

Department of Geology
Faculty of Earth Sciences
Mohanlal Sukhadia University, Udaipur
M. Sc. Geology - Course Structure
Under Choice Based Credit System (CBCS) w. e. f. 2020 – 2021
Core Papers

Paper Code	Paper Name
M1GEO01-CT01	Tectonics and Geomorphology
M1GEO02-CT02	Mineralogy
M1GEO03-CT03	Palaeontology –I
M1GEO04-CT04	Precambrian Stratigraphy
M2GEO01-CT05	Structural Geology
M2GEO02-CT06	Sedimentary Petrology
M2GEO03-CT07	Palaeontology – II
M2GEO04-CT08	Phanerozoic Stratigraphy
M3GEO01-CT09	Economic Geology
M3GEO02-CT10	Igneous Petrology
M4GEO01-CT11	Metamorphic Petrology
M4GEO02-CT12	Mineral Exploration & Mining Geology
M1GEO05-CP01	Practical – I : Tectonics and Geomorphology & Mineralogy
<u>M1GEO06-CP02</u>	<u>Practical – II : Palaeontology I & Precambrian Stratigraphy</u>
<u>M2GEO05-CP03</u>	<u>Practical – III : Structural Geology & Sedimentary Petrology</u>
M2GEO06-CP04	Practical – IV : Palaeontology II & Stratigraphy
<u>M3GEO05-CP05</u>	<u>Practical – V : Economic Geology & Igneous Petrology</u>
<u>M4GEO05-CP06</u>	<u>Practical – VI : Metamorphic Petrology & Mineral Exploration and Mining Geology</u>

Discipline Specific Electives

Paper Code	Paper Name
M3GEO03-ET01	Ground Water Geology
M3GEO04-ET02	Photo-geology and Remote Sensing
M4GEO03-ET03	Environmental Geology & Disaster Management
M4GEO04-ET04	Geochemistry
M3GEO06-EP01	Elective Practical - I : Ground Water Geology & Photo-geology and Remote Sensing
M4GEO06-EP02	Elective Practical – II : Environmental Geology and Disaster Management & Geochemistry

Skill Papers

Paper Code	Paper Name
M2GEO07-SE01	Application of GIS
M4GEO07-SE02	Survey & Leveling

Checked and Approved
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(Dr. Maya Chaudhary)

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(Dr. Harish Kapasya)

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(Mr. Subhash Chandra Janagal)

M. Sc. First Year (Semester I) 2020-21
GEOLOGY

M1GEO05-CP01

Core Course PRACTICAL – I
(Tectonics and Geomorphology & Mineralogy)

No. of Credits : 4

Tectonics and Geomorphology:

1. Identification and description of various landforms.
2. Morphometric analysis of drainage basins.
3. Studies of drainage patterns.
4. Exercises on Slope analysis.

Mineralogy:-

1. Principles of stereographic projection and determination of axial ratio.
2. Identification of minerals in hand specimen.
3. Microscopic properties of minerals with emphasis on pleochroic scheme, identification of interference figures and optical sign, determination and measurement of 2V.

Viva-Voce

Record

M. Sc. First Year (Semester I) 2020-21
GEOLOGY

M1GEO06-CP02

Core Course PRACTICAL – II
(Palaeontology I & Precambrian Stratigraphy)

No. of Credits : 4

Palaeontology I:

Drawing, description, age and identification of important fossils of Trilobites, Echinoids, Foraminifers and Graptolites

Precambrian Stratigraphy:

1. Identification, description and geochronology of Indian Pre-Cambrian stratigraphic rocks.
2. Pre-Cambrian Stratigraphic maps of India.
3. Pre-Cambrian Palaeogeographic maps of India.

Viva-Voce

Field work

Record

Compulsory Field Training Program : Geological Field Training mainly based on stratigraphy and palaeontological aspects.

– 10 days duration

Note: **Field Training is Compulsory, Student not taking part in the field training shall not be allowed to appear in the examination**

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**M. Sc. First Year (Semester II) 2020-21
GEOLOGY**

M2GEO05-CP03

**Core Course PRACTICAL – III
(Structural Geology & Sedimentary Petrology)**

No. of Credits : 4

Structural Geology :-

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1. Solution of structural problems by stereographic and orthographic projections.
2. Identification of structural elements and their chronology in hand specimen.
3. Structural analysis with stereonet: S-pole and beta-pole diagrams; Fold axis and axial plane; Countoured diagrams; Methodology and interpretation of patterns.
4. Interpretation of complex geological maps and drawing of cross sections.

Sedimentary Petrology:

1. Identification and description of important sedimentary rocks in hand specimen.
2. Petrographic studies of important sedimentary rocks.
3. Graphic representation of data, histogram, cumulative curves, frequency curves, rose diagram, star symbols.

Viva-Voce
Field work
Record

**M. Sc. First Year (Semester II) 2020-21
GEOLOGY**

M2GEO06-CP04

**Core Course PRACTICAL – IV
(Palaeontology-II & Phanerozoic Stratigraphy)**

No. of Credits : 4

Palaeontology – II :

Drawing, description, age and identification of important fossils of Anthozoa, Bivalvia, Brachiopoda, Gastropoda, Cephalopoda and Gondwana Plant fossils.

Phanerozoic Stratigraphy:

Identification, description and geochronology of Indian phanerozoic stratigraphic rocks.
Phanerozoic Stratigraphic maps of India.
Phanerozoic Palaeogeographic maps of India.

Viva-Voce
Record

**Compulsory Field Training Program : Geological & Structural Mapping Training
– 10 days duration.**

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M. Sc. Second Year (Semester III) 2020-21
GEOLOGY

M3GEO05-CP05

Core Course PRACTICAL – V
(Economic Geology & Igneous Petrology)

No. of Credits : 4

Economic Geology:

1. Study of economic minerals in hand specimen.
2. Important world and Indian deposits to be plotted on maps.
3. Study of important ore minerals under reflected light microscope.

Igneous Petrology:

1. Identification and description of important igneous rocks in hand specimen.
2. Petrographic studies of important igneous rocks.
3. Preparation and interpretation of variation diagrams in relation to petrogenesis.
4. Calculation of CIPW norms.

Viva-Voce

Field work

Record

M. Sc. Second Year (Semester III) 2020-21

GEOLOGY

M3GEO06-EP01

Elective PRACTICAL– I
(Ground Water Geology & Photo geology and Remote Sensing)

No. of Credits : 4

Groundwater :

Calculation and exercises on groundwater quality, exploration, yield, recharge, water table fluctuation etc.

Photogeology and Remote Sensing:

1. Scale and height of aerial photographs.
2. Interpretation of aerial photographs.
3. Visual interpretation of satellite imageries.
4. Image analysis exercises.
5. Applications using GIS software.

Viva-Voce

Record

<p><u>Compulsory Field Training Program :</u> Geological Field Training mainly based on Petrology and Economic Geology aspects. – 10 days duration Note: <u>Field Training is Compulsory, Student not taking part in the field training shall not be allowed to appear in the examination</u></p>

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M. Sc. Second Year (Semester IV) 2020-21
GEOLOGY

M4GEO05-CP06 **Core Course PRACTICAL – VI** **No. of Credits : 4**
(Metamorphic Petrology & Mineral Exploration and Mining Geology)

Metamorphic Petrology:

1. Identification and description of important metamorphic rocks in hand specimen.
2. Petrographic studies of important metamorphic rocks.
3. Graphic construction of ACF, AKF and AFM diagrams.

Mineral Exploration and Mining Geology :

1. Survey by prismatic compass and theodolite.
2. Leveling
3. Use of GPS
4. Bore hole plotting, core logging and correlation.
5. Ore reserves estimation.

Viva-Voce
Field work
Record

M. Sc. Second Year (Semester IV) 2020-21
GEOLOGY

M4GEO06-EP02 **Elective PRACTICAL– II** **No. of Credits : 4**
(Environmental Geology and Disaster Management & Geochemistry)

Environmental Geology and Disaster Management:

1. Analysis of different parameters of air, water and noise.
2. Interpretation of air, water and noise data.
3. Preparation of iso-concentration maps of water quality parameters.
4. Seismic maps of World, India and Rajasthan.
5. Exercises on slope failure and landslides.

Geochemistry :

1. Presentation of analytical data and graphical representation in various diagrams.
2. Calculation of important mineral formula from chemical analysis.

Viva-Voce
Record

Compulsory Field Training Program : Geological Field Training Mining & Exploration aspects.

– 10 days duration

Note: **Field Training is Compulsory, Student not taking part in the field training shall not be allowed to appear in the examination**

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