UniSC

COURSE OUTLINE

CSC200 **Computer Organisation and Operating Systems**

School: School of Science, Technology and Engineering

| 2026 | Trimester 1 |

| UniSC Moreton Bay | BLENDED LEARNING | Most of your course is on campus but you may be able to do some components of this course online. |

Please go to usc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

The principles of computer organisation and operating systems (OS) are the building blocks of modern computing. You will be introduced to fundamental concepts of OS and digital logic, with an emphasis on data representation, memory technology, and Input/Output (I/O) systems. You will examine how a computer operates at the machine level, i.e., OS and hardware cooperation, and explore hierarchy and organisation of memories, addressing techniques, internal processor structure and operation through symbolic assembly language examples.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – Pre-recorded concept videos and associated activity for Asynchronous learning.	2hrs	Week 1	12 times
Laboratory 1 – On-campus Practical Computer Workshop	2hrs	Week 1	12 times

1.3. Course Topics

- Overview of operating systems, functionalities and charateristics of OS.
- Hardware concepts related to OS, CPU states, I/O channels, memory hierarchy, microprogramming
- Information theory and digital representations of data
- Instruction set architecture (ISA) -- Instruction types, registers, addressing modes, and load/store architectures
- Structure of assembly language programs
- From high-level to machine language -- Roles of compilers, assemblers, linkers and loaders
- Techniques for improving computer performance -- Pipelining and interleaving and concurrency management (including critical regions, semaphores, deadlock, mutual exclusion and synchronisation)
- The concept of a process, operations on processes, process states, concurrent processes, process control block, process context, interrupts, dispatcher, signals, forks and pipes.
- Job and processor scheduling, scheduling algorithms, process hierarchies.
- Virtualizing and sharing computers -- Memory management (paging, addressing, blocks, fragments, buffering, virtual memory). Time-sharing and process management (Interprocess communication (IPC))
- Multi-core and parallel processing

2. What level is this course?

200 Level (Developing)

Building on and expanding the scope of introductory knowledge and skills, developing breadth or depth and applying knowledge and skills in a new context. May require pre-requisites where discipline specific introductory knowledge or skills is necessary. Normally, undertaken in the second or third full-time year of an undergraduate programs.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES On successful completion of this course, you should be able to...	GRADUATE QUALITIES Completing these tasks successfully will contribute to you becoming...
1. Demonstrate knowledge of computer architectures and operating systems theory and practice.	Knowledgeable
2. Select, adapt, and design solutions to computer architecture problems reaching substantiated conclusions using fundamental principles of computer organisation and operating systems.	Creative and critical thinker
3. Research, compare and analyse computer architectures and operating systems for a real world context.	Creative and critical thinker Empowered
4. Develop and deliver a professional quality presentation on a Computer Science topic.	Empowered Engaged

5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of "pre-requisites, co-requisites and anti-requisites".

5.1. Pre-requisites

ENG103 and ICT120

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Weekly tutorial activities will provide students with formative feedback weekly from weeks 1 – 10. Additionally, the practical assessment in Task 1 provide early summative feedback to students.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Artefact - Technical and Scientific	Individual	25%	45 mins	Week 5	Online Assignment Submission with plagiarism check
All	2	Oral and Written Piece	Group	35%	Professional Product Presentation and visual material (slides) based on research into two competing architectures for a contemporary case study. Example case studies will be available in Task 2 Assessment folder	Week 11	In Class
All	3	Examination - Centrally Scheduled	Individual	40%	2 hours	Exam Period	Online Submission

All - Assessment Task 1: Skills demonstration

GOAL:	To demonstrate knowledge of core computer architecture and operating system components.	
PRODUCT:	Artefact - Technical and Scientific	
FORMAT:	5 questions each worth 5% of final grade All content from weeks 1 – 4 of learning materials and workshops.	
CRITERIA:	No.	Learning Outcome assessed
	1 Demonstrated knowledge of fundamental computer architectures and operating systems theory and practice.	①
	2 Degree of innovation evident in problem solving	②
	3 Selection, adaption and design of solutions using principles of computer organisation and OS	②
GENERIC SKILLS:		

All - Assessment Task 2: Systems Consultant Pitch

GOAL:	To explore two competing contemporary software architectures/operating systems
PRODUCT:	Oral and Written Piece
FORMAT:	10 minutes 5 – 10 Slides

CRITERIA:	No.		Learning Outcome assessed
	1	Understanding of context for case study	①
	2	Analysis, evaluation and recommendation of best platform for selected scenario	② ③
	3	Selection of and research into candidate platforms	② ④
	4	Effectiveness of oral communication	④
	5	Quality of slides/visual materials	④

GENERIC SKILLS:	

All - Assessment Task 3: Final Examination

GOAL:	The final exam will develop your ability to independently apply your skills and knowledge to solve familiar problem-based questions with confidence within a set time limit and without access to additional resources.
PRODUCT:	Examination - Centrally Scheduled
FORMAT:	Open-book examination Short answer problems based on tutorial activities, assignment questions and lecture materials.

CRITERIA:	No.		Learning Outcome assessed
	1	Demonstrated knowledge of fundamental computer architectures and operating systems theory and practice	①
	2	Degree of innovation evident in problem solving	②
	3	Selection, adaption and design of solutions using principles of computer organisation and OS	②

GENERIC SKILLS:	

7.   Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8.   What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1.   Prescribed text(s) or course reader

Please note that you need to have regular access to the resource(s) listed below. Resources may be required or recommended.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	Abraham Silberschatz,Peter B. Galvin,Greg Gagne	2018	Operating System Concepts	10	Wiley

8.2. Specific requirements

> Not applicable

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:
(a) The final mark is in the percentage range 47% to 49.4%; and
(b) The course is graded using the Standard Grading scale

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The final mark is in the percentage range 47% to 49.4%
The course is graded using the Standard Grading scale
You have not failed an assessment task in the course due to academic misconduct.

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:
(a) One day: deduct 5%;
(b) Two days: deduct 10%;
(c) Three days: deduct 20%;
(d) Four days: deduct 40%;
(e) Five days: deduct 60%;
(f) Six days: deduct 80%;
(g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:
Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

10.4. SafeUniSC

UniSC is committed to a culture of respect and providing a safe and supportive environment for all members of our community. For immediate assistance on campus contact SafeUniSC by phone: 07 5430 1168 or using the SafeZone app. For general enquires contact the SafeUniSC team by phone 07 5456 3864 or email safe@usc.edu.au.

The SafeUniSC Specialist Service is a Student Wellbeing service that provides free and confidential support to students who may have experienced or observed behaviour that could cause fear, offence or trauma. To contact the service call 07 5430 1226 or email studentwellbeing@usc.edu.au.

10.5. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the Learning Advisers web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.6. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to Student Hub, email studentwellbeing@usc.edu.au or call 07 5430 1226.

10.7. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, AccessAbility Services can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to Student Hub, email AccessAbility@usc.edu.au or call 07 5430 2890.

10.8. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.9. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.10. General Enquiries

In person:

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au