

Data Acquisition System

- **Course number and name:**
CC 415 – Data Acquisition System
- **Credits and contact hours**
Credits Hours: 3Hrs
Contact Hours: In Lecture 2Hrs, In Tutorial 2Hrs, and In Lab 2Hrs
- **Instructor’s or course coordinator’s name**
Coordinator Name: Prof. Dr. Attallah Hashad
- **Text book, title, author, and year**
 - Sergio Franco,"Design with Operational Amplifiers and Analog Integrated Circuits", 2/Ed McGraw Hill, 1998
- **Specific course information**
 - a. **Catalog description**
Data Acquisition, Definitions & Applications, Data Acquisition channel structure components, Sensors and Transducers: Types, applications, structural classifications, Signal conditioning, Amplifications reshaping, and filtration, Data conversion, principles, devices and limitations, Introduction to data Analysis and elementary control, Case studies, Student Projects.
 - b. **prerequisites or co-requisites**
Prerequisites: CC421
 - c. **Type of the course (required, elective, or selected elective course) in the program**
Required Course
- **Specific goals for the course**
 - a. **Specific outcomes of instruction**

After the completion of this course the students will be able to:

	Course Learning Outcomes	SO
1	Introduce the basic techniques of automatic sensing and measurements in the non-digital world.	F,J
2	Understand the principles and to acquire skills in dealing with sensing different physical phenomena; mechanical, electric, electronic, and optical.	B,C,J
3	Understand the data acquisition channel structural components.	B,C
4	Understand data conversion; principles, devices, and limitations.	C,J
5	Analyze data and elementary control. Case studies.	B,C

Topics to be covered

- Introduction
- Data acquisition systems & data acquisition channel
- Sensors & transducers
- Signal conditioning: operational amplifiers & applications
- Signal conditioning: analog filters
- Computer interfacing techniques
- Special applications of operational amplifiers
- Digital to analog conversion
- Actuators
- Analog to digital conversion
- Digital to analog conversion
- Course projects presentation