Curriculum of the B.Sc. Engineering Honours Degree Programme
Earth Resources Engineering Specialization - Mining and Mineral Engineering Stream
Department of Earth Resources Engineering

Module Code	Module Name	Category	Lec. hrs/week	Lab / Assign/ hrs/weeks	Credits		Norm			Evaluation (%)	
					GPA	NGPA	GPA	NGPA	Total	CA	WE
Semester 1											
CE1022	Fluid Mechanics	C	2.0	3/4	2.0					30	70
CS1032	Programming Fundamentals	C	2.0	3/1	3.0					30	70
EE1012	Electrical Engineering	C	2.0	3/4	2.0					30	70
EL1012	Language Skill Enhancement I	C	-	3/1	1.0					30	70
MA1013	Mathematics	C	3.0	1/1	3.0					30	70
ME1032	Mechanics	C	2.0	3/4	2.0					30	70
MT1022	Properties of Materials	C	2.0	3/4	2.0					30	70
MN1012	Engineering in Context	C	1.0	-	-	1.0	15.0	1.0	16.0	30	70
	Total for Semester 1				**15.0**	**1.0**	**15.0**	**1.0**	**16.0**		
Semester 2											
DE2XXX	Humanities Elective I *	C	2.0	-	2.0						
EL1022	Language Skill Enhancement II	C	-	3/1	1.0					30	70
ER1013	Geology	C	2.0	3/1	3.0					30	70
ER1023	Introduction to Oceanography	C	2.0	-	2.0					30	70
MA1023	Methods of Mathematics	C	3.0	1/1	3.0					30	70
ME1812	Basic Thermal Sciences	C	2.0	-	2.0					30	70
ME1090	Engineering Drawing & Computer Aided Modeling	C	2.0	3/1	3.0					30	70
ER1901	Introduction to Eng. Design & Workshop Technology	C	1.0	3/1	-	2.0	16.0	2.0	18.0	60	40
ER1703	Analytical Methods	O	1.5	3/2	2.0					30	70
MN1030	Entrepreneurship Skill Development (continuing in Semester 3)	O	0.5	3/2	-	1.0				70	30
	Total for Semester 2				**18.0**	**3.0**	**16.0**	**2.0**	**18.0**		

Effective for 2013 intake onwards

Curriculum of the B.Sc. Engineering Honours Degree Programme
Earth Resources Engineering Specialization - Mining and Mineral Engineering Stream
Department of Earth Resources Engineering

Module Code	Module Name	Category	Lec. hrs/week	Lab / Assign/ hrs/weeks	Credits		Norm			Evaluation (%)	
					GPA	NGPA	GPA	NGPA	Total	CA	WE
Semester 3											
CE1812	Mechanics of Materials	C	2.0	-	2.0					30	70
CE2062	Surveying I	C	2.0	3/1	3.0					30	70
CS2812	Visual Programming	C	1.0	3/1	2.0					30	70
ER2013	Principles of Gemmology	C	2.0	3/2	2.5					30	70
ER2023	Principles of Environmental Engineering	C	1.5	-	1.5					30	70
ER2033	Principles of RS and GIS	C	2.0	3/2	2.5					30	70
ER2041	Industrial Rock Blasting	C	2.0	-	2.0					30	70
MA2013	Differential Equations	C	2.0	-	2.0					30	70
MA2023	Calculus	C	2.0	-	2.0					30	70
EL2952	Language Skills Enhancement III	C	2.0	-	-	2.0	19.5	2.0	21.5	30	70
ER2703	Coastal Hydrodynamics	O	2.0	3/2	2.5					30	70
MN1030	Entrepreneurship Skill Development (continued from Semester 2)	O	0.5	3/2	-	1.0				70	30
	Total for Semester 3				**22.0**	**3.0**	**19.5**	**2.0**	**21.5**		
Semester 4											
CE2142	Surveying II	C	2.0	3/1	3.0					30	70
DE2XXX	Humanities Elective II *	C	2.0	-	2.0						
ER2053	Introduction to Petroleum Engineering	C	1.5	-	1.5					30	70
ER2063	Geochemistry for Mineral Exploration	C	2.0	-	2.0					30	70
ER2073	Optical Mineralogy and Petrology	C	2.0	3/2	2.5					30	70
ER2083	Mineral Engineering I	C	2.0	3/2	2.5					30	70
ER2093	Geophysics for Mineral Exploration	C	2.0	-	2.0					30	70
ER2101	Mine Development	C	2.0	-	2.0					30	70
MA2033	Linear Algebra	C	2.0	-	2.0					30	70
MA3013	Applied Statistics	C	2.0	-	2.0			21.5	0.0	21.5	30	70
MN2010	Entrepreneurial Leadership	O	1.5	3/2	2.0					50	50
	Total for Semester 4				**23.5**	**0.0**	**21.5**	**0.0**	**21.5**		

Effective for 2013 intake onwards

Module Code	Module Name	Category	Lec. hrs/week	Lab / Assign/ hrs/weeks	Credits		Norm			Evaluation (%)	
					GPA	NGPA	GPA	NGPA	Total	CA	WE
Semester 5											
CE2812	Soil Mechanics	C	2.0	3/2	2.5					30	70
ER3013	Extraction Metallurgy	C	2.0	-	2.0					30	70
ER3033	Mining Methods	C	2.0	-	2.0					30	70
ER3043	Mine Machinery & Des. of Mineral Transport Systems	C	3.0	-	3.0					30	70
MA3023	Numerical Methods	C	2.0	-	2.0					30	70
MN3042	Business Economics and Financial Accounting	C	3.0	-	3.0					30	70
MN3052	Industrial Management and Marketing	C	2.5	3/2	3.0		17.5	0.0	17.5	30	70
ER3703	Digital Image Processing and Photogrammetry	O	2.0	3/1	3.0					30	70
ER3713	Jewellery Products Development	O	2.0	3/1	3.0					50	50
MN3010	Multidisciplinary Design, Innovation & Venture Creation	O	1.5	3/2	2.0					50	50
	Total for Semester 5				**25.5**	**0.0**	**17.5**	**0.0**	**17.5**		
Industrial Training											
ER3992	Industrial Training [#]	C	-	-	-	6.0				100	0
	Total for Industrial Training				**0.0**	**6.0**	**0.0**	**6.0**	**6.0**		

Effective for 2013 intake onwards

Curriculum of the B.Sc. Engineering Honours Degree Programme
Earth Resources Engineering Specialization - Mining and Mineral Engineering Stream
Department of Earth Resources Engineering

Module Code	Module Name	Category	Lec. hrs/week	Lab / Assign/ hrs/weeks	Credits		Norm			Evaluation (%)	
					GPA	NGPA	GPA	NGPA	Total	CA	WE
Semester 6											
ER3022	Mine Surveying	C	1.5	3/2	2.0					30	70
ER3053	Structural & Field Geology	C	1.0	3/1	2.0					50	50
ER3063	Economic Geology	C	2.0	-	2.0					30	70
ER3202	Design Project**(continued in Semester 7)	C	-	-	1.0					100	0
ER3912	Geology Field Camp #	C	-	-	-	1.0				100	0
ER3922	Mine Surveying Field Camp	C	-	-	-	1.0				100	0
ER3933	Mineral Exploration Field Camp	C	-	-	-	1.0				100	0
ER3950	Scientific Writing and Presentation Skills	C	-	-	-	1.0	7.0	4.0	11.0	100	0
ER3700	Petroleum Exploration and Basin Analysis	O	2.0	3/2	2.5					30	70
ER3903	Industrial Visits #	O	-	-	-	1.0				100	0
ER3942	Oceanography Field Studies	O	-	-	-	1.0				100	0
	Total for Semester 6				9.5	6.0	7.0	4.0	11.0		

Effective for 2013 intake onwards

Curriculum of the B.Sc. Engineering Honours Degree Programme
Earth Resources Engineering Specialization - Mining and Mineral Engineering Stream
Department of Earth Resources Engineering

Module Code	Module Name	Category	Lec. hrs/week	Lab / Assign/ hrs/weeks	Credits		Norm			Evaluation (%)	
					GPA	NGPA	GPA	NGPA	Total	CA	WE
Semester 7											
ER3202	Design Project** (continued from Semester 6)	C	-	-	2.0					100	0
ER4013	Rock Mechanics	C	2.0	3/2	2.5					30	70
ER4023	Mine Ventilation	C	2.0	3/2	2.5					30	70
ER4042	Mineral Engineering II	C	3.0	-	3.0					30	70
ER4050	Mine Waste Management and Rehabilitation	C	2.0	3/2	2.5					30	70
ER4073	Mineral Economics	C	2.0	-	2.0					30	70
ER4202	Research Project***(continuing in Semester 8)	C	-	-	1.0					100	0
MN4022	Engineering Economics	C	2.0	-	2.0			17.5	0.0	17.5	30	70
ER4210	Petroleum Drilling and Formation Evaluation	E	2.0	3/2	2.5			4.0	0.0	4.0	30	70
ER4223	Hydrogeology and Groundwater Modeling	E	2.5	3/2	3.0						30	70
ER4313	GIS and Spatial Statistics	E	2.0	3/2	2.5						30	70
ER4433	Marine Surveying	E	2.0	-	2.0						30	70
ER4512	Jewellery Production Technology	E	2.0	3/1	3.0						50	50
ER4522	Fashioning of Gemstones	E	1.0	3/1	2.0						50	50
MN3020	Entrepreneurship Business Basics	O	2.0	3/1	3.0						50	50
MN4042	Technology Management	O	2.0	-	2.0						30	70
	Total for Semester 7				**37.5**	**0.0**	**21.5**	**0.0**	**21.5**		

Effective for 2013 intake onwards

Curriculum of the B.Sc. Engineering Honours Degree Programme
Earth Resources Engineering Specialization - Mining and Mineral Engineering Stream
Department of Earth Resources Engineering

Module Code	Module Name	Category	Lec. hrs/week	Lab / Assign/ hrs/weeks	Credits		Norm			Evaluation (%)	
					GPA	NGPA	GPA	NGPA	Total	CA	WE
Semester 8											
ER4033	Engineering Geology	C	2.0	3/2	2.5					30	70
ER4083	Mine Planning and Design	C	2.0	3/2	2.5					30	70
ER4093	Plant Performance	C	2.0	-	2.0					30	70
ER4103	Mine Safety and Legislation	C	2.0	-	2.0					30	70
ER4202	Research Project** (continued from Semester 7)	C	-	-	4.0		13.0	0.0	13.0	100	0
CH4350	Petroleum Refining and Petrochemical Industry	E	1.5	3/2	2.0					30	70
ER4230	Petroleum Reservoir Engineering & Project Design	E	2.0	3/2	2.5					30	70
ER4243	Natural Disaster Management	E	2.0	-	2.0					30	70
ER4253	Offshore Mining and Project Design	E	2.0	3/1	3.0					30	70
ER4260	Petroleum Production	E	2.0	-	2.0					30	70
ER4271	Advanced Gemmology	E	2.0	3/2	2.5					30	70
ER4322	Space Technology and Navigation Systems	E	1.5	3/2	2.0					30	70
ER4532	Jewellery Production Management	E	2.0	3/1	3.0		4.0	0.0	4.0	50	50
ER4713	Construction Engineering Practice	O	2.0	-	2.0					30	70
ER4720	Tunnel Engineering and Design	O	2.0	-	2.0					30	70
MA4013	Linear Models and Multivariate Statistics	O	3.0	-	3.0					30	70
MA4023	Operational Research	O	3.0	-	3.0					30	70
MN4010	Business Plan Development	O	1.5	3/2	2.0					70	30
MN4072	Small Business Management and Entrepreneurship	O	2.0	-	2.0					30	70
MN4150	Project Management	O	2.0		2.0					50	50
	Total for Semester 8				48.0	0.0	17.0	0.0	17.0		
	Total for the Programme				199.0	19.0	135.0	15.0	150.0		

Effective for 2013 intake onwards

Curriculum of the B.Sc. Engineering Honours Degree Programme
Earth Resources Engineering Specialization - Mining and Mineral Engineering Stream
Department of Earth Resources Engineering

Modules offered to Department of Chemical and Process Engineering

Module Code	Module Name	Category	Lec. hrs/week	Lab / Assign/ hrs/weeks	Credits		Norm			Evaluation (%)	
					GPA	NGPA	GPA	NGPA	Total	CA	WE
Semester 7											
ER4810	Basic Petroleum Geology	O	1.5	3/2	2.0					30	70

Requirements for Focus Areas

Focus Area	Module Code	Module Name	Credits
Ocean Resources Engineering	ER1023	Introduction to Oceanography	2.0
	ER2703	Coastal Hydrodynamics	2.5
	ER3942	Oceanography Field Studies	1.0
	ER4433	Marine Surveying	2.0
	ER4210	Petroleum Drilling & Formation Evaluation	2.5
	ER4253	Offshore Mining and Project Design	3.0
Gem & Jewellery	ER2013	Principles of Gemmology	2.5
	ER3713	Jewellery Products Development	3.0
	ER4512	Jewellery Production Technology	3.0
	ER4522	Fashioning of Gem Stones	2.0
	ER4271	Advanced Gemmology	2.5
	ER4532	Jewellery Production Management	3.0
Remote Sensing and Geographic Information System (RS & GIS)	ER2033	Principles of RS & GIS	2.5
	ER3703	Digital Image Processing & Photogrammetry	3.0
	ER4313	GIS & Spatial Statistics	2.5
	ER4243	Natural Disaster Management	2.0
	ER4322	Space Technology & Navigation Systems	2.0

Effective for 2013 intake onwards

Petroleum Engineering	ER2053	Introduction to Petroleum Engineering	1.5
	ER2703	Coastal Hydrodynamics	2.5
	ER3700	Petroleum Exploration and Basin Analysis	2.5
	ER3942	Oceanography Field Studies	1.0
	ER4210	Petroleum Drilling & Formation Evaluation	2.5
	CH4350	Petroleum Refining & petrochemical Industry	2.0
	ER4230	Petroleum Reservoir Engineering & Project Design	2.5
	ER4260	Petroleum Production	2.0

*** ER4202 Research Project should be in relevant with the focus area.

Effective for 2013 intake onwards