

GEOLOGY DEPARTMENT

Pt. Neki Ram Sharma Govt. College Rohtak

Lesson Plan session 2024-25 Odd Semester

Class-B.Sc. 1st Semester

Dr. Priyanka Shandilya

22nd July, 2024 to 22nd November, 2024

July + August, 2024

Week	Introduction to Geology (24GOLM401DS01)	Practical (Introduction to Geology)	Introduction to Geosciences (24GOLX01MD01)
4 th Week (July) & 1-3 August	Introduction of Geology and its branches	Study of interior of Earth with the help of geomorphological model	Introduction to Geosciences branches
1 st Week (August)	Earth and solar system, Earth's size, shape, mass, density and its atmosphere	Identification of geomorphic features on map	Earth's interior description in details: crust, mantle, core
2 nd Week	Various theories of origin of Earth	....continued	Rock types and formation processes
3 rd Week	Internal structure of the Earth and its composition. Law of Uniformitarianism	Study of bearing methods: WCB and QB conversions	Plate tectonics theories and evidences
4 th Week	Types of rocks and rock cycle	.....continued	Earthquake causes and types of earthquakes

September, 2024

Week	Introduction to Geology (24GOLM401DS01)	Practical (Introduction to Geology)	Introduction to Geosciences (24GOLX01MD01)
1 st Week	Weathering, erosion types of weathering and factors affecting weathering	Clinometer and Brunton compass principle and use	Weathering, erosion types of weathering and factors affecting weathering
2 nd Week	Continental drift and plate tectonics	.....continued	Erosion and deposition by river, wind and glacier
3 rd Week	Earth's gravity and magnetic field	Structures identification on map	Principles of geologic time: Relative and absolute dating methods
4 th Week	Elementary idea of bed, dip, strike, outcrop, inlier, outlier and overlap	.....continued	Stratigraphy and GTS (Geologic Time Scale)

October, 2024

Week	Introduction to Geology (24GOLM401DS01)	Practical (Introduction to Geology)	Introduction to Geo-sciences (24GOLX01MD01)
1 st Week	Soil formation and soil profile	Practice bearing	Fossilization processes and major events in the history of life on the Earth
2 nd Week	Geological work of river & erosional and depositional features produced by the river	Practice measuring attitude of a rock bed	Paleontology and its importance
3 rd Week	Geological work of wind & erosional and depositional features produced by the wind	Practice making cross section from a contour map	Composition, structure of Earth atmosphere and climatic changes
4 th Week	Landforms formed by erosion, transportation and deposition by glaciers	.....continued	Human impact on the environment and climate
5 th Week & 1-2 Nov.	DIWALI		

November, 2024

Week	Introduction to Geology (24GOLM401DS01)	Practical (Introduction to Geology)	Introduction to Geo-sciences (24GOLX01MD01)
1 st Week	Lacustrine deposits and important indian lakes of geological significance	Practice identifying geomorphological features on map	Test and revision of 1 st & 2 nd Units
2 nd Week	Geological landforms formed by groundwater and revision of Unit 1 st	Test for map understanding	Test and revision of 3 rd Unit
3 rd Week	Test and revision of 2 nd & 3 rd Units	Test of attitude measurement	Test and revision of 4 th Unit
4 th Week	EXAMS		

GEOLOGY DEPARTMENT

Pt. Neki Ram Sharma Govt. College Rohtak

Lesson Plan session 2024-25 Even Semester

Dr. Priyanka Shandilya

Class-B.Sc. 2nd Semester

January, 2025

Week	Mineralogy and crystallography (24GOLM402DS01)	Practical (Mineralogy and crystallography)	World of minerals and rocks (25GOLX02MD01)
1 st Week	Minerals and their classification. Physical Properties of Minerals	Separating Ore forming and rock forming minerals	Introduction to minerals : Definition, classification and importance
2 nd Week	Silicate structures classification with suitable examples	Moh's Hardness Scale	Crystallography and crystal systems
3 rd Week	Atomic minerals, Isomorphism, polymorphism Pseudomorphism	Demo for physical properties like streak, hardness, color and Lustre	Physical properties of minerals
4 th Week	Crystals, crystal systems Elementary ideas about crystal structures Crystal faces, edges, solid angle and Zones. Type of forms	Demo for physical properties like cleavage, fracture and Specific Gravity	Process of magma formation, crystallization and differentiation
5 th Week	Interfacial angle and its measurement. Law of constancy of interfacial angles. Twinning and types.	Demo for physical properties like Diaphaneity, crystal form, odor, reaction with acid etc.	Magma classification and unicomponent system

February, 2025

Week	Mineralogy and crystallography (24GOLM402DS01)	Practical (Mineralogy and crystallography)	World of minerals and rocks (25GOLX02MD01)
1 st Week	Parameter system of Weiss and Index system of miller	Physical properties of Talc, Gypsum, Calcite in hand specimen	Bowen reaction series
2 nd Week	Silica Group (physical properties, composition, classification)	Physical properties of Fluorite, Apatite, Orthoclase in hand specimen	Classification of Igneous rocks
3 rd Week	Pyroxene Group	Physical properties of Quartz, Pyroxene and Muscovite	Sedimentary processes: weathering, erosion, transportation,

	(physical properties, composition, classification)		deposition, Diagenesis and lithification
4 th Week	Feldspar Group (physical properties, composition, classification)	Revision of Physical properties of 9 minerals	Classification of sedimentary rocks

March, 2025

Week	Mineralogy and crystallography (24GOLM402DS01)	Practical (Mineralogy and crystallography)	World of minerals and rocks (25GOLX02MD01)
1 st Week	Amphibole Group (physical properties, composition, classification)	Comparison between Pyroxene and Amphibole group minerals	Metamorphism Factors affecting metamorphism
2 nd Week	HOLI VACATIONS		
3 rd Week	Garnet Group (physical properties, composition, classification)	Practice different symmetry elements of cubic crystal system	types of metamorphism
4 th Week	Mica Group (physical properties, composition, classification)	Interpretation of Miller indices with examples	Classification of metamorphic rocks

April, 2025

Week	Mineralogy and crystallography (24GOLM402DS01)	Practical (Mineralogy and crystallography)	World of minerals and rocks (25GOLX02MD01)
1 st Week	Test and revision of 2 nd Unit	Practice of Moh's Hardness scale	Texture and structures of metamorphic rocks
2 nd Week	Test and revision of 1 st Unit	Practice of Mineral identification	Test and revision of 1 st Unit
3 rd Week	Test and revision of 3 rd Unit	Practice of Mineral identification	Test and revision of 2 nd Unit
4 th Week	Test and revision of 4 th Unit	Practice of identification of crystal system symmetry elements	Test and revision of 3 rd & 4 th Units

GEOLOGY DEPARTMENT

Pt. Neki Ram Sharma Govt. College Rohtak

Lesson Plan session 2024-25 Odd Semester

Class-B.Sc. 3rd Semester

Dr. Priyanka Shandilya

22nd July, 2024 to 22nd November, 2024

July + August, 2024

Week	Petrology and Optical Mineralogy (301)	Palaeontology (302)	Practical (303)
4 th Week (July) & 1-3 August	Rock association in time and space. Concept of rock series	Definition and scope of paleontology. Applications of Palaeontology in paleoecology, evolution, stratigraphy and palaeogeographic reconstruction.	Study and identification of Granite and Basalt (Igneous rocks)
1 st Week (August)	Magma: Definition, origin, composition and crystallization	Standard GTS (Geological Time Scale) Era, Periods, Age and their major geological events.	Study and identification of Rhyolite and Dolerite (Igneous rocks)
2 nd Week	Crystallization of Unicomponent magma, Bowen reaction series	Introduction, morphological characters of a Trilobite shell. Geological History of Trilobite.	Study and identification of Gabbro and Pegmatite (Igneous rocks)
3 rd Week	Crystallization of Bi-component magma	Important fossils of Trilobite with their morphological characters, age and distribution.	Study and identification of Sandstone and Shale (Sedimentary Rocks)
4 th Week	Magmatic differentiation and assimilation	Echinodermata: Introduction, morphological characters and geological history of echinoids	Study and identification of Conglomerate and Breccia (Sedimentary rocks)

September, 2024

Week	Petrology and Optical Mineralogy (301)	Palaeontology (302)	Practical (303)
1 st Week	Formation of Igneous, Sedimentary and Metamorphic rocks and their differences	Morphological characters and geological history of Gastropods.	Study and identification of Slate and Phyllite (Metamorphic rocks)

2 nd Week	Igneous Petrology: Igneous rocks formation and their types	Important fossils, their morphological characters and age - Physa, Natica, Trochus	Study and identification of Quartzite and Marble (Metamorphic rocks)
3 rd Week	Igneous rocks composition and forms	Important fossils, their morphological characters and age- Turritella, Certhium, Murex,	Identification of Trilobites on the basis of Morphological Characters
4 th Week	Chemical Mineralogical and tabular Classification of Igneous rocks	Important fossils, their morphological characters and age- Voluta, Cypraea.	Identification of Trilobites on the basis of Morphological Characters

October, 2024

Week	Petrology and Optical Mineralogy (301)	Palaeontology (302)	Practical (303)
1 st Week	Definition origin and important Igneous structures	Lamellibranchia : Morphological characters and geological history of Pelecypods. Dentition in lamellibranchia.	Identification of Gastropods on the basis of Morphological Characters
2 nd Week	Definition, origin and different types of Textures of Igneous rocks	Study of plant fossils of Lower Gondwana. Morphology and Geological history of Corals. Types of coral formation.	Identification of Gastropods on the basis of Morphological Characters
3 rd Week	Descriptive megascopic studies of Important Igneous rocks	Fossils of Pelecypoda : Pecten, Nucula, Arca, Gryphaea, Trigonina, Cardita, Unio	Morphological studies of Lower Gondwana fossils- Glossopteris
4 th Week	Test and revision of 1 st Unit	Test and revision of 1 st Unit	Morphological studies of L. Gondwana fossils-like Gangmopteris
5 th Week & 1-2 Nov.	DIWALI		

November, 2024

Week	Petrology and Optical Mineralogy (301)	Palaeontology (302)	Practical (303)
1 st Week	Test and revision of 2 nd Unit	Test and revision of 3 rd Unit	Practice of Igneous rock Identification
2 nd Week	Test and revision of 3 rd Unit	Test and revision of 2 nd Unit	Practice of Sedimentary rocks identification
3 rd Week	Test and revision of 4 th Unit	Test and revision of 4 th Unit	Practice of Metamorphic rocks identification
4 th Week	EXAMS		

GEOLOGY DEPARTMENT

Pt. Neki Ram Sharma Govt. College Rohtak

Lesson Plan session 2024-25 Even Semester

Dr. Priyanka Shandilya

Class-B.Sc. 4th Semester

January, 2025

Week	Petrology and Optical Mineralogy (401)	Palaeontology (402)	Practical (403)
1 st Week	Sedimentary rock formation, composition and classification	Fossils and essential conditions of Fossilization	Study and identification of Obsidian and Pumice (Igneous rocks)
2 nd Week	Textures and structures of Sedimentary rocks	Modes of preservation of fossils, Index fossils	Study and identification of Dolomite and Laterite (Sedimentary rocks)
3 rd Week	Descriptive studies of important Sedimentary rocks	Standard GTS (Geological Time Scale)	Study and identification of Flexible sandstone and Limestone in hand specimen
4 th Week	Metamorphism and factors affecting metamorphism	Economic and stratigraphic Significance of Fossils	Study and identification of Schist and Gneiss foliated Metamorphic rocks
5 th Week	Metamorphic grades and Zones. Stress and antistress minerals	Morphological characters and Geological history of Foraminifera	Study and identification of Nepheline Gneiss and Augen Gneiss foliated Metamorphic rocks

February, 2025

Week	Petrology and Optical Mineralogy (401)	Palaeontology (402)	Practical (403)
1 st Week	Types of Metamorphism and Metasomatism	Morphological characters and Geological history of Brahiopods	Morphological studies of Lower Gondwana fossils-Glossopteris
2 nd Week	Classification of Metamorphic rocks	Stratigraphy of Gondwana super group and their characteristic fossils	Morphological studies of L. Gondwana fossils-like Gangmopteris
3 rd Week	Textures and structures of Metamorphic rocks	Morphological characters, age and distribution of	Morphological studies of U. Gondwana fossils-Ptilophyllum

		Plant fossils of Upper Gondwana	
4 th Week	Descriptive studies of important Metamorphic rocks	Significance of microfossils in hydrocarbon exploration	Morphological studies of U. Gondwana fossils- Williamsonia and Nilsonia

March, 2025

Week	Petrology and Optical Mineralogy (401)	Palaeontology (402)	Practical (403)
1 st Week	Optical microscope: Parts and functioning	Revision of plant fossils	Brachiopods fossils Identification and studies
2 nd Week	HOLI VACATIONS		
3 rd Week	Optical properties of Minerals : In PPL i.e. color, Pleochroism, Refractive Index, Relief, Cleavage etc. (Theory)	Revision of brachiopods and foraminifera fossils	Foraminifera fossils identification and studies
4 th Week	Optical properties of Minerals : Under XPL i.e. Crossed nicol e.g. Extinction, bireferengence optic sign etc.	Morphology and Geological history of Corals. Types of coral formation.	Optical properties of Quartz, Garnet, Plagioclase

April, 2025

Week	Physical Geology (401)	Mineralogy (402)	Practical (403)
1 st Week	Test and revision of 2 nd Unit	Test and revision of 1 st Unit	Practice of Moh's Hardness scale
2 nd Week	Test and revision of 1 st Unit	Test and revision of 3 rd Unit	Practice of Mineral identification
3 rd Week	Test and revision of 3 rd Unit	Test and revision of 4 th Unit	Practice of Mineral identification
4 th Week	Test and revision of 4 th Unit	Test and revision of 2 nd Unit	Practice of Mineral identification

GEOLOGY DEPARTMENT

Pt. Neki Ram Sharma Govt. College Rohtak

Lesson Plan session 2024-25 Odd Semester

Class-B.Sc. 5th Semester

Dr. Priyanka Shandilya

22nd July, 2024 to 22nd November, 2024

July + August, 2024

Week	Structural Geology (501)	Economic Geology (502)	Practical (503)
4 th Week (July)	Study of outcrop and identification of bedding, Effect of topography	Tenor, ore mineral, gangue mineral, syngenetic and epigenetic deposits.	Contour pattern and understanding of outcrop profile from map
1 st Week (August)	Dip & Strike, True dip and apparent dip Outlier and Inlier	Factors controlling mineral availability.	Drawing strike lines and reading a structural map
2 nd Week	Unconformity: Type, significance	distribution of mineral deposits in space and time	Drawing, interpretation of horizontal bed profile section across the geological map
3 rd Week	Recognition of Unconformity in the field	Metallogenetic epochs and Provinces. strategic, critical and essential minerals	Drawing interpretation of inclined bed profile section across the geological map
4 th Week	Morphology of folds	Hydrothermal processes of formation of ore deposits	Drawing interpretation of folded beds profile section across the geological map

September, 2024

Week	Structural Geology (501)	Economic Geology (502)	Practical (503)
1 st Week	Classification of folds	cavity filling and replacement processes of formation of ore deposits, evaporation,	Exercise drawing and interpretation of folded beds profile section across the geological map
2 nd Week	Mechanics and causes of folding	Sedimentation processes of formation of ore deposits	Drawing, interpretation of faulted beds profile section across the geological map
3 rd Week	Geometric and genetic classification of joints	Evaporation and brines processes of formation of ore deposits	Exercise drawing and interpretation of faulted beds profile section

			across the geological map
4 th Week	Mechanism of jointing and significance of joints	metamorphism processes of formation of ore deposits	Practice different geological maps for structural studies

October, 2024

Week	Structural Geology (501)	Economic Geology (502)	Practical (503)
1 st Week	Parts of faults	Weathering products and residual deposits processes of formation of ore deposits	Practice different geological maps for structural studies
2 nd Week	Geometric and genetic classification of faults	Mechanical concentration and placer deposits processes of formation of ore deposits	Practice different geological maps for structural studies
3 rd Week	Effect of faulting on outcrop	Oxidation deposits processes of formation of ore deposits	Practice different geological maps for structural studies
4 th Week	Recognition of fault in the field	supergene sulphide enrichment processes of formation of ore deposits	Practice different geological maps for structural studies
5 th Week	DIWALI		

November, 2024

Week	Structural Geology (501)	Economic Geology (502)	Practical (503)
1 st Week	Test and revision of 1 st & 4 th Unit	Test and revision of 1 st Unit	Practice map of horizontal and inclined beds
2 nd Week	Test and revision of 2 nd Unit	Test and revision of 2 nd & 3 rd Unit	Practice map of folded beds
3 rd Week	Test and revision of 3 rd Unit	Test and revision of 4 th Unit	Practice map of faulted beds
4 th Week	EXAMS		

GEOLOGY DEPARTMENT

Pt. Neki Ram Sharma Govt. College Rohtak

Lesson Plan session 2024-25 Even Semester

Dr. Priyanka Shandilya

Class-B.Sc. 6th Semester

January, 2025

Week	Stratigraphy (601)	Indian Minerals and Environmental Geology (602)	Practical (603)
1 st Week	Principles of stratigraphy	Geological setting, mineralogical characteristics and Indian distribution of iron ore deposits	Study of physical properties of important ore forming minerals of iron
2 nd Week	Geological time scale	Geological setting, mineralogical characteristics and Indian distribution of manganese ore deposits	....continued
3 rd Week	Lithostratigraphic, chronostratigraphic correlation	Geological setting, mineralogical characteristics and Indian distribution of gold ore deposits	Study of physical properties of important ore forming minerals of manganese
4 th Week	Biostartigraphic units, stratigraphic correlation	Geological setting, mineralogical characteristics and Indian distribution of copper deposits	....continued
5 th Week	Classification, lithological characteristic, geographic distribution & Economic importance of Archaean system	Geological setting, mineralogical characteristics and Indian distribution of lead and zinc deposits	Study of physical properties of important ore forming minerals of aluminium

February, 2025

Week	Stratigraphy (601)	Indian Minerals and Environmental Geology (602)	Practical (603)
1 st Week	Classification, lithological characteristic geographic distribution & Economic importance of Dharwar system	Geological setting, mineralogical characteristics and Indian distribution of chromite deposits	.....continued
2 nd Week	Classification, lithological characteristic geographic distribution & Economic importance of Aravalli system	Geological setting, mineralogical characteristics and Indian distribution of non-metallic deposits	Study of physical properties of important ore forming minerals of copper

		related to refractory industries	
3 rd Week	Classification, lithological characteristic geographic distribution, fossils content & economic importance of Kurnool system	Geological setting, mineralogical characteristics and Indian distribution of fertilizer and cement industries	.....continued
4 th Week	Classification, lithological characteristic geographic distribution, fossils content & economic importance of Delhi system	Geological setting and Indian distribution of important coal and lignite deposits of India	Study of physical properties of important ore forming minerals of lead and zinc

March, 2025

Week	Stratigraphy (601)	Indian Minerals and Environmental Geology (602)	Practical (603)
1 st Week	Classification, lithological characteristic geographic distribution, fossils content & economic importance of Mesozoic groups- The Gondwana system	Elementary ideas about oil field of India	Study of physical properties of important ore forming minerals of chromite
2 nd Week	HOLI VACATIONS		
3 rd Week	Classification, lithological characteristic geographic distribution, fossils content & economic importance of tertiary groups- The Siwalik system	Environmental implications of exploitation of mineral resources	Preparation of map showing distribution of iron, copper and chromite ore deposits
4 th Week	Classification, lithological characteristic geographic distribution, fossils content & economic importance of the Deccan traps	Geological setting, mineralogical characteristics and Indian distribution of aluminium ore deposits	Preparation of map showing distribution of gold, aluminium and lead-zinc ore deposits

April, 2025

Week	Physical Geology (401)	Mineralogy (402)	Practical (403)
1 st Week	Classification, lithological characteristic geographic distribution, fossils content & economic importance of Vindhyan system of rocks	Geological setting, mineralogical characteristics and Indian distribution of uranium and beach sand deposits	Preparation of map showing distribution of coal and lignite deposits
2 nd Week	Classification, lithological characteristic geographic distribution and economic importance of the Cuddapah system of rocks	Test and revision of 1 st & 4 th Unit	Preparation of map showing distribution of oil fields of India
3 rd Week	Test and revision of 1 st & 2 nd Unit	Test and revision of 2 nd Unit	Preparation of map showing distribution of uranium and beach sand deposits
4 th Week	Test and revision of 3 rd & 4 th Unit	Test and revision of 3 rd	Preparation of map showing distribution of non-metallic mineral deposits