

Revised

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**Syllabus for the**

**M.Sc.**  
**in**  
**Geology**

**(Four Semester Course)**

**Department of Geology**  
**Centre of Advanced Studies**  
**University of Delhi**  
**Delhi- 110 007**

## **Syllabus for the**

# **M.Sc. in Geology**

Candidates who have passed the three year B.Sc. (Hons.) examination of the University of Delhi or any other equivalent examination of other universities with Geology as one of the major subjects will be considered eligible for admission to the Four Semester M.Sc. Course in Applied Geology.

The M.Sc. course in applied Geology shall be imparted to the students for two academic sessions consisting of four semesters as given below. Candidates will be examined and evaluated at the end of each semester in the different courses of theory and internal assessment including practical as per the marks given against each course. The M.Sc. Applied Geology will consist of (a) Core Courses (b) Elective Courses and (c) Interdisciplinary courses from other departments.

- (a) The Core courses will be compulsory for all the students admitted to M.Sc. Applied Geology. There will be fourteen core courses and four practicals covering major branches of Geology and two sessions of two to three weeks of Geological Field training and Viva-voce examination. Each Core Course shall be of 100 marks (70 Theory plus 30 internal assessment). Internal assessment will be done on the basis of Seminar/Class Test/Assignments. The attendance in the Geological Field Training will be compulsory for all the students. After the field training, the students will be required to submit a detailed field report to the concerned teacher for evaluation. The field training and Viva-Voce examination will be conducted by at least two internal examiners during first and third semesters. For the Geological Field Training, 35 marks shall be assigned to evaluation of the report and field work while 15 marks shall be assigned to Viva-voce examination. The semester breaks can also be utilized for the geological field training.
- (b) The Elective Courses shall be consisting of one Elective Paper and Project Oriented Dissertation in a specialized field of Geology. The area of Dissertation shall be assigned to the students in the beginning of 3<sup>rd</sup> Semester based on the overall merit of the students during previous two Semesters and expertise available in the Department. The students will be required to submit the Project Oriented Dissertation by the end of fourth Semester followed by an open seminar before the faculty members and the board of examiners for the purpose of evaluation. The marks for the Viva-Voce will be given by the Board of examiners appointed by the Head of the Department each year. The board of examiners will include the supervisor of the Dissertation besides two other members from the department. During the course of completion of the Dissertation work the students will be required to complete various assignments given to them by their respective supervisors for the purpose of their evaluation. The Dissertation shall be of 200 marks out of which 150 marks will be based on evaluation of the Dissertation Work (Thesis) and 50 for the Seminar presentation followed by

Viva-Voce examination. The Dissertation thesis will be evaluated by the respective Supervisors only.

- (c) All courses will include 4 Theory periods, and will be equivalent to 4 credits.
- (d) 'Practicals' in each semester will include practical exercises related to all theory papers in the same semester (excluding the interdisciplinary course). This will be of 100 marks and will be equivalent to 4 credits.
- (e) The field training in Semester I & III will be equivalent to 2 credit points. Dissertation work will be equivalent to 8 credit points.
- (f) All the students will have to take two courses of interdisciplinary nature from other departments, one each during 2<sup>nd</sup> and 4<sup>th</sup> Semester. These courses should be equivalent to at least 4 credit points.
- (g) The students from other departments can select interdisciplinary courses from Applied Geology syllabus. The following courses will be open for students from other departments –

GLG 101	Earth Surface Processes (4 credits)
GLG 204	Hydrogeology (4 credits)
GLG 401	Remote Sensing and GIS (4 credits)
GLG 404 (i)	Paleoceanography and Paleoclimatology (4 credits)
GLG 404 (v)	Applied Hydrogeology (4 credits)
GLG 404 (vii)	Environmental Geology (4 credits)
GLG 404 (ix)	Natural Hazards and Disaster Management (4 credits)

## Summary of Course Structure (M.Sc. in Geology)

<b>Number of Papers</b>	:	15 (14 Compulsory + 4 Practicals + 01 Elective + 02 interdisciplinary)
<b>Field-work</b>	:	02 (Two to three weeks at the end of 1 <sup>st</sup> and 3 <sup>rd</sup> Semester)
<b>Summer Training</b>	:	01 (Minimum 04 weeks, during summer break between 2 <sup>nd</sup> and 3 <sup>rd</sup> Semester)
<b>Project Oriented Dissertation</b>	:	4 <sup>th</sup> Semester
<b>Total Marks</b>	:	2400
<b>Total Credits</b>	:	96

### Time-schedule of Four Semester M.Sc. Geology Course:

<b><u>1<sup>st</sup> Semester</u></b>
Paper 101-104+Field-work (105)
<b>Teaching</b> 16 <sup>th</sup> July to 31 <sup>st</sup> October
<b>Field Work</b> 1 <sup>st</sup> November to 21 <sup>st</sup> November
<b>Examination</b> 8 <sup>th</sup> December – 21 <sup>st</sup> December

<b><u>3<sup>rd</sup> Semester</u></b>
Paper 301-304+Field-work (305)
<b>Teaching</b> 16 <sup>th</sup> July to 31 <sup>st</sup> October
<b>Field Work</b> 1 <sup>st</sup> November to 21 <sup>st</sup> November
<b>Examination</b> 8 <sup>th</sup> December – 21 <sup>st</sup> December

<b><u>Summer Training</u></b> In the Summer Break between 2 <sup>nd</sup> and 3 <sup>rd</sup> Semester
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<b><u>2<sup>nd</sup> Semester</u></b>
Paper 201-205
<b>Teaching</b> 8 <sup>th</sup> January to 7 <sup>th</sup> April
<b>Examination</b> 21 <sup>st</sup> to 30 <sup>th</sup> April

<b><u>4<sup>th</sup> Semester</u></b>
Paper 14 (401), 15 (Elective, 402) and Dissertation (403)
<b>Teaching</b> 8 <sup>th</sup> January to 7 <sup>th</sup> April
<b>Examination + Dissertation</b> 21 <sup>st</sup> April to 30 <sup>th</sup> April

**Semester 1:**

COURSE NO.	COURSE	Scheme of Examinations	
		Examination	Internal assessment
GLG 101 *	Earth Surface Processes (4 credits)*	70	30
GLG 102	Structural Geology and Tectonics (4 credits)	70	30
GLG 103	Igneous Petrology (4 credits)	70	30
GLG 104	Sedimentary Geology (4 credits)	70	30
GLG 105	Field Work consisting of Geological Mapping and Structural Analysis (2 credits)	15 (viva-voce)	35 (field work + report)
GLG 106	Practicals (4 credits)	80	20
<b>Total</b>	<b>Credits - 22</b>	<b>Marks - 550</b>	

**Semester 2:**

COURSE NO.	COURSE	Scheme of Examinations	
		Examination	Internal assessment
GLG 201	Metamorphic Petrology (4 credits)	70	30
GLG 202	Stratigraphy (4 credits)	70	30
GLG 203	Micropaleontology and Oceanography (4 credits)	70	30
GLG 204 *	Hydrogeology (4 credits)*	70	30
GLG 205	Interdisciplinary course from other department (4 credits)	70	30
GLG 206	Practicals (4 credits)	80	20
<b>Total</b>	<b>Credits - 24</b>	<b>Marks - 600</b>	

-----**Summer Training**-----

**Semester 3:**

COURSE NO.	COURSE	Scheme of Examinations	
		Examination	Internal assessment
GLG 301	Ore Geology and Mineral Economics (4 credits)	70	30
GLG 302	Oil and Coal Geology (4 credits)	70	30
GLG 303	Geo-Exploration (4 credits)	70	30
GLG 304	Engineering Geology (4 credits)	70	30
GLG 305	Practicals (4 credits)	80	20
GLG 306	Geological Field Training (2 credits)	15 (viva-voce)	35 (field work + report)
<b>Total</b>	<b>Credits - 22</b>	<b>Marks - 550</b>	

**Semester 4:**

COURSE NO.	COURSE	Scheme of Examinations	
		Examination	Internal assessment
GLG 401*	Remote Sensing and GIS (4 credits)*	70	30
GLG 402	Geophysics (4 credits)	70	30
GLG 403	Interdisciplinary course from other department (4 credits)	70	30
GLG 404	Elective Courses (4 credits)	70	30
	(i)* Paleooceanography and Paleoclimatology*		
	(ii) Geochemistry and Isotope Geology		
	(iii) Advanced Mineralogy		
	(iv) Earthquake Geology and Seismotectonics		
	(v)* Applied Hydrogeology*		
	(vi) Active Tectonics and Geomorphology		
	(vii)* Environmental Geology*		
	(viii) Sedimentary Environments		
	(ix)* Natural Hazards and Disaster Management*		
(x) Rock Mechanics and Rock Engineering			
GLG 405	Practicals (4 credits)	80	20
GLG 406	Dissertation (8 credits)	150 (Thesis)	50 (Seminar + viva)
<b>Total</b>	<b>Credits - 28</b>	<b>Marks - 700</b>	

\* Interdisciplinary courses open for students from other departments

**Scheme of Examinations**

- English shall be the medium of instruction and examination.
- Examinations shall be conducted at the end of each semester as per the Academic Calendar notified by the University of Delhi.
- 'Practicals' in each semester will include practical exercises related to all theory papers in the same semester (excluding the interdisciplinary course).
- Each course will carry 100 marks and will have two components:

**Theory Papers**

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|------|---|-----------------|
| (i)  | <b>Internal Assessment</b><br>(Attendance/Seminar/quiz/test etc.) | <b>30 marks</b> |
| (ii) | <b>End-Semester Examination</b>                                   | <b>70 marks</b> |

**Practicals**

- |       |   |                 |
|-------|---|-----------------|
| (iii) | <b>Internal Assessment</b><br>(Attendance/ Lab Records) | <b>20 marks</b> |
| (iv)  | <b>End-Semester Examination</b>                         | <b>80 marks</b> |
|       | i. Examination  | 60 marks        |
|       | ii. Viva-voce   | 20 marks        |