FLORIDA ATLANTIC UNIVERSITY

NEW/CHANGE PROGRAM REQUEST
Graduate Programs

UGPC Approval _____
UFS Approval _____
Banner Posted _____
Catalog _____

Department Ocean & Mechanical Engineering

College Engineering & Computer Science

Program Name	☐ **New Program**	**Effective Date** *(TERM & YEAR)*
MS Programs in the OME Department	☑ **Change Program**	Spring 2018

Please explain the requested change(s) and offer rationale below or on an attachment

To satisfy the new SACS requirements, changes were made to ensure that:

1) No 4000-level course is counted towards a graduate program, regardless of option

2) All coursework to complete a graduate program must be at the 5000 or higher level.

Faculty Contact/Email/Phone	**Consult and list departments that may be affected by the change(s) and attach documentation**
Tsung-Chow Su, Eng.Sc.D 561-297-3896	None- The change only affects this Department.

Approved by	***Date***
Department Chair	2.23.18
College Curriculum Chair	2/28/2018
College Dean	2/28/2018
UGPC Chair	
UGC Chair	
Graduate College Dean	
UFS President	
Provost	

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.

COMBINED PROGRAM

B.S.O.E. to M.S. Degree Program

The Department of Ocean and Mechanical Engineering offers a combined Bachelor of Science in Ocean Engineering to Master of Science degree program. For students taking the thesis and the non-thesis option, up to 9 credits of graduate coursework (5000 level or higher in the B.S.O.E. program may be counted for both the B.S.O.E. and M.S. degrees. ~~Students taking the non-thesis option may count 3 credits (4000 level) and 6 credits (5000 level or higher) toward both degrees.~~ With an approximate duration of five years, this combined program provides an attractive way for students to continue their graduate work.

Prerequisite Coursework for Transfer Students
Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the *Transfer Student Manual.*

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

Admission Requirements
To be eligible for the joint B.S.O.E./M.S. program, students should:

1. Have an overall GPA of above 3.0 and a GPA of above 3.25 in the last 60 credits of coursework completed at the time of admission. The GPA must be maintained until graduation from the B.S. degree;

2. Formally apply to the joint program, completing the admissions process at least one semester prior to the beginning of the M.S. portion of their program;

3. Choose either the thesis or non-thesis option for the M.S. part of the program.

Once admitted to the program, students begin taking graduate courses in their senior year that would apply to both the bachelor's and master's degree programs. A maximum of 9 credits of elective courses can be applied to both programs. Students in the joint program must maintain enrollment to remain in good standing. Students must also meet all the degree requirements of the graduate program, including core courses and prerequisites. Those students who complete the M.S. degree program within one year after the completion of their B.S.O.E. degree program will be presented with a certificate of recognition.

MASTER'S PROGRAM

Link to graduate certificates

The graduate program is structured around a core of courses central to ocean engineering and encompassing the subjects of acoustics, corrosion, physical oceanography, hydrodynamics, advanced mechanics of materials, marine systems and advanced mathematics. This core provides, at an advanced level, the fundamentals required for engineering work in the ocean environment. Additional courses in the fields of acoustics, hydrodynamics, marine materials, offshore structures, coastal engineering and marine vehicles are offered to enable students to pursue areas of interest. A summer program is offered by the department for graduate students attending on a year-round basis.

Financial Aid
Most full-time graduate students in the department receive financial support, usually in the form of graduate assistantships. Graduate assistants normally work on research projects conducted in the department, and their project work usually serves as a basis for their thesis/dissertation. Teaching Assistantships also may be available.

From time to time, graduate assistants are assigned to help a faculty member conduct a course, but direct teaching assignments are not permitted and regular lecture assignments should not be anticipated. Departures from this rule may be considered only for exceptional students with demonstrated teaching abilities.

Several graduate assistantships are available each year and are awarded on the basis of the technical area of interest, the applicant's experience, overall academic record and letters of recommendation. The current stipends for assistantships are $17,000 for master's students and $22,000 for Ph.D. students, after admittance to candidacy, for 12 months of service on a half-time basis, plus tuition costs.

Application for Admission
Students are encouraged to begin their graduate studies in the fall semester. Applications for admission should be initiated about one year in advance of the desired starting date and should be filed as early as possible, preferably in the early fall. Normally notification of admission is given several weeks after receipt of the completed application. Depending upon the student's background, certain preparatory courses may be required to make up for deficiencies before full admission to the program is granted. These courses may be taken at FAU.

Application material for admission to the degree programs in Ocean Engineering can be obtained by:

1. Accessing www.fau.edu/graduate/

2. Sending a request to:
Florida Atlantic University
Graduate College, SU 80, Room 101
777 Glades Road, P.O. Box 3091
Boca Raton, Florida 33431-0991

3. Sending a request to:
Graduate Program Administrative Assistant
Department of Ocean and Mechanical Engineering, Bldg. 36, Rm. 182
777 Glades Road, P.O. Box 3091
Boca Raton, Florida 33431-0991

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Master of Science with Major in Ocean Engineering

Three major paths to the Master of Science with major in Ocean Engineering are available to graduate students. Students with non-engineering bachelor's degrees, click here for additional requirements.

Thesis Option
The thesis option requires a minimum of 30 credits, including a minimum of 6 thesis credits. At least 15 of the credits must be taken from the Ocean Engineering core course list (see core course requirements section). In addition, 9 credits will be selected in consultation with the student's advisor. At least 15 of the 30 credits must be at the 6000 level. Students electing the thesis option will be required to complete the thesis program, which includes successful defense and completion of the thesis.

Non-Thesis Option
This option requires a minimum of 33 credits. At least 15 of the credits must be taken from the Ocean Engineering core course list (see core course requirements section). In addition, 18 credits will be selected in consultation with the student's advisor. No thesis credits may be counted toward this degree. ~~Additionally, 30~~ All of the 33 credits must be at or above the 5000 level. ~~The remaining 3 credits of elective courses may be at the 4000 level.~~

Master of Science with a Business Minor Option
A non-thesis option, this program leads to a master's degree along with a minor in Business Administration. It requires a total of 36 credits. At least 15 of the credits must be taken from the Ocean Engineering core course list (see core course requirements section). In addition, 6 credits relating to the student's area of focus in ocean engineering must be selected and 15 credits must be selected from the College of Business approved course list outlined under the Business Minor heading at the beginning of this College section.

The Admissions and Degree Requirements sections of this catalog contain statements of regulations that apply to all graduate students. Of particular interest is the information under the headings Graduate Admission Regulations and Graduate Degree Requirements. Statements referring to foreign language requirements do not apply to Ocean Engineering students; neither the Master of Science nor the Ph.D. degree requires foreign language proficiency.

Admission Requirements
Specific admission requirements for Ocean Engineering are more stringent than the general FAU graduate admissions requirements.

A candidate for the master's program in Ocean Engineering must satisfy the following entry requirements:

1. A baccalaureate or equivalent degree in Engineering, Science or Mathematics;

2. A 3.0 (on a 4.0 scale) GPA or better in the last 60 credits of undergraduate work;

3. Scores of at least 145 (verbal) and 150 (quantitative) on the Graduate Record Examination (GRE).

4. Must demonstrate proficiency in both written and spoken English. Students from non-English-speaking countries are required to take the Test of English as a Foreign Language (TOEFL) and achieve a score of at least 550 (paper-based) or 213 (computer-based) or 79 (iBT);

5. All students will have a thesis or advisory committee during their studies. For thesis students, their advisor is the chair of the advisory committee. A thesis or advisory committee must be formed before a plan of study can be filed;

6. Students who enter the program without an assistantship will be assigned a mentor by the chair of the graduate committee. Students without an advisor are required to visit at least three faculty members during their first semester requesting to form an advisory committee. A report on the outcome of the faculty visits must be filed with the campus graduate coordinator.

7. Adherence to the policies and regulations and the graduate admission requirements of the University as outlined in this University catalog;

8. Conditional admission may be permitted if the above requirements are not met.

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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.

And for the thesis option:
4. 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:
4. 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.

Program Options and Core Course Requirements
Four program options are available to graduate students in Ocean Engineering with either the thesis or non-thesis option. These are shown in a subsequent section.

All graduate students, regardless of option or specialty, must complete the following core courses or must take a satisfactory substitute course of similar content from another university or offer an appropriate substitute consistent with the student's specialty for approval by the supervisory committee by departmental petition.

Mathematical Methods in Ocean Engineering 1*	EOC 5172
Engineering Data Analysis	EOC 6635
Physical Aspects of Oceanography	OCP 6050
In addition, two of the following five courses must be taken:	
Advanced Strength of Materials**	EGM 6533
Special Topics	EOC 6934
Advanced Hydrodynamics 1	EOC 6185
Corrosion 1	EOC 6216C
Engineering Principles of Acoustics	EOC 6317C

* Students with an advanced mathematics competency may obtain exemption upon entrance to the program for Mathematical Methods in Ocean Engineering 1 (EOC 5172) and/or Mathematical Methods in Ocean Engineering 2 (EOC 6174). These students must demonstrate to their advisor, using course descriptions, that the equivalent of five to six courses beyond calculus, including areas such as differential equations, advanced calculus, matrix theory, complex analysis and probability and statistics have been taken. Approval by the graduate programs committee is also required.

** May be substituted with EOC 6934, Special Topics (Theory of Elasticity)

Transfer Credits
A maximum of 9 credits of graduate-level work earned at FAU as an undergraduate or while in non-degree status at FAU and a maximum of 6 credits earned at another recognized institution prior to admission to the Ocean Engineering graduate program may be transferred to a student's degree program subject to the following restrictions:

1. The student must present a transcript identifying the course, in which the student has earned a grade of "B" or better, along with a catalog/course description.

2. The course must not have been counted toward any other graduate or undergraduate degree awarded or to be awarded to the student. An exception exists in the B.S.O.E. to M.S. program where ~~(1) for thesis students,~~ up to 9 credits (5000 level or higher) may be counted for both degrees; ~~and (2) for students in the non-thesis option, 3 credits at the 4000 level and 6 credits at the 5000 level or higher may be counted toward both degrees.~~

3. The student's advisor and the Ocean and Mechanical Engineering graduate program coordinator, who may seek the advice of other faculty if needed, will decide whether to accept or reject the course credit.

Recency of Credits
No credit earned ten or more years before the degree is awarded may be counted toward a graduate degree.

Course Load
All students choosing the thesis option and receiving financial assistance must be full-time students. This requires that they are registered for a minimum of 9 credits in the fall semester, 9 credits in the spring semester and 6 credits in the summer semester. All international students must be registered as full-time students. A maximum of 12 credits may be taken in a semester. In the graduation semester, the student may be allowed to take 1 credit.

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COMBINED PROGRAMS

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

Candidates seeking a combined program leading to both Bachelor of Science in Mechanical Engineering and Master of Science degrees with the non-thesis option must complete an approved program of at least 33 credits. Out of those 33, 9 credits of coursework (~~3 credits at the 4000 level and 6 credits~~ at the 5000 level or higher) will count toward both the bachelor's and master's degrees.

Prerequisite Coursework for Transfer Students
Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the *Transfer Student Manual.*

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

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. Seven technical electives (21 credits). ~~One course may be at the 4000 level~~;

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. 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;

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

7. 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)

Candidates seeking a combined program leading to both Bachelor of Science in Mechanical Engineering and Master of Science degrees with the non-thesis option and with a minor in Business must complete an approved program of at least 36 credits. Out of those 36, 9 credits of coursework (~~3 credits at the 4000 level and 6 credits~~ at the 5000 level or higher) will count toward both the bachelor's and master's degrees.

Prerequisite Coursework for Transfer Students
Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the *Transfer Student Manual.*

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

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), ~~one at the 4000 level and two~~ 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, ~~one at the 4000 level and two~~ at the 5000 level or higher, may be taken while the student is an undergraduate;

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

6. 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;

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

8. 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.

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MASTER'S PROGRAMS

The Master of Science program has both thesis and non-thesis options. The thesis option requires a minimum of 24 credits of coursework and a thesis (6 additional credits). The non-thesis option requires a minimum of 33 credits of coursework. Requirements for the Ph.D. program are described later in this section.

Each student must complete a comprehensive and coordinated Plan of Study requiring depth in one or more of the following areas: mechanical systems, solid body mechanics, fluid mechanics, heat transfer, thermal/fluid systems, helicopter dynamics, materials, manufacturing, controls, robotics and CAD/CAM.

Admission Requirements
Usual admission requirements are as follows. Students with non-engineering bachelor's degrees, click here for additional requirements.

1. A baccalaureate degree in Engineering, Natural Science or Mathematics, but preferably in Mechanical Engineering and from a regionally accredited institution. A student who does not have a background in mechanical engineering should expect to take additional undergraduate mechanical engineering coursework.

2. Demonstrated proficiency in both written and spoken English. A student from a non-English-speaking country is required to take the Test of English as a Foreign Language (TOEFL) exam and achieve a score of at least 550 (CBT-213, iBT-79).

3. At least a 3.0 (of a 4.0 maximum) GPA in the last 60 credits attempted prior to graduation.

4. A score of 145 or higher on the verbal and 150 or higher on the quantitative portions of the Graduate Record Examination (GRE~~) or a combined score of 1000 or higher on the verbal and quantitative portions of the GRE taken prior to fall 2011.~~ GRE scores more than five years old will not be accepted.

5. Petitions for admittance to the program will not be accepted when a student wishes to include more than five courses taken as a non-degree-seeking student.

Admission to Candidacy
A student is eligible to apply for candidacy when:

1. The student has completed a minimum of 9 credits as a graduate student.

2. The student has maintained a minimum GPA of 3.0 in all courses attempted as a graduate student.

3. The student has filed an approved Plan of Study for the degree program.

Students should file for candidacy as soon as they are eligible. Usually, no more than 20 credits of completed work before admission to candidacy will be accepted toward a degree program. A student should be admitted to candidacy prior to beginning work on thesis.

Degree Requirements
Students must satisfy all of the University graduate requirements.

Link to Master of Science with Major in Mechanical Engineering

Non-thesis Option and Non-thesis Option with a Business Minor

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

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

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. 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;

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

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

7. 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

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); ~~one course may be at the 4000 level or higher with the additional courses~~ at the 5000 or 6000 level;

4. 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;

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

6. 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; ~~one course may be at the 4000 level;~~

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. 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;

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

7. 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.

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

This Master of Science degree program with a minor in Engineering Management is a 36-credit program consisting of advanced courses in mechanical engineering as well as courses in the College of Business. Candidates for this program should have an undergraduate degree in mechanical engineering with a minimum GPA of 3.0 and a score of 145 or higher on the verbal and 150 or higher on the quantitative portions of the Graduate Record Examination (GRE), ~~or a combined score of 1000 or higher on the verbal and quantitative portions of the GRE taken prior to fall 2011~~. GRE scores more than five years old will not be accepted. Non-English-speaking candidates must have a minimum score of 550 on the TOFEL. Two reference letters and at least two years of professional experience are also required.

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. ~~One may be at the 4000 level;~~

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

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

6. 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;

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

8. 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. ~~Only one 4000-level course may be taken from the list of courses below.~~

Required Management Courses (9 credits)		
Organizational Behavior	MAN 6245	3
Operations Management	MAN 6501	3
Project Management	MAN 6526	3

Management Elective Courses (6 credits)		
Select two courses from the list:		
~~Business Law for Honors Students~~	~~BUL 4424~~	~~3~~
~~Labor Relations~~	~~MAN 4401~~	~~3~~
~~Introduction to Small Business – Entrepreneurship~~	~~MAN 4802~~	~~3~~
Entrepreneurship, Creativity and Innovation	MAN 6299	3
Project Management	MAN 6526	3
Cross-Cultural Management and Human Resources	MAN 6609	3
International Business Operations	MAN 6614	3
Entrepreneurial Consulting Project	MAN 6806	1-4
Seminar in Entrepreneurship/Venture Management	MAN 6875	3
Global Environment of Management	MAN 6937	3

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