Semester Lecture Plan

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

Name of Faculty: Shritesh Mhapsekar	**Subject:** Geology	
Paper code: GEC 107, Igneous Petrology	**Program/Course: TY B.Sc.**	**Division:**
Academic year: 2024- 2025	**Semester: V**	**Total Lectures: 60**

Course Objectives:

1. Students will acquire knowledge about the different types of Igneous rocks and understand their modes of occurrence in nature
2. Students will understand the processes involved in the formation of igneous rocks and their diversity
3. Students will understand the various classifications of igneous rocks based on different criteria
4. Students will acquire knowledge about magmas and their origin in different tectonic settings

Course Learning Outcome:

1. Students will be able to identify common igneous rocks both in hand specimen and thin section
2. Students will be able to identify and describe igneous structures and textures, and infer the geological processes involved in their formation and classify them
3. Students will be able to interpret phase diagrams of common igneous systems

Month	Lectures From:	Lectures To:	No. of lectures allotted	Topic, Subtopic to be covered	Exercise/ Assignment	ICT Tools	Reference books
JUlLY	July 1, 2024	July 7, 2024	4	Introduction to this paper and syllabus discussion			Winter John: Igneous and metamorphic

				Introduction to this paper and syllabus discussion	Assignment on Plate boundaries		petrology, Prentice Hall, 2010. Best M.: Igneous and Metamorphic rocks, Wiley-Blackwell, 2002.
				Igneous activity in relation to plate margins and plate interiors			
				Igneous activity in relation to plate margins and plate interiors			
JUlLY	July 8, 2024	July 14, 2024	4	Magmas, their nature, temperature, density,viscosity, chemical composition and role of volatiles.			
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				Mode of occurrence			
	July 15, 2024	July 21, 2024	4	Mode of occurrence			
				Mode of occurrence			
				Mode of occurrence			
				Kindred and suite			
	July 22, 2024	July 28, 2024	4	Structures of Igneous rocks			
				Structures of			

				Igneous rocks Structures of Igneous rocks Structures of Igneous rocks			
	July 29, 2024	August 4, 2024	4	ISA I Classification (IUGS) Classification (IUGS) Classification (IUGS)	To identify the textures in hand specimen and under microscope		Igneous and Metamorphic rocks, Wiley-Blackwell, 2002.
	August 5, 2024	August 11, 2024	4	textures of igneous rocks. textures of igneous rocks. textures of igneous rocks. textures of igneous rocks.			Winter John: Igneous and metamorphic petrology, Prentice Hall, 2010.
AUGUST	August 12, 2024	August 18, 2024	4	Generation and ascent of magma. Generation and ascent of magma. Holiday Magmatic evolution			Best M.: Igneous and Metamorphic rocks, Wiley-Blackwell, 2002.
	August 19, 2024	August 25, 2024	4	Magma differentiation Magma differentiation magma mixing Magma assimilation			Best M.: Igneous and Metamorphic rocks, Wiley-Blackwell, 2002.
	August 26, 2024	September 1,	4	Study of following			

		2024		suite (clans) of rocks: granites, Study of following suite (clans) of rocks: granites, Study of following suite (clans) of rocks: syenites Study of following suite (clans) of rocks: syenites			
SEPTEMBER	September 2, 2024	September 8, 2024	4	Study of following suite (clans) of rocks: gabbroic Study of following suite (clans) of rocks: gabbroic Holiday Holiday	Identifying rocks in handspecimen and classifying them		
	September 9, 2024	September 15, 2024	4	Holiday Holiday Holiday Study of following suite (clans) of rocks: ultramafic.			Winter John: Igneous and metamorphic petrology, Prentice Hall, 2010.
	September 16, 2024	September 22, 2024	4	Crystallization trend of Di-Ab-An system Crystallization trend of Di-Ab-An system			Best M.: Igneous and Metamorphic

				Ne-Ka-Si system,			rocks, Wiley-Blackwell, 2002.
				Ne-Ka-Si system,			
	September 23, 2024	September 29, 2024	4	ISA II	dentifying rocks in handspecimen and classifying them		Winter John: Igneous and metamorphic petrology, Prentice Hall, 2010.
				Study of lamprophyres			
				anorthosites			
				carbonatites			
	September 30, 2024	October 6, 2024		carbonatites			
				Holiday			
				kimberlites			
			4	kimberlites			
OCTOBER	October 7, 2024	October 13, 2024		Geology of layered igneous intrusions			
				Geology of layered igneous intrusions			
				Flood basalts	Identifying rocks in handspecimen and classifying them		
				Flood basalts & large igneous provinces			
			4				
	October 14, 2024	October 20, 2024		large igneous provinces			
				revision			
				revision			
			4	revision			

Assessment Rubrics

Component	Max Marks
ISA 1	10
ISA 2	10
Practical	50
Project	-
Semester End Exam	80