THE UNIVERSITY OF MARYLAND, COLLEGE PARK
PROGRAM/CURRICULUM PROPOSAL

DIRECTIONS: Provide one form with original approval signatures in lines 1 - 4 for each proposed action. Keep this form to one-page in length. Forms and appropriate attachments should be submitted to the Office of Academic Affairs, who will assign a Log Number to each proposal. Additional copies may be required at a later time.

DATE SUBMITTED: May 14, 2003

PCC LOG NO. 03016

COLLEGE/SCHOOL: Engineering

DEPARTMENT/PROGRAM: Mechanical Engineering

PROPOSED ACTION (A separate form for each) ADD DELETE CHANGE X

DESCRIPTION (Provide a succinct account of the proposed action. Additional detail may be provided in an attachment. Provide old and new sample programs for curriculum changes.)

Two modifications to the PhD curriculum are proposed:

1. Only 2 Mathematics courses are required; this requirement can be satisfied by either 600-level MATH, STAT or AMSC courses, or by selected 600-level ME courses. The old requirement was 3 courses, including several 400-level MATH courses.

2. No ENME 400-level courses are allowed.

A description of the present and proposed course requirements is attached.

JUSTIFICATION/REASONS/RESOURCES (Explain the reason for the proposed action. Identify the source of new resources that may be required. Attach additional material if needed.)

The purpose of the first change is to improve the mathematical background of PhD students, by requiring them to take more advanced courses, while at the same time giving the student more flexibility in choosing their plan of studies. The second change also tries to enforce more rigorous standards, and is based on the consideration that ENME 400-level courses are too easy for ME Ph.D. students; students who need to refresh undergraduate material should do so on their own, and not receive coursework credit for it. No additional resources are required.

APPROVAL SIGNATURES

1. Department Committee Chair
   Ugo Piscelli
   Date: May 12, 2003

2. Department Chair
   Avram Bar-Cohen
   Date: May 12, 2003

3. College/School PCC Chair
   Date: 10/16/03

4. Dean
   Date: 5/16/03

5. Dean of the Graduate School (if required)
   Date: 11/10/03

6. Chair, Senate PCC
   Date: 11/11/03

7. Chair of Senate
   Date: 11/11/03

8. Vice President for Academic Affairs & Provost
   Date: 11/11/03

VPAAP Rev. 2/2/98

PCC-AY03-01-ME
November 21, 2003

MEMORANDUM

TO: Nariman Farvardin
   Dean, A. James Clark School of Engineering

FROM: Victor Korenman
   Associate Provost for Academic Planning and Programs

SUBJECT: Proposal to Revise the Requirements for the Ph.D. Degree in Mechanical Engineering (PCC Log No. 03016)

At its meeting on November 21, 2003, the Senate Committee on Programs, Curricula, and Courses approved your proposal to revise the requirements for the Ph.D. degree in Mechanical Engineering. A copy of the approved proposal is enclosed.

The change is effective in the Spring semester, 2004. The School should ensure that this change is appropriately reflected in all university documentation, and that all advisors are informed.

VK: sfm
Enclosure

Cc: Dr. Sylvester Gates, Chair, Senate PCC
Dr. Mary Giles, University Senate
Ms. Barbara Hope, Data Administration
Ms. Trudy Lindsey, Graduate Studies
Dr. Gary Pettmer, A. James Clark School of Engineering
Ms. Anne Turkos, Archives
Mr. Frank Valines, Student Financial Aid
Dr. Linda Yokoi, Records & Registrations
Present Course requirements for Ph.D. students in the ME Department
(The proposed changes are boldfaced)

The Ph.D. course work plan must contain a minimum of 42 credits of graduate course work. A minimum of 18 credits of course work must be taken at the University of Maryland. Students with a Master’s degree from another accredited institution may, upon approval of the student’s advisor, transfer and include up to 24 credits of graduate course work. Plans that include graduate work completed at other academic institutions must be accompanied by appropriate documentation to verify the level of work, and to confirm that the work will not be duplicated by the courses that will be taken at the University of Maryland. Except for 400-level mathematics courses, all credits must be derived from courses taken at the 600-level or above. Non-math 400-level courses are allowed only if taken in accordance with the advisor’s recommendation and as graduate courses when no graduate equivalents exist. Course work plans that include such courses must be accompanied by a statement from the advisor justifying the recommendation and by a statement from the instructor that the course was taken at the graduate level. The course work should contain a minimum of 9 credits of mathematics courses. Interdisciplinary programs will be given favorable consideration.

A list of 400-level courses that have been predetermined to satisfy the mathematics requirement follows:

| CMSC 467* INTRO TO NUMERICAL ANALYSIS II |
| CMPE 460* ADV. ENGINEERING STATISTICAL METHODS |
| CMPE 467* INTRO TO NUMERICAL ANALYSIS II |
| CMPE 477* METHODS AND MODELS IN APPLIED MATH II |
| MATH 404 FIELD THEORY |
| MATH 414 DIFFERENTIAL EQUATIONS |
| MATH 417 INTRODUCTION TO FOURIER ANALYSIS |
| MATH 436 DIFFERENTIAL GEOMETRY I |
| MATH 452 INTRODUCTION TO DYNAMICS AND CHAOS |
| MATH 453 COMPLEX VARIABLES FOR SCIENTISTS AND ENGINEERS |
| MATH 472* METHODS AND MODELS IN APPLIED MATH I |
| MATH 473* COMBINATORICS AND GRAPH THEORY |
| STAT 411 INTRODUCTION TO STOCHASTIC PROCESSES |
| STAT 440 SAMPLING THEORY |

Proposed Course requirements for Ph.D. students in the ME Department
(The proposed changes are boldfaced)

The Ph.D. course work plan must contain a minimum of 42 credits of graduate course work. A minimum of 18 credits of course work must be taken at the University of Maryland. Students with a Master’s degree from another accredited institution may, upon approval of the student’s advisor, transfer and include up to 24 credits of graduate course work. Plans that include graduate work completed at other academic institutions must be accompanied by appropriate documentation to verify the level of work, and to confirm that the work will not be duplicated by the courses that will be taken at the University of Maryland. All credits must be derived from courses taken at the 600-level or above. 400-level courses offered by other Departments are allowed only if taken in accordance with the advisor’s recommendation. Course work plans that include such courses must be accompanied by a statement from the advisor justifying the recommendation and by a statement from the instructor that the course was taken at the graduate level. No 400-level courses offered by the Mechanical Engineering Department are allowed. Interdisciplinary programs will be given favorable consideration.

The course work plan should contain a minimum of 6 credits of courses in mathematics. Courses that satisfy this requirement are:

1. MATH, STAT or AMSC 600-level and higher.
2. One of the following:
   i. ENME 605: Advanced Systems Control: Linear Systems
   ii. ENME 610: Engineering Optimization
   iii. ENME 625: Multidisciplinary Optimization
   iv. ENME 673: Energy and Variational Methods in Applied Mechanics
   v. ENRE 620: Mathematical Techniques of Reliability Engineering
   vi. ENRE 635: Advanced Methods in Reliability Modeling
   vii. ENRE 643: Bayesian Analysis

The list above will be reviewed periodically by the Graduate Committee, which will make changes whenever appropriate.