San José State University
Aviation and Technology Department
Tech 199A Introduction to Internet of Things, Fall 2017

Course and Contact Information

Instructor	Dennis C. Frezzo, PhD
Office Location	E490
Telephone	NA
Email	TBD
Office Hours	Thursdays 5:00-5:50 PM
Class Days/Time	Thursdays 6:00-8:45 PM
Classroom	E490
Prerequisites	None

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. Most materials will be at https://www.netacad.com, where you will be given access to the primary course, IoT Fundamentals: Connecting Things, a short course in using the simulator called Packet Tracer 101, and a networking reference course, Introduction to Networks. Accounts will be established in class.

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 assignments, exams, final exam, and project with the following weight:

Packet Tracer Models	30%
Electronics and Networking Models	30%
Quizzes and Midterm	10%
Capstone Project	20%
Final	10%

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 strongly encouraged.

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 at http://www.sjsu.edu/gup/syllabusinfo/"

Tech 199A Introduction to Internet of Things
Fall 2017 Course Schedule / Outline

Week	Subject (may change as class needs dictate)
1	Introduction to IoT; A Spiral Tour Through the Course Content
2	Design Thinking and Model Building
3	Digitization: sensor and actuator circuits and microcontrollers (Lab 1)
4	Digitization: intermediate (Lab 2)
5	Software: Raspberry Pi Single Board Computer Running Linux and Python (Lab 3)
6	Software: Python, HTTP, and MQTT (Lab 4)
7	Software Summary; Midterm Exam
8	Network Access: Physical Layer and Ethernet (Lab 5)
9	Packet Switching and TCP/IP for IoT (Lab 6)
10	Network Access: Wireless for IoT (Lab 7)
11	IoT Architectures: LANs, WANs, Edge, Fog, Cloud (Lab 8)
12	IoT Verticals and Design Activity; Ideation for Capstone Project
13	Capstone Project 1
14	No Class (Thanksgiving Day) but readings and calculations on Big Data and IoT
15	Capstone Project 2
16	Capstone Project 3
17	Final Capstone Presentations and Final Exam