

Course Structure for
5 Year Integrated Dual Degree (IDD) Program in
Geoscience and Engineering (B.Tech.) + Geological Technology (M.Tech.)
and
Geoscience and Engineering (B.Tech.) + Geophysical Technology (M.Tech.)



विद्यारत्नम् महस्वनम्

Rajiv Gandhi Institute of Petroleum Technology
Jais, Amethi

Semester-wise Syllabus

First Semester

Course Code	Courses/ Subjects	L	T	P	Cr
PY111	Classical Physics	3	1	0	11
CY121	Inorganic & Physical Chemistry	2	1	0	8
MA111	Real analysis & calculus	3	1	0	11
CH161	Engineering Thermodynamics	3	1	2	13
ME131	Workshop Practices	0	0	3	3
PY111L	Physics lab	0	0	2/2	1
CY111L	Chemistry lab	0	0	2/2	1
	Total Credits				48
LM101	Basic English	1	2	0	7
HU101	Universal Human values	1	1	0	5

Second Semester

Course Code	Courses/ Subjects	L	T	P	Cr
PY121	Modern Physics	2	1	0	8
GE111	Physical Geology	3	0	0	9
MA121	Differential Equations	3	1	0	11
CS161	Computer Programing	3	1	0	11
CH121	Fluid Mechanics	3	1	0	11
GE101	Geoengineering Practices	1	0	2	5
PY121L	Physics lab	0	0	2/2	1
CY121L	Chemistry lab	0	0	2/2	1
ME121	Engineering Graphics	0	0	3	3
	Total Credits				60
HU102	Community Internship	1	1	0	5

Third Semester

Course Code	Courses/ Subjects	L	T	P	Cr
MA211	Linear Algebra & Complex Analysis	2	1	0	8
EC111	Fundamentals of Electronics Engineering	3	1	2	13
GE211	Geochemistry	3	0	0	9
GE212	Crystallography and Mineralogy	3	1	2	13
CS382	Remote Sensing and Aerial Photogrammetry	3	0	0	9
GE221	Solid Earth Geophysics	3	0	0	9
	Total Credits				61
GE201	Industrial visit	0	0	5	5

Fourth Semester

Course Code	Courses/ Subjects	L	T	P	Cr
GE213	Structural Geology	3	0	2	11
MA231	Statistical Methods and Data Analysis	2	1	0	8
PE202	Fundamentals of Mechanical Engineering	3	1	0	11
MA221	Numerical Methods	2	1	0	8
GE222	Seismic Methods	3	0	2	11
PY211	Mathematical Physics	2	1	0	8
	Total Credits				57

Fifth Semester

Course Code	Courses/ Subjects	L	T	P	Cr
PE321	Formation Evaluation	3	0	2	11
GE311	Igneous and Metamorphic Petrology	3	0	2	11
PE221	Petroleum Geology	3	0	2	11
GE321	Geophysical Signal Processing	2	0	2	8
	DE 1	3	0	0	9
	B. Tech Project	0	0	10	10
	Total Credits				60
GE301	Field visit -1	0	0	5	5

Departmental Elective (DE -1)	
GE312	Geo-statistics (GL)
GE322	Advance Seismic Methods (GP)

GL is for Geological Technology stream

GP is for Geophysical Technology stream

Sixth Semester

Course Code	Courses/ Subjects	L	T	P	Cr
GE323	Gravity & Magnetic Methods	2	0	0	6
GE313	Sedimentology	3	0	0	9
GE324	Resistivity & Induced Polarization Methods	3	0	2	11
GE314	Stratigraphy	2	0	0	6
GE315	Atmospheric and Ocean Science	3	0	0	9
	DE 2	3	0	0	9
	B. Tech Project	0	0	10	10
	Total Credits				60

Departmental Elective (DE -2)	
GE316	Mineral Beneficiation (GL)
GE325	Geophysical Inversion (GP)

Seventh Semester

Course Code	Courses/ Subjects	L	T	P	Cr
GE411	Engineering Geology	2	0	2	8
GE412	Paleontology	2	0	0	6
	DE 3	3	0	0	9
	Open Elective 1	3	0	0	9
	Language	3	0	0	9
	Humanities	3	0	0	9
	B. Tech Project	0	0	10	10
	Total Credits				60
GE401	Field visit -2	0	0	5	5

Departmental Elective (DE -3)	
GE413	Coal Geology (GL)
GE421	Electromagnetic Methods (GP)

Eighth Semester

Course Code	Courses/ Subjects	L	T	P	Cr
GE422	Petroleum Geophysics	2	0	2	8
GE414	Economic Geology	3	0	0	9
	DE 4	3	0	0	9
	Open Elective 2	3	0	0	9
	Language	3	0	0	9
GE415	Environmental Geoscience	2	0	0	6
	Thesis	0	0	10	10
	Total Credits				60

Departmental Elective (DE -4)	
GE416	Hydrogeology (GL)
GE423	Magnetotelluric Method (GP)

Nineth Semester

Course Code	Courses/ Subjects	L	T	P	Cr
	DE 5	3	0	0	9
	DE 6	3	0	0	9
	DE 7	3	0	0	9
	Open Elective 3	3	0	0	9
	Open Elective 4	3	0	0	9
	Thesis	0	0	10	10
	Total Credits				55

Departmental Elective (DE -5,6,7)	
GE521	Near Surface Geophysics (GP)
GE522	Rock Physics (GP)
GE523	Advance Formation Evaluation (GP)
PE423	Petroleum Geomechanics (GL/GP)
GE511	Advance Rock Mechanics (GL)
GE512	Natural Hazards and Risk Reduction (GL)
GE513	Sequence Stratigraphy (GL)
PE523	Basin Analysis (GP/GL)
PE524	Reservoir Characterization (GP/GL)
PE533	CBM, Gas Hydrates and Shale Technology (GL/GP)
GE514	Instrumental Methods in Geoscience (GP/GL)
GE524	Non-Destructive Testing and its applications (GP/GL)
CS481	Geographic Information System (GP/GL)

Tenth Semester

Course Code	Courses/ Subjects	L	T	P	Cr
	Thesis	0	0	50	50
	Total Credits				50