



Home » Courses

EEL5934 Internet of Things (IoT) Design

"The internet of things (IoT) is the internetworking of physical devices, vehicles, buildings and other items, each embedded with electronics, software, sensors, actuators, and network connectivity that enable these objects to collect and exchange data."

This course will focus on forming teams to create solutions to multi-disciplinary real-life applications using IoT design methods.

Past multi-disciplinary projects include an agriculture team (Agriculture, ECE, CS) who designed a crop health sensor network, and a civil engineering team (Civ Eng, CS, CE) who designed a bridge structure monitoring system.

Credits 3

Prerequisites

Graduate-level standing. Graduate students from all science and engineering disciplines are encouraged to take this course. Previous students have been from CISE, IFAS, ECE, MAE, and Physics.

Instructor: Dr. Janise McNair

Lab: Wireless And Mobile Systems Lab

Email: mcnair@ufl.edu

Office: NEB 429

Office Hours: Tuesdays, 1040am-1130am and 3pm-4pm, Thursdays 1040am-1130am, and by appointment.

Class Times/ Room: Tuesdays Period 7 (1:55p-2:45p) Thursdays Period 7-8 (1:55p-3:50p) LAR330

(Additional lecture time may occasionally be scheduled -- specific days/times will be announced)

Course Requirements

Student Access Website (available starting on August 22): UF e-Learning Support Services (LSS).

Login using your gatorlink user name and password. The website will be used to:

view lectures, announcements, course schedule changes and other required information, collaborate with project groups, start discussions, download class handouts and assignments, and submit presentations and project files.

NOTE: Participation in and regular access to this website is required.

Computer requirements

--Access to a wireless networked computer is needed for the project and some practice problems (e.g., MatLab, C/C++, ns-2)

--The instructor has some equipment, but each project team may choose to purchase additional equipment, such as sensor nodes, a controller board and/or some wiring (total shouldn't be more than \$60). Details will be given at a later date in lecture and in Canvas.

--If you need remote access to the ECE computer lab, you must create an account. Contact instructor for more info.

Textbooks

--Required:

Internet of Things: A Hands on Approach

A. Bahga and V. Madiseti

ISBN-10: 0996025510

ISBN-13: 978-0996025515

August 2014

<http://www.internet-of-things-book.com/>

Selected conference and journal papers

--Reference Books: (Most of these are available in electronic course reserves.)

Wireless Sensor Networks, I.F. Akyildiz and M.C. Vuran

ISBN: 978-0-470-03601-3

September 2010

Building Wireless Sensor Networks, Robert Faludi

ISBN:978-0-596-80773-3

O'Reilly 2011

Protocols and Architectures for Wireless Sensor Networks, Holger Karl, Andreas Willig

ISBN: 978-0-470-51923-3, Wiley, October 2007

Principles of Wireless Access and Localization, K. Pahlavan and P. Krishnamurthy,

ISBN-0000470697083, Wiley, 2013.

Communication Networks, A. Leon-Garcia and I. Widjaja,

ISBN 0-07-246352-X, McGraw-Hill, 2004

Course Topics (as time permits)

Overview

Introduction to IoT

IoT Layered Systems (compared to TCP/IP)

Building Blocks of IoT

IoT Protocols

IoT Devices

IoT Design Methodology, Logical Design

IoT Security

Grades Percentage Dates

In-class and project group participation 10%

Quiz 1 20% Thursday, October 5, 2017, in class, 155p-350p

Paper Review Report 25% November 7, 2017

Overview Presentation 15% Groups present overview of project and a project status report. (@Oct 3 - Nov 30).

Project 40% Project Due Dates

Proposal (5%) - Due September 12

Progress (5%) - Due October 17

Demo (15%) - Due week of Nov 28-Nov 30

Final Report (15%) - Due Wednesday, December 13

Course Policies

Regular Participation is Expected:

Class attendance is required.

It is the student's responsibility to independently obtain any missed material (including handouts) from lecture.

Deadlines:

There will be no make-ups for exams, homework, quizzes or in-class assignments.

Penalties will be assigned for late assignments

All Non-project-related Assignments are an Individual Effort Unless otherwise explicitly specified by the instructor.

Students are responsible for announcements made in Lecture, on Website, or via Email

Check your gatorlink email and the student access website several times per week for course announcements.

Students with disabilities:

Students requesting classroom accommodation must first register with the Dean of Students Office. The DSO office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

Academic Honesty

All students admitted to the University of Florida have signed a statement of academic honesty committing them to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action.

This statement is a reminder to uphold your obligation as a student at the University of Florida, and to be honest in all work submitted and exams taken in this class and all others

For more information, please see the academic honor code.

UF Counseling Services

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

University Counseling Center, 301 Peabody Hall, 392-1575

Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.

Personal Counseling, SHCC mental Health, Student Health Care Center, 392-1171

Software Use

All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

