

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		
(DSC-7) Palaeontology (L3, P1)	4	3	0	1	12th Pass with science	Studied Stratigraphy, Sedimentology, and Earth System Science and Equivalent

Learning Objectives

The principal objective of the course is to impart knowledge on the life forms of the geological past, their diversity dynamics and evolution. It is also aimed at acquainting the student with evolutionary transitions and functional adaptations in different groups of animals and plants, and relevance of fossils in dating of rocks and reconstructing past ecosystems.

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. The student will gain knowledge on different invertebrate, vertebrate, and plant fossil groups, their palaeobiology, and the methodology used in relative dating of rocks and reconstruction of past climates, environments, and geography.

SYLLABUS OF DSC-7

Credit-4

Theory (45 hours),

Practical (30 hours)

UNIT – I

(9 hours)

Detailed content

Introduction of palaeontology:

Fossils - Taphonomic processes and modes of preservation; nature and importance of fossil record.

Taxonomic hierarchy; Speciation, species concept in palaeontology; Evolution and the fossil record; Modes of Evolution.

UNIT – II

(9 hours)

Detailed contents

Invertebrate Palaeontology: 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

Vertebrate Palaeontology: 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

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

UNIT – V

(9 hours)

Detailed contents

Ichnology: 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

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.