

# BFF3302 SENSOR AND INSTRUMENTATION SYSTEM

## Introduction to the Course

by

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# Lecturer Information

- Name: Dr. Ahmad Shahrizan Abdul Ghani
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- Mobile: 019 633 9803 (Whatsup)
  - Message me first if you need to see me out of class hour (I might be outside the room/UMP)

# Basic Info of the Course

- 2 credits
- 2 hour per lecture, 2 hours per lab/tutorials
- Prerequisite Course: ELECTRICAL/ELECTRONICS
  - BFF2801
  - BFM2831
- Assessment:
  - Lab: 20%
  - Assign: 10%
  - Test 1 and Test 2: 25% + 25%
  - Project: 20%
- Don't come late to class/lab

# CLASS SCHEDULE

- **Monday**, 2pm-4pm (both sections) FKP-F-BK-05
- **Tuesday**, 8am-10am (section 1) FKP-B-M-04 (Lab Sensor and Instrumentation System)
- **Wednesday**, 2pm-4pm (section 2) FKP-B-M-04 (Lab Sensor and Instrumentation System)

Attendance is compulsory to everybody, who unable to attend for any reason, please let me know at earliest time.

80% attendance – test/final

# Chapter Description

- Aims
  - Obtain basic knowledge about electronic, measurement, sensors, and instrumentation
  - Able to analyse particular sensor, instrument, and measurement situation.
- Expected Outcomes
  - CO1: Determine general treatment of instrument elements and their characteristic [PO1]
  - CO2: Analyse transducer elements, intermediate elements, and data acquisition system (DAQ) [PO1]
  - CO3: Determine principles of the work and derive mathematical model of sensors for measuring motion and vibration, dimensional metrology, force, torque and power, pressure, temperature, flow and acoustics [PO5]
  - CO4: Develop team-oriented project for interfacing data acquisition system with applications [PO10]
- References
  - Introduction to signal processing, instrumentation, and control : an integrative approach / Joseph Bentsman Hackensack, NJ : World Scientific Pub., 2016
  - Transducers for instrumentation / M. G. Joshi, New Delhi, India : Infinity, 2017
  - Instrumentation and measurement in electrical engineering / editor : Harinirina Randrianarisoa, New York : Arcler Press, 2017



# Mark distribution

Distribution (%)		CO1	CO2	CO3	CO4
Laboratory works	20%			/	
Assignments	10%		/		
Test 1	25%	/			
Test 2	25%		/		
Project	20%				/
<b>Total</b>	<b>100%</b>				

# Project

- This is group oriented project.
- To fulfil CO4.
- The titles/topics and group members will be distributed.
- The project presentation will be schedule to be held during study week.
- Further information will be delivered later.
- A proper report with slide presentation need to be included during the presentation.

# Laboratory works

- There are four laboratory works.
  1. Data acquisition programming
  2. Analog to digital conversion
  3. Operational amplifier
  4. Temperature sensor
  5. Potentiometer - Arduino
  6. Working with NI MyRio and LabView
- The student will be divided into [several groups](#) (group of 3 or 4).
- The laboratory will be held at FKP-B-M-04
- Further information will be delivered later.