

**School of Earth Sciences**  
**SRTM University**  
**Master of Science in Geology**  
**(M.Sc. Geology)**

**Program Objectives:**

The Master of Science program in Geology in the School of Earth Sciences offers an interdisciplinary Post-Graduate degree in Geology with the objective of educating students for success as a geo-scientist in government sector, public sector, private sector, research institutes, or further pursuit of Doctoral studies.

**Program Outcomes:**

During the two-year program, students identify, examine and understand different geological materials and also carry out their characterization using geological, geophysical, geochemical, and numerical-modeling techniques. The students learn geologic field mapping, statistical analysis of the data, computer techniques and software, microscopy, fossil identification, groundwater behavior and environmental issues related to Planet Earth. At the end of the program student will be able to understand the spatial and temporal relationships between Earth processes and products, and development and evolution of Earth spheres (Lithosphere, Hydrosphere, Atmosphere and Biosphere).

Exploration for economically useful Earth material is another important outcome of the present program. The student will be able to assess Geo-hazards including earthquakes, floods, landslides, tsunamis and volcanic eruptions and mechanisms for mitigating the damages. Submission of Dissertation based on their project work is an important component of Masters Program in Geology. Students take-up a geologic problem and utilize theoretical, analytical or experimental approach to solve the problem through their dissertation work. The students will be able to defend their thesis in an open forum. It is strongly encouraged to publish the thesis in reputed research journals.

## **Program Specific Outcomes:**

### **1. Earth processes in space and time:**

Mantle and Crustal Processes leading to formation/deformation and evolution of igneous, sedimentary and metamorphic rocks, global tectonic regimes and role plate tectonics in the Earth's evolution.

### **2. Earth materials as recorders of geological processes:**

Examine, identify, and evaluate the composition, structure and genesis of Earth material including minerals, rocks and fossils and connecting to Earth processes.

### **3. Geologic time and history of India:**

Different geologic domains of India and their stratigraphy, structure, composition, lithology and evolution in space and time.

### **4. Geologic data collection and interpretation:**

Acquiring geologic data in the field, laboratory, satellites and big data from Data banks. Analyzing and interpreting the data through application of the scientific method.

### **5. Applications of geologic sciences:**

Able to assess natural hazards in terms of geologic processes; understand the origins of fossil fuels, metallic and nonmetallic resources; selecting site for construction of Dams, Reservoirs, Tunnels and Irrigation projects; Understand the hydrologic cycle and the geologic constraints on water resources.

### **6. Read and understand and apply geological literature:**

Reading and understanding published research papers covering all sub-branches of geology.

Through the **dissertation work**, students will be able to

- 1) Identify a suitable geologic problem, critically evaluate the literature, develop research methodology, generate data and carry out data analysis and interpretation.
- 2) Able to write a thesis in which the motivation for the research is outlined, methods are described, data and interpretations are clearly separated, prior work is appropriately referenced, and the significance of the work is articulated.
- 3) Acquire the ability to communicate the research results through oral or poster presentations.