

# ENGR 7023 ADVANCED BIOMEDICAL DATA AND IMAGES

**Credit Points** 10

**Legacy Code** 301211

**Coordinator** Upul Gunawardana ([https://directory.westernsydney.edu.au/search/name/Upul Gunawardana/](https://directory.westernsydney.edu.au/search/name/Upul%20Gunawardana/))

**Description** This subject will cover advanced biomedical signal and data analysis including electrocardiography, electroencephalography, human-computer-interface, electromyography, machine learning and biomedical images. This subject will have a strong practical design focus with laboratories and tutorials focused on the design of usable software packages dealing with real biomedical signals.

**School** Eng, Design & Built Env

**Discipline** Biomedical Engineering

**Student Contribution Band** HECS Band 2 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Postgraduate Coursework Level 7 subject

## Restrictions

Students must be enrolled in a postgraduate program

## Assumed Knowledge

Signals theory; computer skills including use of MATLAB.

## Learning Outcomes

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

1. Process biomedical signals.
2. Write user-interface to automatically/aid expert scoring signals.
3. Analyse and process biomedical images.
4. Develop complex signal manipulation strategies.

## Subject Content

Introduction to Biomedical Signals  
 Digital filters for Biomedical Signals  
 Automated scoring of Biomedical Signals  
 Biomedical images: production and processing  
 Advanced techniques for data manipulations

## 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	Mandatory
Professional Task	Three submissions required (see schedule of activities for due dates)	80	N	Individual	Y
Presentatio	15 minutes	20	N	Individual	Y

## Prescribed Texts

Webster, JG & Nimunkar, AJ (eds) 2020, Medical instrumentation : application and design, 5th edn, John Wiley & Sons, Newark, Ebook Central database,. Proquest

## Teaching Periods

## Autumn (2025)

### Parramatta City - Macquarie St

#### On-site

**Subject Contact** Upul Gunawardana ([https://directory.westernsydney.edu.au/search/name/Upul Gunawardana/](https://directory.westernsydney.edu.au/search/name/Upul%20Gunawardana/))

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=ENGR7023\\_25-AUT\\_PC\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=ENGR7023_25-AUT_PC_1#subjects))