

# Elective Focus Area in Mechanical Engineering

## Energy and Environment

The Energy and Environment (EAE) EFA provides advanced education in the increasingly important area of energy production, utilization and its environmental impact. Particular attention is given to emerging technologies such as alternative energy sources. The EFA also provides a solid foundation in transport process modeling and an introduction to environmental engineering. Workers in this area must possess not only the fluid dynamics and heat and mass transport modeling ability typical of mechanical or civil engineers, but also a level of understanding of sustainability of engineered systems.

Semester	Course	Session	SH	Pre-/Co-Requisites
4 (Spring)	29:30 Physics IV (with/without labs), <i>or</i>	F,S	4/3	22M:036
	58:111 Numerical Calculations, <i>or</i>	S	3	22M:034
	22M:072 Elementary Numerical Analysis	F,S	3	22M:032, 59:006
5 (Fall)	Elective		3	
6 (Spring)	Elective		3	
7 (Fall)	58:160 Intermediate Mechanics of Fluids <i>or</i>	F	3	57:020, 058:040
	58:145 Intermediate Heat Transfer	F	3	58:045
7 (Fall)	Elective		3	
8 (Spring)	Elective		3	
8 (Spring)	Elective		3	

Energy & Environment Electives (minimum of 2 required)	Session	SH	Pre-/Co-Requisites
12:114 Energy and the Environment	S	3	12:003 or CI*
53:050 Environmental Eng: Natural Systems	S	3	4:011
53:107 Sustainable Systems	S	3	None
56:155 Wind Power Management	S	3	None
58:147 Fuel Cells	F	3	58:040, 58:045 or CI*
58:148 Combustion Engineering	S	3	58:040, 58:045 or CI*
58:149 Propulsion Engineering	F	3	57:020, 58:040
General Electives	Session	SH	Pre-/Co-Requisites
Flexible Elective – Choose one from: (i) engineering courses that are required in another (non-ME) program, (ii) engineering courses at the 100-level, (iii) mathematics, physics or chemistry courses at a more advanced level than those required in the ME curriculum, or (iv) independent investigation in a mechanical engineering subject area	Any	3	*CI: Consent of Instructor  § Under review. Check with instructor
12:008 Introduction to Environmental Science	F,S	3	None
53:071 Principles of Hydraulics & Hydrology	S	3	57:020
53:102 Groundwater	F	3	Grad. standing <sup>§</sup>
53:159 Air Pollution Control Technology	S	3	53:050 or CI*
56:054 Engineering Economy	S	3	/22S:039
58:140 Intermediate Thermodynamics	F	3	58:040
58:143 Computational Fluid and Thermal Engineering	F	3	58:045
58:145 Intermediate Heat Transfer	F	3	58:045
58:160 Intermediate Mechanics of Fluids	F	3	57:020, 58:040
58:186 Enhanced Design Experience	S	3	58:086

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