DEPARTMENT OF GEOLOGY
BSc (H) Geology

Category I

Geology Courses offered for UG Programme of study with Geology as single core discipline

(B.Sc. Honours in Geology in three years)

DISCIPLINE SPECIFIC CORE COURSE -7 (DSC-7) – : Palaeontology

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Palaeontology (DSC-7)	4	3	0	1	Class 12th with Science	Studied Stratigraphy, Sedimentology, and Earth System Science (or equivalent)

Learning Objectives

To learn about the life forms of the geological past. To understand the diversity and evolution of past life. To know the evolutionary transitions and functional adaptations in different groups of animals and plants.

Learning outcomes

On successful completion of the course, the student will be able to: Appreciate how fossils get preserved in rocks, the nature of fossil record and how fossils are named in a taxonomic framework. Get to know different invertebrate fossil groups, their palaeobiology, and how they can be used in relative dating of rocks. Learn how vertebrates originated and their evolution through time. Understand important floral changes over time and the flora of the Indian coal-bearing sedimentary basins. Analyse the indirect evidences preserved in the rocks for the past existence of life. Critically analyse the role of fossils in relative dating of rocks, in interpreting past environments, past distribution of land and sea, and changes in ecosystems over time.

SYLLABUS OF DSC-7

UNIT – I (9 hours)

Detailed content

Fossilization processes and modes of preservation; nature and importance of fossil record

UNIT – II (9 hours)

Detailed contents

Brief introduction to important invertebrate groups (Bivalvia, Gastropoda, Brachiopoda, Graptolites, Trilobites) and their biostratigraphic significance. Significance of ammonites in Mesozoic biostratigraphy and their palaeobiogeographic implications. Functional adaptation in trilobites and ammonoids.

UNIT – III (9 hours)

Detailed contents

Vertebrates: Origin of vertebrates and major steps in vertebrate evolution; Vertebrate evolution in the Palaeozoic Era; Mesozoic reptiles with special reference to origin diversity and extinction of dinosaurs

UNIT – IV (9 hours))

Detailed contents

Introduction to Palaeobotany; fossil record of plants through time; Gondwana Flora.

UNIT – V (9 hours)

Detailed contents

Introduction to Ichnology; Application of fossils in Stratigraphy, Fossils and paleobiogeography; Fossils as a window to the evolution of ecosystems.

Practical Component- (30 Hours)

Study of fossils showing various modes of preservation. Study of diagnostic morphological characters, systematic position, stratigraphic position and age of various invertebrate, vertebrate and plant fossils.

Essential/recommended readings

Raup, D. M. & Stanley, S.M. (1985). Principles of Paleontology, W.H.Freeman & Company
Clarkson, E. N.K. (2012) Invertebrate Paleontology and evolution 4th Edition by Blackwell

Suggestive readings

Raup, D. M. & Stanley, S.M. (1985). Principles of Paleontology, W.H.Freeman & Company
Clarkson, E. N.K. (2012) Invertebrate Paleontology and evolution 4th Edition by Blackwell.
Foote, M. & Miller, A. I. (2006). Principles of Paleontology, third edition.
Benton, M. (2014). Vertebrate Palaeontology, fourth edition.
Jones, R.W. (2011). Applications of Palaeontology - Techniques and Case Studies
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Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.