

# ELEC 1011 ENGINEERING COMPUTING (BLOCK)

**Credit Points** 10

**Legacy Code** 500064

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

**Description** Engineering Computing is an introduction to using computation to solve real problems. The subject also aims to instil sound principles of program design that can be utilized in many subjects throughout the students' course. The basic elements and structures of a high level language are taught. Students are exposed to numerous engineering problems and are encouraged to implement solutions using an algorithmic approach.

**School** Eng, Design & Built Env

**Discipline** Computer 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** Undergraduate Level 1 subject

**Equivalent Subjects** ELEC 1006 Engineering Computing ELEC 1007 Engineering Computing (WSTC AssocD) ELEC 1008 Engineering Computing (WSTC)

**Restrictions** Students must be enrolled in the program : 7178 Diploma in Aerotropolis Industry 4.0 (Mechatronics Skills). or7182 Undergraduate Certificate in Engineering

## Assumed Knowledge

Basic knowledge in use of computers and Windows operating system.

## Learning Outcomes

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

1. Utilise a typical software development environment.
2. Develop solutions to problems using an algorithmic approach.
3. Apply data structures of a common programming language, to translate an algorithm into a coded program. These programming structures should be included as a minimum: Selection and repetition statements? Functions? 1 & 2 dimensional arrays? File processing
4. Implement basic features of data manipulation and graphing using a spreadsheet program such as EXCEL.

## Subject Content

1. Spreadsheet applications - Spreadsheet operations
  2. Spreadsheet applications - Spreadsheet functions and macros
  3. Spreadsheet applications - Solving engineering problems using spreadsheets
  4. Structured programming - Introduction to programming environment
  5. Structured programming - Decision structures
  6. Structured programming - Repetition structures
  7. Structured programming - Modular programming
  8. Structured programming - Exchanging data with external files
- Problem solving & algorithm development will be embedded in each section

## 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
Quiz	60 minutes	15	N	Individual	N
Case Study	1,000 words (in total)	15	N	Group	N
Case Study	600 – 800 min working time* per group member	30	N	Group	N
Peer Review	5 minutes	5	N	Individual	N
Applied Project	300 - 500 min working time*	35	N	Individual	N