Mechanical Engineering Stems & Technical Electives
Catalog #136
(rev. May 2015)

Stem Courses
6 hours required - Select two (2) of the following 3 courses
- MEEN 421 – Thermo-Fluids Analysis and Design. Prerequisites: MEEN 461; MEEN 315; junior or senior classification.
- MEEN 431 – Advanced System Dynamics and Controls. Prerequisites: MEEN 364; junior or senior classification.
- MEEN 475 – Materials in Design. Prerequisites: CVEN 305; MEEN 360.

Technical Electives
9 hours required - Select from the following groups of which at least one (1) course must be a MEEN Technical Elective

a) MEEN Technical Electives
   - MEEN 408 – Introduction to Robotics. Prerequisite: MEEN 364 or equivalent; junior or senior classification.
   - MEEN 410 – Internal Combustion Engines. Prerequisites: MEEN 344 or equivalent or approval of instructor.
   - MEEN 411 – Mechanical Controls. Prerequisite: MEEN 364.
   - MEEN 414 – Principles of Turbomachinery. Prerequisite: MEEN 421 or approval of instructor; junior or senior classification.
   - MEEN 421* – Thermal-Fluids Analysis and Design. Prerequisites: MEEN 461; MEEN 315; junior or senior classification.
   - MEEN 430 – Nanomaterials. Prerequisites: Junior or senior classification or approval of instructor.
   - MEEN 431* – Advanced System Dynamics and Controls. Prerequisite: MEEN 364; junior or senior classification.
   - MEEN 432 – Automotive Engineering. Prerequisite: MEEN 363.
   - MEEN 433 – Mechatronics. Prerequisite: MEEN 364 or equivalent.
   - MEEN 436 – Principles of Heating, Ventilation and Air Conditioning. Prerequisite: MEEN 461 or equivalent.
   - MEEN 437 – Principles of Building Energy Analysis. Prerequisite: MEEN 315 or equivalent; junior or senior classification.
   - MEEN 441 – Design of Mechanical Components and Systems. Prerequisite: MEEN 368 or approval of instructor.
   - MEEN 442 – Computer Aided Engineering. Prerequisite: MEEN 363 and MEEN 368.
   - MEEN 444 – Finite Element Analysis in Mechanical Engineering. Prerequisite: MEEN 357 and MEEN 368 or equivalents.
   - MEEN 455 – Engineering with Plastics. Prerequisite: MEEN 222 or approval of instructor.
   - MEEN 458 – Processing and Characterization of Polymers. Prerequisite: MEEN 222.
   - MEEN 459 – Mechanical Vibrations. Prerequisites: MEEN 363; MATH 308.
   - MEEN 460 – Corrosion Engineering. Prerequisite: MEEN 360 or equivalent.
   - MEEN 467 – Mechanical Behavior of Materials. Prerequisite: MEEN 360.
   - MEEN 471 – Elements of Composite Materials. Prerequisites: MEEN 368 and 360 or approval of instructor.
   - MEEN 472 – Gas Dynamics. Prerequisite: MEEN 344.
   - MEEN 475* – Materials in Design. Prerequisite: MEEN 360; CVEN 305
   - MEEN 476 – Nanoscale Issues in Manufacturing. Prerequisites: MEEN 222 or approval of instructor; junior or senior classification.
   - MEEN 477 – Air Pollution Engineering. Prerequisite: CVEN 305.
   - MEEN 489 – Special Topics in Mechanical Engineering

* MEEN Stem course will qualify as a MEEN technical elective only after a student has taken at least two MEEN Stem courses prior.

b) Energy Engineering Certificate: 300 or 400-level engineering courses listed at http://essap.tamu.edu/energy.htm
c) Engineering Project Management Certificate: 300 or 400-level engineering courses listed at http://essap.tamu.edu/project-mgmt.htm
d) Polymer Specialty Certificate: 300 or 400-level engineering or science courses listed at http://essap.tamu.edu/polymer.htm
e) Systems Safety Engineering Specialty Certificate: 300 or 400-level engineering courses listed at http://essap.tamu.edu/safety.htm
f) Mathematics: MATH 304, 311, 401, 407, 409, 411, 412
g) Physics: PHYS 222
h) Chemistry: CHEM 222
i) Biology: BIOL 113 and 123 (lab)
j) Statistics: STAT 211, 414
k) Geology: GEOL 104
l) COOP: 3 hours of ENGR 385 may be used.
m) Directed Studies: 3 hours of MEEN 485 may be used.
n) Research: 3 hours of MEEN 491 may be used.
o) Other 300 and 400-level College of Engineering Courses as approved by the Mechanical Engineering Advising Office.