

**GOVT. DIGVIJAY AUTONOMOUS P.G. COLLEGE,
RAJNANDGAON**



**TEACHING PLAN
2022-2023**

DEPARTMENT OF GEOLOGY

Teaching Plan 2022-23
class - B.Sc. Ist sem (BSc+GE)
Paper - Geodynamics & Geomorphology

Credit = 04

Unit - 1

Introduction to Geology and its branches,
Definition, Nature and Scope of
Geomorphology, Origin of the Earth,
Earth in Solar System, Internal Structure
of the Earth.

(September - 2022)

Unit - 2

Concept and Theories of Continental drift,
Isostasy, Sea floor spreading Theory
and evidences, Concept of plate tectonics
tectonic plates and types and plate
boundaries, Mountain building process,
Introduction to Paleomagnetism and Polar
Wandering.

(October - 2022)

Unit - 3

Volcanoes Types and Distribution,
Earthquakes: Causes and effects, Measurements
of Earthquakes, Seismic zone of
India, Process of rock weathering, Cycle of
Erosion, Soil formation, Soil profile & Type of
Soil.

(November - 2022)

Unit - 4

- Geological works of rivers: fluvial landforms.
- Geological works of wind: Aeolian landforms.
- Geological works of sea: Coastal landforms.
- Geological works of Glacier: Glacial landforms.
- Geological works of Ground water: Karst landforms.

(December - January 2022-23)

B. Sharma
Head
Deptt. of Geology
Govt. Dignity College
Rajnandgaon (C.S.)

Teaching Plan 2022-23

Class - B.Sc. IInd Sem. (DSC+GE)

Paper - Mineralogy & Crystallography

Credits - 04

Unit - 1 Definition of Minerals & Crystals, Crystal Structure, and unit cells, Elements of Crystal & forms, Crystallographic axes & axial angles, parameters & miller's Indices of Crystal Notation.

(Jan-February - 2023)

Unit - 2

Law of Crystallography, Crystal symmetry, Normal classes of Seven Crystal System, Forms of Normal classes, Twinning in Crystals.

Feb (March - 2023)

Unit - 3

Silicate structure and classification of Silicates, Bonding in minerals, Iso morphism and Solid solution, polymorphism, and Pseudomorphism, physical properties of minerals.

(March-April - 2023)

Unit - 4 Nature of Light : Reflection & Refraction of light, Refractive Index : Critical angle and Total Internal Reflection and Becke Effect, Double Refraction. Nicol prism : Construction and working Polarizing Microscope and Its parts

and Functions , Optical properties of minerals,
study of Composition , classification , physical
and Optical properties of the Olivine ,
Garnet , pyroxene , feldspar and Silica.

(April - 2023)

~~Sarna.~~
Head
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Unit - 1

Magma, definition, Origin and Composition.
Bowen's reaction series, magmatic differentiation
and assimilation.

System, phases and component, principles
of thermodynamics, Crystallisation and phase
equilibrium of unicomponent magma (Silica);
Bi - component magma : Albite - Anorthite
and Diopside - Albite - Anorthite. Tri - component
magma Diopside - Albite - Anorthite.

Textures, structures and classification of
igneous rocks. Forms of igneous rocks.

(September - 2022)

Unit - 2

Rock association in Time & space, concepts
of rock kindreds Petrographic studies
of Acid igneous rocks. Petrographic studies
of Alkaline igneous rocks. Petrographic studies
of Basic igneous rock. Petrographic studies
of Ultrabasic igneous rocks.

(October - 2022)

Unit - 3

Origin, transportation & deposition of
sediments, Dynamics of Sedimentary

depositional environment ; Aeolian, fluvial, coastal
and abyssal environment. Concept of
Sedimentary facies, Concept of diagenesis.
Textures & structures of sedimentary rocks.

(November - December)

Unit - 4 classification of sedimentary rocks, Petrography
of sedimentary rock ; rudaceous, arenaceous,
calcareous sedimentary rocks, Metamorphism;
definition, agents, facies & grade, Textures,
structures & classification of metamorphic rocks,
Equilibrium & non-equilibrium reactions in
metamorphism.

(December - 2022)

Unit - 5

Paragenetic diagrams ; projective analysis A.C.F. &
A.K.F. diagrams, Progressive metamorphism of
Argillaceous rocks, progressive dynamo-thermal
metamorphism of impure limestone, progressive
dynamo-thermal metamorphism of basic
igneous rocks, petrographic provinces of
India.

(January - 2022)

Teaching Plan 2022-23
Class - B.Sc. 2nd year (Paper - II)
Structural Geology

Date _____
Page _____

Unit - 1

Definition and Scope of Structural Geology, study of outcrops. Effects of dip and slope on outcrops. Identification of bedding. Dip and Strike measurement, clinometer and Brunton compass, Recognition of top and bottom of beds, Concept of rock deformation. Concept of stress and strain ellipsoids.

(December - January)

Unit - 2

Fold morphology, Geometric and genetic classification of folds, Recognition of folds in the field and on geological maps. Effect of folds on outcrops, Elementary idea of mechanics of folding, faulting.

(January - 2023)

Unit - 3

Fault morphology, slip & separation, Geometric and genetic classification of faults, Recognition of faults in the field and on geological maps, Effects of faults on outcrops, Elementary idea of mechanics of faulting.

(February - 2023)

Unit - 4

Joint morphology, geometric and genetic classification of joints, Foliation: terminology, kinds, origin and relation to major structures, salt domes, Plutons; tectonics & emplacement.

(March - 2023)

Unit - 5

Types and recognition of Unconformity, Outlier & inlier, Overlap & offlap, Concept of tectonics, Tectonic framework of Peninsula, Indo - Gangetic Plains and Extra - Peninsular India, stereographic projection & its use in Structural Geology.

(March - April)

~~P. Ramesh~~
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Teaching plan 2022-23
class - 3rd year (paper-I)
Palaeontology & stratigraphy

Date _____
Page _____

Unit - 1

Palaeontology: Fossils - definition, Essentials for fossilization, modes of fossilization, Uses of fossils; Index fossils & their significance, Application of palaeontology in the study of stratigraphy, palaeontology and Palaeo-geography, Micro palaeontology & its significance, Study of plant fossils & their significance.

(September - October 2022)

Unit - 2

Morphology & geologic distribution of foraminifera & Anthozoa fossils, Gastropoda & Lamellibranchia, Morphology & geologic distribution of Cephalopoda, Echinodea, Brachiopoda fossils, Trilobite & Graptolite fossils.

(October - 2022)

Unit - 3

Principles of stratigraphy: Geological time scale, Basic concept of lithostratigraphic, chronostratigraphic & biostratigraphic units, Structural & physical subdivision and characteristic features of Indian subcontinent Distribution, classification & economic importance of Archaeozoic rock of India (Dharwar, Cchhattisgarh), Vindhyan & Gondwana

Supergroup.

(November - 2022)

Unit - 4

Distribution, stratigraphy & Economic importance of
Bastar & Vindhyan & Chhattisgarh super
group of rocks. stratigraphy of Gondwana
Basin & Deccan Traps, fossil contents of
Salt Range group of rocks. Palaeontology of

(December - 2022)

Unit - 5

Distribution, stratigraphy & Economic importance of
Palaeozoic rocks of Spiti Valley, Cretaceous
rocks of Tiruchirapalli, Jurassic rocks of
Kutch - Region, Tertiary rocks of Assam
Region, Distribution, stratigraphy &
Vertebrate Palaeontological importance of
Siwalik group of rocks.

(January - 2023)

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Teaching Plan 2022-23
class - 3rd year (paper-II)
Earth Resources & Applied Geology

Date _____
Page _____

Unit - 1

Economic Geology introduction & its perspectives;
Global mineral deposit & resources. Distribution
of mineral deposits in time & space,
classification of mineral deposits. Geological
thermometers, Magmatic & Hydrothermal processes
of mineral formation, Weathering products &
Residual deposits. Oxidation & supergene sulphide
enrichment processes, Sedimentary processes of
ore formation Placer deposits.

(January - 2023)

Unit - 2

Geological, Geographical distribution, mode of
occurrence, mineralogy & economic importance
of following metallic & nonmetallic deposits
of India. Iron, Manganese, Chromium, Copper,
Lead, Zinc, Gold, Aluminium, Refractory and
Fertilizer minerals, Minerals used in cement
& chemical industries.

(February - 2023)

Unit - 3

Coal deposits; Origin, Definition & stratigraphy,
Fundamentals of coal petrography, peat, Lignite,
Bituminous & Anthracite Indian coal deposits

with special reference to Coal deposits of Chhattisgarh, Origin of Natural - hydrocarbons, migration & accumulation, Types of oil traps; structural, stratigraphic & composite. Onshore oil deposits of India, Offshore & Mineralogy, Geochemistry, Radioactive minerals, Geological & Geographical prospecting techniques, minerals, principles of distribution of atomic - National Mineral Policy. mineral economics.

(Feb - March 2023)

Unit - 4

Engineering Geology & its importance, engineering properties of rocks, Geological conditions for construction of large Dams & Tunnels, Elementary study of Aerial photographs & Satellite imageries, Application of remote sensing techniques in town-planning, Hydrologic cycle, Mode of occurrence of ground water, quality of ground water, Hydrologic properties, Hydrologic properties of rocks. Classification of Aquifers, Ground water provinces of India.

(March - 2023)

Unit - 5

Introduction to mineral exploration, Surface & subsurface methods of mineral Exploration, prospecting methods; Drilling, Sampling & Assaying.

Geophysical prospecting techniques; Gravity, Electrical & Magnetic methods, Aerial and Seismic prospecting methods, Environmental impact of over exploitation of mineral resources.

(April - 2023)

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