DEPARTMENT OF GEOLOGY
UNIVERSITY OF DELHI
DELHI-110007

M.Phil in Geology

Courses of Teaching and Scheme of Examination

The Department of Geology offers a full time one year M.Phil course in Geology. The minimum qualification for admission to the programme in M.Sc degree in Geology will be at least 55% marks in the aggregate or an equivalent qualification recognized by the Academic council of the University of Delhi. This is a two part instruction programme: part I consists of three courses or which two are compulsory and the third is an elective related to the topic of dissertation of the candidate, The part of examination will be held after 6 months of the date of Admission.

In part II, the student shall prepare a dissertation on a subject approved by the M.Phil committee. The dissertation may include the result of original research of a fresh interpretation of existing facts and data are a review work of critical nature or may take such other problem as may be determined by the Advisory Committee. Finally, the student will appear in a viva-voce examination based on the dissertation.

Scheme of Examination

Part I			Examination	Internal Assessment
Course	**I:**	Developments in Geology	50	50
Course	**II:**	Analysis of Geological Materials and Quantitative Methods	50	50
Course	**III:**	Course work related to Dissertation	50	50
		Total		**300 marks**

Part II:	Dissertation consisting of two parts		
A	Dissertation		250 marks
B	Viva-Voce		50 marks
			300 marks

Grand Total 600 marks

Details of Syllabus

Part I :

Courses : <u>Development in Geology</u>

Applications of remote sensing in Geology Ocean current circulation patterns, chemistry and geochemistry of ocean systems. Global climatic changes and quaternary palaeoclimate. Neotectonics and seismicity in India.

Motion of rigid crustal plates with special reference to . Dectenism and sedimentation. Meogonism of sedimentary basin formation. Sedimentary basins of India, origin and evolution of life. Stratigraphic boundary problems with special reference to India.

Experimental petrology and its approach to be evolution of the earth planets. Interior of the earth. Phase equilibria of important rock-forming systems. Ore mineralization in space, time and tectonic settings.

Major geotechnical projects in India, Evaluation of reoresources.

COURSES II : <u>Analysis of Geological Materials and quantitative Methods in Geology</u>

Advance petrological and spectochemical techniques for example Inductively coupled plasma & X-ray fluorescence, X-ray and electron diffraction and electron probe microanalysis , scanning and transmission electron microscopy.

Multivariate Analysis: Multivariate date in Geological studies, principal component analysis. Factor analysis, Discriminant function Analysis, cluster Analysis, Hotelling m^2 statistics.

Numerical Analysis: Definition, solution of non linear and linear equations.

Programming language, program development process , Development goals, system design, language selection, implementation, program design, debugging. Concepts of Data Base Management Systems.

Demonstration of software package with processing of geological data, such as

(i) Statistical analysis of orientation data
(ii) Numerical solution of non-linear equations
(iii) Data base management of geological data using ASE package.

COURSE III: COURSE RELATED TO TOPIC OF DISSERTATION

(Students will be expected to submit written assignments as per the guidance of the concerned supervisor(s). This course will aim to give the students comprehensive knowledge of the literature in the subject.

Dissertation work:

Dissertation on a problem to be allotted to each candidate separately involving a study including the survey of existing literature. Field work and / or studies in the laboratory depending upon the nature of the signments.

A. DISSERTATION
B. Viva-voce examination based on the dissertation.