



ME CURRICULUM COMMITTEE
Florida International University
Department of Mechanical Engineering
Miami, Florida

MINUTES

September 28, 2002

An emergency meeting of the ME Curriculum Committee members was called on Wednesday, September 25, 2002 to discuss the implementation of Outcomes of the Self-Study Report. The Committee continued its work on Friday, September 27, and Saturday, September 28, 2002.

Present were Drs. Norman Munroe, Cesar Levy, Kuang-Hsi Wu, Yong Tao, Mark Zampino, Carmen Schenck, and Sabri Tosunoglu.

Attached document addresses the action items developed for Outcomes A through N.

Prepared by Drs. Cesar Levy, Kuang-Hsi Wu, Mark Zampino and Sabri Tosunoglu.



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Outcome A

The following items were adopted for Outcome A:

Item 1

- The ME Curriculum Committee has been formed to evaluate ME undergraduate curriculum to insure students receive a standard and adequate background in math, science and engineering field. The Committee is charged to monitor the ME program and improve the program as necessary.
- EGM 3311, Analysis of Engineering Systems, has been made a required course for ME undergraduate students. The revised course description now includes statistics and probability analysis, multivariable systems and numerical methods to find solutions to mechanical, thermal and fluid systems.
- EML 4220 folder in the library has sections with problems and solutions.
- The ME faculty has increased its efforts to utilize the internet infrastructure for teaching purposes. A number of course sites exist and student response to this effort has been positive. Sample pages are attached to this statement.
- ME faculty meeting minutes regarding increased web presence are also added to this folder.
- ME faculty meeting minutes, where Amado Gonzalez informed the ME faculty on web site development, is attached.

Item 2

- Alumni surveys will be sent every year.
- Advisor will provide list of alumni each year.
- Office manager will send out the surveys.
- Staff will evaluate surveys when at least 30% of the surveys are returned and report the results to the ME Curriculum Committee.
- Faculty will discuss and determine changes needed based on results of the surveys. Survey form will be revised as needed yearly.

Item 3

- EML 4220 has a folder in the library with problems and solutions sections.
- The ME faculty has been spending more and more effort to utilize the internet in instruction. For this purpose, a number of course sites exist and student response to this effort has been positive. Sample pages are attached to this statement.
- Faculty meeting minutes regarding increased web presence are also added to this folder.



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Outcome A (continued)

The following items were adopted for Outcome A:

Item 3 (continued)

- ME faculty meeting minutes where Amado Gonzalez informed the faculty on web site development is attached.

Item 4

- Faculty end of semester surveys will evaluate whether courses in math and science provide the proper background for students entering engineering science courses.
- The responses will be used to coordinate with the math, physics and chemistry department chairs on how their courses should be modified to meet our needs.

Item 5

- Student advisor will monitor transcripts to insure prerequisites are properly met each semester.
- Undergraduate advisor will discuss with students whenever there is a problem and report yearly on all problems encountered in meeting this goal.



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Outcome B

The following items were adopted for Outcome B:

Item 1

- Lab instructions will be updated as necessary by the lab manager.
- Lab manager and/or the ME Curriculum Committee with input from the lab manager will continuously evaluate experiments to be taught in lab courses.
- They will suggest new experiments and equipment needed to support new experiments.
- The ME Curriculum Committee in conjunction with lab manager will re-evaluate all labs biannually.

Item 2

- The ME Curriculum Committee will re-evaluate each course in the mechanical and fluid/thermal stems biannually.

Item 3

- Lab manager will increase the time available for students to access labs to conduct their experiments.
- Periods that labs are available will be announced to the students at the beginning of each semester so that students can schedule their labs well in advance.

Item 4

- Each semester the ME Curriculum Committee will evaluate the results of the faculty survey and design a plan to improve the weaknesses defined by the survey.
- This plan will be brought to the full faculty meeting for discussion, development of a plan and implementation.

Item 5

- Alumni surveys will be sent every year.
- The ME undergraduate advisor will provide list of alumni each year.
- Office manager will send out the surveys.
- Staff will evaluate surveys when at least 30% of the surveys are returned and report the results to the ME Curriculum Committee.
- Faculty will discuss and determine changes needed based on results of the surveys. Survey form will be revised as needed yearly.



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Outcome C

The following items were adopted for Outcome C:

Item 1

- Industrial Advisory Board survey will be sent annually. Its results will be evaluated by the ME Curriculum Committee.
- A plan will be drawn up by the ME Curriculum Committee and presented to the full faculty at the first faculty meeting after plan is completed.
- Faculty will discuss the plan, modify it if necessary, and implement the plan.

Item 2

- Each semester, the staff will calculate the grade distribution and report the results to the department Chair.
- The Chair and the ME Curriculum Committee will evaluate the results and take appropriate action to meet the desired results.

Item 3

- No additional items to be included.

Item 4

- The ME Curriculum Committee will discuss the capstone courses and their relevance and timeliness in its biannual evaluation of courses.
- Modifications will be presented to the full faculty at the closest faculty meeting for discussion and implementation.

Item 5

- Alumni Surveys will be sent every year.
- The ME undergraduate advisor will provide list of alumni each year.
- Office manager will send out the surveys.
- Staff will evaluate surveys when at least 30% of the surveys are returned and report the results to the ME Curriculum Committee.
- Faculty will discuss and determine changes needed based on results of the surveys. Survey form will be revised as needed yearly.



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Outcome D

The following items were adopted for Outcome D:

Item 1

- ME students engage in multi disciplinary projects in EGN 1100 Introduction to Engineering, where students with different majors are grouped to work on common projects.
- EML 4930 Special Projects course is also used for faculty to team students with different majors to work on the same project.
- The ME Curriculum Committee will annually review grade rolls, student work, and course content for all laboratory and capstone design courses to ensure that desired outcomes are achieved. If necessary, revision of the related courses will be discussed with the faculty and changes incorporated.

Item 2

- Students are required to complete and submit the Senior Student Exit Surveys when they submit their applications for graduation. This procedure guarantees participation of every student in this survey.
- The results of the survey are compiled by the Dean's office and the results are sent to the departments annually.
- The ME Curriculum Committee will review the results of this survey and make appropriate recommendations to the ME faculty to resolve any deficiencies.

Item 3

- Alumni surveys will be sent every year.
- The ME undergraduate advisor will provide the list of alumni every year.
- The ME office manager will send out the surveys.
- Staff will evaluate surveys when at least 30% of the surveys are returned and report the results to the ME Curriculum Committee.
- Faculty will discuss and determine changes needed based on results of the survey.
- Survey form will be revised as needed yearly.



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Outcome E

The following items were adopted for Outcome E:

Item 1

- The ME Curriculum Committee will review all engineering work involving math and science for a sample of students. The committee will review examples of exams, quizzes, projects, homework, etc. for at least three-to-six students per course.
- The Committee will complete all the courses in the department over a period of three years, focusing on a specific group of courses each year, e.g. mechanics and design, fluid-thermal sciences, capstone design.
- The Committee will assess any deficiencies and recommend improvements or changes in the course content to the appropriate professors.

Item 2

- Alumni surveys will be sent every year.
- Advisor will provide list of alumni each year.
- Office manager will send out the surveys.
- Staff will evaluate surveys when at least 30% of the surveys are returned and report the results to the ME Curriculum Committee.
- Faculty will discuss and determine changes needed based on results of the surveys. Survey form will be revised as needed yearly.

Item 3

- Students are required to complete and submit the Senior Student Exit Surveys when they submit the application for graduation.
- The results of the survey are compiled by the Dean's office and the results are sent to the departments annually.
- The ME Curriculum Committee will review the results of the survey and make appropriate recommendations to the Faculty to resolve any deficiencies.

Item 4

- Faculty end of semester surveys will evaluate whether courses in math and science provide the proper background for students entering engineering science courses.
- The responses will be used to coordinate with the math, physics and chemistry department chairs on how their courses should be modified to meet our needs.



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Outcome E (continued)

The following items were adopted for Outcome E:

Item 5

- Student advisor will monitor transcripts to insure pre-requisites are properly met each semester
- The ME undergraduate advisor will discuss with students whenever there is a problem and report problems encountered annually to meet the goals.



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Outcome F

The following items were adopted for Outcome F:

Item 1

- Students receive an orientation on ethical responsibility under the New Student Orientation Program organized by the University.
- The Academy for the Art of Teaching at FIU offers training workshops for faculty on the issue of ethics and plagiarism.
- The ME Chair has discussed cheating and plagiarism in past faculty meetings. However, the ME Curriculum Committee has requested that the ME Chair reiterate this issue again at the next faculty meeting and to inform the faculty as to the method for processing cases of Academic Misconduct.
- The ME Curriculum Committee has approved revisions in EML 4551 Design Organization, and EML 4905 Senior Design courses to specifically require that ethical, societal and environmental impact as well as statistical and cost analyses is included in the course descriptions.
- The ME Curriculum Committee will revise the current syllabi for EML 4551 Design Organization and EML 4905 Senior Design and make appropriate changes to ensure the inclusion of content related to professional ethics. This will include a statement on plagiarism, originality of the work, adherence to the ABET Code of Ethics, environmental aware design, and design for safety.
- Additionally, the committee will review the current guideline for Senior Design and update it appropriately for issues related to professional ethics. The ME Chair will instruct the faculty to adhere to the Senior Design Guideline for all student projects.

Item 2

- The ME Curriculum Committee will update the current guideline for Senior Design to include a requirement for a cost analysis in the capstone design project.
- The Engineering Advisor will ensure that every student will pass EIN 3354 Engineering Economy prior to taking EML 4551 Design Organization.
- The ME Curriculum Committee will submit a curriculum change to the College Curriculum Committee to make EIN 3354 Engineering Economy a co-requisite for EML 3500 ME Design I.



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Outcome F (continued)

The following items were adopted for Outcome F:

Item 3

- Students are required to complete and submit the Senior Student Exit Surveys when they submit the application for graduation.
- The results of the survey are compiled by the Dean's office and the results are sent to the departments annually.
- The ME Curriculum Committee will review the results of the survey and make appropriate recommendations to the Faculty to resolve any deficiencies.

Item 4

- Alumni surveys will be sent every year. Advisor will provide list of alumni each year.
- Office manager will send out the surveys.
- Staff will evaluate surveys when at least 30% of the surveys are returned and report the results to the ME Curriculum Committee.
- Faculty will discuss and determine changes needed based on results of the surveys. Survey form will be revised as needed yearly.



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Outcome G

The following items were adopted for Outcome G:

Item 1

- Undergraduate student advisor will ensure that every graduating student will successfully complete twelve credit hours of writing courses with a grade of C or better (Gordon Rule, see Undergraduate Catalog 2002-2003, page 19).
- The ME Curriculum Committee has informed all professors that written documents must be graded for spelling, grammar, and punctuation, in addition to technical content.

Item 2

- The ME Curriculum Committee approved changes to the course descriptions for EML 4551 Senior Design Organization, and EML 4905 Senior Design Project to make oral presentations a requirement of these courses.
- The ME Curriculum Committee will recommend to the faculty to adopt a policy to make part of the course grade based upon presentation skills. Also, students must receive feedback on their presentation skills by using student and professor critiques through the use presentation evaluation forms and/or by reviewing videotapes of their presentations.
- The Committee will direct faculty to videotape student presentations when possible, and to make it a priority for capstone design course presentations.

Item 3

- Students are required to complete and submit the Senior Student Exit Surveys when they submit the application for graduation.
- The results of the survey are compiled by the Dean's office and the results are sent to the departments annually.
- The ME Curriculum Committee will review the results of the survey and make appropriate recommendations to the Faculty to resolve any deficiencies.

Item 4

- Alumni Surveys will be sent every year. The ME undergraduate advisor will provide list of alumni each year.
- The ME office manager will send out the surveys.
- Staff will evaluate surveys when at least 30% of the surveys are returned and report the results to the ME Curriculum Committee.
- Faculty will discuss and determine changes needed based on results of the surveys. Survey form will be revised as needed yearly.



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Outcome H

The following items were adopted for Outcome H:

Item 1

- Undergraduate Student Advisor will use Advising Cards to ensure that all graduating students pass at least 15 credits in Humanities, Social Sciences and Arts.
- The ME Curriculum Committee will revise the current syllabi for EML 4551 Design Organization and EML 4905 Senior Design and make appropriate changes to ensure the inclusion of content related to professional ethnics. This will include a statement on plagiarism, originality of the work, adherence to the ABET Code of Ethics, environmental aware design, and design for safety.
- ME Curriculum Committee will monitor that this rule is abided by all ME Students.

Item 2

- The ME Curriculum Committee approved changes to the course descriptions for EML 4551 Senior Design Organization, and EML 4905 Senior Design Project to make oral presentations a requirement of these courses.
- The ME Curriculum Committee will recommend to the faculty to adopt a policy to make part of the course grade based upon presentation skills. Also, students must receive feedback on their presentation skills by using student and professor critiques through the use presentation evaluation forms and/or by reviewing videotapes of their presentations.
- The Committee will direct faculty to videotape student presentations when possible, and to make it a priority for capstone design course presentations.

Item 3

- Students are required to complete and submit the Senior Student Exit Surveys when they submit the application for graduation.
- The results of the survey are compiled by the Dean's office and the results are sent to the departments annually.
- The ME Curriculum Committee will review the results of the survey and make appropriate recommendations to the Faculty to resolve any deficiencies.



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Outcome H (continued)

The following items were adopted for Outcome H:

Item 4

- Faculty end of semester surveys will be evaluated to assess whether students have an understanding of the impact engineering solutions make in a global and societal context.
- The responses will be used to coordinate with the ME faculty to revise departmental curriculum to meet the desired needs.

Item 5

- Passing rates of students will be monitored by the undergraduate advisor and reported to the ME Curriculum Committee annually. Should an undesirable trend develop in these reports, the Committee will receive advise from faculty, advisor and student representatives to remedy the situation.

Items 6

- Alumni Surveys are sent every year. The ME undergraduate advisor will provide a list of our alumni each year.
- The ME office manager will send out the surveys.
- Staff will evaluate surveys when at least 30% of the surveys are returned and report the results to the ME Curriculum Committee.
- Faculty will discuss and determine changes needed based on results of the surveys. Survey form will be revised as needed yearly.



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Outcome I

The following items were adopted for Outcome I:

Item 1

- Alumni Surveys sent annually will be used as one of the measures to monitor outcome I. The ME undergraduate advisor will provide a list of our alumni each year.
- The ME office manager will send out the surveys.
- Staff will evaluate surveys when at least 30% of the surveys are returned and report the results to the ME Curriculum Committee.
- Faculty will discuss and determine changes needed based on results of the surveys. Survey form will be revised as needed yearly.

Item 2

- Students are required to complete and submit the Senior Student Exit Surveys when they submit the application for graduation.
- The results of the survey are compiled by the Dean's office and the results are sent to the departments annually.
- The ME Curriculum Committee will review the results of the survey and make appropriate recommendations to the Faculty to resolve any deficiencies.
- ME Curriculum Committee will monitor student response from the Student Exit Survey on ASME/ASHRAE Student Section activities on lifelong learning, such as FE Review courses, attending national conferences, participating in field trips, organizing ASME RSC (Regional Student Conference) for Region XI Conference in Miami on April 3-6, 2003. This demonstrates student involvement in professional societies.

Item 3

- Faculty end of semester surveys will be monitored to check whether faculty assessment of students' ability is adequate or requires any improvement. Should the indicators do not show sufficiently positive feedback from the faculty, students reps, faculty and Curriculum Committee will be consulted to develop necessary changes in the curriculum to address the problem.
- The responses will be used to coordinate with the ME faculty to revise departmental curriculum to meet the desired needs.
- ME Chair should request all ME faculty to implement this item in all ME courses.



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Outcome I (continued)

The following items were adopted for Outcome I:

Item 4

- Passing rates of students will be monitored by the undergraduate advisor from transcripts and reported to the ME Curriculum Committee annually. Should an undesirable trend develop in these reports, the Committee will seek advise from faculty, advisor and student representatives to remedy the situation.



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Outcome J

The following items were adopted for Outcome J:

Item 1

- Undergraduate student advisor will use Advising Cards to ensure that all graduating students all pass at least 15 credits in Humanities, Social Sciences and Arts.
- The ME Curriculum Committee will revise the current syllabi for EML 4551 Design Organization and EML 4905 Senior Design and make appropriate changes to ensure the inclusion of content related to professional ethnics. This will include a statement on plagiarism, originality of the work, adherence to the ABET Code of Ethics, environmental aware design, and design for safety.
- ME Curriculum Committee will monitor that this rule is abided by all ME Students.
- All ME Seminars are open to all undergraduate students and they can be exposed to contemporary issues of state-of-the-art technology and social issues
- ME students can also attend seminars organized by the University, which cover a much broader subjects of contemporary issues, including culture diversity, political, economical, and environmental issues.
- ME faculty will encourage undergraduate students to attend national conferences, participate in field trips, organization of conferences as our ASME FIU Student Section is actively organizing the ASME RSC 2003 for Region XI in Miami, Florida, April 3-6, 2003.

Item 2

- Students are required to complete and submit the Senior Student Exit Surveys when they submit the application for graduation.
- The results of the survey are compiled by the Dean's office and the results are sent to the departments annually.
- The ME Curriculum Committee will review the results of the survey and make appropriate recommendations to the Faculty to resolve any deficiencies.
- ASME FIU Student Section co-sponsored the 15th Florida Conference on Recent Advances in Robotics and Robot Showcase, held in Miami, Florida, May 23-24, 2002. ASME officers served as aides as well as participants in Robot Showcase and technical sessions. Feedback from students on their involvement in this conference has been very positive.



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Outcome J (continued)

The following items were adopted for Outcome J:

Item 3

- Faculty end of semester surveys will evaluate whether students demonstrate sufficient knowledge on contemporary issues.
- The responses will be used to coordinate with the faculty on how the curriculum should be modified to meet the targeted needs.
- ME Chair should request all ME faculty to implement this item in all ME courses.



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Outcome K

The following items were adopted for Outcome K:

Item 1

- Lab instructions will be updated as necessary by the lab manager.
- Lab manager and/or the ME Curriculum Committee with input from the lab manager will continuously evaluate experiments to be taught in lab courses.
- They will suggest new experiments and equipment needed to support new experiments.
- The ME Curriculum Committee in conjunction with lab manager will re-evaluate all labs biannually.
- Use of statistical and probability analysis, error analysis will be emphasized in the evaluation of experimental data as our undergraduate students are now required to take EGM 3311 Analysis of Engineering Systems.

Item 2

- ME Students are taught professional software packages such as Pro/Engineer (Pro/E), Pro/Mechanica (Pro/M), ABAQUS, MatLab, Mathcad, Mathematica, C, Visual Basic and Assembly language programming, and Interactive Physics.
- The ME Curriculum Committee will evaluate all ME courses higher than 3000 level to ensure utilization of these software packages in all their engineering courses.
- All ME undergraduate students are encourage to use internet for literature survey, WebCT and e-mails, and on-line discussions.
- Students are required to design web pages in courses, such as EML 4806 Modeling and Control of Robotics. Rosalee Martinez, undergraduate ME student, participated in the Technical Web Page Design Competition at the ASME RSC (Regional Student Conference) Conference in Jackson, Mississippi in April 2002 and won the First Place. Julian Bedoya, another undergraduate ME student, has won the 2nd Place in Technical Oral Competition with his PowerPoint presentation on Air Vehicles in West Palm, Florida, April 2001.
- The ME Curriculum Committee has recently made mandatory for all ME undergraduate students to take EGM 3311 Analysis of Engineering Systems, which covers statistics and probability analysis, multivariable systems and numerical methods to find solutions to mechanical, thermal and fluid systems.



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Outcome K (continued)

The following items were adopted for Outcome K:

Item 3

- Students are required to complete and submit the Senior Student Exit Surveys when they submit the application for graduation.
- The results of the survey are compiled by the Dean's office and the results are sent to the departments annually.
- The ME Curriculum Committee will review the results of the survey and make appropriate recommendations to the Faculty to resolve any deficiencies.

Item 4

- Faculty end of semester surveys will evaluate whether students demonstrate sufficient ability to use modern engineering tools, skills and techniques.
- The responses will be used to coordinate with the faculty on how the curriculum should be modified to meet the targeted needs.
- ME Chair will request all ME faculty to implement this item in all ME courses.

Item 5

- Alumni Surveys will be monitored to assess progress in this area. Annual Alumni Surveys are sent out after the departmental advisor provides an updated alumni list.
- The ME office manager will send out the surveys.
- Staff will evaluate surveys when at least 30% of the surveys are returned and report the results to the ME Curriculum Committee.
- The ME Curriculum Committee will review alumni responses annually to evaluate whether the alumni feel that their preparation for industry is adequate or not. If necessary, the Committee will take the necessary steps to bring the problem to the departmental Chairperson's attention, discuss it with faculty, and revise the curriculum.



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Outcome L

The following items were adopted for Outcome L:

Item 1

- Previously most ME undergraduate students took EIN 3235 Evaluation of Engineering Data from the Department of Industrial Engineering. Now it is mandatory for them to take EGM 3311 Analysis of Engineering Systems, which includes statistics and probability analysis, multivariable systems and numerical methods to find solutions to mechanical, thermal and fluid systems.
- The ME Curriculum Committee will review all ME lab courses to ensure that those courses require the utilization of knowledge in statistics and probability.

Item 2

- Students are required to complete and submit the Senior Student Exit Surveys when they submit the application for graduation.
- The results of the survey are compiled by the Dean's office and the results are sent to the departments annually.
- The ME Curriculum Committee will review the results of the survey and make appropriate recommendations to the Faculty to resolve any deficiencies.

Item 3

- ME Department has recently accepted to make EGM 3311 Analysis of Engineering Systems a required course for all undergraduate students. This course covers statistical and probability analysis, multivariable calculus, numerical methods to model and find solutions to mechanical and thermal/fluid systems as well as to address statistical analysis in lab courses.
- The laboratory manager has begun updating laboratory experiments to include the use of statistics in analyzing the data when feasible.
- The ME Curriculum Committee will review all ME engineering courses to see which courses should include statistics and probability analysis.



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Outcome M

The following items were adopted for Outcome M:

Item 1

- Undergraduate Student Advisor will use Advising Cards to ensure that all ME undergraduate students all pass all required math courses.
- The ME Curriculum Committee will review the content of all ME engineering courses to identify the need of mathematical knowledge in those courses and to determine whether students are well prepared in their mathematical background knowledge. If the students still lack certain mathematical skills, ME Chair will interact with the Mathematics Department for on-going dialogue regarding the modification of existing mathematical courses to ensure that ME students are well prepared in achieving the knowledge of mathematics to carry out analysis and design appropriate for Mechanical Engineering.

Item 2

- Faculty end of semester surveys will evaluate whether students demonstrate sufficient knowledge to carry out analysis and design tasks expected of mechanical engineers.
- The responses will be used to coordinate with the faculty on how the curriculum should be modified to meet the targeted needs.
- ME Chair should request all ME faculty to implement this item in all ME courses.



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Outcome N

The following items were adopted for Outcome N:

Item 1

- Faculty end of semester surveys will evaluate whether students demonstrate sufficient ability to apply multivariable calculus and differential equations to multi-degree-of-freedom, complex systems.
- The responses will be used to coordinate with the faculty on how the curriculum should be modified to meet the targeted needs.
- ME Chair should request all ME faculty to implement this item in all ME courses.
- ME Curriculum Committee will review the content of all ME engineering courses to identify the need of advanced mathematical knowledge in those courses to determine whether students are well-prepared in their mathematical background knowledge. If the students still lack certain advanced mathematical skills, ME Chair will interact with the Mathematics Department for on-going dialogue regarding the modification of existing advanced mathematical courses to ensure that ME students are well-prepared in applying advanced mathematics through multivariable calculus and differential equations.
- Currently, multivariable calculus and differential equations are applied to physical systems in courses such as Dynamics, Vibrations, Robotics, Heat Transfer, and Design of Thermal and Fluid Systems.

Item 2

- Undergraduate Student Advisor will use Advising Cards to ensure that all ME graduating students pass the required advanced mathematics courses including the EGM 3311 Analysis of Engineering Systems course, which is a required course for ME students.
- EGM 3311 Analysis of Engineering Systems has been approved by the ME Curriculum Committee as a required course for ME students.
- ME Curriculum Committee will continue monitoring student performance in this area through student transcripts and passing grades.