

ECE 492-XXX or ECE 592-059

Internet of Things

Instructor(s): Yannis Viniotis candice@ncsu.edu

Objective or Description: In this course, we will introduce the students to the concepts, challenges, and recent developments around Internet of Things – IoT. We will focus on the fundamental issues that arise in the operation, design and management of IoT systems (not just networks). Such issues include, among others, business objectives and technical design requirements, IoT building blocks, architectures and reference models, enabling technologies, IoT protocol stacks (around verticals), IoT-specific analytics, and computing models. Upon completing this course, the students will be able to:

- Communicate the impact of various business drivers for IoT
- Summarize technical design requirements
- Critique architectures and protocol stacks for a specific vertical industry in IoT
- Summarize, evaluate or implement specific protocols (RPL, 6LoWPAN, CoAP)
- Demonstrate how cloud and fog computing models apply in the IoT space
- Provide arguments about the pros and cons of using specific enabling technologies in IoT
- Synthesize analytics algorithms for a specific vertical industry in IoT (time permitting)

Prerequisites: A course in Networking

Textbook: Instructor notes; handouts

Topics:

Components of an IoT system
IoT architectures, emphasis on the IoT-A model
Enabling Technologies
Analytics in IoT
Computing Models
Standards and Protocols

Grading: The following weights will be used to determine your course grade.

Item	Weight	Comment
Homeworks	20%	About 6-8 homeworks
Midterm exams	50%	Two exams
Project	30%	Semester-long project; group size TBD
Class participation	4%	To affect a letter grade change

Cross-listing in other departments: CSC 591

Include anything else that is unique to the course - this information will be posted on the ECE Current Graduate/Undergraduate Student Portals for all students to view

A lab for the graduate section