

COMP 2015 PROGRAMMING TECHNIQUES

Credit Points 10

Legacy Code 300581

Coordinator Paul Davies ([https://directory.westernsydney.edu.au/search/name/Paul Davies/](https://directory.westernsydney.edu.au/search/name/Paul%20Davies/))

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 HECS Band contribution amount 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:

- 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.
- Write and implement programs that use data structures such as arrays to solve problems in programming involving multiple data items.
- Demonstrate how different searching and sorting methods operate and be able to implement them in working computer programs
- Store, retrieve and manipulate data programmatically from secondary storage
- Use object-oriented methodology to analyse relatively simple problems and develop object-oriented computer program solutions

Subject Content

- 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
- Multi-dimensional arrays

- Character strings and textual data
- Sorting and searching algorithms: Sequential Search, Binary Search, Selection Sort, Bubble Sort
- Object-Oriented Programming including: a. Introduction to classes and objects b. Class construction c. Constructors and destructors d. Inheritance e. Polymorphism
- 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
Professional Task	Two Practical Deliverables. 1 to 5 programming tasks per practical deliverable.	30	N	Individual
Applied Project	One deliverable. Typically the solution files will be approximately 800 to 1200 lines of code.	40	N	Individual
Professional Task	90 minutes	30	Y	Individual

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 (2022)

Sydney City

Day

Subject Contact Mahsa Razavi ([https://directory.westernsydney.edu.au/search/name/Mahsa Razavi/](https://directory.westernsydney.edu.au/search/name/Mahsa%20Razavi/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=COMP2015_22-SC1_SC_D#subjects)

Sydney City Campus - Term 2 (2022)

Sydney City

Day

Subject Contact Mahsa Razavi ([https://directory.westernsydney.edu.au/search/name/Mahsa Razavi/](https://directory.westernsydney.edu.au/search/name/Mahsa%20Razavi/))

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Spring (2022)

Campbelltown

Day

Subject Contact Paul Davies ([https://directory.westernsydney.edu.au/search/name/Paul Davies/](https://directory.westernsydney.edu.au/search/name/Paul%20Davies/))

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Penrith (Kingswood)

Day

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Parramatta - Victoria Rd

Day

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Sydney City Campus - Term 1 (2023)

Sydney City

On-site

Subject Contact Mahsa Razavi ([https://directory.westernsydney.edu.au/search/name/Mahsa Razavi/](https://directory.westernsydney.edu.au/search/name/Mahsa%20Razavi/))

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Sydney City Campus - Term 2 (2023)

Sydney City

On-site

Subject Contact Mahsa Razavi ([https://directory.westernsydney.edu.au/search/name/Mahsa Razavi/](https://directory.westernsydney.edu.au/search/name/Mahsa%20Razavi/))

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Spring (2023)

Campbelltown

On-site

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Penrith (Kingswood)

On-site

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Melbourne

On-site

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Parramatta - Victoria Rd

On-site

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