Name of Programme: M. Sc. Applied Geology
Course Code: GEO-514
Title of the Course: Principles and Stratigraphy and Indian Geology
No of Credits: 03
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:	To understand the stratigraphic principles by which standards in stratigraphy are developed. To understand deposition and emplacement of different stratigraphic units in India and its evolution through time.	
Content:	**Module 1:** Introduction: Stratigraphic principles and their applications. Evolution of Stratigraphic column. Stratigraphic (Lithostratigrapic, Chronostratigraphic and Biostratigraphic) nomenclature and their inter-relationships. Palaeomagnetism and time correlation. Concepts of Magnetostratigraphy, Seismic stratigraphy, Chemostratigraphy and Event stratigraphy. **Module 2:** Stratigraphy of India: Cratons and mobile belts, Archaean-Proterozoic boundary. Important Proterozoic basins of India. Precambrian/Cambrian boundary, Palaeozoic rocks in Himalayas. Mesozoic of Peninsular and extra peninsular India. K-T boundary. Paleocene Eocene Thermal Maxima (PETM), Cenozoic successions, Quaternary and Holocene stratigraphy. **Module 3:** Important Stratigraphic Units of India: Stratigraphy of Gondwana Supergroup with special emphasis on fossils, climate and economic important minerals. Deccan Volcanic Province, its distribution and lithological characteristics. Siwalik: Classification, significant vertebrate fauna and its basin evolution. Geology of Goa.	15 hours 15 hours 15 hours
Pedagogy:	Lectures / Assignments / Seminars/ Self-study	
References/ Readings	1. Ramakrishnan, M., and Vaidyanadhan, R. (2010). Geology of India (vol. 1 and 2). *GSI Publications*, *2*(1). 2. Naqvi, S. M., and Rogers, J. J. W. (1987). *Precambrian geology of India*. Oxford University Press, USA. 3. Krumbein, W. C. (2013). *Stratigraphy and sedimentation*. aearpeman company. 4. Prothero, D. R., and Schwab, F. (2004). Sedimentary geology. Macmillan. 5. Boggs, S. (2012). Principles of sedimentology and stratigraphy. 6. Fetter, C. W. (2018). *Applied hydrogeology*. Waveland Press. 7. Salvador, A. (Ed.). (1994). International stratigraphic guide: a guide to stratigraphic classification, terminology, and procedure (No. 30). Geological	

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Course outcomes	1. Students will understand the principles of stratigraphy and techniques in correlation. 2. Learn about different types of cratons, mobile belts and proterozoic basins in India. 3. Understand the Phanerozoic eon, its rock distribution in India and evolution of life. 4. Learn about major geological events and its relation to basin evolution, climatic condition and mass extinction.	