

ELEC 1011 ENGINEERING COMPUTING (BLOCK)

Credit Points 10

Legacy Code 500064

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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/) 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). or 7182 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 |
|-----------------|--|---------|-----------|---------------------------|
| Quiz | 60 minutes | 15 | N | Individual |
| Case Study | 1,000 words (in total) | 15 | N | Group |
| Case Study | 600 – 800 min working time* per group member | 30 | N | Group |
| Peer Review | 5 minutes | 5 | N | Individual |
| Applied Project | 300 - 500 min working time* | 35 | N | Individual |