Imageries. Interpretation of Geomorphological features from the Imageries	05
B	Study of aerial photographs identification of various Geomorphological landforms and their interpretation.	05
C	Feasibility of construction of civil engineering project like dams, tunnel, bridges etc. in the geological maps showing various structural features and selection of suitable sites.	05
	<b>Total</b>	<b>15</b>

**Paper XXIV Practical – Hydrogeology**

<b>Sr. No.</b>	<b>Syllabus</b>	<b>No. of lectures</b>
A	Groundwater prospecting by Geophysical Resistivity survey	4
B	Hydrogeological problems (Darcy's law etc)	3
C	Well inventory survey & preparation of hydrogeological Maps, lithologs and delineation of Aquifers	5
D	Chemical analysis of water sample	3
	<b>Total</b>	<b>15</b>

### List of Books

No.	Title	Author
1	Principal of petrology	Tyrrel
2	Structural Geology	Billing
3	Text. Book of Mineralogy	Dana
4	Rutleys elements of Mineralogy	CD Gribble
5	Economic Geology	Bateman
6	Economic mineral deposits of India	N L Sharma
7	Geology of India	Wadia
8	Engineering and General Geology	Parbinsingh
9	Igneous and Metanorphic petrology	Turner and Verhoogen
10	Mineralogy Petrology & Economic Geology	ISM
11	Ground water Hydrology	Todd
12	A Geology of Engineering	Blyth
13	Geophysical prospecting	Dobrin
14	Photogeology	Lillisand and Kaifer
15	Text Book of Engineering Geology	R B Gupte
16	Remote sensing for Land resources Planning	Sharma V.K.
17	Ground water	Raghunath
18	Geology of India	Krishnan
19	Hand book of minerals, crystals and rocks	Alexander
20	Sedimentary rock	Pettijhon
21	Economic Mineral Deports	Bateman
22	Remote sensing principal & application	Patel A N & Singh
23	Gold mining industry in India	Geological soc. of India
25	Petroleum Geology	Leveresen