EE 629-A: Internet of Things
School of Engineering and Science
2021 Fall

Meeting Time:	Monday 3:00 PM to 5:30 PM
Classroom Location:	Babbio Center BC210
Instructor:	Kevin Lu
Contact Information:	Burchard B210, kevin.lu@stevens.edu
Office Hours:	Tuesday and Thursday 9:00 AM to 12:00 PM
Text Book:	None
Course Web Address:	https://sites.google.com/view/ece629
Prerequisite(s):	None
Corequisite(s):	None
Cross-listed with:	None

COURSE DESCRIPTION

This course provides a hands-on approach to the Internet of Things (IoT), including both physical and logical design practices. It describes use cases and building blocks such as sensor networks, communication protocols, cloud computing, application programming interfaces (APIs), request-respond and publish-subscribe frameworks and platforms, data analysis, machine learning, deep learning, data visualization, system configuration, service management, containers, security and privacy, quantum computing, and distributed ledger technologies.

LEARNING OBJECTIVES

After successful completion of this course, students will be able to:

- Understand the IoT architecture and building blocks
- Understand the IoT use cases and design methodology
- Develop working code in Python and JavaScript for real-world IoT applications
- Understand IoT data analysis and visualization
- Understand IoT system configuration and service management
- Understand distributed ledger technologies for IoT applications

FORMAT AND STRUCTURE

This course is comprised of lessons, hands-on labs, and final projects.

COURSE MATERIALS

GitHub Repository: https://github.com/kevinwlu/iot

GRADING PROCEDURES

Grades will be based on:

Attendance:	15%
Assignments:	55%
Project:	30%
Total:	100%

COURSE SCHEDULE

2021-08-30 Lesson 0: Syllabus
2021-09-06 No Class (Labor Day)
2021-09-13 Lesson 1: Overview
2021-09-20 Lesson 2: Raspberry Pi
2021-09-27 Lesson 3: Python
2021-10-04 Lesson 4: Django and Flask
2021-10-12 (Tuesday) Lesson 5: Crossbar.io and Paho
2021-10-18 Lesson 6: Alternative Devices
2021-10-25 Lesson 7: Cloud Platforms
2021-11-01 Lesson 8: Data Analysis
2021-11-08 Lesson 9: NETCONF and YANG
2021-11-15 Lesson 10: Blockchain
2021-11-22 Project Review
2021-11-29 Project Review
2021-12-06 Project Review
2021-12-13 Final Project Due

ACADEMIC INTEGRITY

Graduate Student Code of Academic Integrity

All Stevens graduate students promise to be fully truthful and avoid dishonesty, fraud, misrepresentation, and deceit of any type in relation to their academic work. A student's submission of work for academic credit indicates that the work is the student's own. All outside assistance must be acknowledged. Any student who violates this code or who knowingly assists another student in violating this code shall be subject to discipline.

All graduate students are bound to the Graduate Student Code of Academic Integrity by enrollment in graduate coursework at Stevens. It is the responsibility of each graduate student to understand and adhere to the Graduate Student Code of Academic Integrity. More information including types of violations, the process for handling perceived violations, and types of sanctions can be found at www.stevens.edu/provost/graduate-academics.

LEARNING ACCOMMODATIONS

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. The Office of Disability Services (ODS) works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, psychiatric disorders, and other such disabilities in order to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable

accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from the ODS staff. The ODS staff will facilitate the provision of accommodations on a case-by-case basis.

Disability Services Confidentiality Policy

Student Disability Files are kept separate from academic files and are stored in a secure location within the Office of Disability Services. The Family Educational Rights Privacy Act (FERPA, 20 U.S.C. 1232g; 34CFR, Part 99) regulates disclosure of disability documentation and records maintained by Stevens Disability Services. According to this act, prior written consent by the student is required before our Disability Services office may release disability documentation or records to anyone. An exception is made in unusual circumstances, such as the case of health and safety emergencies.

For more information about Disability Services and the process to receive accommodations, visit https://www.stevens.edu/office-disability-services. If you have any questions please contact: Phillip Gehman, the Director of Disability Services Coordinator at Stevens Institute of Technology at pgehman@stevens.edu or by phone (201) 216-3748.

INCLUSIVITY

Name and Pronoun Usage

As this course includes group work and in-class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect. This includes the ability for all students to have their chosen gender pronoun(s) and chosen name affirmed. If the class roster does not align with your name and/or pronouns, please inform the instructor of the necessary changes.

Inclusion Statement

Stevens Institute of Technology believes that diversity and inclusiveness are essential to excellence in academic discourse and innovation. In this class, the perspective of people of all races, ethnicities, gender expressions and gender identities, religions, sexual orientations, disabilities, socioeconomic backgrounds, and nationalities will be respected and viewed as a resource and benefit throughout the semester. Suggestions to further diversify class materials and assignments are encouraged. If any course meetings conflict with your religious events, please do not hesitate to reach out to your instructor to make alternative arrangements.

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Disrespectful conduct and harassing statements will not be tolerated and may result in disciplinary actions.