PRE-ENGINEERING PROGRAM

This program establishes a freshman and sophomore curriculum leading to transfer admission by Articulation Agreement (2+3, 3+3) to a Bachelor of Science degree program in one of the engineering disciplines at the:

University of Massachusetts-Lowell:
Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Mechanical Engineering, Plastics Engineering, and Engineering Technology
University of Massachusetts-Dartmouth:
Bio-Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Mechanical Engineering
Mass Maritime Academy:
Energy Engineering, Facilities Engineering.
Worcester Polytechnic Institute:

Each student who enters the program will be assigned an advisor from the Department of Physics and Earth Sciences. By the end of their freshman year, students should be considering what specific area of engineering they wish to transfer into at the above-mentioned institutions. It may be necessary for transfer students to schedule summer session coursework if they wish to complete all degree requirements over a four-year period.

The program of study during the two years at Framingham State University is shown below. Each incoming student must pass the mathematics placement examination in order to register for a credit- bearing mathematics course. Students must do well on this examination to begin the mathematics sequence with Calculus I. Students who do not place into the Calculus I course are required to take additional mathematics prior to taking Calculus I. Courses to be taken during the sophomore year of the program depend, to some extent, on the choice of engineering concentration.

Option A: 2+ Program Required Courses (16)

Required Core Courses, common to all 2-3 engineering options (13 courses, 14 credits):

_____	CHEM 107/107L	Principles of Chemistry with Lab
_____	CHEM 108/108L	Prin. of Chem. and Quant. Analysis
_____	CSCI 130	Computer Science I Using Java
_____	ECON 102	Principles of Microeconomics
_____	EGNR 101	Introduction to Engineering
_____	ENGL 311	Writing for Science
	or ENGL 272	Technical Writing
_____	ENVS 202	Data Analysis for Scientists
_____	ENWR 110	Composition II
_____	MATH 219	Calculus I
_____	MATH 220	Calculus II
_____	MATH 221	Calculus III
_____	PHYS 211/211L	Principles of Physics I with Lab
_____	PHYS 212/212L	Principles of Physics II with Lab

Restricted Electives (Choose 3 courses, 3-3.5 credits)

Science restricted electives (Choose 2 depending on the branch of engineering interest):

_____	BIOL130/130L	Principles of Biology with Lab
_____	CHEM 207/207L	Organic Chemistry I with Lab
_____	CHEM 208/208L	Organic Chemistry II with Lab
_____	CHEM 241	Intro. to Heat and Mass Transfer
_____	CSCI 156	Python Programming for Applications
_____	EGNR 211	Engineering Statics
_____	EGNR 212	Engineering Dynamics
_____	GEOL 208/208L	Prin. of Physical Geology with Lab
_____	MATH 222	Differential Equations

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Social Science Perspectives, restricted electives (Choose 1 depending on the branch of engineering interest):

_____	ECON 101	Principles of Macroeconomics
_____	ENVS 110	Intro to Environmental Studies & Social Justice
_____	GEOG 260	Intro. to Urban Studies and Planning in the United States
_____	GEOG 380	Making Places Sustainable
_____	PHIL 102	Introduction to Ethics
_____	SOCI 282	Society, Technology, and Future

Option B: 3+ Program Required Courses (24 courses, 25.25-25.75 credits)

Required Core Courses, common to all 3+3 engineering options (18 courses, 19.25 credits):

_____	CHEM 107/107L	Principles of Chemistry with Lab
_____	CHEM 108/108L	Prin. of Chem. and Quant. Analysis
_____	CSCI 130	Computer Science I Using Java
_____	CSCI 215	Computer Science II Using Java
_____	EASC 201	Earth System Science
_____	ECON 102	Principles of Microeconomics
_____	EGNR 101	Introduction to Engineering
_____	ENGL 311	Writing for Science
	or ENGL 272	Technical Writing
_____	ENVS 202	Data Analysis for Scientists
_____	ENWR 110	Composition II
_____	GEOL 208/208L	Physical Geology with Lab
_____	MATH 123	Introduction to Functions
_____	MATH 180	Precalculus
_____	MATH 219	Calculus I
_____	MATH 220	Calculus II
_____	MATH 221	Calculus III
_____	PHYS 211/211L	Principles of Physics I with Lab
_____	PHYS 212/212L	Principles of Physics II with Lab

Restricted Electives (Choose 6 courses, 6-6.5 credits)

Science restricted electives (Choose 4 depending on the branch of engineering interest):

_____	BIOL130/130L	Principles of Biology with Lab
_____	CHEM 207/207L	Organic Chemistry I with Lab
_____	CHEM 208/208L	Organic Chemistry II with Lab
_____	CHEM 241	Intro. to Heat and Mass Transfer
_____	CSCI 333	Object Oriented Programming Using C++
_____	EGNR 211	Engineering Statics
_____	EGNR 212	Engineering Dynamics
_____	MATH 222	Differential Equations

Social Science Perspectives, restricted electives (Choose 2 depending on the branch of engineering interest):

_____	ECON 101	Principles of Macroeconomics
_____	ENVS 110	Intro to Environmental Studies & Social Justice
_____	GEOG 260	Intro. to Urban Studies and Planning in the United States
_____	GEOG 380	Making Places Sustainable
_____	PHIL 102	Introduction to Ethics
_____	SOCI 282	Society, Technology, and Future