

DEPARTMENT OF APPLIED GEOLOGY
INDIAN SCHOOL OF MINES, DHANBAD



SYLLABUS

FOR

M. TECH.

IN

MINERAL EXPLORATION, ENGINEERING GEOLOGY AND
PETROLEUM EXPLORATION

Effective from 2008-2009

**COURSE STRUCTURE FOR M. TECH. MINERAL EXPLORATION
EFFECTIVE FROM 2008-09**

I - SEMESTER

Sl. No.	Course No.	Name of the Course	L T P	Credit
1	GLC 51111	Exploration Techniques & Environmental Planning for Mining	2 0 0	8
2.	GLC 51112	Tectonics and Structural Methods for Exploration	3 0 0	6
3	GLC 51113	Resource Evaluation and Geostatistics	3 0 0	6
4	MEC13101	Drilling and Blasting*	3 1 0	7
5	GLC51114	Coal and CBM Exploration	3 0 0	6
6	GLC 51211	Exploration Techniques & Environmental Planning for Mining	0 0 3	3
7	GLC51212	Tectonics and Structural Methods for Exploration	0 0 3	3
8	GLC 51213	Resource Evaluation and Geostatistics	0 0 3	3
9	GLC51114	Coal and CBM Exploration	0 0 3	3
TOTAL =			16 1 2	45

* Course is to be provided by the Department of Mining Engineering

II – SEMESTER

Sl. No.	Course No.	Name of the Course	L T P	Credit
1	GLC52111	Exploration Geochemistry	3 0 0	6
2	GPC52151	Engineering Geophysics	3 0 0	6
3	GLC52113	Advanced Geostatistics & GIS in Mineral Exploration	3 0 0	6
4	MSC15152	Industrial Engineering and Management**	3 0 0	6
5		ELECTIVE (Any One)	4 0 0	8
	GLE52214	(a) Petroleum and Gas Hydrate Exploration		
	GLE52115	(b) Marine Mineral Resources and Exploration		
	GLE52116	(c) Nanotechnology in Mineral and Hydrocarbon Exploration		
	GLE52117	d) Groundwater Exploration		
	GLE52118	e) IT Applications in Mineral Exploration		
6	GLC52211	Exploration Geochemistry	0 0 3	3
7	GPE52251	Engineering Geophysics	0 0 3	3
8	GLC52213	Advanced Geostatistics & GIS in Mineral Exploration	0 0 3	3
9	GLC52556	Composite Viva Voce	0 0 0	2
TOTAL =			16 0 9	43

** Course is to be provided by the Department of Management Studies

III – SEMESTER

Sl. No.	Course No.	Name of the course	L T P	Credit
1.	GLC53601	Industrial Training / Minor Project	0 0 0	4
2.	GLC53402	Seminar / viva-voce on Industrial Training / Minor Project	0 0 0	2
3.	GLC53503	Composite Viva-voce	0 0 0	4
4.	GLC53804	Interim Dissertation (Field Work / Lab Work)	0 0 0	15
5.	GLC53405	Seminar and Viva-voce on Dissertation	0 0 0	10
6.	GLC53006	Evaluation of teaching assignment / Lab. Development work	0 0 0	5
TOTAL =			0 0 0	40

IV SEMESTER

Sl. No.	Course No.	Name of the course	L T P	Credit
1.	GLC54801	Dissertation	0 0 0	20
2.	GLC54402	Seminar on Dissertation	0 0 0	5
3.	GLC54503	Viva-Voce on Dissertation	0 0 0	10
4.	GLC54004	Evaluation of teaching assignment / Lab development work	0 0 0	5
TOTAL =			0 0 0	40

**COURSE STRUCTURE FOR M. TECH. ENGINEERING GEOLOGY
EFFECT FROM 2008-2009**

I – SEMESTER

Sl. No.	Subject Code	Subject	L-T-P	Credit Hours
1	GLC51101	Geotechnical Behaviour of Earth Materials	3-0-0	6
2	GLC51102	Soil Engineering	3-0-0	6
3	GLC51103	Structural Methods for Site Engineering	3-0-0	6
4	MEC51151	Applied Rock Mechanics	3-0-0	6
5	MEC13101	Drilling and Blasting	3-1-0	7
6	GLC51201	Geotechnical Behaviour of Earth Materials Practical	0-0-3	3
7	GLC51202	Soil Engineering Practical	0-0-3	3
8	GLC51203	Structural Methods for Site Engineering Practical	0-0-3	3
9	MEC51251	Applied Rock Mechanics Practical	0-0-3	3
		Total	15-1-12	43

II – SEMESTER

Sl. No.	Subject Code	Subject	L-T-P	Credit Hours
1.	GLC52104	Geotechniques of Dams and Tunnels	3-0-0	6
2.	GLC52105	Rock Slope Engineering	3-0-0	6
3.	GPC52151	Engineering Geophysics	3-0-0	6
4.	GLC52106	Project Feasibility Studies and Environmental Technology	4-0-0	8
5.		Elective (Any One)	4-0-0	8
	GLE52107	Contaminant Hydrogeology		
	GLE52108	Remote Sensing and GIS		
	GLE52109	Geohazard Analysis		
6.	GLC52204	Geotechniques of Dams and Tunnels Practical	0-0-3	3
7.	GPC52251	Engineering Geophysics Practical	0-0-3	3
8.	GLC52508	Composite Viva-voce	0-0-0	2
		TOTAL	17-0-6	42

III – SEMESTER

Sl.No.	Course No.	Name of the course	L T P	Credit Hours
1.	GLC53601	Industrial Training / Minor Project	0 0 0	4
2.	GLC53402	Seminar / viva-voce on Industrial Training / Minor Project	0 0 0	2
3.	GLC53503	Composite Viva-voce	0 0 0	4
4.	GLC53804	Interim Dissertation (Field Work / Lab Work)	0 0 0	15
5.	GLC53405	Seminar and Viva-voce on Dissertation	0 0 0	10
6.	GLC53006	Evaluation of teaching assignment / Lab. Development work	0 0 0	5
		TOTAL	0 0 0	40

IV SEMESTER

Sl.No.	Course No.	Name of the course	L T P	Credit Hours
1.	GLC54801	Dissertation	0 0 0	20
2.	GLC54402	Seminar on Dissertation	0 0 0	5
3.	GLC54503	Viva-Voce on Dissertation	0 0 0	10
4.	GLC54004	Evaluation of teaching assignment / Lab development work	0 0 0	5
		TOTAL	0 0 0	40

COURSE STRUCTURE FOR M. TECH. PETROLEUM EXPLORATION

EFFECT FROM 2008-2009

SEMESTER-I

Sl. No.	Course No.	Subject	L T P	Credit Points
1	GLC-51121	Petroleum Geology and Geochemistry	4 0 0	8
2	GLC 51122	Tectonics and structural methods for exploration	3 0 0	6
3	GPC 51101	Petroleum exploration Geophysics	3 0 0	6
4	GPC 51102	Well Logging and Electrofacies	3 0 0	6
5	PER 51101	Petroleum drilling and Production Engineering	3 0 0	6
Practicals:				
6	GLC-51221	Petroleum Geology	0 0 3	3
7	GLC 51222	Subsurface structure and Tectonics	0 0 3	3
8	GPC 51201	Petroleum exploration Geophysics	0 0 3	3
9	GPC 51202	Well Logging and Electrofacies	0 0 3	3
TOTAL:			16 0 12	44

SEMESTER-II

Sl. No	Course No.	Subject	L T P	Credit Points
1.	GLC 52123	Sedimentary environment and basin analysis A. Sedimentary Environment B. Sequence stratigraphy and Basin analysis	2 0 0 2 0 0	8
2.	GLC 52124	A. Micropaleontology in hydrocarbon exploration B. Coal bed methane and Gas Hydrate Exploration	2 0 0 2 0 0	8
3.	GPC-52103	Reflection seismology	4 0 0	8
4.	EIR 14101	Microprocessors and applications	3 0 0	6
5.	GLE 52125/ GPE 52104	Elective 1 GLE 52125: Geostatistics and Instrumental techniques in hydrocarbon exploration 2. GPE 52104: Reservoir geophysics and deep water imaging	3 0 0	6
Practicals:				
6.	GLC 52223	Sedimentary Environment and Basin analysis	0 0 3	3
7.	GLC 52224	Micropaleontology	0 0 3	3
8.	GPC 52203	Reflection seismology	0 0 3	3
TOTAL:			18 0 9	45

SEMESTER-III

Sl. No.	Course No.	Subject	L T P	Credit Points
1	GLC-53001	Industrial training / Minor Project	0 0 0 (4)	4
2	GLC-53002	Seminar and Viva-Voce on Industrial Training	0 0 0 (2)	2
3	GLC-53501	Comprehensive Viva-Voce	0 0 0 (4)	4
4	GLC-53801	Dissertation (Interim) Fieldwork/Lab work	0 0 0 (15)	15
5	GLC-53802	Seminar and Viva-voce on Interim Dissertation	0 0 0 (10)	10
6	GLC-53003	Teaching Assignment Evaluation/ Laboratory Development Work etc.	0 0 0 (5)	5
TOTAL:			0 0 0 (40)	40

SEMESTER-IV

Sl. No.	Course No.	Subject	L T P	Credit Points
1	GLC-54801	Dissertation	0 0 0 (20)	20
2	GLC-54802	Seminar on Dissertation	0 0 0 (5)	5
3	GLC-54803	Viva-Voce on dissertation	0 0 0 (10)	10
4	GLC-54804	Teaching Assignment Evaluation/ Laboratory Development Work etc.	0 0 0 (5)	5
TOTAL:			0 0 0 (40)	40