To be adopted:

Proposed Change in B.S. Degree
Mechanical Engineering

Present

Course Requirements:

1. Lower-division requirements: (76 units)
   a) Biological Science elective
   b) CHEM 001A-CHEM 001B-CHEM 001C
   c) CS 010
   d) EE 001A, EE 001LA
   e) MATH 009A-MATH 009B-MATH 009C,
      MATH 010A, MATH 010B, MATH 046
   f) ME 007, ME 009, ME 010, ME 014
   g) PHYS 040A, PHYS 040B, PHYS 040C

2. Upper Division Requirements: (81 units)
   a) EE 132
   b) ENGR 118
   c) ME100A, ME100B, ME 103, ME 110, ME 115A, ME 115B, ME-116, ME 120, ME 130, ME 170A, ME 170B, ME 175A, ME 175B
   d) STAT 40 or STAT 155
   e) Technical electives (16 units); four courses, selected from the following list, in consultation with an advisor:
      CHE 136, EE 144, ME 117, ME 122, ME 131, ME 133, ME 153

Proposed

Course Requirements:

1. Lower-division requirements: (76 units)
   a) Biological Science elective
   b) CHEM 001A-CHEM 001B-CHEM 001C
   c) CS 010
   d) EE 001A, EE 001LA
   e) MATH 009A-MATH 009B-MATH 009C,
      MATH 010A, MATH 010B, MATH 046
   f) ME 007, ME 009, ME 010, ME 014
   g) PHYS 040A, PHYS 040B, PHYS 040C

2. Upper Division Requirements: (81 units)
   a) ENGR 118
   b) ME100A, ME100B, ME 103, ME 110, ME 115A, ME 115B, ME 116A, ME 120, ME 121, ME 130, ME 170A, ME 170B, ME 175A, ME 175B
   c) STAT 40 or STAT 155
   d) Technical electives (16 units); four courses, selected from the following list, in consultation with an advisor:
      ME 116B, ME 117, ME 122, ME 131, ME 133, ME 136, ME 137, ME 153
Justification

The revised curriculum is designed to accomplish the following objectives:

1. ME 121 (System Dynamics and Control) extends the existing course ME 120 (Dynamic Systems). As ME 121 includes an application of control theory to mechanical systems, EE 132 (Automatic Control) is deleted from the list of required courses.

2. ME 116B (Heat Transfer) is a second heat transfer course. The required course ME 116 has been renamed to ME 116A to indicate its continuation to the (optional) technical elective, ME 116B. The new elective ME 116B cover additional topics not covered in ME 116A and also revisits some topics covered in ME 116A to provide depth. By the creation of ME 116B, a more major-specific approach to the advanced study of heat transfer, CHE 136 is no longer necessary as a technical elective.

3. Additional technical electives are introduced. ME 116B is discussed above. ME 136 (Environmental Impacts of Energy Production and Conversion) covers aspects relevant for mechanical engineers of energy production from non-renewable and renewable sources as well as energy conversion. The course applies principles from thermodynamics, fluid mechanics, and heat transfer. ME 137 (Geophysical Fluid Mechanics) applies the theory of fluid mechanics to flow in the atmosphere and oceans.

4. EE 144 is essentially replaced by last year’s addition of ME 133, Mechatronics. The ME course presents comparable material in a more major-specific context. It is offered in the same term as EE 144 has historically been offered to ease the transition from one elective to another, while promoting enrollment in courses of the major discipline. Further, the elimination of EE 132 as a degree requirement removes the EE 144 prerequisite, making enrollment in the EE elective less practical.

Effective: Fall 2002

Approved by the Mechanical Engineering Faculty on 10/24/2001
Approved by the Executive Committee, College of Engineering on 4/16/02
Approved by the Committee on Educational Policy on 5/6/02