

# ENGINEERING SCIENCE AT MANCHESTER COLLEGE

## I. The General Education courses

Course Number	Semester Hours	Course Title or Category	47 Hours
Eng 110	3	Written Communication	
Comm 110	3	Oral Communication	
Math xxx	3‡	Mathematics ( <i>placement test determines course</i> )	
Hist 101	4	Western Civilization	
Choice	3	Christian Tradition	
PE 100/101	2	Physical Education	
Choice	6	Humanities (Arts, Philosophy)	
Choice	6†	Natural Sciences (Chemistry, Earth/Space, Biology, Physics)	
Choice	3*	Social Sciences (Political Science, Psychology, Sociology)	
Choice	3	Critical Connections	
Choice	9	Cultural Connections	
	2	Values, Ideas, and Arts	

† These requirements will be fulfilled by General Physics II & Fundamentals of Chemistry (*required*).

‡ This requirement will be fulfilled by Calculus I (*required*).

\* Econ 222 fulfills 3 credits of this Gen. Ed. category and is required for Columbia University program

## II. The Engineering Science Major

Course Number	Semester Hours	Course Title	53 Hours
Phys 210	4	General Physics I	( <i>fulfills General Education requirement</i> )
Phys 220	4	General Physics II	
Math 121	4	Calculus I	( <i>fulfills General Education requirement</i> )
Math 122	4	Calculus II	
Math 245	3	Ordinary Differential Equations	
Math 251	4	Linear Algebra I	
Math 231	4	Multivariable Calculus	
CPTR 105	3	Computer Programming I	
Chem 111	3	Fundamentals of Chemistry I	( <i>fulfills General Education requirement</i> )
Chem 111L	1	Fundamentals of Chemistry I Lab	
Chem 211	3	Fundamentals of Chemistry II	
Chem 211L	1	Fundamentals of Chemistry II Lab	
Econ 222*	3	Principles of Macroeconomics*	
			41 Hours

### Choose of the following tracks:

#### **Emphasis in Physics:**

Phys 301	3	Electricity and Magnetism	
Phys 301L	1	Electricity and Magnetism Lab	
Phys 310	3	Modern Physics	
Phys 310L	1	Modern Physics Lab	
Phys 320	3	Analytical Mechanics (W)	
Phys 320	1	Analytical Mechanics Lab	
			12 Hours

#### **Emphasis in Chemistry:**

CHEM 233	4	Analytical Chemistry	
CHEM 311	3	Organic Chemistry I	
CHEM 311L	1	Organic Chemistry Lab	
CHEM 341	3	Physical Chemistry	
CHEM 341L	1	Physical Chemistry Lab	
			12 Hours

### Senior Year is taken at an Engineering School

Questions? Please contact Dr. Gregory W. Clark, 260-982-5071 or gwclark@manchester.edu.