

San José State University
Aviation and Technology Department
Tech 67 Introduction to Internet of Things, Fall 2018

Course and Contact Information

Instructor	Dennis C. Frezzo, PhD
Office Location	Meet in E490
Telephone	Department Phone (408) 924-3192
Email	dennis.frezzo@sjsu.edu
Office Hours	Tu 5:30-5:55 PM
Class Days/Time	Lecture Tu/Th 3:00-3:50 Lab Tu 6:00 – 8:45 PM
Classroom	E490
Prerequisites	Tech 60, 65, CompE 30 required. Tech 66 helpful.

Course Materials

Some course materials including the will be found on the SJSU CANVAS site for the course, and that will be the official system of record. Login instructions can be found at <http://online.sjsu.edu>. You must be registered in the course to receive access. Day-to-day, course materials will be at <https://www.netacad.com>, Accounts will be established and verified in class. No books are required though I will make suggestions.

Course Description

Introduction to Internet of Things (IoT) fundamentals, development of the knowledge and skills required for related technologies and hands-on, problem-solving experience. Designing and connecting IoT devices to capture data and control the physical world.

Course Learning Outcomes

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

1. Connect computing devices and networks into Internet of Things (IoT) Systems
2. Design and model IoT solutions using simulation tools
3. Design and prototype IoT solutions using electronics and microcontrollers
4. Design IoT solutions using single board computers
5. Design and secure IoT devices to the Internet
6. Program the behavior of the IoT devices to connect to cloud services

Required Text/Readings

Course reading materials will be provided online by the instructor.

Course Requirements and Assignments

All assignments with description, due dates, and submission guidelines will be posted online.

Laboratory Assignments

Lab instructions will be provided to the students to perform assignments and for safe laboratory conduct.

Final Examination or Evaluation

The final exam will be comprehensive, covering all material presented in class. There will be no make-ups for missed exams, except for medical or other reasons outside the student's control, and such must be documented by written notice.

Grading Information

Course grade will be based on models, labs, activities, assessments, and a project with the following weight:

Homework	20%
Labs and In-Class Activities	30%
Quizzes, Chapter Exams, Midterm, and Final	30%
Capstone Project	20%

Determination of Grades

There will be no curving of grades. Final grades will be assigned as follows:

A 93-100	A- 90-92`	B- 80-82
B+ 87-89	B 83-86	C- 70-72
C+ 77-79	C 73-76	D- 60-62
D+ 67-69	D 63-69	F < 60

Classroom Protocol

Class participation and attendance are expected and recorded each week.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>"

Tech 67 Introduction to Internet of Things

Fall 2018 Course Schedule / Outline

Week	Subject (may change as class needs dictate)
1	08/21: Introduction to IoT; A Spiral Tour Through the Course Content (Lab 1 – activities)
2	08/28: Digitization: sensor and actuator circuits and microcontrollers (Lab 2 - Sparkfun)
3	09/04: Digitization: intermediate (Lab 3 - Sparkfun) (no lecture on 9/4)
4	09/11: Software: Raspberry Pi Single Board Computer Running Linux, Python (Lab 4 - Pi)
5	09/18: Software: Python (Lab 5 - Python)
6	09/25: Software and Networking (details TBD)
7	10/02: Network Access: Physical Layer and Ethernet (Lab 6 – Connectivity 1)
8	10/09: Network Access: Wireless for IoT (Lab 7 – Connectivity 2)
9	10/16: Packet Switching and TCP/IP for IoT
10	10/23: Packet Switching and TCP/IP for IoT (Lab 8 – Switching and Routing)
11	10/30: Software and Application Layer: Python, HTTP, and MQTT (Lab 9 - Protocols)
12	11/06: IoT Architectures: LANs, WANs, Edge, Fog, Cloud and Verticals (Lab 10 - Services)
13	11/13: Capstone Project 1 In-Class: Design Ideation for Capstone Project and form groups. Commitment.
14	11/20: Thanksgiving Week. Online lecture and Check In 1. No in-person meetings.
15	11/27: Capstone Project 2 In-Class: Mandatory Check In 2.
16	12/04: Capstone Project 3 In-Class: Mandatory Check In 3.
17	12/17: Final Capstone Presentations and Final Exam, Monday Dec 17 14:45 to 17:00