

EE 381

1. **Course Number & Name:** EE 381, Introduction to Instrumentation and Automation
2. **Course Credit and Contact Hours:** 1 Units, 3 hours Lab
3. **Course Coordinator:** Dr. Farid Farahmand
4. **Textbook:** Reading materials will be provided.
5. **Supplemental Materials:**
 - a. None
6. **Specific Course Information:**
 - a. **Description:** In this laboratory based course students are introduced to computerized data acquisition systems and interfacing methods to laboratory instruments. Topics include building virtual instruments, understanding data acquisition methods, learning about communication busses, utilizing feedback control systems in automated testing, and performing signal processing and analysis.
 - b. **Prerequisites:** EE 330 and CS 115, or consent of instructor
 - c. **Co-Requisite:** None
 - d. **Status:** Required for EE program, Elective, Selected Elective
7. **Specific Goals for the Course:**
 - a. **Specific outcomes of instruction:** Upon successful completion of this course the students will be able to:
 - i. Able to automate measurements using oscilloscopes, function generators, and other key instruments related to electrical measurements.
 - ii. Able to understand basic communication protocols to communicate with various instruments.
 - iii. Able to build virtual instruments to control laboratory instruments.
 - b. **This course supports the following ABET Student Outcomes:**

SO-1: an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
8. **Brief List of Topics to be Covered:**
 - a. Introduction to instrumentations.
 - b. Programming instruments.
 - c. Introduction to LabVIEW.
 - d. Understanding state machines.
 - e. Feedback systems.

- f. Introduction to signal processing methods.
- g. Learning about data visualization.