

 FLORIDA ATLANTIC UNIVERSITY	NEW/CHANGE PROGRAM REQUEST Graduate Programs	UGPC Approval _____ UFS Approval _____ Banner Posted _____ Catalog _____
	Department Ocean and Mechanical Engineering College Engineering and Computer Science	
Program Name Ocean and Mechanical Engineering MS and PhD programs	<input type="checkbox"/> New Program <input checked="" type="checkbox"/> Change Program	Effective Date (TERM & YEAR) Fall 2019
<p>Please explain the requested change(s) and offer rationale below or on an attachment</p> <p>The MS students will be required to take the 0-credit EML 5937 Graduate Seminar course for 1 semester. The PhD students will be required to take the 0-credit EML 5937 Graduate Seminar course for 2 semesters.</p> <p>The objective is to increase graduate student participation at the seminar series with distinguished speakers.</p>		
Faculty Contact/Email/Phone Dr. Francisco Presuel-Moreno / fpresuel@fau.edu / 954-924-7236	Consult and list departments that may be affected by the change(s) and attach documentation NA	
Approved by Department Chair _____ College Curriculum Chair _____ College Dean _____ UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	Date 11-19-18 11/18/18 11/20/2018 12/12/18 12/12/18 12/12/2018	

Email this form and attachments to UGPC@fau.edu one week before the UGPC meeting so that materials may be viewed on the UGPC website prior to the meeting.

GRADUATE COLLEGE

Master's Programs

Master of Science with Major in Ocean Engineering

Degree Requirements

The degree of Master of Science with major in Ocean Engineering will be awarded to candidates who have:

1. Complied with University graduate policies and regulations;
2. Satisfied the University's graduate degree requirements;
3. Satisfactorily completed the appropriate courses of study.

4. Must complete 1 semester of EML 5937 Graduate Seminar (0 credits) with grade "S".

And for the thesis option:

45. Submitted and defended a thesis based on the student's original work in an area of focus.

And for the non-thesis or minor in business options:

45. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from courses in their program of study. The portfolio will be reviewed by the student's supervisory committee.

COMBINED PROGRAMS

B.S.M.E. to M.S. Degree Program (Thesis Option)

Degree Requirements

Candidates must complete the following:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6716, Advanced Fluid Dynamics;
2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;
3. Four technical electives (12 credits at the 5000 level or higher;

4. Must complete 1 semester of EML 5937 Graduate Seminar (0 credits) with grade "S".

45. Up to three courses may be taken while the student is an undergraduate;

56. Before the end of the student's third semester of full-time enrollment, a written thesis proposal must be submitted to the supervisory committee and defended in an oral examination;

67. A master's thesis (6 credits), which must be defended at an oral examination;

78. At least one-half of the credits must be at the 6000 level or above;

89. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

B.S.M.E. to M.S. Degree Program (Non-Thesis Option)

Degree Requirements

Candidates must complete the following:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6716, Advanced Fluid Dynamics;

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2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;
3. Seven technical electives (21 credits);
4. Up to three courses, one at the 4000 level and two at the 5000 level or higher, may be taken while the student is an undergraduate;

5. Must complete 1 semester of EML 5937 Graduate Seminar (0 credits) with grade "S".

56. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from 11 courses in their program of study. The portfolio will be reviewed by the student's supervisory committee;

67. At least one-half of the credits must be at the 6000 level or above;

78. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

B.S.M.E. to M.S. Degree Program (Non-Thesis Option/Business Minor)

Degree Requirements

Candidates must complete the following:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6930, Special Topics (Fluid Dynamics);
2. A math course (3 credits), Mathematical Methods in Ocean Engineering 1;
3. Three technical electives (9 credits) at the 5000 or 6000 level from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section;
4. Up to three courses at the 5000 level or higher, may be taken while the student is an undergraduate;

5. Must complete 1 semester of EML 5937 Graduate Seminar (0 credits) with grade "S".

56. Five business courses (15 credits) as described at the beginning of this College of Engineering and Computer Science section;

67. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from 12 courses in their program of study. The portfolio will be reviewed by the student's supervisory committee;

78. At least one-half of the credits must be at the 6000 level or above;

89. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

Master of Science with Major in Mechanical Engineering (Thesis Option)

Degree Requirements

Candidates for the Master of Science degree with the thesis option must complete an approved program of at least 30 credits including:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6716, Advanced Fluid Dynamics;

2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;
3. Four technical electives (12 credits) at the 5000 level or higher;

4. Must complete 1 semester of EML 5937 Graduate Seminar (0 credits) with grade "S".

45. Before the end of the student's third semester of full-time enrollment, a written thesis proposal must be submitted to the supervisory committee and defended in an oral examination;

56. A Master's thesis (6 credits), which must be defended at an oral examination;

67. At least one-half of the credits must be at the 6000 level or above;

78. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

**Master of Science with Major in Mechanical Engineering
Non-Thesis Option and Non-Thesis Option with a Business Minor**

Degree Requirements

Candidates for the Master of Science degree with the non-thesis option must complete an approved program of at least 33 credits including:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6716, Advanced Fluid Dynamics;

2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;

3. Seven technical electives (21 credits) at the 5000 or 6000 level;

4. Must complete 1 semester of EML 5937 Graduate Seminar (0 credits) with grade "S".

45. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from 11 courses in their program of study. The portfolio will be reviewed by the student's supervisory committee;

56. At least one-half of the credits must be at the 6000 level or above;

67. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

Candidates for the Master of Science degree with the non-thesis option and a Business minor must complete an approved program of at least 36 credits including:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6716, Advanced Fluid Dynamics;

2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;

3. Three technical elective courses (9 credits) at the 5000 or 6000 level from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section;

4. Five business courses (15 credits) as described at the beginning of this College of Engineering and Computer Science section under the Business Minor heading;

5. Must complete 1 semester of EML 5937 Graduate Seminar (0 credits) with grade "S".

56. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from 12 courses in their program of study. The portfolio will be reviewed by the student's supervisory committee;

67. At least one-half of the credits must be at the 6000 level or above;

87. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

Master of Science with Major in Mechanical Engineering and Engineering Management Minor

Candidates for the Master of Science degree with Major in Mechanical Engineering and Engineering Management minor must complete an approved program of at least 36 credits including:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6716, Advanced Fluid Dynamics;

2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;

3. Three elective courses (9 credits) from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section;

4. Must complete 1 semester of EML 5937 Graduate Seminar (0 credits) with grade "S".

45. Three required management courses (9 credits) listed in the table below;

56. Two management elective courses (6 credits) from the table below;

76. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from 12 courses in their program of study. The portfolio will be reviewed by the student's supervisory committee;

78. At least one-half of the credits must be at the 6000 level or above;

89. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

Doctoral Program

Doctor of Philosophy with Major in Ocean Engineering

Degree Requirements

The degree of Doctor of Philosophy in Ocean Engineering will be conferred on candidates who have fulfilled the following requirements:

1. Completed 54 credits of course and dissertation work after the M.S. degree (84 credits for those admitted to the Ph.D. directly after the B.S. degree). Of the 54 credits, 21 credits must be coursework;

2. Of the 21-credit minimum of coursework, at least 12 credits must be from the Ocean, Mechanical*, Civil* or Geomatics* Engineering programs. No more than 3 credits of directed independent study may be used to satisfy the 21-credit minimum;

3. A minimum of 33 dissertation credits. No more than 39 dissertation credits may be counted toward the total credit requirement for the Ph.D. degree;

4. Must complete 2 semesters of EML 5937 Graduate Seminar (0 credits) with grade "S".

45. A major program of research and advanced studies in ocean engineering;

56. Unless otherwise stated, a minimum of 9 credits in advanced mathematics or equivalent beyond the B.S. degree;

67. Successful completion of General Examination 1, a written comprehensive examination of coursework;

78. Successful completion of General Examination 2, a dissertation proposal defense;

89. Submitted and defended a dissertation based on original research in the student's area of specialization. The supervisory committee, the department chair and the Graduate College must have approved the dissertation;

910. Complied with the University's Graduate Policies and Regulations and satisfied the University's Graduate Degree Requirements.

Doctor of Philosophy with Major in Mechanical Engineering

Degree Requirements

A central requirement for the Ph.D. degree in Mechanical Engineering is submission and defense of a dissertation based upon original research in an area of focus acceptable to the student's supervisory committee. The completed dissertation must be approved by the committee, the department chair and the Graduate College. Additional requirements are:

1. A minimum of 51 credits of coursework beyond the baccalaureate degree, or 21 credits beyond the master of science degree;

2. No more than 3 credits of directed independent study may be used to satisfy the minimum 21 credits of coursework;

3. A minimum of 12 credits must be in Mechanical Engineering courses, including two of the following three core courses. In addition a graduate-level Engineering Mathematics course is required, which may include, but not limited to, EOC 5172, Mathematical Methods in Ocean Engineering 1 or PHZ 5115, Mathematical Physics.

Core courses (select two of the following three courses)		
Advanced Strength of Materials	EML 6533	3
Advanced Fluid Dynamics	EML 6726	3
Mechanical Vibrations	EML 6223 or	3
Advanced Control Systems	EML 6317	3
Mathematics		
One Engineering Mathematics course, graduate level		

4. Must complete 2 semesters of EML 5937 Graduate Seminar (0 credits) with grade "S".

45. Doctoral thesis research of not less than 33 credits;

56. Successful completion of General Examination 1;

67. Successful completion of General Examination 2;

78. Submitted and defended a dissertation based on original research in the student's area of specialization. The supervisory committee, the department chair and the Graduate College must have approved the dissertation;

89. Satisfaction of all University regulations and requirements for the Ph.D. degree;

910. General Examination 1: After the completion of three Mechanical Engineering core courses and two elective courses, the student will be required to take a General Examination 1, or Ph.D. Qualifying Exam. The primary purpose of General Examination 1 is to evaluate the student's ability, not only to demonstrate a thorough knowledge of Mechanical Engineering course material, but to evaluate original thinking. The written examination will be in four parts: One covering the two core courses and an elective treated as a core course, one covering other elective subjects, one covering Mathematics and one is a review and analysis of a research paper. The exam on the two core courses and the elective core course will be three hours in duration and will require three problems to be answered. The electives exam will be a one-hour exam and will require one problem from two elective courses to be answered. The exam on Engineering Mathematics will be a two-hour exam and the student must answer two problems. The research paper exam will be a two-day take home exam requiring the student to answer questions on a specific research paper. A new set of examinations will be prepared and questions and problems from previous examinations are not available to students. It is expected that the examination on the elective courses will focus on the student's area of specialization;

An overall grade of 70 percent on each and every part of the written examination is passing. Students who score below 70 percent on certain parts of the written examination are given the option of re-taking exams on areas in which they scored less than 70 percent before the beginning of the next semester. The student must score 70 percent in each subject that is retaken. Alternatively the student may retake the entire exam when it is next offered. There would only be one opportunity to retake all or part of the exam. General Examination 1 is scheduled immediately after the last day of the final examination period in the fall semester and in the spring semester each year.

4011. For students who have obtained the M.S. in Mechanical Engineering at FAU, General Examination 1 must be taken no later than the beginning of the third semester of Ph.D. study or at the first opportunity it is offered thereafter. Those admitted to the Ph.D. program directly after the B.S. degree may take the examination after completing 24 credits of graduate coursework. For students not so previously enrolled, the exam must be taken by the beginning of the fourth semester or as soon as it is offered thereafter;

4412. General Examination 2: At an appropriate point in the student's graduate studies, normally within 12 months of passing General Exam 1, the student must complete General Examination 2. This is the dissertation proposal defense, in which students defend the choice of a dissertation topic and answer a series of questions on fundamental issues related to their research topic. Students must have passed General Examination 1, selected the dissertation topic, formed a supervisory committee and completed a literature survey prior to the dissertation proposal defense;

In General Examination 2, students should be prepared to demonstrate the ability to perform research on a topic approved by the supervisory committee by presenting a comprehensive literature survey combined with a critical analysis of the state of the art in the particular field. While this examination will be centered around the particular research area, it will not necessarily be limited to that subject. If unsuccessful in the examination, the student may, at the discretion of the department, either remain in the doctoral program and retake the examination at a later date or withdraw from the program. No more than two attempts will be permitted.