

 FLORIDA ATLANTIC UNIVERSITY	NEW/CHANGE PROGRAM REQUEST Undergraduate Programs		UUPC Approval <u>1-27-2025</u> UFS Approval _____ Banner _____ Catalog _____
	Department _____ College _____		
Program Name _____		New Program* _____ Change Program* _____	Effective Date (TERM & YEAR) _____
Please explain the requested change(s) and offer rationale below or on an attachment.			
*All new programs and changes to existing programs must be accompanied by a catalog entry showing the new or proposed changes.			
Faculty Contact/Email/Phone _____		Consult and list departments that may be affected by the change(s) and attach documentation	
Approved by Department Chair _____ <i>Evangelos Kaisar</i> College Curriculum Chair _____ <i>Galan Liu</i> College Dean _____ <i>Korey Sorge</i> UUPC Chair _____ <i>Dan Meeroff</i> Undergraduate Studies Dean _____ UFS President _____ Provost _____		Date _____ <i>11/18/2024</i> _____ <i>11/21/2024</i> _____ <i>11/25/24</i> _____ <i>1-27-2025</i> _____ <i>1-27-2025</i> _____ _____	

Email this form and attachments to mjenning@fau.edu seven business days before the UUPC meeting.

FAU Undergraduate Certificate in Smart Cities and Internet of Things (SC-IoT)

Purpose: To establish an interdisciplinary certificate program for students interested in expanding their knowledge and skills in the field of smart cities and Internet of Things (IoT). The certificate leverages FAU's role in the National Science Foundation funded Engineering Research Center, the [Center for Smart Streetscapes](#) (CS3) and will enhance the student's degree through specialization in the field of smart city and related technologies. Acquisition of the Certificate will prepare students to excel in their future goals, including graduate school, and smart cities-related careers where interdisciplinary and convergent thinking is necessary. To this end, we investigated similar certificate and/or degree programs at the following institutions:

1. UC Denver (graduate) [Smart Cities \(ucdenver.edu\)](#)
2. UCF (graduate) [Smart Cities Graduate Certificate Degree | UCF Orlando, FL](#)
3. George Washington University (Graduate) [Certificate in Smart Cities and Transportation | Department of Civil & Environmental Engineering | School of Engineering & Applied Science | The George Washington University \(gwu.edu\)](#)
4. University of Texas El Paso (Dual Master Degree) [Smart Cities Track \(utep.edu\)](#)
5. University of Texas at Austin (undergraduate) [Smart Cities | Wayfinder \(utexas.edu\)](#)
6. Cornell University: (Concentration) [Smart Cities Concentration | Civil and Environmental Engineering \(cornell.edu\)](#)

Certificate in Smart Cities and Internet of Things (SC-IoT) program description proposed catalog language

The Certificate Program in Smart Cities and Internet of Things (SC-IoT) is designed to provide undergraduate students with the necessary foundations for a career in smart cities in alignment with their academic major. Emphasis is placed on application of sensing, data-intensive management, and public space automation.

Undergraduate students from the College of Engineering and Computer Science and the College of Science may earn the Certificate in Smart Cities and Internet of Things by completing 12 credit hours of coursework within a focused topic area or track.

Certificate Requirements:

All students applying for this Certificate are required to take the following 3-credit course:

- COP 3035C: Introduction to Programming in Python (3 credits)

Additionally, students must complete 3 credit hours within one of the following courses:

- CAP 2751: Tools for Data Science
- CAP 2753: RI Experimental Design and Data Analysis (STA 2023 pre-req)
- CAP 4773: Introduction to Data Science and Analytics
- URP 4870: Site Planning

Finally, students must complete 6-credit hours and will select from a series of courses depending on the Certificate's focus area. FAU Smart Cities and IOT Certificate focused topic areas include:

1. Smart and Connected Mobility
2. Smart and Resilient Infrastructure
3. Smart and Sustainable Environments
4. Sensing and Power Systems

1. Smart and Connected Mobility

Students pursuing the Smart and Connected Mobility focus area must complete 6 credit hours within the following courses:

- CGN 4344: RI: Data-Driven Civil Infrastructure (prereq is EGN 2213: Computer Applications in Engineering 1)
- TTE 3004C: Introduction to Transportation Engineering (no-prereq)
- TTE 4005C: Transportation Planning and Logistics
- TTE 4105: Transportation Operations and Logistic Management
- URP 4710: Introduction to Transportation Planning
- URP 4712: RI: Shared and Automated Transport: Current Trends

2. Smart and Resilient Infrastructure

Students pursuing the Smart and Resilient Infrastructure focus area must complete 6 credit hours within the following courses:

- CGN 2327: Computer Aided Design
- EGN3331: Strength of Materials (prereq Statics)
- CGN 3501: Civil Engineering Materials
- CES 3102C: Analysis of Structures (prereq Strength of materials)
- Introduction to Infrastructure Maintenance (CGN4612)
- URP 4055: City Structure and Change
- URP 4255: Advanced Visual Planning Technologies (prereq URP 4254)
- URP 4730: Capital Facilities Planning

3. Smart and Sustainable Environments

Students pursuing the Smart and Sustainable Environment focus area must complete 6 credit hours within the following courses:

- ENV 3001 C: Environmental Science and Engineering (prereq Gen Chem 1)
- *CWR 3201C: Applied Hydraulics (prereq diff equ)*
- *ENV 4072: Introduction to Pollution prevention and Sustainability (prereq Physics)*
- URP 4403: RI Sustainable Cities
- URP 4120: Planning Implementation Strategies
- URP 4420 - Environmental Planning Methods

4. Sensing and Power Systems

Students pursuing the Sensing and Power Systems focus area must complete 6 credit hours within the following courses:

- *EGN 4732: Fundamentals of Energy Engineering (prereq PHY 2048)*
- *EEL 4216: Electric Power Systems (prereq Circuits)*
- *EEL 4281: Photovoltaic Power Systems (prereq Electr 1, Circuits)*
- SUR 4384: Thermal infrared remote sensing and applications (no-prereq)
- CNT 4164: Introduction to the Internet of Things and Sensor Networks (no prereq)
- CNT 4007: Communication Networks
- URP 4430: Planning for Hazards/Disasters