COMP 2015 PROGRAMMING TECHNIQUES

Credit Points 10

Legacy Code 300581

Coordinator Paul Davies (https://directory.westernsydney.edu.au/search/name/Paul Davies/)

Description This subject is intended as a second subject of study in programming. It builds on a basic understanding of procedural programming as would be developed in a first subject. This subject continues the development of programming skills and methodologies required for professional programming and for further study in later computing subjects. Topics covered include multi-dimensional arrays, file I/O, searching and sorting, and an introduction to object-oriented programming involving classes and inheritance.

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 2 subject

Pre-requisite(s) COMP 1005

Equivalent Subjects LGYA 5800
COMP 2017

Incompatible Subjects COMP 2016 - Programming Techniques (Advanced)

Learning Outcomes

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

1. With a chosen programming language in mind, analyse a given problem and: a). Develop an algorithm that applies structured programming techniques such as sequence, selection, iteration and modularisation that solve the given problem; b). Choose suitable data types to store relevant data for the given problem; c). Implement the solution algorithm using the chosen programming language, data types and control structures; d). Test and debug the program code to produce a working computer program.
2. Write and implement programs that use data structures such as arrays to solve problems in programming involving multiple data items.
3. Demonstrate how different searching and sorting methods operate and be able to implement them in working computer programs
4. Store, retrieve and manipulate data programmatically from secondary storage
5. Use object-oriented methodology to analyse relatively simple problems and develop object-oriented computer program solutions

Subject Content

1. Revision and extension of procedural programming structures including: a. Data types b. I/O statements c. Calculations d. Problem solving techniques e. decision making constructs f. repetition structures g. writing and using functions h. one-dimensional arrays
2. Multi-dimensional arrays
3. Character strings and textual data
4. Sorting and searching algorithms: Sequential Search, Binary Search, Selection Sort, Bubble Sort
5. Object-Oriented Programming including: a. Introduction to classes and objects b. Class construction c. Constructors and destructors d. Inheritance e. Polymorphism
6. Data files

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	Two Practical Deliverables. 1 to 5 programming tasks per practical deliverable.	30	N	Individual	Y
Applied Project	One deliverable. Typically the solution files will be approximat 800 to 1200 lines of code.	40	N	Individual	Y
Professional Task	90 minutes	30	Y	Individual	Y

Prescribed Texts

- Gaddis. T. (2016). Starting out with Java: From control structures through objects (6th Ed.). Boston, MA : Pearson

Teaching Periods

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=COMP2015_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=COMP2015_25-SC2_SC_1#subjects)

Spring (2025)

Campbelltown

Hybrid

Subject Contact Paul Davies (https://directory.westernsydney.edu.au/search/name/Paul Davies/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP2015_25-SPR_CA_3#subjects)

Penrith (Kingswood)

Hybrid

Subject Contact Paul Davies (https://directory.westernsydney.edu.au/search/name/Paul Davies/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP2015_25-SPR_KW_3#subjects)

Parramatta - Victoria Rd

Hybrid

Subject Contact Paul Davies (https://directory.westernsydney.edu.au/search/name/Paul Davies/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP2015_25-SPR_PS_3#subjects)

Surabaya Semester 1 (2025)

Surabaya

On-site

Subject Contact Paul Davies (https://directory.westernsydney.edu.au/search/name/Paul Davies/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP2015_25-IS1_SU_1#subjects)