Section - D

Department of Earth Resources Engineering

Program Summary

Streams:	1. Mining & Mineral Engineering
Focus Areas:	1. Gem & Jewellery 2. Ocean Resources Engineering 3. Petroleum Engineering 4. Remote Sensing & Geographic Information System
Minors:	< None >

Intake: 2020 onwards Specialization: Earth Resources Engineering

Stream: Mining and Mineral Engineering

Reasons for seeking amendments to the curriculum:

To match the requirements of faculty curriculum revision for Intake 2020 onwards

The following documents are furnished:

	Document	Yes/No	Prepared / Checked by
1	Covering letter	Yes	Dr. AMKB Abeysinghe
2	Credit distribution	Yes	Dr. AMKB Abeysinghe
3	Full curriculum	Yes	Dr. AMKB Abeysinghe
4	Faculty electives	Yes	Dr. AMKB Abeysinghe
5	Requirements for focus area / minor	Yes	Dr. AMKB Abeysinghe
6	Changes to the modules	Yes	Dr. AMKB Abeysinghe
7	Relevant module outlines	Yes	Dr. AMKB Abeysinghe

11/01/2021

Recommendation by the Department Academic Committee [5 senior staff members]

	Name	Signature	Date
1	Prof. H.M.R. Premasiri		11.01.2021
2	Dr S.P. Chaminda		11.01.2021.
3	Dr. A.B.N DASSANAYAKE		11.01.2021
4	Dr. D.M.D.O.K Dissanayake		11.01.2020
5	M.A.D.M.G. Wickrama	Mahesh Wickrama	11.01.2021
	Chairperson DAC [FAC member]		
6	Dr. AMKB Abeysinghe		11.01.2021

Senate approval is sought for the above changes

	Head of the Department		
7	Dr. GVI Samaradivakara	11/01/2021	11th Jan. 2021.

Head, Department of
Earth Resources Engineering
University of Moratuwa, Sri Lanka

Place official stamp

This form must be submitted at least 7 days prior to the FAC meeting

UGS date stamp

Intake:	2020 onwards	Specilization	Earth Resources Engineering
		Stream	Mining and Mineral Engineering

Summary of the Credit Distribution

Existing							Proposed						
Semester	C	E	O	Total	GPA	NGPA	Semester	C	E	O	Total	GPA	NGPA
1	16.0	0.0	0.0	16.0	15.0	1.0	1	15.0	0.0	0.0	15.0	15.0	0.0
2	18.0	0.0	3.0	21.0	18.0	3.0	2	18.0	0.0	0.0	18.0	16.0	2.0
3	21.5	0.0	3.5	25.0	22.0	3.0	3	14.0	8.0	0.0	22.0	22.0	0.0
4	21.5	0.0	2.0	23.5	23.5	0.0	4	22.0	0.0	0.0	22.0	22.0	0.0
5	17.5	0.0	10.5	28.0	28.0	0.0	5	20.0	18.0	0.0	38.0	38.0	0.0
Ind. Training	6.0	0.0	0.0	6.0	0.0	6.0	Ind. Training	6.0	0.0	0.0	6.0	0.0	6.0
6	10.0	0.0	2.0	12.0	7.0	5.0	6	12.0	0.0	0.0	12.0	8.0	4.0
7	16.5	17.5	7.0	41.0	40.0	1.0	7	16.0	18.0	0.0	34.0	34.0	0.0
8	16.0	16.5	16.0	48.5	47.5	1.0	8	12.0	18.0	0.0	30.0	30.0	0.0
	143.0	34.0	44.0	221.0	201.0	20.0		135.0	62.0	0.0	197.0	185.0	12.0
Number of Modules				98			Number of Modules				72		

Accreditation Requirements

Categorizations	Recommended IESL Minimum	Existing	Proposed
Mathematics, Basic Sciences and Computing [MSC]	**25.0**	32.0	28.0
Engineering Sciences and Engineering Design	**75.0**		
Engineering Science [E]		60.0	8.0
Engineering discipline specialisation [EP] - a minimum of 25		24.0	54.0
Engineering design & projects [DP] - a minimum of 25		6.0	25.0
Complementary Studies (20)			
Management, Engineering economics & communication [M]	**15.0**	16.0	15.0
Humanities, social sciences, arts & Professional ethics [H]	**5.0**	5.0	5.0
Additional credits for innovation and field specific goals	**10.0**		
TOTAL	**130.0**	**143.0**	**135.0**

Intake:	2020 onwards	Specialization:	Earth Resources Engineering
Details of the Curriculum		Stream:	Mining and Mineral Engineering

Module Code	Module Name	Category C/U/O	Time allocation [Hours/Week]		Credits offered		Norm		Evaluation %	
			Lecture	Lab / Tute	GPA	NGPA	GPA	NGPA	CA	WE
Semester 1		**Specialization requirement**					**15.0**			
CE1023	Fluid Mechanics	C	2	2/4	2.0				20	80
CS1033	Programming Fundamentals	C	2	2	3.0				20	80
EE1040	Electrical Fundamemtals	C	2	2/4	2.0				20	80
EL1030	Language Skills Enhancement [S1 & S2]	C	0	2	1.0		15.0		100	0
MA1014	Mathematics	C	5/2	1	3.0				20	80
ME1033	Mechanics	C	2	2/4	2.0				20	80
MT1023	Properties of Materials	C	3	2/4	2.0				20	80
		Total			**15.0**	**0.0**	**15.0**	**0.0**		
Semester 2		**Specialization requirement**					**18.0**			
HM-1	Humanities Elective I	C	2	0	2.0				100	0
EL1030	Language Skills Enhancement [S1 & S2]	C	0	2	1.0				100	0
ER1014	Geology	C	2	2	3.0				30	70
ER1040	Introduction to Mining & Mineral Engineering	C	2	0	2.0		16.0	2.0	30	70
MA1024	Methods of Mathematics	C	5/2	1	3.0				30	70
ER1050	Basic Mine Thermodynamics	C	2	0	2.0				30	70
ME1091	Engineering Drawing & Computer Aided Modeling	C	1	4	3.0				100	0
ER1902	Introduction to Engineering Design & Workshop Technology	C	1	2		2.0			60	40
		Total			**16.0**	**2.0**	**16.0**	**2.0**		
Semester 3		**Specialization requirement**					**14.0**			
CE1813	Mechanics of Materials	C	2	0	2.0				30	70
CE2063	Surveying I	C	2	2	3.0				30	70
CS2813	Visual Programming	C	1	2	2.0		14.0		60	40
MA2014	Differential Equations	C	2	0	2.0				30	70
MA2024	Calculus	C	2	0	2.0				30	70
ER2110	Rock Blasting and Explosives Engineering	C	5/2	2/2	3.0				30	70
ER2420	Introduction to Ocean Resources Engineering	E	2	0	2.0				30	70
ER2631	Elementary Gemmology	E	3/2	2/2	2.0				30	70
ER2034	Principles of RS and GIS	E	3/2	2/2	2.0				30	70
ER2054	Introduction to Petroleum Engineering	E	2	0	2.0				30	70
		Total			**22.0**	**0.0**	**14.0**	**0.0**		
Semester 4		**Specialization requirement**					**22.0**			
CE2143	Surveying II	C	2	2	3.0				30	70
HM-2	Humanities Elective II	C	2	0	2.0				100	0
ER2611	Petrology and Structural Geology	C	2	2	3.0				30	70
ER2643	Analytical Methods and Environmental Engineering Concepts	C	5/2	2/2	3.0		22.0		40	60
ER2084	Mineral Processing Engineering	C	7/2	2/2	4.0				30	70
ER2031	Mining Method & Mine Development	C	3	0	3.0				40	60
MA2034	Linear Algebra	C	2	0	2.0				30	70
MA3014	Applied Statistics	C	2	0	2.0				30	70
		Total			**22.0**	**0.0**	**22.0**	**0.0**		
Semester 5		**Specialization requirement**					**20.0**			
CE2813	Soil Mechanics	C	5/2	2/2	3.0				30	70
ER3014	Extraction Metallurgy	C	5/2	2/2	3.0				30	70
ER3070	Economic Mineral and Mineral Exploration	C	5/2	2/2	3.0				30	70
ER4104	Mine Safety and Legislation	C	2	0	2.0		20.0		30	70
MA3024	Numerical Methods	C	2	0	2.0				30	70
MN3043	Business Economics and Financial Accounting	C	3	0	3.0				30	70
MN3053	Industrial Management and Marketing	C	3	0	3.0				30	70
ER3880	Engineer and Society [S5 & S6]	C	0	2	1.0				100	0
ER3320	Plant Design and Value Addition to Minerals	E	1	2	3.0				30	70
ER4714	Construction Engineering Practice	E	5/2	2/2	3.0				30	70
ER3704	Digital Image Processing and Photogrammetry	E	2	2	3.0				30	70
ER3714	Jewellery Products Development	E	2	2	3.0				50	50
ER3701	Petroleum Exploration and Drilling Engineering	E	5/2	2/2	3.0				30	70
ER3520	Coastal Hydrodynamics	E	2	2	3.0				30	70
		Total			**38.0**	**0.0**	**20.0**	**0.0**		
Industrial Training		**Specialization requirement**					**6.0**			
ER3993	Industrial Training	C				6.0		6.0	100	0
		Total			**0.0**	**6.0**	**0.0**	**6.0**		
Semester 6		**Specialization requirement**					**12.0**			
ER3203	Design Project [S6 & S7]	C	0	4	2.0				100	0
ER4084	Mine Surveying, Planning and Design [S6 & S7]	C	1/2	2/2	1.0				40	60
ER4024	Mine Ventilation	C	2	2	3.0		8.0	4.0	30	70
ER3880	Engineer and Society [S5 & S6]	C	1	2	2.0				100	0
ER3913	Geology Field Visits and Camp	C				2.0			100	0
ER3923	Mine Surveying and Ventilation Field Camp	C				2.0			100	0
		Total			**8.0**	**4.0**	**8.0**	**4.0**		

Intake:	2020 onwards	Specialization:	Earth Resources Engineering							
Semester 7		**Specialization requirement**					**16.0**			
ER3203	Design Project [S6 & S7]	C	0	2	1.0				100	0
ER4014	Rock Mechanics	C	5/2	2/2	3.0				40	60
ER4034	Hydrogeology and Engineering Geology	C	3	0	3.0				30	70
ER4094	Plant Performance and Process Modelling	C	5/2	2/2	3.0		16.0		30	70
ER4084	Mine Surveying, Planning and Design [S6 & S7]	C	3/2	2/2	2.0				30	70
ER4203	Research Project [S7 & S8]	C	0	4	2.0				100	0
MN4023	Engineering Economics	C	2	0	2.0				30	70
ER4351	Formation Evaluation and Reservoir Engineering	E	5/2	2/2	3.0				40	60
ER4323	GPS and Space Technology	E	2	2	3.0				30	70
ER4434	Marine Mineral Exploration and Hydrography	E	2	2	3.0				30	70
ER4140	Mine Mechanization and Automation	E	3	0	3.0				30	70
ER4150	Advanced Electrochemistry	E	5/2	2/2	3.0				30	70
ER4301	Advanced Gemmology	E	2	2	3.0				40	60
		Total			**34.0**	**0.0**	**16.0**	**0.0**		

Semester 8		**Specialization requirement**					**12.0**			
ER3044	Mine Machinery & Design of Mineral Transport Systems	C	3	0	3.0				30	70
ER4074	Mineral Economics & Ore Reserve Modelling	C	5/2	2/2	3.0		12.0		40	60
ER4131	Mine Waste Management and Rehabilitation	C	5/2	2/2	3.0				30	70
ER4203	Research Project [S7 & S8]	C	0	6	3.0				100	0
ER4721	Tunnel Design and Engineering	E	5/2	2/2	3.0				40	60
ER4470	Product Development and Nanotechnology	E	5/2	2/2	3.0				30	70
ER4314	GIS and Spatial Statistics	E	2	2	3.0				40	60
ER4461	Petroleum Production and Down Stream Processes	E	5/2	2/2	3.0				40	60
ER4513	Jewellery Production Technology	E	2	2	3.0				50	50
ER4254	Offshore Mining and Project Design	E	2	2	3.0				30	70
		Total			**30.0**	**0.0**	**12.0**	**0.0**		
		Grand Total			185.0	12.0	**123.0**	**12.0**		

Total credit requirement for the Specialization	**135.0**
Faculty/Specialization Electives beyond the specialization requirements [refer faculty electives table]*	15.0
TOTAL CREDIT REQUIREMENT FOR GRADUATION	150.0

Service modules

Code	Module Name	Semester	Time allocation [Hours/Week]		Credits		Offered to	Evaluation %	
			Lecture	Lab / Tute	GPA	NGPA		CA	WE

Intake:	2020 onwards	Specialization:	Earth Resources Engineering					
Module Code	Module Name		Hours/Week		Credits		Evaluation	
			Lecture	Lab/Tute	GPA	NGPA	CA%	WE%
FACULTY ELECTIVES								
Semester 1								
Semester 2								
Semester 3								
ER2631	Elementary Gemmology		3/2	2/2	2.0		30	70
ER2210	Subsurface Ventilation		2	0	2.0		30	70
Semester 4								
Semester 5								
ER3420	Petroleum Engineering Upstream Processes		3	0	3.0		40	60
Semester 6								
Semester 7								
ER4730	Sustainable Consumption of Earth Resources		2	2	3.0		60	40
Semester 8								
ER4740	Remote Sensing and GIS for Engineers		2	2	3.0		30	70

Intake:	2020 onwards	Specialization:	Earth Resources Engineering							
Code	Module Name	Category	Hours/Week		Credits		Evaluation		Semester	Credits required
			Lecture	Lab/Tute	GPA	NGPA	CA%	WE%		
Focus area - Remote Sensing and Geographic Information System										
ER2034	Principles of RS and GIS	C	3/2	2/2	2.0		30	70	Semester 3	
ER2054	Introduction to Petroleum Engineering	C	2	0	2.0		30	70	Semester 3	
ER3704	Digital Image Processing and Photogrammetry	C	2	2	3.0		30	70	Semester 5	**13.0**
ER4323	GPS and Space Technology	C	2	2	3.0		30	70	Semester 7	
ER4314	GIS and Spatial Statistics	C	2	2	3.0		40	60	Semester 8	
Focus area - Ocean Resources Engineering										
ER2420	Introduction to Ocean Resources Engineering	C	2	0	2.0		30	70	Semester 3	
ER2054	Introduction to Petroleum Engineering	C	2	0	2.0		30	70	Semester 3	
ER3520	Coastal Hydrodynamics	C	2	2	3.0		30	70	Semester 5	**13.0**
ER4434	Marine Mineral Exploration and Hydrography	C	2	2	3.0		30	70	Semester 7	
ER4254	Offshore Mining and Project Design	C	2	2	3.0		30	70	Semester 8	
Focus area - Petroleum Engineering										
ER2054	Introduction to Petroleum Engineering	C	2	0	2.0		30	70	Semester 3	
ER2420	Introduction to Ocean Resources Engineering	C	2	0	2.0		30	70	Semester 3	
ER3701	Petroleum Exploration and Drilling Engineering	C	5/2	2/2	3.0		30	70	Semester 5	**13.0**
ER4351	Formation Evaluation and Resevoir Engineering	C	5/2	2/2	3.0		40	60	Semester 7	
ER4461	Petroleum Production and Down Stream Processes	C	5/2	2/2	3.0		40	60	Semester 8	
Focus area - Gem and Jewellery										
ER2631	Elementary Gemmology	C	3/2	2/2	2.0		30	70	Semester 3	
ER2034	Principles of RS and GIS	C	3/2	2/2	2.0		30	70	Semester 3	
ER3714	Jewellery Products Development	C	2	2	3.0		50	50	Semester 5	**13.0**
ER4301	Advanced Gemmology	C	2	2	3.0		40	60	Semester 7	
ER4513	Jewellery Production Technology	C	2	2	3.0		50	50	Semester 8	

Intake:	2020 onwards	Specialization:	Earth Resources Engineering
		Stream	Mining and Mineral Engineering

CHANGES TO THE MODULES

1	INTRODUCTION OF NEW MODULES					
Code	Module Title	Credits	C/E/O	GPA / NGPA	Sem.	Requisites or Reasons
ER1040	Introduction to Mining & Mineral Engineering	2.0	C	GPA	2	
ER1050	Basic Mine Thermodynamics	2.0	C	GPA	2	
ER2110	Rock Blasting and Explosives Engineering	3.0	C	GPA	3	
ER2420	Introduction to Ocean Resources Engineering	2.0	E	GPA	3	
ER2631	Elementary Gemmology	2.0	E	GPA	3	
ER2611	Petrology and Structural Geology	3.0	C	GPA	4	
ER2643	Analytical Methods and Environmental Engineering Concepts	3.0	C	GPA	4	
ER2084	Mineral Processing Engineering	4.0	C	GPA	4	
ER2031	Mining Method & Mine Development	3.0	C	GPA	4	
ER3070	Economic Mineral and Mineral Exploration	3.0	C	GPA	5	
ER3880	Engineer and Society	1.0	C	GPA	5	
ER3320	Plant Design and Value Addition to Minerals	3.0	E	GPA	5	
ER3701	Petroleum Exploration and Drilling Engineering	3.0	E	GPA	5	ER 2054
ER4084	Mine Surveying, Planning and Design	3.0	C	GPA	6/7	
ER3913	Geology Field Visits and Camp	2.0	C	NGPA	6	
ER3923	Mine Surveying and Ventilation Field Camp	2.0	C	NGPA	6	
ER4094	Plant Performance and Process Modelling	3.0	C	GPA	7	
ER4351	Formation Evaluation and Reservoir Engineering	3.0	E	GPA	7	ER3701
ER4323	GPS and Space Technology	3.0	E	GPA	7	ER2034
ER4434	Marine Mineral Exploration and Hydrography	3.0	E	GPA	7	ER3520
ER4140	Mine Mechanization and Automation	3.0	E	GPA	7	
ER4150	Advanced Electrochemistry	3.0	E	GPA	7	ER3014
ER4301	Advanced Gemmology	3.0	E	GPA	7	ER2631
ER4034	Hydrogeology and Engineering Geology	3.0	C	GPA	7	
ER4074	Mineral Economics & Ore Reserve Modeling	3.0	C	GPA	8	
ER4721	Tunnel Design and Engineering	3.0	E	GPA	8	
ER4470	Product Development and Nanotechnology	3.0	E	GPA	8	
ER4461	Petroleum Production and Down Stream Processes	3.0	E	GPA	8	ER4351
ER4513	Jewellery Production Technology	3.0	E	GPA	8	ER3714

2	REMOVAL OF EXISTING MODULES					
Code	Module Title	Credits	C/E/O	GPA / NGPA	Sem.	Requisites or Reasons
MN1012	Engineering in Context	1.0	C	NGPA	1	
ER1023	Introduction to Oceanography	2.0	C	GPA	2	
ME1812	Basic Thermal Sciences	2.0	C	GPA	2	
ER1703	Analytical Methods	2.0	O	GPA	2	
MN1030	Entrepreneurship Skill Development	2.0	O	NGPA	2/3	
ER2013	Principles of Gemmology	2.5	C	GPA	3	
ER2023	Principles of Environmental Engineering	1.5	C	GPA	3	
ER2041	Industrial Rock Blasting	2.0	C	GPA	3	
EL2952	Language Skills Enhancement III	2.0	C	NGPA	3	
ER2063	Geochemistry for Mineral Exploration	2.0	C	GPA	4	
ER2073	Optical Mineralogy and Petrology	2.5	C	GPA	4	
ER2083	Mineral Engineering I	2.5	C	GPA	4	
ER2093	Geophysics for Mineral Exploration	2.0	C	GPA	4	
ER2101	Mine Development	2.0	C	GPA	4	
MN2010	Entrepreneurial Leadership	2.0	O	GPA	4	
ER3033	Mining Methods	2.0	C	GPA	5	
ER3700	Petroleum Exploration and Basin Analysis	2.5	O	GPA	5	
MN3010	Multidisciplinary Design, Innovation & Venture Creation	2.0	O	GPA	5	
ER3022	Mine Surveying	2.0	C	GPA	6	
ER3063	Economic Geology	2.0	C	GPA	6	
ER3053	Structural & Field Geology	2.0	C	GPA	6	
ER3912	Geology Field Camp	1.0	C	NGPA	6	
ER3922	Mine Surveying Field Camp	1.0	C	NGPA	6	
ER3933	Mineral Exploration Field Camp	1.0	C	NGPA	6	
ER3903	Industrial Visits	1.0	O	NGPA	6	
ER3942	Oceanography Field Studies	1.0	O	NGPA	6	
ER4042	Mineral Engineering II	3.0	C	GPA	7	
ER3950	Scientific Writing and Presentation Skills	1.0	C	NGPA	7	
ER4083	Mine Planning and Design	2.5	C	GPA	7	
ER4290	Petroleum Drilling and Formation Evaluation	2.5	E	GPA	7	
ER4350	Petroleum Reservoir Engineering & Project Design	2.5	E	GPA	7	
ER4223	Hydrogeology and Groundwater Modeling	3.0	E	GPA	7	
ER4433	Marine Surveying	2.0	E	GPA	7	
ER4512	Jewellery Production Technology	3.0	E	GPA	7	
ER4522	Fashioning of Gemstones	2.0	E	GPA	7	
MN3020	Entrepreneurship Business Basics	3.0	O	GPA	7	

MN4800	Supply Chain Management	2.0	O	GPA	7	
MN4042	Technology Management	2.0	O	GPA	7	
ER4033	Engineering Geology	2.5	C	GPA	8	
ER4073	Mineral Economics	2.0	C	GPA	8	
ER4093	Plant Performance	2.0	C	GPA	8	
MN4900	Professional Ethics	1.0	C	NGPA	8	
CH4350	Petroleum Refining and Petrochemical Industry	2.0	E	GPA	8	
ER4243	Natural Disaster Management	2.0	E	GPA	8	
ER4460	Petroleum Production	2.0	E	GPA	8	
ER4271	Advanced Gemmology	2.5	E	GPA	8	
ER4322	Space Technology and Navigation Systems	2.0	E	GPA	8	
ER4532	Jewellery Production Management	3.0	E	GPA	8	
ER4720	Tunnel Engineering and Design	2.0	O	GPA	8	
MA4013	Linear Models and Multivariate Statistics	3.0	O	GPA	8	
MA3030	Operational Research	2.0	O	GPA	8	
MN4010	Business Plan Development	2.0	O	GPA	8	
MN4072	Small Business Management and Entrepreneurship	2.0	O	GPA	8	
MN4150	Project Management	2.0	O	GPA	8	

3	CHANGES TO THE OFFERING SEMESTER						
Code	Module Title	Credits	C/E/O	GPA / NGPA	Sem.	Previously offered Sem	Requisites or reasons
ER2054	Introduction to Petroleum Engineering	2.0	E	GPA	3	4	
ER4104	Mine Safety and Legislation	2.0	C	GPA	5	8	
ER4714	Construction Engineering Practice	3.0	E	GPA	5	8	
ER4024	Mine Ventilation	3.0	C	GPA	7	6	
ER3044	Mine Machinery & Design of Mineral Transport Systems	3.0	C	GPA	8	5	
ER4314	GIS and Spatial Statistics	3.0	E	GPA	8	7	ER2034

4	CHANGES TO THE EVALUATION PERCENTAGES									
Code	Module Title	Credits	C/E/O	GPA /NGPA	Sem.	New		Previous		Reasons
						CA	WE	CA	WE	

5	CHANGES TO THE MODULE CREDIT RATINGS									
Code	Module Title	Credits	C/E/O	GPA /NGPA	Sem.	Evaluation		Previous credit rating		Reasons
						CA	WE			
ER2034	Principles of RS and GIS	2.0	E	GPA	3	30	70	2.5		
ER2054	Introduction to Petroleum Engineering	2.0	E	GPA	3	30	70	1.5		
CE2813	Soil Mechanics	3.0	E	GPA	5	30	70	2.5		
ER3014	Extraction Metallurgy	3.0	E	GPA	5	30	70	2		
ER4014	Rock Mechanics	3.0	C	GPA	7	40	60	2.5		
ER4024	Mine Ventilation	3.0	C	GPA	6	30	70	2.5		
ER4131	Mine Waste Management and Rehabilitation	3.0	C	GPA	8	30	70	2.5		
ER4314	GIS and Spatial Statistics	3.0	E	GPA	8			2.5		

6	OTHER CHANGES		
Code	Module Title	Amendment	Reasons
EL1030	Language Skills Enhancement	Language Skill Enhancement I and II are removed and Language Skill Enhancement Module is introduced which is continuing in Sem 1 and 2	
ER2054	Introduction to Petroleum Engineering	O to E (Sem 4 to Sem 3)	
ER3714	Jewellery Products Development	O to E (Sem 5)	
ER3704	Digital Image Processing and Photogrammetry	O to E (Sem 5)	
ER3520	Coastal Hydrodynamics	O to E (Sem 3 to Sem 5)	
ER4714	Construction Engineering Practice	O to E (Sem 8 to Sem 5)	
ER3203	Design Project	Number of credits in Sem. 6 changed from 1 to 2; Number of credits in Sem. 7 changed from 2 to 1	
ER4203	Research Project	Number of credits in Sem. 7 changed from 1 to 2; Number of credits in Sem. 8 changed from 4 to 3	