



Students must take the equivalent of the following courses at their liberal arts college before entering CWRU

General Requirements for Dual Degree Program		
Course	Course Title	Semester Credit Hours
MATH		
MATH 121	Calculus for Science & Engineering I	4
MATH 122	Calculus for Science & Engineering II	4
MATH 223	Calculus for Science & Engineering III	3
MATH 224	Elementary Differential Equations	3
CHEMISTRY		
CHEM 105	Principles of Chemistry I	3
CHEM 106	Principles of Chemistry II	3
CHEM 113	Principles of Chemistry Laboratory	2
PHYSICS		
PHYS 121	General Physics I-Mechanics	4
PHYS 122	General Physics II-Electricity and Magnetism	4
COMPUTER PROGRAMMING		
Students must take one of the following: EECS 132 should be taken by Computer Engineering majors and computer tracks of BME (Biomedical Computing and Analysis) All other majors should take ENGR 131		
ENGR 131	Elementary Computer Programming (MATLAB)	3
EECS 132	Introduction to Programming in Java	3

Sample Course Sequence for Mechanical Engineering

NOTE: Before entering CWRU, it is highly recommended that students have taken **PHYS 221** (Intro to Modern Physics) or **STAT 312** (Basic Statistics for Engineers and Science). This can be taken in the summer prior to the first fall semester or at the liberal arts college, if equivalent course is available. An additional year may be required to complete the BSE degree otherwise.

The following courses are built into the sample course sequence but an equivalent course could be taken at the liberal arts college or during the summer to lessen the amount of credit hours taken each semester at CWRU.

Course	Course Title	Semester Credit Hours
ENGR 200	Statics and Strengths of Materials	3
ENGR 210	Intro to Circuits and Instrumentation	4
EMAE 181	Dynamics	3
EMAE 250	Computers in Mechanical Engineering	3

Year 1 Fall

Course	Course Title	Semester Credit Hours
EMAE 160	Mechanical Manufacturing	3
EMAE 250	Computers in Mechanical Engineering	3
EMAE 350	Mechanical Engineering Analysis	3
ENGR 145	Chemistry of Materials	4
ENGR 200	Statics and Strengths of Materials	3
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Year 1 Spring

Course	Course Title	Semester Credit Hours
EECS 304	Control Engineering with Lab	3
EMAE 181	Dynamics	3
EMAE 251	Thermodynamics	3
EMAE 260	Design and Manufacturing I	3
ENGR 210	Intro to Circuits and Instrumentation	4
ENGL 398	Professional Communication for Engineers	2
ENGR 398	Professional Communication for Engineers	1
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Year 2 Fall

Course	Course Title	Semester Credit Hours
ECIV 310	Strength of Materials	3
EMAE 252	Fluid Mechanics	3
EMAE 285	Mechanical Engineering Measurements Lab	4
EMAE 360	Design and Manufacturing II	3
	Technical Elective	3
	Technical Elective	3
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Year 2 Spring

Course	Course Title	Semester Credit Hours
EMAE 353	Heat Transfer	3
EMAE 355	Design of Fluid & Thermal Elements	3
EMAE 370	Design of Mechanical Elements	3
EMAE 398	Senior Project	3
	Technical Elective	3
	Technical Elective	3
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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.