GEL 404: Palaeontology (Principles, Vertebrates & Plants) and Micropalaeontology:

Unit	Course details	Credits
Unit –1	 Species concept. Collection and dressing of fossils. Rules of nomenclature. Bathymetric distribution of animals. Geographic distribution, migration and dispersal. Palaeobiogeographical provinces. Palaeogeography and organic evolution. Invertebrates - Evolutionary trends, stratigraphic and ecological significance of brachiopoda, bivalvia, echinoderms, anthozoa, graptolitoidea, trilobita and cephalopoda. 	1
Unit –2	Vertebrates - Nature of vertebrate fossil records. Methods of collection and preparation of vertebrate fossil remains. Origin of vertebrates. General account of the Gondwana vertebrates and Siwalik mammals and the causes of their extinction. Dinosaurs and their extinction. Evolutionary trends in Proboscidae and Homonidae. Evolution of man. Study of important genera of vertebrates with reference to their distribution in the Indian subcontinent.	1
Unit - 3	 Palaeobotany – Origin and distribution of plant life. Dispersion and migration of plants. Floral provinces. A brief morphological and taxonomic study of different plant fossils. Classification of fossil plants. Plant fossils and major divisions of the geological times. Extended Syllabus: Study of important world flora with special reference to Pre-Gondwana, Gondwana, Intertrappean and Tertiary flora of India. Evolution of flowering plants. Applications of Palaeobotany with reference to stratigraphic correlation and palaeoclimates. Dendrochronology. 	1
Unit - 4	 Micropalaeontology - Introduction. Methods and technique of Micropalaeontology. Synoptic classification of microfossils. Study of important groups of microfossils viz. foraminifera, conodonts, ostracods, radiolaria. Stratigraphical and environmental significance of microfossils. Role of Micropalaeontology in hydrocarbon exploration. Introduction to the study of microfossil algae and plant microfossils (spores and pollens). Ichnology, classification of trace fossils and their significance. 	1

Reference Books:

- (1) Shrock and Twenhofel: Priciples of Invertebrate Palaeontology. CBS.
- (2) Sen A.K. 1987: Text book of Palaeontology. Modern Book Agency, Calcutta.
- (3) Babin, C. 1980: Elements of Palaeontology, John Wiley.
- (4) Carrol R.L. 1988: Vertebrate Palaeontology and Evolution. Cambridge Uni. Press.
- (5) Clerkson E.N.K. 1998: Invertebrate Palaeontology and Evolution. Allen and Unwin, London.
- (6) Haq, B.U. and Anne Boersma 1978: Introduction to Marine Micropalaeontology. Elsevier, NY.
- (7) Stearn, C.W. and Carroll, R.L. 1989: Palaeontology- the record of life, John Wiley.
- (8) Prothero, D.R. 1998: Bringing Fossils to Life An Introduction to Palaeobiology. Mcgraw Hill.
- (9) Raup, D.M. and Stanley, S.M. 1971: Principles of Paleontology, W.H. Freeman & Co.
- (10) Haynes, J.R. 1981: Foraminifera, John Wiley.
- (11) Woods, H. 1966: Palaeontology Invertebrate, International Book Bureau.
- (12) Murray, J.W. 1985: Atlas of Invertebrate Macrofossils, Longman.
- (13) Bromley, R.G. 1990: Trace Fossils (Biology and Taphonomy).
- (14) Hanzchel 1975: Trace Fossils Part W.
- (15) Bignot, G. 1985: Elements of Micropalaeontology. Graham and Trotman.

SEMINAR:

Course including GEL 401, 402, 403 and 404.

Presentation on a given topic and assignment submission.