

Course Requirements and Registration Priorities
School of Engineering and Digital Sciences (Master), Fall 2023

#	Abbr	Title	Cr(US)	Cr(ECTS)	PreRequisite	CoRequisite	AntiRequisite	1st priority registration	2nd priority registration	3rd priority registration	4th priority registration
SEDS											
Chemical and Materials Engineering											
1	MBME 601	Master Thesis I	12	24				2 year Gr SEDS Biomedical Engineering			
2	MBME 603	Biomaterials Science & Engineering	3	6				1 year Gr SEDS Biomedical Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG	
3	MBME 604	Biosensors	3	6				1 year Gr SEDS Biomedical Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG	
4	MBME 610	Anatomy and Physiology for Biomedical Engineers	3	6				1 year Gr SEDS Biomedical Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG	

5	MBME 710	Biophotonics	3	6				2 year Gr SEDS Biomedical Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG	
6	MCHME 601	Master Thesis I	12	24				2 year Gr SEDS Chemical and Materials Engineering			
7	MCHME 603	Advanced Materials Processing	3	6				1 year Gr SEDS Chemical and Materials Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG	
8	MCHME 604	Advanced Materials Characterization Methods	3	6				1 year Gr SEDS Chemical and Materials Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG	
9	MCHME 605	Advanced Chemical Reaction Engineering	3	6				1 year Gr SEDS Chemical and Materials Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG	

10	MCHME 714	Computational Materials Engineering	3	6				2 year Gr SEDS Chemical and Materials Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG	
Civil Engineering											
11	MSC 600	Research Methods and Ethics	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS Engineering Management	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	
12	MSC 601	Technical Communication	3	6				SEDS, SMG			
13	MSC 602	Advanced Applied Mathematics	3	6				1 year Gr SEDS Electrical and Computer Engineering, 1 year Gr SEDS Mechanical and Aerospace Engineering, Biomedical Engineering, Chemical and Materials Engineering	1 year Gr SEDS Civil and Environmental Engineering, 2 year Gr SEDS Electrical and Computer Engineering		
14	MSC 615	Advanced Statistics and Probability	3	6				1 year Gr SEDS Engineering Management			

Civil and Environmental Engineering

15	EMEM 507	Project Management	3	6				1 year Gr SEDS Engineering Management	2 year Gr SEDS Engineering Management	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	
16	EMEM 523	Supply Chain Management	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS Engineering Management	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	

17	EMEM 533	Engineering Management and Engineering Economy	3	6				1 year Gr SEDS Engineering Management	2 year Gr SEDS Engineering Management	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	
18	EMEM 535	Managing Product and Service Development	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS Engineering Management	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	

19	EMEM 537	Engineering Decision Tools	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS Engineering Management	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	
20	EMEM 538	Knowledge and Innovation Management	3	6				1 year Gr SEDS Engineering Management	2 year Gr SEDS Engineering Management	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	

21	EMEM 539	Big Data and Information Management	3	6				1 year PhD SEDS Civil Engineering, 2 year Gr SEDS Engineering Management	1 year Gr SEDS Engineering Management	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	
22	EMEM 549	Capstone Project I	3	6				2 year Gr SEDS Engineering Management	1 year Gr SEDS Engineering Management		
23	MCEE 601	Master Thesis I	12	24	MCEE 600 Research Seminar (4692) (P)			2 year Gr SEDS Civil and Environmental Engineering			
24	MCEE 603	Finite Element Methods	3	6				1 year Gr SEDS Civil and Environmental Engineering	1 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	

25	MCEE 604	Advanced Soil Mechanics	3	6				1 year Gr SEDS Civil and Environmental Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG		
26	MCEE 605	Advanced Environmental Chemistry	3	6				1 year Gr SEDS Civil and Environmental Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG		
27	MCEE 708	Advanced Foundation Engineering	3	6				2 year Gr SEDS Civil and Environmental Engineering				
Computer Science												
28	CSCI 501	Software Principles and Practice	3	6				Computer Science, Robotics	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering	SSH		
29	CSCI 511	Theory of Computation	3	6				Computer Science, Data Science	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SSH		

30	CSCI 515	Modeling and Simulation for Computer Science	3	6				Computer Science, Data Science	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SSH	
31	CSCI 535	Wireless Communication and Networks	3	6				Computer Science, Data Science			
32	CSCI 585	Computer Vision	3	6				Computer Science, Data Science	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SSH	
33	CSCI 594	Deep Learning	3	6				Computer Science, Data Science	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics		
34	CSCI 693	Thesis Proposal	3	6	SEDS 591 Research Methods (3184) (C- and above)			2 year Gr SEDS Computer Science			
35	DS 501	Fundamentals of Data Science	3	6				Data Science			
36	DS 502	Probability and Statistics for Data Science	3	6				Data Science	Computer Science		
37	DS 507	Database Management Systems	3	6				Data Science	Computer Science		
38	DS 551	Process and Project Management	3	6				Data Science	Computer Science		
39	DS 552	Data-Driven Innovation	3	6				Data Science	Computer Science		

40	DS 693	Thesis Proposal	3	6	SEDS 591 Research Methods (3184) (C- and above)			2 year Gr SEDS Data Science			
41	SEDS 503	Laboratory Practicum	3	6	SEDS 502 Teaching Practicum (2824) (P)			Computer Science, Data Science, Robotics			
42	SEDS 591	Research Methods	3	6				Computer Science, Data Science, Robotics			
Electrical and Computer Engineering											
43	MECE 601	Master Thesis I	12	24				2 year Gr SEDS Electrical and Computer Engineering	1 year Gr SEDS Electrical and Computer Engineering		
44	MECE 603	Advanced Data Structures and Algorithms	3	6				1 year Gr SEDS Electrical and Computer Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics		
45	MECE 605	Statistics and Probability for Electrical and Computer Engineers	3	6				1 year Gr SEDS Electrical and Computer Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics		
46	MECE 606	Embedded Systems and Applications	3	6				1 year Gr SEDS Electrical and Computer Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics		

47	MECE 724	System Modelling and Control	3	6				2 year Gr SEDS Electrical and Computer Engineering	1 year Gr SEDS Electrical and Computer Engineering		
48	MECE 726	Modern Semiconductor Devices and Systems	3	6				2 year Gr SEDS Electrical and Computer Engineering	1 year Gr SEDS Electrical and Computer Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	
49	MECE 727	Biosensors	3	6				2 year Gr SEDS Electrical and Computer Engineering	1 year Gr SEDS Electrical and Computer Engineering		
50	MECE 728	Renewable and Sustainable Energy	3	6				2 year Gr SEDS Electrical and Computer Engineering	1 year Gr SEDS Electrical and Computer Engineering		
Mechanical and Aerospace Engineering											
51	MMAE 600	Research Seminar	3	6				1 year Gr SEDS Mechanical and Aerospace Engineering	2 year Gr SEDS Mechanical and Aerospace Engineering		
52	MMAE 601	Master Thesis I	12	24	MMAE 600 Research Seminar (4703) (P)			2 year Gr SEDS Mechanical and Aerospace Engineering			

53	MMAE 603	Modern Control Engineering	3	6				1 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG	
54	MMAE 605	Advanced Manufacturing Processes and Strategies	3	6				1 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG	
55	MMAE 702	Sustainable Vehicle Transportation Systems	3	6				2 year Gr SEDS Mechanical and Aerospace Engineering	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering, Robotics	SMG	
56	MMAE 713	Computational Fluid Structure Interaction	3	6				2 year Gr SEDS Mechanical and Aerospace Engineering			
Robotics and Mechatronics											
57	ROBT 501	Robot Manipulation and Mobility	3	6				Robotics	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering		

58	ROBT 503	Dynamic Systems and Control	3	6			Robotics	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering		
59	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)		Computer Science, Robotics	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering	Applied Mathematics, Physics	
60	ROBT 613	Brain-Machine Interfaces	3	6			Robotics	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering		
61	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	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering		

62	ROBT 691	Thesis Proposal	6	12				Robotics	Biomedical Engineering, Chemical Engineering, Chemical and Materials Engineering, Civil Engineering, Civil and Environmental Engineering, Computer Science, Data Science, Electrical and Computer Engineering, Electrical and Electronic Engineering, Engineering Management, Industrial and Systems Engineering, Mechanical Engineering, Mechanical and Aerospace Engineering		
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