

## Mechanical Engineering Stems & Technical Electives

(Catalog 132)

[rev. July 2009]

### STEMS

- 6 hours required.
- Select 2 of the following 3 courses.
  - MEEN 421 – Thermo-Fluids Analysis and Design. Prerequisites: MEEN 461; MEEN 227; 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.
  - At least 1 MEEN Electives Required.
    - 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: MEEN461;MEEN 227; junior or senior classification.
    - 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 227 or equivalent; junior or senior classification.
    - MEEN 441 – Design of Mechanical Components and Systems. Prerequisite: Junior classification in MEEN.
    - MEEN 442 – Computer Aided Engineering. Prerequisite: MEEN 363 and MEEN 368.
    - MEEN 444 – Finite Element Analysis in Mechanical Engineering. Prerequisite: MEEN 357and 368 or equivalents.
    - MEEN 448 – Fundamentals of Nondestructive Testing. Prerequisite: MEEN 360.
    - 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: MEEN360.
    - 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.
  - a) Energy Engineering Certificate: 300 or 400-level engineering courses listed at <http://essap.tamu.edu/energy.htm>
  - b) Engineering Project Management Certificate: 300 or 400-level engineering courses listed at <http://essap.tamu.edu/project-mgmt.htm>
  - c) Polymer Specialty Certificate: 300 or 400-level engineering or science courses listed at <http://essap.tamu.edu/polymer.htm>
  - d) Systems Safety Engineering Specialty Certificate: 300 or 400-level engineering courses listed at <http://essap.tamu.edu/safety.htm>
  - e) Mathematics: MATH 304, 311, 401, 407, 409, 411, 412
  - f) Physics: PHYS 222
  - g) Chemistry: CHEM 222
  - h) Biology: BIOL 113 and 123 (lab)
  - i) Statistics: STAT 211, 414
  - j) Geology: GEOL 104
  - k) COOP: 3 hours of ENGR 385 may be used.
  - l) Directed Studies: 3 hours of MEEN 485 may be used.
  - m) Research: 3 hours of MEEN 491 may be used.
  - n) Other 300 and 400-level College of Engineering Courses as approved by the Mechanical Engineering Advising Office.