

Department of Geology
Bhanupratap Deo Government P.G. College,
Kanker, C.G.

Programme Outcomes

- Ensuring an atmosphere conducive to teaching and learning in Science
- Preparing students for holistic development and the competitive world,
- Providing Quality Higher Education and taking care of intellectual, social, economic, emotional needs of students,
- Adopting student-friendly approaches to teaching and learning as far as practicable,
- Kindling interest in students not only in their subjects but also in related fields and help them ramify and diversify areas of interest,
- Encouraging participation of Faculty in discussions to teach students with different learning paces,
- Promotion of leadership qualities.

Subject Outcome (UG): Geology

1. **Foundational Understanding:** Acquire a solid foundation in the principles of geology, including mineralogy, petrology, sedimentology, and structural geology etc.
2. **Fieldwork Skills:** Develop practical skills in geological fieldwork, including mapping techniques, sample collection, and interpretation of geological features in the field.
3. **Laboratory Techniques:** Gain proficiency in laboratory techniques such as thin section petrography, mineral and rock identification, and geochemical analysis.
4. **Geological Mapping:** Learn how to interpret geological maps and construct geological maps through field observations and data analysis.
5. **Understanding Earth Processes:** Understand the processes that shape the Earth, including plate tectonics, volcanism, erosion, and sedimentation.
6. **6. Resource Exploration:** Gain insights into the exploration and exploitation of Earth's natural resources, including minerals, fossil fuels, and groundwater.
7. **7. Communication Skills:** Develop effective communication skills for conveying geological concepts and findings through reports, presentations, and scientific papers.

Subject Outcome (PG): Geology

1. **Specialization:** Deepen knowledge in a specific area of geology, such as petrology, paleontology, hydrogeology, economic geology, environmental geology, and engineering geology.
2. **Advanced Fieldwork and Research:** Engage in advanced fieldwork and research projects to address complex geological questions or problems.
3. **Advanced Laboratory Techniques:** Master advanced laboratory techniques relevant to the chosen specialization, such as petrology, sedimentology, geochemistry, Mining and exploration methods etc.

4. **Data Analysis and Modeling:** Develop proficiency in data analysis and geological modeling techniques to interpret complex geological data and predict geological processes.
5. **Environmental Geology:** Explore the interactions between human activities and geological processes, including environmental hazards such as landslides, earthquakes, and pollution.
6. **Thesis or Research Projects:** Conduct independent research culminating in a thesis or research project that contributes new insights to the field of geology.
7. **Professional Development:** Enhance professional skills such as project management, scientific writing, and presentation skills through seminars, workshops, and conferences.
8. **Industry or Academic Career Pathways:** Prepare for careers in industry, government agencies, consulting firms, or academia, depending on the chosen specialization and career goals.
9. **Continued Learning:** Cultivate a mindset of lifelong learning and stay updated with advances in the field of geology through professional development activities and continuing education programs.

Course Outcomes

(Geodynamics & Geomorphology)	
Course Code	Course Outcome
CO1	<ul style="list-style-type: none"> • Discuss about basics of Geology, Solar system and Atmosphere
CO2	<ul style="list-style-type: none"> • Evaluate the Theories of Origin of Earth and Age of the Earth
CO3	<ul style="list-style-type: none"> • Demonstrate the Geological timescale and internal structure of the Earth
CO4	<ul style="list-style-type: none"> • Explain the agents of weathering and its products
CO5	<ul style="list-style-type: none"> • Discuss the theory of plate-tectonics and demonstrate the causes of Earthquakes and volcanoes
CO6	<ul style="list-style-type: none"> • Outline about the concept of geomorphology and geological work of wind
CO7	<ul style="list-style-type: none"> • Demonstrate the land forms created by river and lakes.
CO8	<ul style="list-style-type: none"> • Evaluate the landforms created by Groundwater and describe about drainage pattern
CO9	<ul style="list-style-type: none"> • Explain about the land forms developed by glaciers
CO10	<ul style="list-style-type: none"> • Describe the geological work of sea.

Mineralogy and Crystallography	
Course Code	Course Outcome
CO 1	• Identify the physical and chemical properties of the minerals
CO 2	• Explain about varieties of minerals in Quartz and Feldspar Groups
CO 3	• Demonstrate minerals in Pyroxene Groups.
CO 4	• Classify the minerals in Amphibole, Olivine, Mica, Garnet minerals.
CO 5	• Identify the Optical Characteristics of various Minerals.
CO 6	• Explain about the basics of crystallography, various crystal forms, Crystallographic Axis and symmetry elements
CO 7	• Differentiate Isometric and Tetragonal crystal forms.
CO 8	• Identify and describe the Hexagonal, rhombohedral and mineral forms
CO 9	• Identify the Orthorhombic, Monoclinic and triclinic crystal forms.
CO 10	• Describe about Twinning in crystals

Lab Course (Practical)	
Course Code	Course Outcome
CO 1	• Identify the megascopic properties of Quartz and Feldspar group of minerals
CO 2	• Outline the megascopic properties of pyroxene group of minerals
CO 3	• Demonstrate the megascopic properties of Amphibole group of minerals
CO 4	• Describe the megascopic properties of olivine and Mica group of Minerals.
CO 5	• Describe about Microscopic identification of minerals.
CO 6	• Identify the various crystal Systems and Symmetry through crystal models
CO 7	• Assess the miller Indices of the crystal models
CO 8	• Identify Twinning in crystals.
CO 9	• Identify and describe various landforms in geomorphologic models.
CO 10	• Interpret topographical maps

(Petrology)	
Course Code	Course Outcome
CO 1	• Discuss about the formation of igneous rocks, their texture and structures
CO 2	• Explain about forms and classification of igneous rocks
CO 3	• Identify, describe and classify sedimentary rocks using hand specimens
CO 4	• Describe the formation of sedimentary rocks, their textures and structures
CO 5	• Explain about the formation of metamorphic rocks, their texture and structure
CO 6	• Identify and classify various types of metamorphic rocks.
CO 7	• Explain the concept of metamorphic facies, ACF, AKF and AFM diagrams

(Structural Geology)	
Course Code	Course Outcome
CO 1	<ul style="list-style-type: none"> • Explain about parts of fold and classify various folds and recognition
CO 2	<ul style="list-style-type: none"> • Recognize and classify the faults in the field and on geological map
CO 3	<ul style="list-style-type: none"> • Identify and classify Unconformities
CO 4	<ul style="list-style-type: none"> • Discuss about various types of Joints
CO 5	<ul style="list-style-type: none"> • Demonstrate the origin of foliation and lineation
CO 6	<ul style="list-style-type: none"> • Identify the lounging of rock beds in a series of rocks

Lab Course	
Course Code	Course Outcome
CO 1	<ul style="list-style-type: none"> • Analyze the contour maps and assess the strike and dip using Clinometers and Brunton compass
CO 2	<ul style="list-style-type: none"> • Compute the thickness of the outcrops
CO 3	<ul style="list-style-type: none"> • Identify the true and apparent dip through trigonometrical calculation and graphical method
CO 4	<ul style="list-style-type: none"> • Construct geological cross section from given geological map
CO 5	<ul style="list-style-type: none"> • Identify igneous, sedimentary and metamorphic rocks in hand specimen
CO 6	<ul style="list-style-type: none"> • Describe microscopic properties of igneous, sedimentary and metamorphic rocks

(Economic Geology)	
Course Code	Course Outcome
CO 1	<ul style="list-style-type: none"> • Explain about the formation of mineral deposits
CO 2	<ul style="list-style-type: none"> • Demonstrate the distribution of mineral resources.
CO 3	<ul style="list-style-type: none"> • Discuss the Classification of the mineral deposits
CO 4	<ul style="list-style-type: none"> • Outline the various mineral resources of India
CO 5	<ul style="list-style-type: none"> • Explain about the mineral policies of India.
CO 6	<ul style="list-style-type: none"> • Understand about the origin, occurrence and properties of Coal
CO 7	<ul style="list-style-type: none"> • Discuss the age and occurrences of the coal
CO 8	<ul style="list-style-type: none"> • Explain about the petrography of Coal
CO 9	<ul style="list-style-type: none"> • Outline the origin and occurrences of the Petroleum

(Natural Environment, Remote sensing, Groundwater and Mineral Exploration)	
Course Code	Course Outcome

CO 1	<ul style="list-style-type: none"> • Understand the basics of Environmental Geology and Natural Disaster Management
CO 2	<ul style="list-style-type: none"> • Evaluate the impact of human activities on soil, ground water and other natural resources
CO 3	<ul style="list-style-type: none"> • Describe about the basic principles of Geophysics and its application.
CO 4	<ul style="list-style-type: none"> • Explain the field procedure and interpretation of geophysical data for groundwater exploration.
CO 5	<ul style="list-style-type: none"> • Explain the various geological methods of Mineral exploration
CO 6	<ul style="list-style-type: none"> • Describe geophysical methods of mineral exploration
CO 7	<ul style="list-style-type: none"> • Understand the methods of groundwater exploration
CO 8	<ul style="list-style-type: none"> • Outline the basics of engineering geology and its applications.
CO 9	<ul style="list-style-type: none"> • Understand the occurrence and availability of ground water resources and the role of the hydrologic cycle
CO 10	<ul style="list-style-type: none"> • Explain fundamentals of Aerial photographs and Satellite Imageries and application of remote sensing in geological studies.

Lab Course	
Course Code	Course Outcome
CO 1	<ul style="list-style-type: none"> • Identify ore forming minerals in hand specimen.
CO 2	<ul style="list-style-type: none"> • Demarcate ore deposits and economic mineral deposits in Outline map of India.
CO 3	<ul style="list-style-type: none"> • Estimate the ore reserves from the given data.
CO 4	<ul style="list-style-type: none"> • Interpret aerial photographs with the help of stereoscope.
CO 5	<ul style="list-style-type: none"> • Visually interpret satellite Imageries.
CO 6	<ul style="list-style-type: none"> • Construct and interpret water table maps on the basis of given data