

Technical Elective Programs

The following summarizes the requirements of the Technical Elective Program in ME / IE:

- A minimum of 15 semester credits of Technical Electives are required.
- Technical Electives must be Upper Division IT courses.
- Non-IT Upper Division courses will be considered by petition only.
- A minimum of 2 Technical Electives must be ME / IE.
- No more than 4 credits of ME 5090 can be used toward the Technical Electives.

Technical Electives Listed by Subject Area

Design & Manufacturing

ME 5221	Computer-Assisted Product Realization – 4 credits
ME 5223	Materials in Design – 4 credits
ME 5228	Introduction to Finite Element Modeling, Analysis, & Design – 4 credits
ME 5231	Digital and Analog Control Lab – 4 credits
ME 5241	Computer Aided Engineering – 4 credits
ME 5243	Advanced Mechanism Design – 4 credits
ME 5247	Stress Analysis, Sensing and Transducers – 4 credits
ME 5248	Vibration Engineering – 4 credits
ME 5281	Analog and Digital Control – 4 credits
ME 5286	Robotics – 4 credits
ME 5288	Modeling & Simulation of Dynamic Systems – 4 credits

Environmental

ME 4131	Thermal Environmental Engineering Laboratory – 4 credits
ME 5101	Vapor Cycle Systems – 4 credits
ME 5103	Thermal Environmental Engineering – 4 credits
ME 5105	HVAC System Design – 4 credits
ME 5113	Aerosol/Particle engineering – 4 credits
ME 5115	Air Quality and Air Pollution Control – 4 credits
ME 5116	Cleanroom Technology and Particle Monitoring – 4 credits
ME 5133	Aerosol Measurement Laboratory – 4 credits
ME 5312	Solar Thermal Technologies – 4 credits

Industrial Engineering

IE 5111	Systems Engineering I
IE 5112	Introduction to Operations Research
IE 5113	Systems Engineering II
IE 5441	Engineering Cost Accounting and Control
IE 5511	Human Factors and Work Analysis
IE 5512	Applied Ergonomics
IE 5513	Engineering Safety
IE 5522	Quality Engineering and Reliability
IE 5531	Engineering Optimization
IE 5541	Project Managements
IE 5545	Decision Analysis
IE 5551	Production Planning and Inventory Control
IE 5552	Design and analysis of Manufacturing Systems
IE 5553	Simulation

ISyE Option Students

Undergraduate students in Mechanical Engineering who select the ISyE option complete the same set of required courses as other Mechanical Engineering Students, but at least 12 out of 15 credits of technical electives must be selected from courses in industrial & Systems Engineering.

Thermal Sciences (Power & Propulsion, Thermodynamics, Heat Transfer, Fluid Mechanics)

ME 5101	Vapor Cycle Systems – 4 credits
ME 5312	Solar Thermal Technologies – 4 credits
ME 5341	Case Studies in Thermal Engineering and Design – 4 credits
ME 5344	Thermodynamics of Fluid Flow with Applications – 4 credits
ME 5348	Heat Transfer in Electronic Equipment – 4 credits
ME 5351	Computational Heat Transfer – 4 credits
ME 5361	Plasma-Aided Manufacturing – 4 credits
ME 5381	Biological Transport Processes – 4 credits
ME 5446	Introduction to Combustion – 4 credits
ME 5461	Internal Combustion Engines – 4 credits
ME 5462	Gas Turbines – 4 credits
ME 5666	Modern Thermodynamics – 4 credits

Non-IT Courses Currently Approved

Phsl 3061	Principles of Physiology – 4 credits
PubH 6171	Air Contaminants – 3 credits
PubH 5174	Control of Workplace Exposure – 3 credits