

Session: 2025-26 (As per scheme 2024-25)			
Part A - Introduction			
Name of the Programme	M.Sc. (Tech.) Applied Geophysics		
Semester	3 rd		
Course Code	M24-OEC-319		
Course Type	OEC		
Name of the Course	Dynamics of the Earth		
Course Learning Outcomes (CLO) After completing this course, the learner will be able to:	CLO 319.1: Acquiring knowledge about the solar system and evolution of the earth. CLO 319.2: Learn about the gravity and magnetic field of the Earth to enhance the understanding of geophysical knowledge.		
Credits	Theory	Practical	Total
	2	0	2
Teaching hours per week	2	0	2
Internal Assessment Marks	15	0	15
End Term Exam Marks	35	0	35
Max. Marks	50	0	50
Examination Time	2 hours		
Part B – Contents of the Course			
Instructions for the Paper- Setter: Five questions will be set and students will attempt three questions. Question No.1 will be compulsory of 20 marks and based on the conceptual aspects of the whole syllabus. The answers should not be in yes/no. In addition to question no.1 , there will be two units in the question paper each containing two questions of 15 marks each belonging to two units in the syllabus. Students will select one question from each unit.			
Unit	Topics	Contact Hours	
I	Origin and age of the solar system and the Earth, Evolution of Earth from its origin to the present, Continental drift and sea-floor spreading, Plate-tectonic theory and interactions of different types of plate boundaries, Earth's internal and external structure and composition, variation of seismic velocity, density, temperature and pressure from surface to the centre of the Earth. Rheological properties of Earth, evolution, structure and composition of Earth's atmosphere.	15	
II	The gravity field of the Earth, shape and size of the Earth, Gravity anomalies, theory of isostasy and its significance in	15	

	distribution of land and ocean, origin of the Earth's magnetic field, thermal structure of the Earth, global seismicity, characteristics of earthquakes: origin, distribution, causes and results. Interior of the Earth based on seismic waves. Geodynamics of Indian subcontinent, origin and tectonics of the Himalaya.		
Total Contact Hours		30	
Suggested Evaluation Methods			
Internal Assessment:15		End Term Examination:35	
➤ Theory	15	➤ Theory	35
Class Participation	04	Written Examination	
Seminar/Presentation/ Assignment/Quiz	04		
Mid Term Exam	07		
Part C – Learning Resources			
Recommended Books/e-resources/LMS:			
1. Lowrie, W., Fundamentals of Geophysics, 2 nd Edition, Cambridge University Press, 2007.			
2. Lillie, R. J., Whole Earth Geophysics: An introduction textbook for geologist and geophysicists, Prentice Hall, New Jersey.			
3. Davies, G. F., Dynamic Earth: Plates, Plumes and Mantle Convection, Cambridge University Press, 2000.			
4. Fowler, C. M. R., The Solid Earth: An introduction to global Geophysics, 2 nd Edition, Cambridge, University Press, 2004.			
5. Stacey, F. D., and Davis, P., Physics of the Earth, 4 th Edition, Cambridge University Press, 2008.			
6. Bott, M. H. P., The interior of the Earth, 2 nd Edition, Edward Arnold, London, 1982			