

Name of Programme: M. Sc. Applied Geology
Course Code: GEO-505
Title of the Course: Practical of Igneous Petrology
No of Credits: 01
Effective from AY: 2022-23

Prerequisites for the course:	Degree of Bachelor of Science in Geology from any UGC recognized University or an equivalent examination.	
Objective:	The main objective of this course is to get students acquainted with identification of rocks in hand specimens and petrographic thin section.	
Content:	<p>Module 1: Study of the textures and structures and identification of rocks in hand specimens.</p> <p>Module 2: Characterization of the following suites of rocks from micro-sections: ultramafic rocks, mafic igneous rocks, intermediate rocks, granitic rocks and alkaline igneous rocks.</p> <p>Module 3: CIPW normative calculations of minerals based on available compositional data using excel sheet.</p> <p>Module 4: Applications of trace elements in igneous petrology, such as spider diagrams, REE distribution patterns and implications in deducing origin, source and evolution of magma, and tectonic diagrams-trace element ratio plots.</p>	30 hours
Pedagogy:	It is a practical component and the entire course is taught in the laboratory.	
References/ Readings	<ol style="list-style-type: none"> 1. Howie, R. A., Zussman, J., and Deer, W. (1992). <i>An introduction to the rock-forming minerals</i> (p. 696). London, UK. Longman. 2. Hutchinson, C.S. (1974). <i>Laboratory handbook of petrographic techniques</i>. New York. 3. Nesse, W. D. (2012). <i>Introduction to mineralogy</i> (No. 549 NES). 4. Phillips, W. R., and Griffen, D. T. (1981). <i>Optical mineralogy: The nonopaque minerals</i>. 5. Turner, F. J., and Howel. and Gilbert William (Charles M.). (1965). <i>Petrography; an Introduction to the Study of Rocks in Thin Section</i>. Vakils, Feffer and Simons. 	
Course outcomes	<ol style="list-style-type: none"> 1. The students will develop skills, to identifying minerals and other phases and thus identify the rock 2. The students will understand the geologic occurrence of the rocks 3. They will be able to infer the processes of formation and environmental conditions from the mineral assemblage, texture, and tectonic setting. 	