COMP 1015 PROGRAMMING FUNDAMENTALS AND ALGORITHMIC DESIGN (WSTC)

Credit Points 10

Coordinator Maria Mikhail (https://directory.westernsydney.edu.au/search/name/Maria Mikhail/)

Description As a first subject in computer programming, this subject covers the basics of developing software with an emphasis on procedural programming. You will learn about basic data structures, the concept of algorithms, fundamental programming constructs, common programming language features and functions, program design and good programming style. The entry into programming is made more accessible by pairing a high-level programming language with a highly visual and interactive framework. On successful completion of this subject, you will be able to develop algorithms, design programs and solve programming problems.

School Computer, Data & Math Sciences

Discipline Programming

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

Restrictions

Students must be enrolled in an existing Destination College Diploma program listed below:

- 7188 Diploma in Culture, Society and Justice
- 7189 Diploma in Health Science
- 7190 Diploma in Business
- 7191 Diploma in Information and Communication Technologies
- 7192 Diploma in Building Design and Construction
- 7193 Diploma in Engineering Studies
- 7194 Diploma in Creative Industries and Communications
- 7195 Diploma in Arts
- 7196 Diploma in Science
- 7197 Diploma in Education Studies

Learning Outcomes

After successful completion of this subject, students will be able to:

1. Analyse a given problem and from a simple problem description, identify desired inputs, outputs and the necessary processing operations to convert input into output and code it.
2. Develop an algorithm that applies structured programming techniques that solve the given problem.
3. Choose suitable data types to store relevant data for the given problem.
4. Design and code programs which use standard programming concepts, variables, sequence, loops, decision-making constructs, functions, and mathematical operators including Boolean logic.
5. Apply top-down modular design principles to programming problems and implement the solution using the chosen programming language.

Subject Content

- Introduction to programming and structured programming concepts.
- Fundamentals of procedural programming including sequence, selection, and iteration.
- Data types, using variables, selecting variable names, and understanding variable scope.
- Compound statements, decision-making constructs, looping constructs, and associated problem-solving techniques.
- Techniques of algorithm development, writing and using functions, return values, and parameter passing.
- Introduction to arrays.

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
Portfolio	Part a) 300 words or equivalent. Part b) 500 words or equivalent	35	N	Individual	N
Case Study	1200 words or equivalent	35	N	Individual	N
Presentation	15 minutes	30	N	Individual	N

Teaching Periods

Autumn Block 3 (2025)

Nirimba Education Precinct

On-site

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View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP1015_25-AB3_BL_1#subjects)

Penrith (Kingswood)

On-site

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Spring Block 3 (2025)

Penrith (Kingswood)

On-site

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timetable/?subject_code=COMP1015_25-SB3_KW_1#subjects)