

 FLORIDA ATLANTIC UNIVERSITY	NEW COURSE PROPOSAL Graduate Programs		UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department – Computer and Electrical Engineering and Computer Science College – Engineering and Computer Science <i>(To obtain a course number, contact erudolph@fau.edu)</i>		
Prefix CNT Number 5106	<i>(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)</i> Lab Code N/A	Course Title Sensor Networks and Smart Systems	
Credits <i>(Review Provost Memorandum)</i> 3	Grading <i>(Select One Option)</i> Regular – X Sat/UnSat	Course Description <i>(Syllabus must be attached; see Guidelines)</i> Smart systems are rapidly emerging in almost every aspect of life such as smart health, smart transportation, smart agriculture, smart energy, and many more. This course discusses sensor networks and their use in smart systems. The research oriented course focuses on smart system applications.	
Effective Date <i>(TERM & YEAR)</i> Summer 2018		Prerequisites Graduate standing or permission of Instructor	Corequisites None
		Registration Controls <i>(Major, College, Level)</i> College of Engineering and Computer Science	
Prerequisites, Corequisites and Registration Controls are enforced for all sections of course			
Minimum qualifications needed to teach course: Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field.)	List textbook information in syllabus or here There is no required textbook for this course.		
Faculty Contact/Email/Phone Mohammad Ilyas, Ph.D. Email: ilyas@fau.edu , Tel: 7-3454	List/Attach comments from departments affected by new course N/A		

Approved by Department Chair _____ College Curriculum Chair _____ College Dean _____ UGPC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	Date 10/23/2017 10/26/2017 11/7/2017 _____ _____ _____
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Email this form and syllabus to UGPC@fau.edu one week before the UGPC meeting.

Department of Computer & Electrical Engineering
and Computer Science
Florida Atlantic University
Course Syllabus

1. Course title/number, number of credit hours	
CNT 5106 Sensor Networks and Smart Systems	# of credit hours 3
2. Course prerequisites, corequisites, and where the course fits in the program of study	
Prerequisites: Graduate standing or permission of instructor, Corequisites: None	
3. Course logistics	
Term: Summer 2018 Location: TBD	
4. Instructor contact information	
<i>Instructor's name</i>	Mohammad Ilyas
<i>Office address</i>	Room 422, Engineering East Building
<i>Office Hours</i>	TBD
<i>Contact telephone number</i>	(561)297-3454
<i>Email address</i>	ilyas@fau.edu
5. TA contact information	
TBD	TBD
6. Course description	
Smart systems are rapidly emerging in almost every aspect of life such as smart health, smart transportation, smart agriculture, smart energy, and many more. This course discusses sensor networks and their use in smart systems. The research oriented course focuses on smart system applications.	
7. Course objectives/student learning outcomes/program outcomes	
<i>Course objectives</i>	Upon completion of this course, students will: <ul style="list-style-type: none"> • Understand the concepts of smart systems • Understand the applications of sensor networks/Internet of Things in smart systems and associated implementation and technical details • Achieve competency to locate, understand, and critique current research in the field of sensor networks and smart systems • Achieve competency to understand and conduct research in the field of sensor networks and smart systems
<i>Student learning outcomes & relationship to ABET a-k objectives</i>	Not applicable
8. Course evaluation method	

GRADUATE COLLEGE

NOV 08 2017

Received

COT 5106 – Sensor Networks and
Smart Systems
Summer 2018

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Research project/presentation 1 - 15% Research project/presentation 2 - 20% Research paper - 30% Final Examination - 30% Class participation - 5%	Both projects involve literature search, research critique, conducting research, and presentation to class. The research paper needs to be a publishable quality paper that can be submitted to a technical/research conference. The final examination is to test the knowledge acquired by the students during the semester. The class participation includes attendance.
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9. Course grading scale

Grading Scale:

- 90 and above: A
- 87-89: A-
- 83-86: B+
- 80-82: B
- 77-79: B-
- 73-76: C+
- 70-72: C
- 67-69: C-
- 63-66: D+
- 60-62: D
- 55-59: D-
- 54 and below: F

10. Policy on makeup tests, late work, and incompletes

Late submissions are not accepted. There is only one final examination so make up exams are not allowed.

Adjustments to this policy may be allowed in extenuating circumstances.

11. Special course requirements

None

12. Classroom etiquette policy

University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions.

During presentations, all students are expected to engage in discussions and ask questions.

13. Disability policy statement

In compliance with the Americans with Disabilities Act Amendments (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with the Office for Students Accessibility Services (SAS) – in Boca Raton, SU 133 (561-297-3880); in Davie, LA 131 (954-236-1222); or in Jupiter, SR 111F (561-799-8585) – and follow all SAS procedures.

14. Honor code policy

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Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high-quality education in which no student enjoys unfair advantage over any other. **Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility.** Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf

15. Required texts/reading

There is no required textbook for this course.

16. Supplementary/recommended readings

Students will be required to read portions from some of the latest research articles. Information about these articles will be provided in the class. A few typical research articles are listed here:

Vullers, R.J.M., et al, "Energy Harvesting for Autonomous Wireless Sensor Networks", IEEE Solid-State Circuits Magazine, Spring 2010.

Xu, L.D., He, W., and Li, S., "Internet of Things in Industries: A Survey", IEEE Transactions on Industrial Informatics, Vol. 10, No. 4, November 2010.

17. Course topical outline, including dates for exams/quizzes, papers, completion of reading

The field of sensor networks and smart systems is rapidly evolving. To keep up with the current state of knowledge, some adjustment to the flow of class material may be necessary. The following list represents a typical but tentative flow of class material.

- Week 1
 - Introduction to the class material and expectations
 - Introduction to the basics of sensor networks and smart systems
- Week 2
 - Technical and operational aspects of sensor networks
 - Communications aspects of sensor networks
- Week 3-4
 - Radio Frequency Identification (RFID) and sensor networks
 - Internet of Things (IoT)
 - Typical applications of sensor networks and IoT in healthcare, transportation, agriculture, energy, environment etc.
- Week 5-6
 - Technical and operational aspects of smart systems
 - Interworking of sensor networks and smart systems
 - Detailed discussion about the applications of sensor networks and smart systems such as smart cities, smart structures, smart situation management etc.
 - Project 1 deadline
- Week 7
 - Guest lecture from industry – current industrial trends/projects related to smart systems
 - Discussion on communication protocols related to sensor networks

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Course Syllabus**

- **Week 8-9**
 - Presentations for project 1
- **Week 10**
 - Discussion on performance evaluation/modeling and simulation of sensor networks and smart systems
 - Discussion on open research aspects related to sensor networks, IoT, and smart systems
 - Project 2 deadline
- **Week 11**
 - Guest lecture from Industry – practical aspects, challenges, and opportunities in the field of smart systems
 - Discussion on standards related to sensor networks and IoT
- **Week 12-13**
 - Presentations for project 2
- **Week 14**
 - Future directions/applications of sensor networks, IoT, and smart systems
 - Societal implications of smart systems
- **Week 15**
 - Future directions in the field of sensor networks, IoT, and smart systems
 - Summary
 - Discussion about the final examination
 - Research paper deadline
- **Final examination**