

COMP 3016 OPERATING SYSTEMS PROGRAMMING (ADVANCED)

Credit Points 10

Legacy Code 300943

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

Description This unit provides the knowledge of the internal structure and functionality of Operating Systems. Through the use of case studies the abstraction that Operating Systems provide will be investigated, and techniques for programming with these abstractions will be developed.

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 3 subject

Pre-requisite(s) COMP 2016 OR COMP 2015

Incompatible Subjects LGYA 6233 - Operating Systems Programming INFS 3014 - Operating Systems

Restrictions Students must be enrolled in 3684 Bachelor of Information and Communications Technology (Advanced)

Learning Outcomes

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

1. identify the functions, services and basic structure of operating systems, and describe their role in a computer system;
2. discuss operating systems fundamental concepts: process, process synchronisation, process scheduling and dispatch, memory management, virtual memory, I/O system management, file systems, hierarchical directory systems;
3. identify some of the performance issues involved, and carry out calculations in this regard;
4. identify the central role of concurrency in operating systems programming; and solve problems requiring concurrency;
5. write programs illustrating the application of the theoretical concepts, and explore these concepts in a simulated and actual environments;
6. analyze and evaluate an operating systems suitability for a task based on requirement.

Subject Content

Interface with the operating system: general properties and style of system calls; operating system structures, and how they can be accessed;

Process and thread concept, management, synchronisation, scheduling and the realisation of these in modern operating systems.

Inter-process communication; vis. synchronous and asynchronous message passing, shared memory, mutual exclusion, interrupts and signals
 Functions, services, basic structure and the role of an operating system in a computer system.
 Memory management
 File systems, directories
 Security and protection at the operating system level, protection matrix

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.

Item	Length	Percent	Threshold	Individual/Group Task
Case Study	5 x approx 600 words or equivalent per case study	50	N	Individual
Final Exam	2 hours	50	Y	Individual

Teaching Periods

Autumn

Campbelltown

Day

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

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=COMP3016_22-AUT_CA_D#subjects)

Penrith (Kingswood)

Day

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=COMP3016_22-AUT_KW_D#subjects)

Parramatta - Victoria Rd

Day

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=COMP3016_22-AUT_PS_D#subjects)