ELEC 3008 INSTRUMENTATION AND MEASUREMENT

Credit Points 10

Legacy Code 300075

Coordinator Gaetano Gargiulo (https://directory.westernsydney.edu.au/search/name/Gaetano Gargiulo/)

Description Through practical exercises students will engage with engineering measurement and instrumentation systems. Students determine the most appropriate measurement method and instrument, such as multimeters, digital oscilloscopes and interfacing modules, for particular applications. They will gain experience with the measurement of physical quantities and the instrumentation required to accurately present information to a controller. Additionally, transducers used to measure common physical quantities are presented in detail, while instrumentation includes a detailed analysis of zero-span circuits, Wheatstone bridges, instrumentation amplifiers, isolation amplifiers, voltage-to-current and voltage-to-frequency modules used for faithful signal transmission, digital-to-analogue and analogue-to-digital circuits to deepen student learning.

School Eng, Design & Built Env

Discipline Electronic Engineering

Student Contribution Band HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 3 subject

Pre-requisite(s) ELEC 2001 OR
ENGR 2001

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Make use of a variety of transducers to measure physical parameters
2. Estimate the errors involved in making measurements
3. Design and test electronic instrumentation using discrete and integrated circuit components
4. Interface a wide variety of transducers
5. Utilize A/D and D/A converters in the context of digital control
6. Avoid configurations of equipment that lead to grounding problems

Subject Content

Estimation of errors in measurements.
Transducers, primary & secondary sensors.
General measurement systems.
Design of Signal Conditioners.
Effects of loading in electronic circuits.
Noise in measurements.
Aspects of grounding practices.
A-D/D-A Conversion.

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Professional Task	4 submissions required	50	N	Individual
Practical Exam	2 hours	50	N	Individual

Prescribed Texts

- Johnson, CD 2014, Process control instrumentation technology, 8th international edn, Pearson Education Limited, Essex, UK

Teaching Periods

Sydney City Campus - Term 1 (2022)

Sydney City

Day

Subject Contact Peter Lendrum (https://directory.westernsydney.edu.au/search/name/Peter Lendrum/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC3008_22-SC1_SC_D#subjects)

Sydney City Campus - Term 3 (2022)

Sydney City

Day

Subject Contact Gaetano Gargiulo (https://directory.westernsydney.edu.au/search/name/Gaetano Gargiulo/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC3008_22-SC3_SC_D#subjects)