

FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—PROGRAM CHANGE REQUEST

UGPC APPROVAL _____

UFS APPROVAL _____

CATALOG _____

DEPARTMENT: OCEAN & MECHANICAL ENGINEERING

COLLEGE: ENGINEERING & COMPUTER SCIENCE

PROGRAM NAME:

PHD WITH MAJOR IN MECHANICAL ENGINEERING

EFFECTIVE DATE

(PROVIDE TERM YEAR)

Summer 2013

PLEASE EXPLAIN THE REQUESTED CHANGE(S) AND OFFER RATIONALE BELOW AND/OR ATTACHED:

Change in catalog listing for Doctor of Philosophy with Major in Mechanical Engineering necessitated by change in entry exam procedures. See attached.

Faculty contact, email and complete phone number:

Consult and list departments that might be affected by the change and attach comments.

Approved by:

Department Chair:

College Curriculum Chair:

College Dean:

UGPC Chair:

Graduate College Dean:

UFS President:

Provost:

Date:

3/20/13

3/20/13

3-21-13

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

Doctoral Program

Doctor of Philosophy with Major in Mechanical Engineering

The degree of Doctor of Philosophy with major in Mechanical Engineering is conferred by the University primarily in recognition of a demonstrated ability for independent and original research in the discipline. This ability must be supported by a comprehensive and coordinated plan of advanced study designed to provide a strong background in the fundamentals of mechanical engineering and related areas.

Admission Requirements

Minimum requirements for admission to doctoral studies in mechanical engineering are as follows:

1. A baccalaureate in engineering or a related field from a recognized institution;
2. An average of "B" or better in the last 60 credits of work attempted;
3. 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.
4. 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) and achieve a score of at least 550 (CBT-213, iBT-79);
5. Three letters of reference attesting to the student's potential for graduate studies in mechanical engineering;
6. Approval for admission by the Department of Ocean and Mechanical Engineering. Usually, an applicant admitted will have a strong record of achievement that exceeds the minimum requirements. It is anticipated almost every applicant will already have a master's degree, but it is not an absolute requirement. Approval for admission by the department will be based on an evaluation of the student's record in terms of likelihood of success in the Ph.D. program.

Admission to doctoral studies does not constitute admission to candidacy for the degree.

Admission to Doctoral Status

Admission to doctoral status is granted after students have:

1. Successfully completed General Exam 1;
2. Been accepted by a department faculty member willing to serve as their dissertation advisor;
3. Had their plan of coursework approved by their advisor, by the department graduate coordinator and by the Graduate College.

Admission to Candidacy

Admission to candidacy requires formulation of a supervisory committee approved by the department graduate coordinator as well as successful completion of General Exam 1.

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 specialization 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 three core courses: EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6930, Special Topics (Fluid Dynamics).
4. Doctoral thesis research of not less than 33 credits.
5. Successful completion of General Examination 1,
6. Successful completion of General Examination 2,;
7. Submitted and defended a dissertation based on original research in the student's area of specialization. The supervisory committee, the department chairperson and the Graduate College must have approved the dissertation;
8. Satisfaction of all University regulations and requirements for the Ph.D. degree.

9. **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 core courses, one covering elective subjects, one covering Mathematics, and one is a review and analysis of a research paper. The exam on the three core courses will be 3 hours in duration and will require 3 problems to be answered. The electives exam will be a 2 hour exam and will require one problem from two elective courses to be answered. The exam on Engineering Mathematics will be a 2 hour exam and the student must answer two problems. The research paper exam will be a 2 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 the written examination is passing. Students who score below 70 percent, are given the option of re taking exams on topic areas in which he/she scored less than 70% before the beginning of the next semester. The student must score 70% in each subject that is re taken. Alternatively the student may re take the entire exam when it is next offered. There would only be one opportunity to re take all or part of the exam. General Examination 1 is scheduled early in the fall semester and in the spring semester each year.

10.

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.

11. 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 the student defends the choice of a dissertation topic and answer a series of questions on fundamental issues related to his/her research topic. The student 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, the student 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.

Transfer Credits

A maximum of 6 credits beyond the master's degree can be transferred into the student's program of study.

Time Limits

No credit that is more than 10 years old at the time a graduate degree is awarded may be counted toward that degree at Florida Atlantic University. In addition, the final examination must be completed within five calendar years of the admission to candidacy, otherwise the Qualifying Examination must be repeated.

Residency Requirement

Students are required to spend two semesters of full-time study beyond the master's degree in residence at Florida Atlantic University.