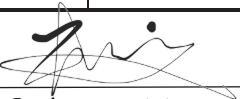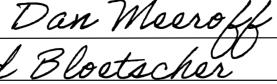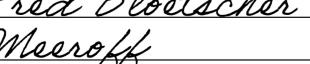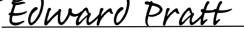# FAU
FLORIDA ATLANTIC UNIVERSITY

NEW COURSE PROPOSAL
Undergraduate Programs

Department Electrical Engineering and Computer Science

College Engineering and Computer Science
(*To obtain a course number, contact **erudolph@fau.edu**)*

Prefix CNT **Number** 4164	*(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)* **Lab Code**	**Type of Course** Lecture	**Course Title** Intro to Internet of Things and Sensor Networks

Credits *(Review Provost Memorandum)*

3

Effective Date *(TERM & YEAR)*

Spring 2022

Grading (Select One Option)

Regular ●

Pass/Fail ○

Sat/UnSat ○

Course Description *(Syllabus must be attached; Syllabus Checklist recommended; see Guidelines)*

Please see attached syllabus for detailed course description.

Prerequisites, with minimum grade*

Senior standing or permission of instructor

Corequisites

None

Registration Controls *(Major, College, Level)*

Default minimum passing grade is D-. *Prereqs., Coreqs. & Reg. Controls are enforced for all sections of course*

WAC/Gordon Rule Course

○ Yes   ● No

WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to proposal. See WAC Guidelines.

Intellectual Foundations Program (General Education) Requirement *(Select One Option)*

None

General Education criteria must be indicated in the syllabus and approval attached to the proposal. See GE Guidelines.

Minimum qualifications to teach course

PhD in CS, CE, or EE

Faculty Contact/Email/Phone

Hanqi Zhuang, zhuang@fau.edu, 561297341

List/Attach comments from departments affected by new course

Approved by

		Date
Department Chair	_(signature)_	9/23/2021
College Curriculum Chair	Dan Meeroff	10-4-21
College Dean	Fred Bloetscher	10-4-21
UUPC Chair	Dan Meeroff	10-11-21
Undergraduate Studies Dean	Edward Pratt	10-11-21
UFS President		
Provost		

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

1. Course title/number, number of credit hours

Intro to Internet of Things and Sensor Networks – CNT 4164	3 credit hours

2. Course prerequisites, corequisites, and where the course fits in the program of study

Prerequisites: Senior standing or permission of instructor, Corequisites: None

3. Course logistics

Term: TBD
Class location and time:

4. Instructor contact information

Instructor's name	Mohammad Ilyas, PhD, Imad Mahgoub, PhD
Office address	Room 422, and 424, Engineering East Building
Office Hours	TBD
Contact telephone number	(561)297-3454, (561)297-3458
Email address	ilyas@fau.edu, mahgoubi@fau.edu

5. TA contact information

TA's name	TBD
Office address	
Office Hours	
Contact telephone number	
Email address	

6. Course description

As an introductory course, it covers basic aspects of Internet of Things (IoT) and Sensor Networks. These communication networks are evolving rapidly and impacting almost every aspect of life including healthcare, transportation, agriculture, energy, environment, and many more. The course covers applications, architecture, routing, and communication protocols, for IoT and sensor networks. Technical and operational aspects of these communication networks are also discussed. The role of artificial intelligence in developing smart communication protocols and applications of IoT and sensor networks will be discussed. Finally, the course will discuss emerging challenges, opportunities, and future directions.

7. Course objectives/student learning outcomes/program outcomes

Course objectives	Upon completion of this course, students will: • Understand the concepts of IoT and sensor networks • Understand the applications of sensor networks and Internet of Things and associated implementations and technical details • Achieve competency to locate, understand, and critique current developments in the field of IoT and sensor networks Understand the role of artificial intelligence in IoT and Sensor Networks leading to development of smart systems
Student learning outcomes & relationship to ABET 1-7 outcomes	Not applicable

8. Course evaluation method

Research paper/project –	25%	The research project can be a group project and involves literature search. The midterm and final examinations are to test the knowledge acquired by the students during the semester.
Midterm examination –	35%	
Final Examination –	40%	

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 Assignments Policy –

Make-up Policy for Tests: Makeup tests are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student from participating in the exam.

Incomplete Grade Policy Incomplete grades are against the policy of the department. Unless there is solid evidence of a medical or otherwise serious emergency situation and the student is currently passing the class, incomplete grades will not be given.

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.

13. Attendance policy statement

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. After two full weeks of face-to-face instruction with consecutive 'no show' of any students in person in the classroom, the modality of this course section may be changed to remote instruction only at the discretion of the university.

Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations, or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances, and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final grade as a direct result of such absence.

14. Disability policy statement

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

15. Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/.

16. Code of Academic Integrity policy statement

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 an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001.

17. Required texts/reading

None

18. Supplementary/recommended readings

TBD

19. Course topical outline (and associated readings)

The field of IoT and sensor networks 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.

- Introduction to the class material and expectations
- Review of the basics of communication networks
- Introduction to sensor networks
- Introduction to Internet of Things (IoT) and sensor networks

- Technical and operational aspects of IoT and sensor networks
- Communications aspects of IoT and sensor networks
- Typical applications of IoT and sensor networks in healthcare, transportation, agriculture, energy, environment etc.
- Detailed discussion about the applications of IoT and sensor networks and the role of artificial intelligence leading to smart systems
- Future directions