
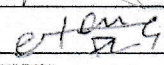
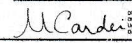
 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>NEW/CHANGE PROGRAM REQUEST</b> <b>Graduate Programs</b>		UGPC Approval _____ UFS Approval _____ Banner _____ Catalog _____
	<b>Department</b> EECS, CECE, OME <b>College</b> Engineering and Computer Science		
<b>Program Name</b> Professional Energy Resilience Certificate		<input type="checkbox"/> <b>New Program*</b> <input checked="" type="checkbox"/> <b>Change Program*</b>	<b>Effective Date</b> (TERM & YEAR) Fall 2022
<p><b>Please explain the requested change(s) and offer rationale below or on an attachment.</b></p> <p>College of Engineering and Computer Science is proposing a self-supporting version of its existing program, the Professional Energy Resilience Certificate. This program is designed specifically for working professionals and will allow them to attain a certification in energy resilience while continuing their professional career. The admission requirements and the curriculum specifications are detailed in the attached document.</p>			
<p><small>*All new programs and changes to existing programs must be accompanied by a catalog entry showing the new or proposed changes.</small></p>			
<b>Faculty Contact/Email/Phone</b> Mihaela Cardei / mcardel@fau.edu / 561-297-3459		<b>Consult and list departments that may be affected by the change(s) and attach documentation</b>	
<b>Approved by</b> Department Chair  College Curriculum Chair  College Dean  UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____		<b>Date</b> 9/22/2021 09/22/2021 9/25/2021 _____ _____ _____ _____ _____	

Email this form and attachments to [UGPC@fau.edu](mailto:UGPC@fau.edu) 10 days before the UGPC meeting.

## **Professional Energy Resilience Certificate**

The Energy Resilience Certificate Professional Program is designed specifically for working professionals. Professionals will be able to advance their careers with an accelerated graduate program and obtain an advanced degree while continuing to work in their professional careers. The course offering format includes evenings, weekends and online material using Canvas. This degree requires 12 graduate credits. The duration of each course is four weeks or one of the FAU semester/mini-mester course duration. Students will be able to complete the program in one year or less.

### **Admission Requirements**

To qualify for unconditional or full acceptance into the Certificate in Energy Resilience Professional Program, applicants are required to meet all the admission requirements for the Certificate in Energy Resilience program.

Conditional admission may be available under extraordinary circumstances for applicants who show high promise to successfully complete the program and who have received a bachelor's degree from a regionally accredited institution, but who fall short of the GPA and/or the GRE requirement. In these cases, the admissions committee will review the application carefully and consider all aspects including, but not limited to, grade trends, mature work experience, work accomplishment and promotion, type and rigor of undergraduate degree program, references and letters of recommendation.

### **Degree Requirements**

Degree requirements are the same as those of the Certificate in Energy Resilience program.

### **Program Fees**

The Certificate in Energy Resilience Professional Program is a full-service, all-inclusive program. The fees cover all program costs including tuition, course materials and graduation activities.

### **Application Process and More Information**

To apply or receive more information about this program, visit the College of Engineering and Computer Science website.

## FLORIDA ATLANTIC UNIVERSITY

### Proposal for For-Credit Self-Supporting Program

This form must be completed and submitted to Continuing Education/Office of the Provost. New degrees, or an existing degree with a different curriculum tied to Self-Supporting delivery, must be approved through the normal faculty governance process.

**College or Academic Unit:** College of Engineering and Computer Science (COECS)

**Department/School of Academic Unit:**

Department of Electrical Engineering and Computer Science (EECS)

Department of Civil, Environmental and Geomatics Engineering (CEGE)

Department of Ocean and Mechanical Engineering (OME)

**Name of Degree:** Energy Resilience Certificate

**Specialized track (if applicable):** Professional

**CIP Code:** NA

**Proposed Implementation Date:** Fall 2022

**1. Describe the operation and delivery format of the program. Include information of the uniqueness of the program, the target audience, and enrollment projections. Please provide information on data for enrollment projection.**

The College of Engineering and Computer Science (COECS) at FAU is proposing a Professional Energy Resilience Certificate. This is an interdisciplinary certificate in COCE involving three departments: the Department of Electrical Engineering and Computer Science (EECS), the Department of Civil, Environmental and Geomatics Engineering (CEGE), and the Department of Ocean and Mechanical Engineering (OME).

The course offering format includes evenings, weekends, and online material. The Professional Energy Resilience Certificate has 12 credits, and the curriculum structure is similar to the existing Energy Resilience Certificate. Each course duration is 4 weeks. In general, the expected completion time is 2 semesters, even though the certificate can be completed as fast as 4 months. Students will participate in the program in cohort. Students will start the program at the beginning of Fall/Spring/ Summer semesters, or at the beginning of an 8-week mini-mester during the Fall/Spring semesters.

The targeted audience includes, but is not limited to, working professionals in South Florida. They will be able to gain knowledge and skills in the concepts and technologies necessary to improve the efficiency and resiliency of energy generation, transmission and distribution, while continuing their professional careers. This certificate program should enroll approximately 10 students the first year with an ongoing enrollment of 20 students in year five and thereafter.

Enrollment Projections for the Energy Resilience Certificate:

Year	Head Count	Credit Hours	FTE*
2022	10	120	3.75
2023	10	120	3.75
2024	12	144	4.5
2025	15	180	5.625
2026	20	240	7.5

Term Full-Time Equivalent enrollment (FTE) is based on FAU definition, which divides credit hours by 32: [https://www.fau.edu/iea/pdf/sasva/Data\\_Dictionary\\_10-29-2019.pdf](https://www.fau.edu/iea/pdf/sasva/Data_Dictionary_10-29-2019.pdf)

**2. State the tuition for the program and explain the process used to determine the proposed self-supporting tuition rate. Include information on similar programs being offered elsewhere and their self-supporting tuition rates. Attach market analysis for proposed program, include assessment of need and projected workforce demand.**

The tuition for the proposed professional Energy Resilience Certificate is the same for in-state and out-of-state students. This tuition will be at the same as FAU's current tuition for approved self-supporting programs in offered in the College of Engineering and Computer Science. This tuition is set at \$800 per credit. Students will complete the 12 credits certificate for a total tuition cost of \$9,600.

**3. Provide a listing of the curriculum for the present E&G program and the curriculum for the proposed self-supporting program. Is the curriculum for both programs the same?**

The curriculum is the same as the E&G Curriculum and consist of 12 credits. The certificate consists of 4 courses from the table below. Additional graduate courses in energy and power systems may be counted in the certificate program with prior permission of the advisor.

Smart Grid	EEL 6297	3
Energy Engineering	EGN 5735	3
Power System Analysis and Control	EEL 5256	3
Advanced Photovoltaic Power Systems	EEL 6284	3
Solar Energy Engineering	EML 6417C	3

Advanced Energy Conversion Processes and Systems	EML 6451	3
Wind and Ocean Energy Turbines	EML 6455	3
Wind Turbine Systems	EML 6456	3
Marine Renewable Energy	EOC 6145	3

**4. Discuss the impact of the program on existing FAU programs.**

- a. **Explain how the unit will ensure that sufficient courses, paid through auxiliary funds are available to meet student demand and facilitate completion of each program submitted for consideration.**

These programs are managed in a cohort format, which will ensure that a sufficient number of courses are prescheduled and available to meet student demand and facilitate completion of students enrolling in the professional Energy Resilience Certificate. The schedule of the courses in this certificate will be pre-set.

- b. **Will any similar E&G courses be eliminated or scaled back if this program is implemented?**

The current Energy Resilience Certificate will not be eliminated or scaled back. The program offerings will run side-by-side.

**5. Will this program increase the state's fiscal liability or obligation? Will the self-supporting program cohort supplant or diminishing productivity of an existing E&G funded degree program in the same discipline?**

This self-supporting program will not increase the state's fiscal liability or obligation. The Self-supporting program track cohort should not supplant or diminish the productivity an existing E&G funded degree program in the same discipline.

**6. How will offering the proposed Self-Supporting program aligns with the mission of FAU (Race to Excellence 2015-2025). Outline how this program assists the University in achieving its performance metrics. Include information on assessment of need and projected workforce demand.**

The professional Energy Resilience Certificate aligns with the University's mission of pursuing excellence in teaching and actively engaging with the community. The program will assist the university in increasing graduates in areas of strategic emphasis and expand graduate enrollment. The proposed program is aligned with the strategic plan of the University to grow research activities and education in engineering related fields and STEM areas. The self-supporting tuition programs also contributes to the University's strategic goal of enriching the educational experience by strengthening and expanding graduate programs at FAU, as well as meeting professional and workforce needs.

The availability of reliable electric power is foundational to the health and safety of citizens as well as the economy. Technology is rapidly providing solutions that increase the efficiency and resiliency of the electrical grid, while renewable energy technologies are providing cleaner sources of electric power. These technological advances are made possible by engineers and scientists with advanced knowledge of the power grid, data analysis techniques and renewable energy extraction. By specializing in these areas, working professionals will be well prepared to contribute to the efficiency and resiliency of the electrical grid as well as renewable power generation. They will gain knowledge and skills in the concepts and technologies necessary to improve the efficiency and resiliency of energy generation, transmission and distribution.

### **Workforce Demand:**

The demand for university graduates level skills in energy resilience is strong. We expect the certificate to be popular to the NextEra Energy, which is working on energy infrastructure and on generating clean, renewable energy while protecting the environment. FAU and NextEra are working on an educational agreement. This certificate will allow training of their employees while continuing their professional work.

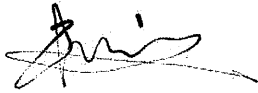
### **7. Identify any prerequisites or restrictions for acceptance into this program.**

This certificate program is open to students with a bachelor's degree in engineering or science and a GPA of at least 3.0. Students must satisfy the prerequisites for each course in the program. The average GPA of all four courses counted in the program must be 3.0 or better.

### **8. How will the unit monitor the quality and success of the self-supporting program? Provide specific metrics, evaluation methods, and frequency of evaluation.**

- Number of students enrolled: The number of students enrolled in each semester will vary. Students can start the program at the beginning of Fall/Spring/ Summer semesters, or at the beginning of an 8-week mini-mester during the Fall/Spring semesters. Enrollment is a function of market demand and economic conditions, as well as a prospective student's self-assessment of their time and availability to commit to a program.
- Number of students graduating: The program structure reinforces timely graduation rates. The number of students for each program during each calendar year will be evaluated.

- Student satisfaction: A satisfaction score will be reported for each course. The score will measure a composite of items including program content, pedagogical effectiveness of the professor, and administrative services provided to the student.



9/21/2021

EECS Department Chair

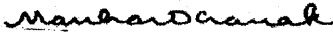
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9/22/2021

CEGE Department Chair

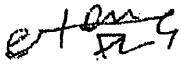
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9/27/2021

OME Department Chair

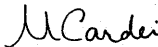
Date



9/22/2021

College Curriculum Committee

Date



Digitally signed by Mihaela  
Cardei  
• DN: cn=Mihaela Cardei,  
o=Florida Atlantic University, ou,  
email=mcardei@fau.edu, c=US  
Date: 2021.09.22 12:01:44 -04'00'

9/22/2021

Dean College of Engineering and  
Computer Science

Date



9/30/2021

Executive Director COCE

Date



Senior Associate Provost

Date

10/4/21

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University Curriculum Committee

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Date

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University Faculty Senate

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Date

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Chief Financial Officer

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Date

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Provost or Designee

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Date



## College of Engineering and Computer Science - Professional Certificate in Energy Resilience

Year 1	10 Students
Total Course Revenues (\$800 per credit for 12 credits per student)	\$ 96,000
Total Revenue and Local Fees <sup>1</sup>	\$ (8,173)
<b>COECS Course Revenues</b>	<b>\$ 87,827</b>
Total Direct Expenses <sup>2</sup>	\$ (47,700)
Total Indirect Expenses <sup>3</sup>	\$ (15,050)
Total Auxiliary Overhead Fee and Provost Fee from Program <sup>4</sup>	\$ (8,904)
<b>Program Result - Year 1</b>	<b>\$ 16,173</b>

Year 2	10 Students
Total Course Revenues (\$800 per credit for 12 credits per student)	\$ 96,000
Total Revenue and Local Fees <sup>1</sup>	\$ (8,173)
<b>COECS Course Revenues</b>	<b>\$ 87,827</b>
Total Direct Expenses <sup>2</sup>	\$ (47,700)
Total Indirect Expenses <sup>3</sup>	\$ (15,050)
Total Auxiliary Overhead Fee and Provost Fee from Program <sup>4</sup>	\$ (8,904)
<b>Program Result - Year 2</b>	<b>\$ 16,173</b>

Year 3	12 Students
Total Course Revenues (\$800 per credit for 12 credits per student)	\$ 115,200
Total Revenue and Local Fees <sup>1</sup>	\$ (9,808)
<b>COECS Course Revenues</b>	<b>\$ 105,392</b>
Total Direct Expenses <sup>2</sup>	\$ (49,500)
Total Indirect Expenses <sup>3</sup>	\$ (15,050)
Total Auxiliary Overhead Fee and Provost Fee from Program <sup>4</sup>	\$ (9,160)
<b>Program Result - Year 3</b>	<b>\$ 31,682</b>

<b>COECS Program Result - First 3 Years</b>	<b>\$ 64,028</b>
<b>FAU 3 Year Revenue from Rev Fees/Local Fees/Aux. Overhead/Provost Fee</b>	<b>\$ 53,122</b>
<b>Yearly Program Result Year 4 and thereafter</b>	<b>\$ 47,027</b>

We expect the College of Engineering and Computer Science to spend 80% of the yearly cash balance adding additional overhead revenues to the University.

### Budget Details:

#### <sup>1</sup>Revenue and Local Fees:

- Local fees per credit for athletics (\$19.27), financial aid (\$15.18), activity & service (\$12.32), health (\$9.42), capital improvement (\$6.76), technology (\$5.16)
- Gross revenue fee at 0% for the first three years, then 5.5% from year 4

#### <sup>2</sup>Direct Expenses:

- Faculty salary at \$9,000 per class plus FICA
- Meals expense at \$40 per day on weekends per student
- Books, materials and parking estimated at \$145.00 per student per class

#### <sup>3</sup>Indirect Expenses:

- Coordinator at \$10,050 per year for admissions, registration, and student services (total S&B is \$60,300 to be split across several programs)
- Recruiting and marketing expense at \$5,000 per year for flyers, online advertisements, etc.

#### <sup>4</sup>Aux Overhead and Provost Fees:

- Provost fee at 3% of expenditures
- Auxiliary overhead fee at 11.19% of expenditures