

**Course Requirements and Registration Priorities**  
**School of Engineering and Digital Sciences (Graduate: Master), Fall 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/Mechanical Engineering</b>											
1	MBME 602	Anatomy and Physiology for Biomedical Engineers	3	6				1 year Gr SEDS Biomedical Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
2	MBME 603	Biomaterials Science & Engineering	3	6				1 year Gr SEDS Biomedical Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
3	MBME 604	Biosensors	3	6				1 year Gr SEDS Biomedical Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
<b>Chemical and Materials Engineering</b>											
4	MCHME 601	Master Thesis I	12	24				2 year Gr SEDS Chemical Engineering, 2 year Gr SEDS Chemical and Materials Engineering			
5	MCHME 603	Advanced Materials Processing	3	6				1 year Gr SEDS Chemical Engineering, 1 year Gr SEDS Chemical and Materials Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	

6	MCHME 604	Advanced Materials Characterization Methods	3	6				1 year Gr SEDS Chemical Engineering, 1 year Gr SEDS Chemical and Materials Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
7	MCHME 605	Advanced Chemical Reaction Engineering	3	6				1 year Gr SEDS Chemical Engineering, 1 year Gr SEDS Chemical and Materials Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
8	MCHME 714	Computational Materials Engineering	3	6				2 year Gr SEDS Chemical Engineering, 2 year Gr SEDS Chemical and Materials Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
<b>Civil Engineering</b>											
9	EMEM 507	Project Management	3	6				1 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
10	EMEM 509	Systems Engineering	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology	
11	EMEM 523	Supply Chain Management	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology	

12	EMEM 533	Engineering Management and Engineering Economy	3	6				1 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
13	EMEM 537	Engineering Decision Tools	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology	
14	EMEM 538	Knowledge and Innovation Management	3	6				1 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
15	EMEM 539	Big Data and Information Management	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology	
16	EMEM 542	Production and Service Operations Management	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology	
17	MCEE 601	Master Thesis I	12	24	MCEE 600 Research Seminar (4692) (P)			2 year Gr SEDS Civil Engineering, 2 year Gr SEDS Civil and Environmental Engineering			
18	MCEE 603	Finite Element Methods	3	6				1 year Gr SEDS Civil Engineering, 1 year Gr SEDS Civil and Environmental Engineering, 1 year Gr SEDS Mechanical Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	

19	MCEE 604	Advanced Soil Mechanics	3	6				1 year Gr SEDS Civil Engineering, 1 year Gr SEDS Civil and Environmental Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
20	MCEE 605	Advanced Environmental Chemistry	3	6				1 year Gr SEDS Civil Engineering, 1 year Gr SEDS Civil and Environmental Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
21	MCEE 702	Structural Evaluation and Rehabilitation	3	6				2 year Gr SEDS Civil Engineering, 2 year Gr SEDS Civil and Environmental Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
22	MCEE 705	Environmental Modeling Development	3	6				2 year Gr SEDS Civil Engineering, 2 year Gr SEDS Civil and Environmental Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
23	MSC 600	Research methods and ethics	3	6				1 year Gr SEDS Biomedical Engineering, 1 year Gr SEDS Engineering Management	1 year Gr SMG, 2 year Gr SMG		

24	MSC 601	Technical Communication	3	6				1 year Gr SEDS Chemical Engineering, 1 year Gr SEDS Chemical and Materials Engineering, 1 year Gr SEDS Civil Engineering, 1 year Gr SEDS Civil and Environmental Engineering, 1 year Gr SEDS Computer Science, 1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Electrical and Electronic Engineering, 1 year Gr SEDS Mechanical Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering, 1 year Gr SEDS Robotics and Mechatronics	1 year Gr SMG, 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
25	MSC 602	Advanced Applied Mathematics	3	6				1 year Gr SEDS Biomedical Engineering, 1 year Gr SEDS Chemical Engineering, 1 year Gr SEDS Chemical and Materials Engineering, 1 year Gr SEDS Civil Engineering, 1 year Gr SEDS Civil and Environmental Engineering, 1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Electrical and Electronic Engineering, 1 year Gr SEDS Mechanical Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SMG, 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year UG SEDS (pending graduation)	
26	MSC 615	Advanced Statistics and Probability	3	6				1 year Gr SEDS Engineering Management	1 year Gr SMG, 2 year Gr SMG		
<b>Computer Science</b>											
27	CSCI 501	Software Principles and Practice	3	6				Computer Science, Robotics	SEDS	SSH	
28	CSCI 511	CS Track Core-Theory	3	6				Computer Science	SEDS	SSH	
29	CSCI 525	Quantum Computing	3	6				Computer Science, Physics	SEDS	SSH	
30	CSCI 545	Big Data Analytics	3	6				Computer Science	SEDS	SSH	

31	CSCI 575	Formal Methods and Applications	3	6				Computer Science	SEDS	SSH	
32	CSCI 594	Deep Learning	3	6				Computer Science	SEDS	SSH	
33	DS 501	Fundamentals of Data Science - I	3	6				Data Science	SEDS	SSH	
34	DS 507	Database Management Systems	3	6				Data Science	SEDS	SSH	
35	DS 551	Process and Project Management	3	6				Data Science	SEDS	SSH	
<b>Electrical and Computer Engineering</b>											
36	MECE 601	Master Thesis I	12	24				2 year Gr SEDS Electrical and Computer Engineering, 2 year Gr SEDS Electrical and Electronic Engineering			
37	MECE 603	Advanced Data Structures and Algorithms	3	6				1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Electrical and Electronic Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
38	MECE 605	Statistics and Probability for Electrical and Computer Engineers	3	6				1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Electrical and Electronic Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
39	MECE 606	Embedded Systems and Applications	3	6				1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Electrical and Electronic Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
40	MECE 725	Smart Grids and Energy Systems	3	6	MECE 700 Industrial and Commercial Power System (4810) (D and above)			2 year Gr SEDS Electrical and Computer Engineering, 2 year Gr SEDS Electrical and Electronic Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year UG SEDS (pending graduation)	

41	MECE 726	Modern Semiconductor Devices and Systems	3	6				2 year Gr SEDS Electrical and Computer Engineering, 2 year Gr SEDS Electrical and Electronic Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year UG SEDS (pending graduation)	
<b>Mechanical and Aerospace Engineering</b>											
42	MMAE 601	Master Thesis I	12	24	MMAE 600 Research Seminar (4703) (P)			2 year Gr SEDS Mechanical Engineering, 2 year Gr SEDS Mechanical and Aerospace Engineering			
43	MMAE 603	Modern Control Engineering	3	6				1 year Gr SEDS Mechanical Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
44	MMAE 605	Advanced Manufacturing Processes & Strategies	3	6				1 year Gr SEDS Mechanical Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
45	MMAE 710	Space Structures Design	3	6				2 year Gr SEDS Mechanical Engineering, 2 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
46	MMAE 713	Computational Fluid Structure Interaction	3	6				2 year Gr SEDS Mechanical Engineering, 2 year Gr SEDS Mechanical and Aerospace Engineering	1 year Gr SEDS, 1 year Gr SMG, 2 year Gr SEDS, 2 year Gr SEDS (pending graduation), 2 year Gr SMG	2 year PhD SEDS Science, Engineering and Technology, 3 year PhD SEDS Science, Engineering and Technology, 4 year PhD SEDS Science, Engineering and Technology, 5 year PhD SEDS Science, Engineering and Technology	
<b>Robotics and Mechatronics</b>											
47	ROBT 501	Robot Manipulation and Mobility	3	6				Robotics	SEDS		
48	ROBT 503	Dynamic Systems and Control	3	6				Robotics	SEDS		

49	ROBT 611	Industrial Robotics	3	6	ROBT 501 Robot Manipulation and Mobility (2263) (C- and above) AND CSCI 501 Software Principles and Practice (2408) (C- and above)			Robotics	SEDS		
50	ROBT 613	Brain-Machine Interfaces	3	6				Robotics	SEDS		
51	ROBT 615	Optimal Control and Planning	3	6	ROBT 501 Robot Manipulation and Mobility (2263) (C- and above) AND ROBT 503 Dynamic Systems and Control (2264) (C- and above)			Robotics	SEDS		