

POs of Geology M.Sc. Degree Programme.

The programme and courses run by the department have great contribution in preparation of trained geologist. Who are capable in mineral and rock identification, mineral exploration and to work in geological departments and companies. A number of alumni of this department are working in various geological departments and organisation of country and states as well as in national and multinational companies of private mineral industries, mines and companies. They are working as teachers in higher education institutions and as geoscientist in scientific organisation.

PO1. **Geology knowledge:** Apply the knowledge of Geological science, its fundamentals, and Geological specialization to the solution of complex geological problems.

PO2. **Geological analysis:** Identify, formulate, research literature, and analyze complex geological problems reaching substantiated conclusions using first principles of Geology, natural sciences, and applied geological subjects.

PO3. **Design/development of solutions:** Design geological project that meet the specified needs of the mineral based industries and environmental considerations.

PO4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of models, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern geological and IT tools including prediction and modelling to complex geological activities with an understanding of the limitations.

PO6. **The Geologist and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional geological practice.

PO7. **Environment and sustainability:** Understand the impact of the professional geological solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the geological practice.

PO9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. **Communication:** Communicate effectively on complex geological activities with the geology community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11. **Project management and finance:** Demonstrate knowledge and understanding of the geological and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of geological change.

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| COs of the course “M.Sc. Geology Semester -I, Course Geol-101 to 106; Semester -II, Course Geol-201 to 206; Semester -III, Course Geol-301 to 306 and Semester -IV, Course Geol-401 to 406. |
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| M.Sc. Geology Semester -I |
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| Geol-101: Come to know identification of minerals base on their physical and optical properties; Origin, occurrence and crystal structure of minerals. |
| Geol-102: Come to know methods of mapping of rocks and various structures present in them rocks. |
| Geol-103: Come to know geomorphological divisions of India and origin of continents and oceans. Gain knowledge on Geogeritage too. |
| Geol-104: Come to know origin, classification, structures, textures and environment of sedimentary rocks. |
| Geol-105: Practically see physically minerals and identify them. Preparation and interpretation of geological maps and find out attitudes of strata in maps. |
| Geol-106: Practically draw map of physiographic division of India. Study various landforms in models and drawings. Learn identification of sedimentary rocks in handspecimens and under microscope. |
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| M.Sc. Geology Semester -II |
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| Geol-201: come to know Lithology, classification, structures, distribution and economic importance of Precambrian rocks of India. |
| Geol-202: Come to know origin, classification, structures, textures and forms of Igneous rocks. |
| Geol-203: come to know Lithology, classification, structures, distribution, fossil content, age, Palaeogeography and Palaeoclimate of Phanerozoic rocks of India. |
| Geol-204: Come to know varios fossil gropus and their morphology, history, palaeoecology, classification and evolutionary characters viz. Foraminifers, Ostracods, Brachiopoda, Trilobite, Echinoidea, Bivalves, Gastropods and Cephalopd Evolutionary histories of man, elephant and horse. Gondwana plant fossils. |
| Geol-205: Learn geological and palaeogeographic maps of Preacambrian rock groups of India. Also learn identification of igneous rocks in handspecimens and under microscope. |
| Geol-206: Learn geological and palaeogeographic maps of Phanerozouc rock groups of India. Also learn identification of fossils in handspecimens and their characteristics. |
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M.Sc. Geology Semester -III

Geol-301: come to know all kind of properties of groundwater and rocks bearing it. Exploration and occurrence of groundwater.

Geol-302: Come to know ore genesis processes, Optical properties of Ore minerals. Distribution and origin of few Indian ore deposits.

Geol-303: Come to know origin, classification, structures, textures and forms of metamorphic rocks. Fundamentals of Geochemistry.

Geol-304: come to know Sedimentary Basins, Geosynclinal Concept, Basin classification and Analysis. Sedimentary basins of Western Rajasthan.

Geol-305: Do practice on hands of problem related to hydrogeology. Field visits of groundwater drilling sites and mineral deposit mines.

Geol-306: Learn identification of Metamorphic rocks in handspecimens and under microscope. Ore microscopy: study of Ores minerals textures and paragenesis under microscope.

M.Sc. Geology Semester -IV

Geol-401: Come to know origin and properties of fuel minerals viz. coal , petroleum and atomic minerals. Also learn industrial minerals.

Geol-402: come to know Mineral prospecting and Exploration methods.

Geol-403: Come to know environmental geology, photogeology and Remote sensing

Geol-404: Come to know mining methods, drilling, ore sampling and estimation, explosives used in mines, civil engineering work of dams, tunnels, bridges and roads.

Geol-405: identify ore and industrial mineral specimens. Ore microscopic practices to identify metallic ores. Prepare distribution map of ore and industrial minerals.

Geol-406: Understanding of Tool and Techniques to study with areal photographs and imagery. Identification of geomorphological features in imageries. Properties of building and dimensional stones used in civil engineering constructions. Identification of fuel and industrial minerals in handspewcimens. Field visits and training.