



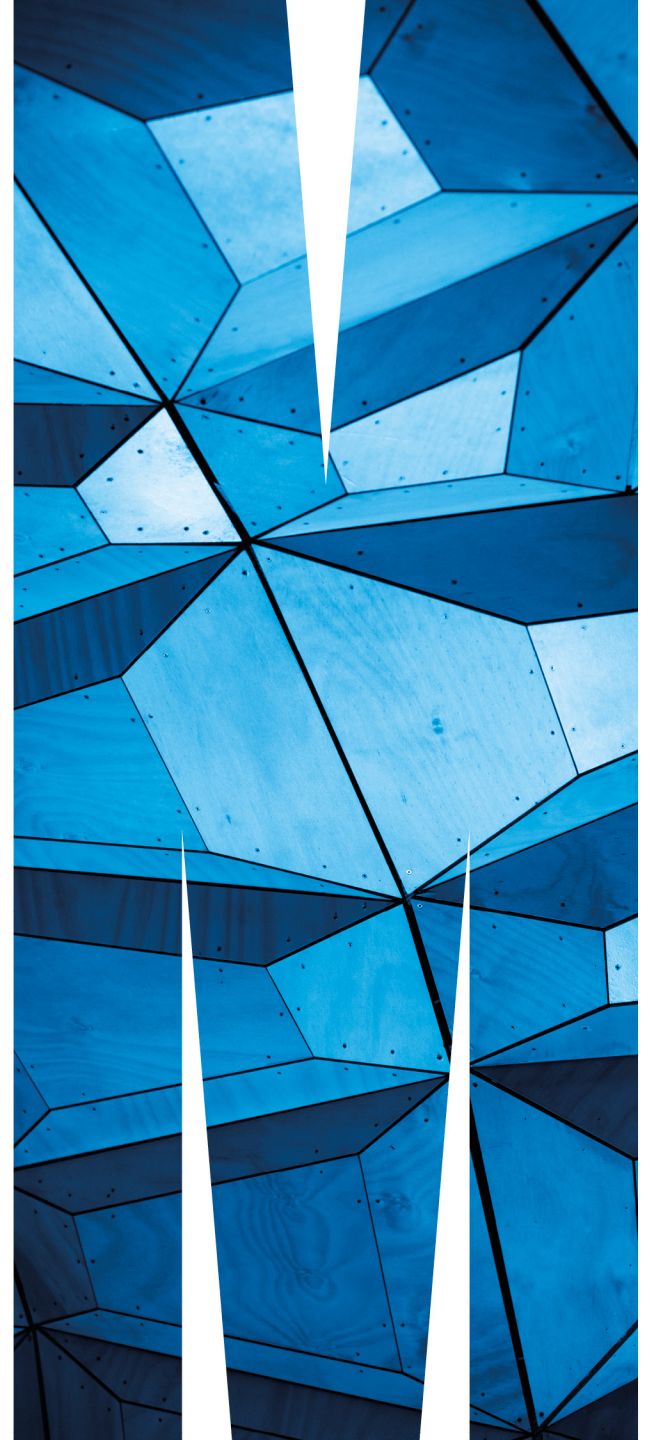
MONASH
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INFORMATION
TECHNOLOGY

FIT2100 Semester 2 2017

Operating Systems: Unit Introduction

Jojo Wong



FIT2100 Overview

- What this unit is about?
 - To provide students with the knowledge of how a multi-programming, multi-user operating system operates; and how it manages and allocates resources to different applications
 - To enable students to compare and contrast various resource management allocation strategies
- What are you going to learn?
 - Topics covered: operating system structures and services, multi-programming processes, CPU scheduling, synchronisation, deadlocks, memory management, device management, file management, operating system security

FIT2100 Learning Outcomes

- Upon the completion of this unit, you should be able to:
 - Analyse and evaluate various **strategies** used by an operating system in managing the system resources and running applications efficiently
 - Analyse and identify **parameters** that can improve the performance of multi-programming operating systems
 - Apply the principle of **synchronisation** in developing distributed applications
 - Demonstrate the **applicability** of OS techniques and mechanisms to the wider context of computing

FIT2100 Unit Schedule

Week	Activities	Assessment
0		No formal assessment or activities are undertaken in Week 0
1	Computer System Overview	Tutorials commence in Week 1 (alternate weeks)
2	Operating System Overview	Practicals commence in Week 2 (alternate weeks)
3	Process Description and Control Threads	
4	Concurrency Part 1: Mutual Exclusion and Synchronisation	
5	Concurrency Part 2: Deadlock and Starvation	
6	Interprocess Communication	Assignment 1: Submission due on Friday 5pm
7	Memory Management	
8	Virtual Memory	
9	Uniprocessor Scheduling	Assignment 2 Part A: Submission due on Friday 5pm
10	I/O Management and Disk Scheduling	
11	File Management	
12	Operating System Security Review	Assignment 2 Part B: Submission due on Friday 5pm

FIT2100 Assessments

- Assignments:
 - 50% of the overall unit mark
 - Tutorial participation (5%)
 - Practical assessment (10%)
 - Three programming assignments (35%):
 - Assignment 1 (10%) due on Week 6
 - Assignment 2 Part A (10%) due on Week 9
 - Assignment 2 Part B (15%) due on Week 12
- Examination:
 - 50% of the overall unit mark
 - 2-hour written exam
 - 30 minutes of reading and noting time

FIT2100 Unit Hurdles

- To pass a unit, you must obtain:
 - 40% or more of the exam mark
 - 40% or more of the total mark for the three assignments
 - An overall unit mark of 50% or more
- If you do not pass any of these hurdles, and your overall unit mark is:
 - equal to or greater than 50%, then a mark of 49 N will be recorded
 - less than 50%, then the actual mark will be recorded

FIT2100 Tutorials and Practicals

- Tutorials (1 hour):
 - Weeks 1, 3, 5, 7, 9, 11
 - Focus on the concepts and skills of C programming language
- Practicals (3 hours):
 - Weeks 2, 4, 6, 8, 10, 12
 - Focus on hands-on experience of operating system concepts
- Attendance for both tutorials and practicals are compulsory
- Please come prepared by completing the pre-class activities

FIT2100 Teaching Staff

- Chief Examiner / Lecturer (Clayton):
 - Dr. Jojo Wong
 - Email: jojo.wong@monash.edu
 - Phone: +613 9905 2556
 - Office: 123, 25 Exhibition Walk (Building 63), Clayton
 - Consultation hours: to be advised on Moodle

- Lecturer (Malaysia):
 - Ms. Kum Yee Chin
 - Email: *to be advised*

FIT2100 Teaching Staff

■ Tutors (Clayton):

- Dr. Osama Dandash (osama.dandash@monash.edu)
- Mr. Pasindu Epa (pasindu.epa@monash.edu)
- Mr. Daniel Jitnah (email: *to be advised*)
- Mr. Guy Kijthaweesinpoon (guy.kijthaweesinpoon@monash.edu)
- Mr. Daniel Kos (daniel.kos@monash.edu)
- Mr. Jonny Low (jonny.low@monash.edu)
- Mr. Paul Miller (paul.miller@monsh.edu)
- Mr. Swami Venkataraman (swami.swaminathan@monash.edu)

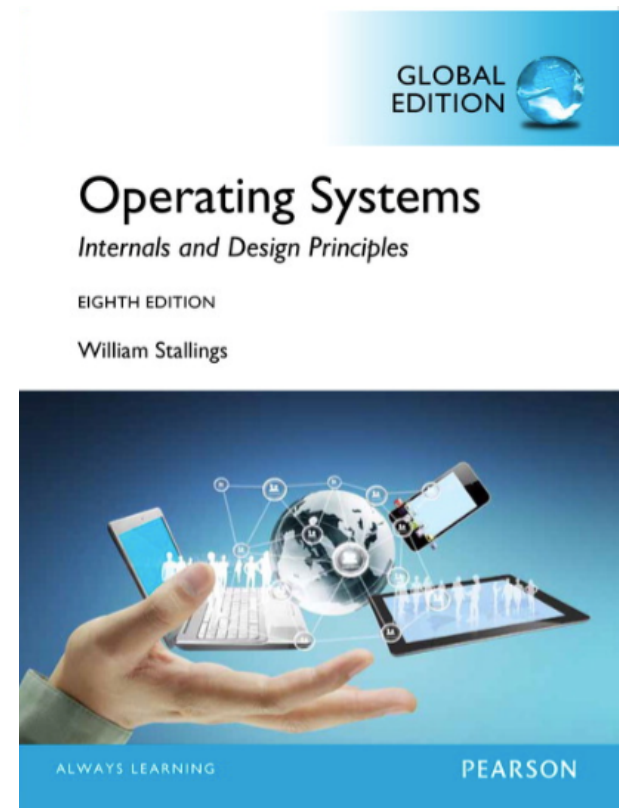
Consultation by tutors will start in Week 3.
Times and venues to be announced on Moodle.

FIT2100 Learning Materials

- Types of materials:
 - Lecture notes
 - Lecture recordings
 - Tutorial and practical notes
 - Quiz questions
- Where are they available?
 - [FIT2100 Moodle site](#)
 - Lecture recordings after the lecture

FIT2100 Prescribed Text

- William Stallings (2015). Operating Systems: Internals and Design Principles (8th Edition), Pearson.



FIT2100 Recommended Texts (Operating Systems)

- Abraham Silberschatz, Peter B. Galvin, and Greg Gagne (2013). Operating System Concepts (9th Edition), Wiley.
- Andrew S. Tanenbaum, and Herbert Bos (2014). Modern Operating System (4th Edition), Pearson.

FIT2100 Recommended Texts (C Programming for Unix)

- Brian W. Kernighan, Dennis M. Ritchie (1988). The C Programming Language (2nd Edition), Prentice Hall.
- K. N. King (2008). C Programming: A Modern Approach (Second Edition), W. W. Norton.
- David A. Curry (1989). C on the UNIX System (Internet Edition), O'Reilly.
- David A. Curry (1996). UNIX Systems Programming for SVR4 (Internet Edition), O'Reilly.
- W. Richard Stevens, and Stephen A. Rago (2013). Advanced Programming in the Unix Environment (Third Edition), Addison-Wesley.
- Ben Klemens (2014). 21st Century C: C Tips from the New School (2nd Edition), O'Reilly.

Plagiarism and Collusion

- Student responsibilities:
 - Undertake studies and research responsibly and with **honesty** and **integrity**
 - Ensure that academic work is in no way falsified
 - Seek permission to use the work of others, where required
 - Acknowledge appropriately the work of others
 - Take reasonable steps to ensure other students are not able to copy or misuse your work

- Student Academic Integrity Policy:
 - <http://www.monash.edu.au/students/policies/academic-integrity.html>

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- Note takers and Auslan interpreters
- Readings in alternative formats
- Adaptive equipment and software
- Alternative arrangements for exam and class tests

Disability Support Services also support students who are carers of a person with a disability, medical or mental health condition, or who is aged and frail.

For further information and details about how to register:

T: 03 9905 5704

E: disabilitysupportservices@monash.edu

W: www.monash.edu/disability