

**Department of Earth Sciences**

**INTEGRATED M.TECH (GEOLOGICAL TECHNOLOGY)**

**First Year (Autumn Semester)**

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	MAN-001	Mathematics-I	BSC	4	3	1	0	3	0	25	-	25	50	-
2	PHN-001	Mechanics	BSC	4	3	0	2	3	2	15	25	20	40	-
3	CEN-105	Introduction to Environmental Studies	GSC	3	3	0	0	3	0	25	-	25	50	-
4	HSN-001A	Communication Skills (Basic)	HSSC	2	1	0	2	2	0	25	-	25	50	-
	HSN-001B	Communication Skills (Advance)	HSSC	2	1	-	2	2	-	25	-	25	50	-
5	HSN-002	Ethics and Self Awareness	HSSC	2	1	1	0	2	0	25	-	25	50	-
6	ESN-101	Introduction to Earth Sciences	PCC	2	2	0	0	2	0	-	-	-	100	-
7	ESN-103	Computer Programming	ESC	4	3	0	2	3	0	15	25	20	40	-

**First Year (Spring Semester)**

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	CYN-008	General Chemistry-III	BSC	4	3	0	2	3	0	15	25	20	40	-
2	MAN-004	Numerical Methods	BSC	4	3	1	0	3	0	25	-	25	50	-
3	ESN-102	Physical Geology	PCC	4	3	1	0	3	0	25	-	25	50	-
4	ESN-104	Crystallography and Mineralogy	PCC	4	3	0	2	3	2	15	25	20	40	-
5	MIN-106	Engineering Thermodynamics	ESC	4	3	1	2/2	3	0	20	20	20	40	-

**Second Year (Autumn Semester)**

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	MTN-106	Material Science	ESC	4	3	1	0	3	0	25	-	25	50	-
2	ESN-201	Basic Petrology	PCC	4	3	0	2	3	0	15	25	20	40	-
3	ESN-203	Paleontology	PCC	4	3	0	2	3	0	15	25	20	40	-
4	ESN-205	Structural Geology-I	PCC	4	3	0	2	3	0	15	25	20	40	-
5	HSN-ELE	HSS Elective Course	HSSMEC	3	3	0	0	3	0	25	-	25	50	-

**Second Year (Spring Semester)**

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	HYN-102	Engineering Hydrology	ESC	4	3	1	0	3	0	25	-	25	50	-
2	ESN-202	Sedimentology	PCC	4	3	0	2	3	0	15	25	20	40	-
3	ESN-204	Stratigraphy	PCC	4	3	0	2	3	0	15	25	20	40	-
4	ESN-206	Igneous Petrology	PCC	4	3	0	2	3	0	15	25	20	40	-
5	ESN-208	Field Training-I	PCC	4	-	-	-	-	-	-	-	-	100	-
6	HSN-ELE	HSS Elective Course	HSSMEC	3	3	0	0	3	0	25	-	25	50	-

**Third Year (Autumn Semester)**

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	ESN-301	Structural Geology-II	PCC	4	3	0	2	3	0	15	25	20	40	-
2	ESN-303	Metamorphic Petrology	PCC	4	3	0	2	3	0	15	25	20	40	-
3	ESN-305	Economic Geology	PCC	4	3	0	2	3	0	15	25	20	40	-
4	ESN-ELE1	Departmental Elective Course-I	PEC	4	3	1	0	3	0	25	-	25	50	-
5	OEC	Open Elective Course	OEC	3	3	0	0	3	-	25	-	25	50	-
6	ESN-391	Technical Communication (Advanced)	PCC	2	0	0	4	-	2	-	50	-	-	50

**Third Year (Spring Semester)**

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	ESN-302	Mineral Exploration	PCC	4	3	0	2	3	0	15	25	20	40	-
2	ESN-304	Ore Geology	PCC	4	3	0	2	3	0	15	25	20	40	-
3	ESN-306	Geomorphology	PCC	3	2	1	0	2	0	25	-	25	50	-
4	ESN-308	Field Training-II	PCC	4	0	0	0	-	-	-	-	-	100	-
5	ESN-ELE2	Departmental Elective Course-II	PEC	4	3	1	0	3	0	25	-	25	50	-

#### Fourth Year (Autumn Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	ESN-401	Principles of Remote Sensing	PCC	3	2	1	0	2	0	25	-	25	50	-
2	ESN-403	Principles of Geographic Information Systems	PCC	3	2	1	0	2	0	25	-	25	50	-
3	ESN-405	Hydrogeology	PCC	3	2	1	0	2	0	25	-	25	50	-
4	ESN-407	Engineering Geology	PCC	3	2	1	0	2	0	25	-	25	50	-
5	ESN-409	Petroleum Geology	PCC	3	2	1	0	2	0	25	-	25	50	-
6	ESN-499	Seminar-I	PCC	2	0	0	0	-	-	-	-	-	100	-

#### Fourth Year (Spring Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	ESN-402	Geophysical Prospecting	PCC	4	3	0	2	3	0	15	25	20	40	-
2	ESN-404	Well Logging	PCC	4	3	1	0	3	0	25	-	25	50	-
3	ESN-406	Plate Tectonics	PCC	3	2	1	0	2	0	25	-	25	50	-
4	ESN-ELE3	Departmental Elective Course-III	PEC	4	3	1	0	3	0	25	-	25	50	-
5	ESN-ELE4	Departmental Elective Course-IV	PEC	4	3	1	0	3	0	25	-	25	50	-

#### Fifth Year (Autumn Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	ESN-509	Comprehensive Viva Voce	PCC	2	0	0	0	-	-	-	-	-	100	-
2	ESN-ELE5	Department Elective Course-V	PEC	4	3	1	0	3	0	25	-	25	50	-
3	ESN-ELE6	Department Elective Course-VI	PEC	4	3	1	0	3	0	25	-	25	50	-
4	ESN-599	Seminar-II	PCC	2	0	0	0	-	-	-	-	-	100	-

#### Fifth Year (Spring Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	ESN-500	Dissertation	PCC	18	0	0	0	-	-	-	-	-	100	-

## Department Electives

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
<b>DEPARTMENTAL ELECTIVE COURSE-I (PEC-I)</b>														
1	ESN-341	Himalayan Geology	PEC	4	3	1	0	3	0	25	-	25	50	-
2	ESN-343	Carbonate Sedimentology	PEC	4	3	1	0	3	0	25	-	25	50	-
3	ESN-345	Rock and Soil Mechanics	PEC	4	3	1	0	3	0	25	-	25	50	-
<b>DEPARTMENTAL ELECTIVE COURSE-II (PEC-II)</b>														
4	ESN-342	Advanced Stratigraphy and Facies Modelling	PEC	4	3	1	0	3	0	25	-	25	50	-
5	ESN-344	Basin Analysis	PEC	4	3	1	0	3	0	25	-	25	50	-
6	ESN-346	Applied Geochemistry	PEC	4	3	1	0	3	0	25	-	25	50	-
<b>DEPARTMENTAL ELECTIVE COURSE-III &amp; IV (PEC-III &amp; IV)</b>														
7	ESN-442	Mineral Economics	PEC	4	3	1	0	3	0	25	-	25	50	-
8	ESN-444	Indian Mineral Deposits	PEC	4	3	1	0	3	0	25	-	25	50	-
9	ESN-446	Precambrian Tectonics	PEC	4	3	1	0	3	0	25	-	25	50	-
10	ESN-448	Advanced Remote Sensing	PEC	4	3	1	0	3	0	25	-	25	50	-
11	ESN-450	Advanced Geographic Information Systems	PEC	4	3	1	0	3	0	25	-	25	50	-
12	ESN-452	Advanced Engineering Geology	PEC	4	3	1	0	3	0	25	-	25	50	-
13	ESN-454	Marine Geology	PEC	4	3	1	0	3	0	25	-	25	50	-
<b>DEPARTMENTAL ELECTIVE COURSE-V &amp; VI (PEC-V &amp; VI)</b>														
14	ESN-545	Mineral Technology	PEC	4	3	1	0	3	0	25	-	25	50	-
15	ESN-547	Isotope Geology	PEC	4	3	1	0	3	0	25	-	25	50	-
16	ESN-549	Coal Geology	PEC	4	3	1	0	3	0	25	-	25	50	-
17	ESN-551	Micropaleontology and Paleoceanography	PEC	4	3	1	0	3	0	25	-	25	50	-
18	ESN-553	Global Environment	PEC	4	3	1	0	3	0	25	-	25	50	-
19	ESN-555	Shear Zone Metasomatism	PEC	4	3	1	0	3	0	25	-	25	50	-
20	ESN-557	Theory and application of Mohr Circle	PEC	4	3	1	0	3	0	25	-	25	50	-
21	ESN-559	Advance stress and strain analysis	PEC	4	3	1	0	3	0	25	-	25	50	-
22	ESN-561	Quaternary Geosciences	PEC	4	3	1	0	3	0	25	-	25	50	-
23	ESN-563	Fluid Inclusions: Methods & ApplicationS	PEC	4	3	1	0	3	0	25	-	25	50	-
24	ESN-565	Structural Geology for Petroleum Exploration	PEC	4	3	1	0	3	0	25	-	25	50	-
	ESN-581	Advance Seismic Prospecting	PEC	4	3	1	0	3	0	25	-	25	50	-
	ESN-583	Petrophysics & Seismic Rock Characterization	PEC	4	3	1	0	3	0	25	-	25	50	-

Note: As per DFC resolution of Aug. 19, 2013:

(a) IMT (Geological Technology) students may opt for Departmental Elective Course (PEC) and Departmental Core Course (PCC) for GPT courses as PEC, provided they have already taken pre-requisite courses, if any.

(b) IMT (Geophysical Technology) students may opt for Departmental Elective Course (PEC) and Departmental Core Course (PCC) for GLT courses as PEC, provided they have already taken pre-requisite courses, if any.