Course Code	Course Title
COMP 4531	IoT and Smart Sensing

Course Description

The objective of this course is to introduce the spectrum of research on the Internet of Things (IoT) and smart sensing. The lectures cover a range of techniques in sensing, computing, communication, and wireless networking and connect them to various applications in analytics, localization, cyber-physical systems, mobile health, security, and wearables. This course is designed with multidisciplinary students in mind.

The course is designed to be self-contained. It will cover introductory materials on mathematics and signal processing basics. Familiarity with the undergraduate level calculus, probability, linear algebra, and programming is preferred.

List of Topics

1. Introduction
2. Sensing components (sensors)
    2.1 Introduction to sensors
    2.2 wireless sensing techniques:
3. Data processing
4. IoT connectivity
5. applications
    5.1 localization
    5.2 gesture recognition
    5.3 motion tracking
6. Security and privacy

Textbooks
N/A

Reference books
State-of-the-art research papers which may be updated from time to time

Grading Scheme
- Class involvement and discussion   20%
- Mid-term assignment.   20%
- Research survey (individual)   20%
- Project (group based, at most 4 students per group)
    - Project execution, demonstration and report   40%

Grade by letters

Course Intended Learning Outcomes

This course is designed with multidisciplinary students in mind. Every topic begins from first principles and gradually ramps up to the system design, implementation, and application, helping students to understand the state-of-the-art developments in this area and initiate research. The students will also need to present state-of-art research and develop a real IoT based system in the class.

Assessment Rubrics

1. Class engagement
2. Quality of course assignments and project (execution, presentation, demo, and report)
3. Quality of individual research survey (comprehensiveness and personal insights)