

## Course Requirements and Registration Priorities School of Engineering, Spring 2019

#	Abbr	Title	Cr(US)	Cr(ECTS)	PreRequisite	CoRequisite	AntiRequisite	1st priority registration	2nd priority registration	3rd priority registration	4th priority registration
<b>SEDS</b>											
<b>Chemical Engineering</b>											
1	MCHE 600	MSc Thesis in Chemical Engineering	15	30							
<b>Chemical and Materials Engineering</b>											
2	ECHE 210	Foundations of Unit Operations	3	6				Registration by School Office			
3	ECHE 221	Engineering Fluid Mechanics	3	6				Registration by School Office			
4	ECHE 270	Transport Phenomena-I	3	6				Registration by School Office			
5	ECHE 323	Computational methods in Chemical Engineering-I	3	6	ECHE 333 Separation Processes-I (1271) (D and above)	ECHE 481 Chemical Reaction Engineering (1985) (D and above)		Registration by School Office			
6	ECHE 383	Separation Processes II	3	6	ECHE 126 Introduction to Chemical Engineering (33) (D and above) AND ECHE 225 Heat and Mass Transfer Operations (541) (D and above)			Registration by School Office			
7	ECHE 386	Chemical Plant Design and Optimization	3	6				Registration by School Office			
8	ECHE 387	Chemical Reaction Engineering 2	3	6				Registration by School Office			
9	ECHE 388	Process Dynamics and Control	3	6				Registration by School Office			
10	ECHE 420	Polymer Processing and Rheology	3	6				4 year UG SEng Chemical Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
11	ECHE 421	Tissue Engineering	3	6				4 year UG SEng Chemical Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
12	ECHE 479	Capstone Project II	9	18	ECHE 418 Capstone project 1 (1278) (D and above)			Registration by School Office			
13	ECHE 483	Chemistry II	3	6	ECHE 222 Chemistry I (731) (D and above)			Registration by School Office			

14	ECHE 485	Introduction to Biochemical Engineering	3	6				4 year UG SEng Chemical Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
15	MCHME 600	Research Seminar	3	6				1 year Gr SEng Chemical and Materials Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
16	MCHME 606	Advanced Heat and Mass Transfer	3	6				1 year Gr SEng Chemical and Materials Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
17	MCHME 704	Advanced Safety, Reliability and Risk Engineering in Process Industries	3	6				1 year Gr SEng Chemical and Materials Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
18	MCHME 712	Advanced Tissue Engineering	3	6				1 year Gr SEng Chemical and Materials Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
<b>Civil Engineering</b>											
19	ECE 210	Soil Mechanics	3	6				Registration by School Office			
20	ECE 218	Environmental Chemistry	3	6				Registration by School Office			
21	ECE 219	Hydraulics	3	6				Registration by School Office			

22	ECE 306	Geotechnical Design	3	6	ECE 210 Soil Mechanics (862) (D and above)			Registration by School Office			
23	ECE 319	Structural Design - Steel	3	6				Registration by School Office			
24	ECE 320	Engineering Hydrology	3	6				Registration by School Office			
25	ECE 420	Modern Information Technology in Construction	3	6				4 year UG SEng Civil Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
26	ECE 422	Prestressed Concrete Design	3	6				3 year UG SEng Civil Engineering	3 year UG SENG, 4 year UG SENG	SEng, SHSS, SMG, SST	
27	ECE 423	Structure and Properties of Concrete Materials	3	6				3 year UG SEng Civil Engineering	3 year UG SENG, 4 year UG SENG	SEng, SHSS, SMG, SST	
28	ECE 427	Individual Research Projects in Civil Engineering (II)	3	6	ECE 481 Individual Research Projects in Civil Engineering (4484) (D and above)			4 year UG SEng Civil Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
29	ECE 472	Water and Wastewater Treatment Processes	3	6	ECE 218 Environmental Chemistry (3296) (D and above)			Registration by School Office			
30	ECE 473	Environmental Systems	3	6				4 year UG SEng Civil Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
31	ECE 478	Capstone Project II	9	18	ECE 401 Capstone Project 1 (1270) (D and above)			Registration by School Office			
32	ECE 479	Structural Analysis II	3	6	ECE 217 Structural Analysis I (3156) (D and above)			Registration by School Office			
33	EMEM 510	Managerial Accounting	2	4				1 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		

34	EMEM 511	Business Strategy	2	4				1 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
35	EMEM 512	Leading Change	2	4				1 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
36	EMEM 513	Entrepreneurship	2	4				1 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
37	EMEM 514	Finance	2	4				1 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
38	EMEM 516	Management of Organizations	2	4				1 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		

39	EMEM 517	Marketing	2	4				1 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
40	EMEM 527	Globalization and Engineering	3	6				2 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
41	EMEM 529	Capstone Project	8	16				2 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
42	EMEM 535	Managing Product and Service Development	3	6				2 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
43	EMEM 543	Quality and Lean Management	3	6				2 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		

44	EMEM 545	Business Communication	2	4				1 year Gr SENG Engineering Management	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
45	MCEE 600	Research Seminar	3	6				1 year Gr SEng Civil and Environmental Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
46	MCEE 606	Advanced Project Management	3	6				1 year Gr SEng Civil and Environmental Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
47	MCEE 700	Structural Dynamics and Earthquake Engineering	3	6				1 year Gr SEng Civil and Environmental Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
48	MCEE 701	Advanced Concrete Technology	3	6				1 year Gr SEng Civil and Environmental Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		

49	MCEE 703	Theory of Physico-Chemical Treatment Processes	3	6				1 year Gr SEng Civil and Environmental Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
50	MCEE 704	Contaminated Site Management and Soil Treatment Technologies	3	6				1 year Gr SEng Civil and Environmental Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
51	MSC 600	Research methods and ethics	3	6				1 year Gr SEng Chemical and Materials Engineering, 1 year Gr SEng Civil and Environmental Engineering, 1 year Gr SEng Electrical and Computer Engineering, 1 year Gr SEng Mechanical and Aerospace Engineering	Science, Engineering and Technology		
<b>Electrical and Computer Engineering</b>											
52	MECE 600	Research Seminar	3	6				1 year Gr SEng Electrical and Computer Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
53	MECE 700	Industrial and Commercial Power System	3	6				1 year Gr SEng Electrical and Computer Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		

54	MECE 703	Advanced Photonics	3	6				1 year Gr SEng Electrical and Computer Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
55	MECE 705	Advanced Mixed Signal Circuit Design	3	6				1 year Gr SEng Electrical and Computer Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
56	MECE 717	Pattern Recognition and Machine Learning	3	6				1 year Gr SEng Electrical and Computer Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
57	MECE 718	Deep Learning for Internet of Things	3	6				1 year Gr SEng Electrical and Computer Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
58	MECE 724	System Modelling and Control	3	6	MSC 602 Advanced Applied Mathematics (4499) (C- and above)			1 year Gr SEng Electrical and Computer Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		

**Electrical and Electronic Engineering**



59	EEE 210	Software Engineering	3	6	BENG 146 Programming for Engineers (2234) (D and above)			Registration by School Office			
60	EEE 211	Computer Systems Architecture	3	6	ECHE 126 Introduction to Chemical Engineering (33) (D and above)			Registration by School Office			
61	EEE 239	Communication systems	3	6				Registration by School Office			
62	EEE 340	Data Communications	3	6				Registration by School Office			
63	EEE 341	Digital Electronic System Design	3	6				Registration by School Office			
64	EEE 343	Embedded Microcontrollers	3	6				Registration by School Office			
65	EEE 379	Power Systems Analysis	3	6				Registration by School Office			
66	EEE 381	Electrical Machines and Drives	3	6				Registration by School Office			
67	EEE 411	Special Topics in Signal Processing	3	6				4 year UG SEng Electrical and Electronic Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
68	EEE 480	Capstone Project II	9	18				Registration by School Office			
69	EEE 484	Electric Power Generation	3	6				4 year UG SEng Electrical and Electronic Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
70	EEE 485	Power System Operation and Control	3	6	EEE 379 Power Systems Analysis (1956) (D and above) OR EEE 452 Power Systems Protection (2652) (D and above)			4 year UG SEng Electrical and Electronic Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
71	EEE 486	Photonics for Engineering	3	6	EEE 342 Electromagnetics (533) (D and above)			4 year UG SEng Electrical and Electronic Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
72	EEE 489	Analog Circuit Design	3	6				Registration by School Office			
73	EEE 494	Modern Characterizations for Semiconductor Industry	3	6				4 year UG SEng Electrical and Electronic Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
74	EEE 495	Fundamentals of Biomedical Engineering and Biophysics	3	6				4 year UG SEng Electrical and Electronic Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	

**Mechanical Engineering**

75	EME 275	Fluid Mechanics I	3	6				Registration by School Office			
76	EME 300	Research Project	3	6				Registration by School Office			
77	EME 352	Computational Fluid Dynamics	3	6				Registration by School Office			
78	EME 357	Fluid Mechanics 2	3	6				Registration by School Office			
79	EME 377	Mechanical Systems Design	3	6	EME 361 Machine Design (1051) (D and above)			Registration by School Office			
80	EME 414	Fire Engineering	3	6	BENG 226 Engineering Thermodynamics (1553) (D and above)			4 year UG SEng Mechanical Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
81	EME 415	Flight Mechanics	3	6				4 year UG SEng Mechanical Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
82	EME 464	Materials and Manufacturing 1	3	6				Registration by School Office			
83	EME 476	Materials and Manufacturing II	3	6				Registration by School Office			
84	EME 477	Capstone Project II	9	18				Registration by School Office			
85	EME 480	Industrial Automation	3	6				Registration by School Office			
86	EME 489	Advanced Engineering Mathematics	3	6	BENG 228 Engineering Mathematics III (3154) (D and above)			4 year UG SEng Mechanical Engineering	4 year UG SENG	SEng, SHSS, SMG, SST	
87	MME 600	MSc Thesis in Mechanical Engineering	15	30							
<b>Mechanical and Aerospace Engineering</b>											
88	ENG 102	Engineering Materials I	3	6				1 year UG SEng Civil and Environmental Engineering, 1 year UG SEng Mechanical and Aerospace Engineering, 1 year UG SMG	1 year UG SHSS, 1 year UG SST, 2 year UG SENG, 3 year UG SENG, 4 year UG SENG	SEng, SHSS, SMG, SST	
89	ENG 103	Engineering Materials 2	3	6				1 year UG SEng Chemical and Materials Engineering, 1 year UG SEng Electrical and Computer Engineering, 1 year UG SMG	1 year UG SHSS, 1 year UG SST, 2 year UG SENG, 3 year UG SENG, 4 year UG SENG	SEng, SHSS, SMG, SST	

90	MMAE 600	Research Seminar	3	6				1 year Gr SEng Mechanical and Aerospace Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
91	MMAE 604	Advanced Computational Fluid Dynamics (CFD) and Heat Transfer in Mechanical Engineering	3	6				1 year Gr SEng Mechanical and Aerospace Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
92	MMAE 700	Advanced Statistics and Probability	3	6				1 year Gr SEng Mechanical and Aerospace Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
93	MMAE 701	Numerical Techniques for Engineers	3	6				1 year Gr SEng Mechanical and Aerospace Engineering	1 year PhD SENG Science, Engineering and Technology, 2 year PhD SENG Science, Engineering and Technology, 3 year PhD SENG Science, Engineering and Technology, 4 year PhD SENG Science, Engineering and Technology, 5 year PhD SENG Science, Engineering and Technology		
<b>School of Engineering</b>											
94	BENG 114	Introduction to Electrical Systems	3	6				Registration by School Office			
95	BENG 219	Control Systems	3	6				Registration by School Office			
96	BENG 226	Engineering Thermodynamics	3	6				Registration by School Office			
97	BENG 343	Interdisciplinary Design Project	3	6							
98	DENG 784	Doctoral Proposal I	0	6				Science, Engineering and Technology			

99	DENG 785	PhD proposal oral defence	0	0				Science, Engineering and Technology			
100	DENG 787	Doctoral Proposal II	3	6	DENG 784 Doctoral Proposal I (1774) (C- and above)	DENG 785 PhD proposal oral defence (2604) (D and above)		Science, Engineering and Technology			
101	DENG 789	Doctoral Seminar I	3	6	DENG 785 PhD proposal oral defence (2604) (C- and above)			Science, Engineering and Technology			
102	DENG 790	Doctoral Seminar II	3	6	DENG 789 Doctoral Seminar I (4598) (C- and above)			Science, Engineering and Technology			
103	DENG 794	Dissertation Research	12	24	DENG 785 PhD proposal oral defence (2604) (C- and above)			Science, Engineering and Technology			
104	DENG 795	Research at Host University	6	12	DENG 785 PhD proposal oral defence (2604) (C- and above)			Science, Engineering and Technology			
105	DENG 796	Thesis Completion	0	0				Science, Engineering and Technology			
106	DENG 797	Oral Defence of PhD Dissertation	0	0	DENG 785 PhD proposal oral defence (2604) (C- and above) AND DENG 789 Doctoral Seminar I (4598) (C- and above) AND DENG 790 Doctoral Seminar II (4599) (C- and above)			Science, Engineering and Technology			