

Sample Course Sequence for Material Science and Engineering

Fall Year 1

Subject Code	Course Number	Course Title	Hours per Week		Semester Credit Hours
			Class	Lab	
EMSE	102	Materials Science Seminar	1	0	1
EMSE	201	Introduction to Materials Science and Engineering	3	0	3
EMSE	310	Applications of Diffraction Principles (Lab)	0	2	1
EMSE	312	Diffraction Principles	3	0	3
EMSE	314	Electrical, Magnetic, and Optical Properties of	3	0	3
CHEM	355	Physical Chemistry I	3	0	3
		Open Elective (if needed)	3	0	3
			16	2	17

Spring Year 1

Subject Code	Course Number	Course Title	Hours per Week		Semester Credit Hours
			Class	Lab	
EMSE	270	Materials Lab I	0	3	2
EMSE	202	Phase Diagrams and Phase	3	0	3
ENGL	398N	Professional Communications for	3	0	3
ENGR	200	Statics and Strength of Materials	3	0	3
ENGR	210	Introduction to Circuits and	3	2	4
			12	5	15

Fall Year 2

Subject Code	Course Number	Course Title	Hours per Week		Semester Credit Hours
			Class	Lab	
EMSE	280	Materials Lab II	0	3	2
EMSE	203	Applied Thermodynamics	3	0	3
EMSE	301	Fundamentals of Materials Processing	3	0	3
EMSE	302	Fundamentals of Materials Processing Lab	0	3	1
EMSE	398	Senior Project in Materials I	0	2	1
ENGR	225	Thermo, Fluid Dynamics, Heat & Mass Transfer	4	0	4
		Technical Elective	3	0	3
		Open Elective (if needed)	3	0	3
			16	8	20

Spring Year 2

Subject Code	Course Number	Course Title	Hours per Week		Semester Credit Hours
			Class	Lab	
EMSE	290	Materials Lab III	0	3	2
EMSE	303	Mechanical Behavior of Materials	3	0	3
EMSE	313	Engineering Applications of Materials	3	0	3
EMSE	399	Senior Project in Materials II	0	4	2
		Technical Elective	3	0	3
		Technical Elective	3	0	3
		Open Elective (if needed)	3	0	3
			15	7	19

Please Note: The course sequence serves as an example of the classes necessary to complete the Dual Degree Program. Courses and the semesters taken will be based on the student's transfer credit and discussion with the Case Western Reserve University faculty advisor.