Mechanical Engineering

The mechanical engineer's training is the broadest among the several fields of engineering. The mechanical engineer uses the techniques of mathematics combined with a specialized knowledge of the thermal and energy sciences, solid and fluid mechanics, and the properties of materials. This information is supplemented by an understanding of manufacturing processes, the design and control of systems, and the economics of the technological community.

Admission to the program is selective. Students should refer to the UK Bulletin for general information concerning admission and graduation requirements.

Degree Requirements

The following curriculum meets the requirements for a Bachelor of Science in Mechanical Engineering, provided the student satisfies the graduation requirements of the College of Engineering.

Freshman Year

First Semester
ME 101 Introduction to Mechanical Engineering .............................. 3
CHE 105 General College Chemistry I .............................................. 3
MA 114 Calculus II ........................................................................ 4
ENG 104 Writing: An Accelerated Foundational Course ................. 4

Second Semester
ME 151 Manufacturing Engineering ............................................. 3
CHE 107 General College Chemistry II .......................................... 3
MA 114 Calculus II ........................................................................ 4
COM 181 Basic Public Speaking ................................................... 3
University Studies* ...................................................................... 3

Sophomore Year

First Semester
PHY 231 General University Physics ............................................. 4
PHY 241 General University Physics Laboratory ............................ 1
MA 213 Calculus III ...................................................................... 4
CS 221 First Course in Computer Science for Engineers ............... 2
ME 205 Computer Aided Engineering Graphics ............................ 3
Second-Tier Writing Requirement Course* ................................... 3

Second Semester
ME 220 Engineering Thermodynamics I ....................................... 3
PHY 242 General University Physics Laboratory ............................ 1
MA 214 Calculus IV ...................................................................... 3
EM 221 Statics ............................................................................ 3
University Studies* ...................................................................... 3

Junior Year

First Semester
ME 321 Engineering Thermodynamics II ..................................... 3
ME 330 Fluid Mechanics ............................................................. 3
EM 302 Mechanics of Deformable Solids ..................................... 3
EM 313 Dynamics ...................................................................... 3
EE 305 Electrical Circuits and Electronics ..................................... 3

Second Semester
ME 311 Engineering Experimentation II ...................................... 3
ME 344 Mechanical Design ........................................................... 3
ME 340 Introduction to Mechanical Systems ............................... 3
Mathematics Elective*** .............................................................. 3

Senior Year

First Semester
ME 411 ME Capstone Design I .................................................... 3
ME 311 Engineering Experimentation II ...................................... 3
ME 440 Design of Control Systems ............................................. 3
ME 501 Mechanical Design with Finite Element Methods ............ 3
Technical Elective† ................................................................. 3

Second Semester
ME 412 ME Capstone Design II .................................................. 3
Technical Elective† ................................................................. 6
Supportive Elective†† ............................................................. 3
University Studies* .................................................................. 6

*To be selected from University Studies areas in Social Sciences, Humanities and Cross-Cultural in conjunction with the academic advisor.

**To be selected in consultation with the academic advisor from acceptable courses as provided in the University of Kentucky Bulletin.

***Mathematics elective must meet two criteria: (1) be offered by the department of mathematics or statistics; and (2) be higher course content than required mathematics courses. See Undergraduate Handbook for suggested courses.

†Technical Electives – see list below.
††The supportive elective is to be chosen from any University course, excluding more elementary versions of required courses, such as precalculus mathematics or PHY 211.

Technical Electives: Students should select from the list below.
BME 501 Foundations of Biomedical Engineering
BME 530 Biomedical Instrumentation
BAE 502 Modeling of Biological Systems
ME 380 Topics in Mechanical Engineering
ME 395 Independent Work in Mechanical Engineering
ME/MFS 503 Lean Manufacturing Principles and Practices
ME/MFS 505 Modeling of Manufacturing Processes and Machines
ME/MSE 506 Mechanics of Composite Materials
ME/MFS 507 Design for Manufacturing
ME/MFS 512 Manufacturing Systems
ME 513 Mechanical Vibrations
ME 527 Applied Mathematics in the Natural Sciences I
ME 530 Gas Dynamics
ME 531 Fluid Dynamics I
ME 532 Advanced Strength of Materials
ME/MSE 556 Introduction to Composite Materials
ME 560 Engineering Optics
ME 563 Basic Combustion Phenomena
ME/BAE 580 Heating, Ventilating and Air-Conditioning
ME 599 Topics in Mechanical Engineering
MSE 201 Materials Science
EGR 599 Topics in Engineering

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