ECE 492-038 or ECE 592-053
Wearable Biosensors & Microsystems

Instructor(s): Michael Daniele, mdaniel6@ncsu.edu

Objective or Description: This course will explore the application of wearable electronics to monitor human biometrics. The first part of the course will introduce the sources of chemical, electrical, and mechanical bio-signals, and the sensing motifs for monitoring each bio-signal. The second part of the course will explore the design, function and limitations of wearable biosensors. Example systems will include wearable electrocardiograms, blood-glucose monitors, electronic tattoos, “smart” clothing, and body area networks. This course will provide students with a general overview of wearable biosensors and the necessary technical background to solve basic problems in engineering systems at the interface of biology and electronics.

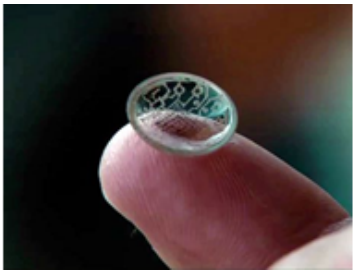
Time and Location: Tuesday/Thursday from 11:45AM-1:00PM

Prerequisites: Graduate or Senior Undergraduate Standing

Textbook: N/A

Topics:

Wearable Biosensors; Bioelectronics; Biochemical Sensors, Glucose Monitors, Electrophysiological Monitors; Implanted Systems (Pacemakers)Biomechanic Monitors; Pulse Oximetry; Photoplesmythography


Grading: Weekly reading assignments/critiques; Monthly Homework Assignments; Design Project/Presentations; Final Exam

Cross-listing in other departments: BME 495/590