

UGPC APPROVAL \_\_\_\_\_

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CATALOG \_\_\_\_\_

**Graduate Programs—PROGRAM CHANGE REQUEST**

DEPARTMENT: OCEAN AND MECHANICAL ENGINEERING

COLLEGE: ENGINEERING AND COMPUTER SCIENCE

PROGRAM NAME:  
CORROSION CERTIFICATE

**EFFECTIVE DATE**

(PROVIDE TERM/YEAR)

MARCH 2016

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

THIS PROPOSAL IS FOR THE ADDITION OF A NEW DISTANCE LEARNING CERTIFICATE PROGRAM IN CORROSION TO BE OFFERED THROUGH DEDECS. THE PROPOSED PROGRAM WOULD REQUIRE MINIMAL EFFORT SINCE ALL THE GRADUATE COURSES IN THE PROGRAM, EXCEPT CORROSION 2, ARE ALREADY OFFERED VIA DEDECS. THE NEW PROGRAM IS EXPECTED TO INCREASE GRADUATE STUDENT ENROLLMENT.

THE PROPOSALS HAVE BEEN APPROVED BY THE DEPARTMENT GRADUATE COMMITTEE.

Faculty contact, email and complete phone number:

Tsung-Chow Su, Eng.Sc.D.  
561-297-3896

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

None – the change is only to this department based on classes offered

Approved by:

Department Chair:

College Curriculum Chair:

College Dean:

UGPC Chair:

Graduate College Dean:

UFS President:

Provost:

Date:

9/4/15

9/8/15

9/9/15

Email this form and syllabus to [UGPC@fau.edu](mailto: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.

**From:** Graduate Committee, Dept. of Ocean and Mechanical Engineering, FAU

**To:** Graduate Programs Committee, College of Engineering and Computer Science, FAU

**Subject:** Proposal for starting a new Certificate program in Corrosion

**cc:** OME faculty

Attached, please find a proposal from the Department of Ocean and Mechanical Engineering to initiate an online certificate program, to be offered through DEDECS, in Corrosion.

Administering the proposed program would require only a minimal effort since all the graduate courses, except for Corrosion 2, in the program are already offered via DEDECS. The proposed program is expected to increase the student enrollment in the graduate program.

**Department of Ocean and Mechanical Engineering, Florida Atlantic University**

**Online Certificate Program in Corrosion to be offered through DEDECS (formerly FEEDS)**

**Proposal:** A Distance Learning Certificate Program in Corrosion, to be offered through DEDECS, is proposed.

**Introduction and Rationale:** Corrosion is the Navy's number one maintenance problem. The Navy spends \$7 billion per year — a quarter of its maintenance budget — dealing with rust and corrosion caused by everything from rain, seawater and waves to sunlight and physical damage. It has been reported that when a ship comes into port for maintenance, it takes more than 30 days on average to repair and maintain corrosion related problems. Based on a recent report, about \$3 billion is spent maintaining the paint jobs on ships and submarines and another \$2.6 billion is set aside to fix corrosion on aircraft. Recent research efforts have been directed to better understand several of the mechanism that takes place during corrosion and via multi-scale modeling. However, academic research efforts are seldom performed in natural seawater.

The state of Florida, because of its geographic location and its location relative to the Atlantic Ocean and the Gulf of Mexico is especially impacted by corrosion related issues. However, the number of engineers with special expertise in corrosion or with a Master's degree/certificate in corrosion is not on track with the need for such experts. There are no Masters or Certificate Degrees, in the area of corrosion, offered in the State of Florida Universities. Nationwide and internationally, there are a handful of universities that offer a degree in corrosion engineering: two examples include University of Akron in Ohio and University of Manchester in Manchester, England.

The need for corrosion knowledge is extensive enough that the National Association of Corrosion Engineers (NACE) offers online courses in various areas of corrosion engineering. However, more organized degrees or certificates are not being offered. The department of Ocean and Mechanical Engineering, due to its extensive expertise and facilities, is uniquely positioned to offer a certificate degree in the Corrosion.

For those living in regions that do not have University programs in Corrosion Engineering, it may not be always possible, for economic or family reasons, to relocate in order to pursue a graduate degree in Corrosion Engineering. The same would be the case for working

professionals to pursue graduate degree if it requires taking classes on campus. One particular need is seen to be workers in the offshore engineering sector who want to expand their expertise into the offshore oil and gas industry. The proposed online certificate program is aimed to cater to above groups of engineers.

It is expected that about 5 students would enroll into the program in the first year; the department's goal is to reach an enrollment number of about 15 for the online Certificate program by the year 2017. All of the courses required for the new certificate program are already offered online or delivered to industry sites and centers through DEDECS (<http://www.dedecs.fau.edu/>), which formerly was referred to as FEEDS. It should be noted that the present MS (non-thesis) program requires a minimum of only 15 credits courses offered by Ocean Engineering and allows remaining 18 credits of coursework to be selected in consultation with the advisor. The students enrolling for the on-line program will be advised by the members of the department's graduate committee and the graduate program coordinator and will be required to take five of the courses currently offered as part of the MS program in Ocean Engineering.

**Admission and Graduation Requirements:** The certificate program will be open to students who have a BS degree in a related field of engineering, a GPA of at least 3.0 or equivalent (to ensure equivalency to graduate standing) and must satisfy the pre requisites required for each course in the program. Five courses in the program must be completed with a GPA of 3.0 or better. All course materials will be in English and all international students must demonstrate proficiency in English to enter the program.

**Curriculum:** The five courses, four of which, including Corrosion 1 and Corrosion 2, must be completed for the certificate program in Corrosion, are given below. **Category Courses** (all are 3 credit hour courses)

EOC6216C Corrosion I  
EOC 6230Physical Metallurgy  
EOC 6218C Corrosion II  
EOC6431 Offshore Structures  
EOC 6157Advanced Fracture and Failure Processes I