

COMP 7015 PROGRAMMING PROFICIENCY

Credit Points 10

Legacy Code 301038

Coordinator Zuhuan Jiang (<https://directory.westernsydney.edu.au/search/name/Zuhuan.Jiang/>)

Description This subject is aimed at the students whose undergraduate study is in a discipline other than computing or information technology. This subject first covers the programming fundamentals on data types, conditional selections and loop structures, and then further develops the problem solving skills through the use of user-defined functions, records, files, as well as the basic concept and techniques of object-oriented programming. A high level programming language is employed to implement all the problem solutions.

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 Postgraduate Coursework Level 7 subject

Restrictions

Students must be enrolled in a postgraduate program.

Learning Outcomes

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

1. Discuss and explain the concepts of data and procedural representation, programming languages, compilers, interpreters, and development environments.
2. Design and/or represent programs with flow chart and pseudo code.
3. Use effectively the basic data types, selection control, and loop structure.
4. Utilise a high-level programming language to develop problem solutions using standard IO or a proper user interface, files, and record or class structure.
5. Apply a modular design or an OO design to the software solution.
6. Explain the concept of object-oriented programming, and apply the concept to developing a software solution within an OOP environment.

Subject Content

1. The programming environment: computer systems architecture, hardware, operating systems, compilers, interpreters.
2. Data representation and basic data and multimedia types.
3. Program flowchart, pseudo code and the concept of algorithms.
4. Programming basics: syntax, declarations, operators, expressions, assignment, selection, iterations.
5. Other programming features: IO, GUI, functions, arrays, records, files, and classes.
6. Program design, and the coding, testing, and debugging of the programs.
7. The OOP paradigm, method overloading and overriding, inheritance and polymorphism.

8. The solution development within an OOP environment.

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 | Mandatory Task |
|-----------------|---------|---------|-----------|-------------------|----------------|
| Quiz | 1 hour | 15 | N | Individual | Y |
| Quiz | 1 hour | 15 | N | Individual | Y |
| Quiz | 2 hours | 25 | Y | Individual | Y |
| Practical | 8 hours | 20 | N | Individual | Y |
| Applied Project | 8 hours | 25 | N | Group | Y |

Prescribed Texts

- Lewis, J. (2012). Java software solutions : foundations of program design (7th ed.). Boston: Pearson Addison-Wesley.

Teaching Periods

Autumn (2025)

Parramatta - Victoria Rd

On-site

Subject Contact Zuhuan Jiang (<https://directory.westernsydney.edu.au/search/name/Zuhuan.Jiang/>)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP7015_25-AUT_PS_1#subjects)

Sydney City Campus - Term 1 (2025)

Sydney City

On-site

Subject Contact Mahsa Razavi (<https://directory.westernsydney.edu.au/search/name/Mahsa.Razavi/>)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP7015_25-SC1_SC_1#subjects)

Sydney City Campus - Term 2 (2025)

Sydney City

On-site

Subject Contact Mahsa Razavi (<https://directory.westernsydney.edu.au/search/name/Mahsa.Razavi/>)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP7015_25-SC2_SC_1#subjects)

Spring (2025)

Parramatta - Victoria Rd

On-site

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View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP7015_25-SPR_PS_1#subjects)