

**GOVT. DIGVIJAY AUTONOMOUS P.G. COLLEGE,
RAJNANDGAON (C.G.)**



DEPARTMENT OF GEOLOGY

**PROGRAMME OUTCOMES AND COURSE OUTCOMES
2023-24**

SYLLABUS OF 4 YEARS UG PROGRAM (FYUGP) IN GEOLOGY
GOVT. DIGVIJAY AUTONOMOUS P.G. COLLEGE, RAJNANDGAON (C.G.)
AS PER NEP 2020 (SEMESTER-I AND II)

Program Objective

- ✓ Prepare students for successful scientific, technical or management careers in the geosciences or related fields.
- ✓ Provide employers with a well-educated workforce that is ready and able to perform valuable scientific, technical or managerial services immediately after graduation.
- ✓ Student will be able to Effectively communicate scientific ideas and results in writing.
- ✓ Student will be able to Visualize and comprehend geologic structures and processes.
- ✓ Students will be able to Understand how geologists measure deep time and reconstruct earth history.

Program Specific Outcome (PSO)

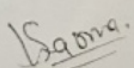
On Completion of Course, the students should be able to

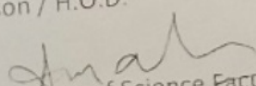
PSO 1 Acquire a solid base of knowledge in the science of geology as whole as well as earth materials, earth history, sedimentation and stratigraphy, deformational processes and structural features and geomorphic processes and landforms.

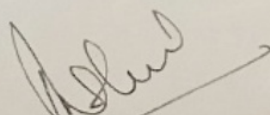
PSO 2 Demonstrate the ability to use Clinometer and Brunton compass and images in geological investigations.

PSO 3 Apply principles of mathematics, chemistry and physics to geologic problems.

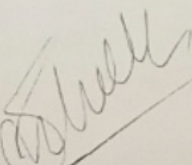
PSO 4 Develop proficiency in oral and written communication of geologic concepts.

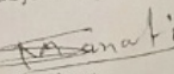

Chairperson / H.O.D.


Senior Professor of Science Faculty


Subject Expert

Alumnus


Subject Expert


Student

online
Subject Expert



GOVT. DIGVIJAY AUTONOMOUS P.G. COLLEGE, RAJNANDGAON (C.G.)
B.Sc. (Multiple Major)(Session 2023-24)
Department: -GEOLOGY

Session: 2023-24	Program: B.Sc.
Semester: I	Subject: Geology
Course Type: DSC	Course Code: UBSDCT105
Course Title:	Geodynamics & Geomorphology
Credit: 3	Lectures: 45
M.M. 100 = (ESE 80+IA 20)	Minimum Passing Marks: 40%

Title	Geodynamics & Geomorphology
Course Learning Outcome:	<p>After completion of this course, the student will be able to;</p> <ul style="list-style-type: none">• Understand basics of Geology, Solar system and internal structure of the Earth, origin and age of the Earth.• Understand the theories of continental drift and plate tectonics.• Understand causes and effects of earthquakes and explain weathering and its products.• Describe concepts of geomorphology and landforms developed by various geological agencies.



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B.Sc. (Multiple Major)(Session 2023-24)
Department: -GEOLOGY

Session: 2023-24	Program: B.Sc.
Semester: I	Subject: Geology
Course Type: GE	Course Code: UBSGET105
Course Title:	General Geodynamics & Geomorphology
Credit: 3	Lectures: 45
M.M. 100= (ESE 80+IA20)	Minimum Passing Marks: 40%

Title	General Geodynamics & Geomorphology
Course Learning Outcome:	<p>After completion of this course, the student will be able to;</p> <ul style="list-style-type: none">• Understand basics of Geology, Solar system and internal structure of the Earth, origin and age of the Earth.• Understand the theories of continental drift and plate tectonics.• Understand causes and effects of earthquakes and explain weathering and its products.• Describe concepts of geomorphology and landforms developed by various geological agencies.

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B.Sc. (Multiple Major)(Session 2023-24)
Department: -GEOLOGY

Session: 2023-24	Program: B.Sc.
Semester: I	Subject: Geology
Course Type: SEC	Course Code:
Course Title:	Topographic Map Skills
Credit: 2;	Lectures: 30
M.M. 50= (ESE 40+IA 10)	Minimum Passing Marks: 40%

Course Learning Outcome:

After completion of this course, the student will be able to;

1. Explain various types of maps and scales
2. Describe map projections
3. Identify and discuss features on topographic maps
4. Explain the shape of contour pattern
5. Interpret topographic maps and identify landforms on topographic map

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B.Sc. (Multiple Major)(Session 2023-24)
Department: -GEOLOGY

Session: 2023-24	Program: B.Sc.
Semester: II	Subject: Geology
Course Type: DSC	Course Code: UBSDCT205
Course Title:	Mineralogy & Crystallography
Credit: 3	Lectures: 45
M.M. 100 = (ESE 80+IA 20)	Minimum Passing Marks: 40%

Title	Mineralogy & Crystallography
Course Learning Outcome:	<p>After completion of this course, the student will be able to;</p> <ul style="list-style-type: none"> • Explain about the basics of Crystallography, crystallographic axes and symmetry elements • Describe various forms of normal classes of various crystal systems • Classify the minerals in various silicate groups and explain their varieties • Describe the physical properties of various minerals • Describe the optical characteristics of various minerals

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B.Sc. (Multiple Major)(Session 2023-24)
Department: -GEOLOGY

Session: 2023-24	Program: B.Sc.
Semester: II	Subject: Geology
Course Type: GE	Course Code: UBSGET205
Course Title:	General Mineralogy & Crystallography
Credit: 3	Lectures: 45
M.M. 100 = (ESE 80+IA20)	Minimum Passing Marks: 40%

Title	Mineralogy & Crystallography
Course Learning Outcome:	<p>After completion of this course, the student will be able to;</p> <ul style="list-style-type: none"> • Explain about the basics of Crystallography, crystallographic axes and symmetry elements • Describe various forms of normal classes of various crystal systems • Classify the minerals in various silicate groups and explain their varieties • Describe the physical properties of various minerals

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B.Sc. (Multiple Major)(Session 2023-24)
Department: -GEOLOGY

Session: 2023-24	Program: B.Sc.
Semester: II	Subject: Geology
Course Type: SEC	Course Code:
Course Title:	Topographic map skills (Based on Lab)
Credit: 2	Lectures: 30
M.M. 50= (ESE 40+IA 10)	Minimum Passing Marks: 40%

Course Learning Outcome:

After completion of this course, the student will be able to;

1. Explain various types of maps and scales
2. Describe map projections
3. Identify and discuss features on topographic maps
4. Explain the shape of contour pattern
5. Interpret topographic maps and identify landforms on topographic map

SYLLABUS OF 4 YEARS UG PROGRAM (FYUGP) IN GEOLOGY
GOVT. DIGVIJAY AUTONOMOUS P.G. COLLEGE, RAJNANDGAON (C.G.)
AS PER NEP 2020 (SEMESTER-III AND IV)

Program Objective

- ✓ Prepare students for successful scientific, technical or management careers in the geosciences or related fields.
- ✓ Provide employers with a well-educated workforce that is ready and able to perform valuable scientific technical or managerial services immediately after graduation.
- ✓ Student will be able to Effectively communicate scientific ideas and results in writing.
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Program Specific Outcome (PSO)

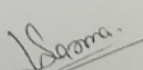
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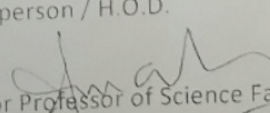
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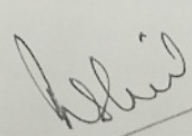
PSO 2 Demonstrate the ability to use Clinometer and Brunton compass and images in geological investigations

PSO 3 Apply principles of mathematics, chemistry and physics to geologic problems.


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B.Sc. (Multiple Major)(Session 2023-24)
Department: -GEOLOGY

Session: 2023-24	Program: B.Sc.
Semester: III	Subject: Geology
Course Type: DSC	Course Code: UBSDCT305
Course Title:	Petrology
Credit: 3	Lectures: 45
M.M. 100 = (ESE 80+IA 20)	Minimum Passing Marks: 40%

Title	Petrology
Course Learning Outcome:	<p>After completion of this course, the student will be able to;</p> <ul style="list-style-type: none"> • Discuss about the formation of Igneous rocks, their textures and structures • Explain about forms and classification of igneous rocks • Identify, describe and classify sedimentary rocks using hand specimens • Describe the formation of sedimentary rocks, their textures and structures • Explain about the formation of metamorphic rocks, their texture and structure • Identify and classify various types of metamorphic rocks. • Explain the concept of metamorphic facies, ACF, AKF and AFM diagrams

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B.Sc. (Multiple Major) (Session 2023-24)

Department: -GEOLOGY

Session: 2023-24	Program: B.Sc.
Semester: III	Subject: Geology
Course Type: DSE	Course Code: UBSDET305
Course Title:	Elements of Geology
Credit: 3	Lectures: 45
M.M. 100 = (ESE 80+IA 20)	Minimum Passing Marks: 40%

Title	Elements of Geology
Course Learning Outcome:	<p>After completion of this course, the student will be able to;</p> <ul style="list-style-type: none"> • Explain the scope and importance of geology • Describe earth surface processes. • Discuss the Earth's spheres. • Explain the reason behind the Earth's magnetic field. • Describe the process of mountain building and ice age. • Explain the important ores and demarcate their distributions in India. • Discuss various coal fields and oilfields in India. • Evaluate the principles of Stratigraphy and Geological Time scale • Explain the fundamental concept of fossils and their preservation.

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B.Sc. (Multiple Major)(Session 2023-24)
Department: -GEOLOGY

Session: 2023-24	Program: B.Sc.
Semester: III	Subject: Geology
Course Type: SEC	Course Code:
Course Title:	Attitude and its measurement
Credit: 2	Lectures: 30
M.M. 50= (ESE 40+IA 10)	Minimum Passing Marks: 40%

Course Learning Outcome:

After completion of this course, the student will be able to;

1. Explain the meaning of attitude of rock bed.
2. Describe the construction and workings of Clinometer compass.
3. Describe the construction and workings of Brunton compass.
4. Measure the attitude of rock beds using clinometer and Brunton compass.
5. Calculate value of true dip when two values of apparent dip are given.

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B.Sc. (Multiple Major)(Session 2023-24)
Department: -GEOLOGY

Session: 2023-24	Program: B.Sc.
Semester: IV	Subject: Geology
Course Type: DSC	Course Code: UBSDCT405
Course Title:	Structural Geology
Credit: 3	Lectures: 45
M.M. 100 = (ESE 80+IA 20)	Minimum Passing Marks: 40%

Title	Structural Geology
Course Learning Outcome:	<p>After completion of this course, the student will be able to;</p> <ul style="list-style-type: none"> • Demonstrate the use of clinometer compass and Brunton compass in measurement of attitude of rock bed. • Explain about parts of fold and any classify various folds • Recognize and classify the faults in the field and on geological map • Identify and classify Unconformities • Discuss about various types of joints. • Explain various types of foliations and lineations. • Identify the top bottom of rock beds in a series of rocks.

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Session: 2023-24	Program: B.Sc.
Semester: IV	Subject: Geology
Course Type: DSE	Course Code: UBSDET405
Course Title:	Fuel Geology
Credit: 3	Lectures: 45
M.M. 100 = (ESE 80+IA 20)	Minimum Passing Marks: 40%

Title	Fuel Geology
Course Learning Outcome:	<p>After completion of this course, the student will be able to;</p> <ul style="list-style-type: none"> • Describe origin, mode of occurrence and distribution of coal in India and Chhattisgarh. • Explain the fundamental concept of maturation of coal bed methane. • Classify kerogen into various types. • Explain origin, mode of occurrence and distribution of petroleum in India and World. • Discuss origin, mode of occurrence and distribution of radioactive minerals in India

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Department: -GEOLOGY

Session: 2023-24	Program: B.Sc.
Semester: IV	Subject: Geology
Course Type: SEC	Course Code:
Course Title:	Attitude and its measurement Practical
Credit: 2	Lectures: 30
M.M. 50= (ESE 40+IA 10)	Minimum Passing Marks: 40%

Course Outcome

- Explain the meaning of attitude of rock bed.
- Describe the construction and workings of Clinometer compass.
- Describe the construction and workings of Brunton compass.
- Measure the attitude of rock beds using clinometer and Brunton compass.
- Calculate value of true dip when two values of apparent dip are given.

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Syllabus and Marking Scheme for B.Sc. Part III (Session 2023-24)

Department of Geology

Paper I

Course Code : UGELT301

Paleontology & Stratigraphy

Course Learning Outcome: On completion of course the students will be able to;

- To introduce fundamental aspects of Stratigraphy and paleontology.
- Fossil as a tool to complement Stratigraphy.
- Describe and identify fossils based on their morphology and their modification with time.
- Historical development of stratigraphic units.
- Basics of Stratigraphy.
- Learn the fundamentals of stratigraphic correlation and about the Geologic Time Scale.
- Understand the different stratigraphic groups and formations of India.
- The student will get to learn in detail the Indian Stratigraphy.

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Syllabus and Marking Scheme for B.Sc. Part III (Session 2023-24)

Department of Geology

Paper II

Course Code :UGELT302

(Earth Resources & Applied Geology)

Course Learning Outcome:

On the completion of course the students will be able to;

- Mineral formation Processes.
- Geological, Geographical distribution, mode of occurrence and mineralogy of metallic and non-metallic deposits.
- Understand about the Origin, occurrence and properties of Coal.
- Describe geophysical methods of mineral exploration.
- Understand the methods of groundwater exploration.
- Outline the basics of engineering geology and its applications
- Understand the occurrence and availability of groundwater resources and the role of the hydrologic cycle.
- Explain fundamentals of Aerial photographs and Satellite Imagaries and application of remote sensing in geological studies.