

Semester Lecture Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim, Goa-India

Name of Faculty: Delia Cardozo

Subject: Geology

Paper code: GEO 302

Program/Course: TY B.Sc.

Division:

Academic year: 2025- 2026

Semester: V

Total Lectures: 39

Course Objectives:

1. Describe the processes involved in the formation of igneous rocks and their diversity. CL2
2. Classify igneous rocks. CL2
3. Discuss the crystallization of melts by studying textures and structure of igneous rocks. CL2

Course Learning Outcome:

1. Explain formation and diversity of igneous rocks. CL2
2. Interpret the cooling history of igneous rocks using textures and structures. CL3
3. Illustrate crystallization trends in magmatic systems. CL3
4. Identify common igneous rocks both in hand specimen and thin section. CL3

Month	Lectures From:	Lectures To:	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
June	23/06/2025	30/06/2025	04	Distribution of igneous activity in relation to plate margins and plate interiors.		Smartboard, PPT, Videos,	1. Winter, J. D. (2013). Principles of igneous and

July	01/07/2025	05/07/2025	02	Classification based on mineral composition: Hatch & Wells		Google maps, Virtual microscope	metamorphic petrology: Pearson New International Edition. Pearson Higher Ed. 2. Best, M. G. (2013). Igneous and metamorphic petrology. John Wiley & Sons. 3. Raymond, L. A. (2002). Petrology: The Study of Igneous, Sedimentary, and Metamorphic Rocks. McGraw-Hill Science, Engineering & Mathematics.
July	07/07/2025	12/07/2025	03	IUGS Classification			
	14/07/2025	19/07/2025	03	Textures of igneous rocks: Crystallinity, granularity, shape of the grains, mutual relationship of grains: equigranular and inequigranular (Porphyritic: glomeroporphyritic, orthophyric, poikilitic, ophitic, sub-ophitic, intergranular, intersertal, hyalophitic, hyalopilitic			
	21/07/2025	26/07/2025	03	intergrowth: graphic, granophyric, perthitic, anti-perthitic, myrmekitic; cumulate; reaction textures: corona; directive: trachytic, pilotaxitic).			
	28/07/2025	02/08/2025	03	Factors responsible for generation and ascent of magma. Magmas: characteristics with respect to temperature,			

August	04/08/2025	09/08/2025	03	Magmas: characteristics with respect to temperature, density, viscosity, chemical composition and role of volatiles.	ISA(Assignment - Presentations on different igneous rock types)		
	11/08/2025	16/08/2025	02	Magmatic evolution (differentiation: liquid immiscibility, liquid fractionation and movement of volatiles; fractional crystallization: gravity settling, filter pressing and flow differentiation; magma mixing and assimilation)			
	18/08/2025	23/08/2025	02	Study of following group of rocks with respect to its mineralogy, textures, structures and origin: granites (I-type, S-type,) rhyolites and pegmatites;			
	25/08/2025	30/08/2025	01	syenites and trachytes (oversaturated, saturated, undersaturated),			
September	02/09/2025	06/09/2025	01				
	08/09/2025	13/09/2025	02	ultramafic (dunites, pyroxenites, peridotites			

	15/09/2025	20/09/2025	02	lamprophyres	ISA II: Test		
	22/09/2025	27/09/2025	02	Kimberlites, Carbonatites			
October	29/09/2025	04/10/2025	02	Anorthosites			
	06/10/2025	11/10/2025	02	Characteristics of layered igneous intrusions (types of layering: modal, phase, rhythmic and cryptic).	ISA III: Viva		
	13/10/2025	18/10/2025	02	Revision			

*** Assessment Rubrics**

Component	Max Marks
ISA 1	7.5
ISA 2	7.5
Practical	25
Project	--
Semester End Exam	60

