

SUMMARY OF INFORMATION ON EACH COURSE

1.	Name of Course	Operating Systems	
2.	Course Code	TOS 1141	
3.	Status of Course [Applies to (cohort)]	Common Core for B.IT (Hons) Data Communications and Networking B.IT (Hons) Information Management B.IT (Hons) Artificial Intelligence B.IT (Hons) Security Technology B.Sc (Hons) Bioinformatics	
4.	MQF Level/Stage	Bachelor – MQF Level 6	
5.	Version (State the date of the Senate approval – history of previous and current approval date)	Date of previous version : June 2012 Date of current version : August 2014	
6.	Pre-Requisite	None	
7.	Name(s) of academic/teaching staff	Afizan Azman Leow Meng Chew	
8.	Semester and Year offered	Trimester 1, Year 1	
9.	Objective of the course in the programme : To introduce the main components of a typical operating system and the services that it provides.		
10.	Justification for including the course in the programme : A large number of graduates from BIT disciplines pursue careers in technical support involving various system configurations and disparate operating systems. In order to effectively contribute toward a successful systems support environment, the modern graduate requires a wide range of practical skills underpinned by a theoretical background. Students need to demonstrate a detailed knowledge of the functions of a modern multi-user operating system, including deadlock, Memory Paging and Virtual Memory. Besides, student also need to understand the functionality of typical operating system, design issues (efficiency, robustness, flexibility, portability, security, compatibility) as well as influences of security and networking on operating systems.		
11.	Course Learning Outcomes :	Domain	Level
	LO1 -Identify the basic components of general operating systems.	Cognitive	1
	LO2 -Compare and contrast various operating system mechanisms and operations.	Cognitive	4
	LO3 -Analyze specific problem likely to occur in a component of an operating system (e.g., memory allocation and deadlock handling).	Cognitive	4
	LO4 -Demonstrate skills in installing and operating an operating system.	Cognitive	4

SUMMARY OF INFORMATION ON EACH COURSE

12.	Mapping of Learning Outcomes to Programme Outcomes :									
	Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
	LO1	X								
	LO2	X								
	LO3		X							
	LO4		X							
13.	Assessment Methods and Types :									
	Method and Type	Description/Details				Percentage				
	Final Exam	Written examination				60%				
	Test	Written				20%				
	Assignment	Report and presentation				20%				
14.	Mapping of assessment components to learning outcomes (LOs)									
	Assessment Components	%	LO1	LO2	LO3	LO4				
	Final Exam	60	75	75	75	-				
	Test	20	25	25	25	-				
	Assignment	20	-	-	-	100				
15.	Details of Course									
	Topics					Mode of Delivery				
						Lecture	Lab	Tutorial		
	Introduction to Operating Systems Early systems, simple batch systems, multi-programmed batch systems, time-sharing systems, personal computer systems, parallel systems, distributed systems, real-time systems.					4		1		
	Computer System Structures Computer systems operation, I/O structure, storage structure, storage hierarchy, hardware protection, general system architecture.					2	1	1		

SUMMARY OF INFORMATION ON EACH COURSE

Operating System Structures				
System components, operating system services, system calls, system programs, system structure, virtual machines, system design and implementation, system generation.		2	1	1
Processes				
Process concept, process scheduling, operation on a process, cooperating processes, threads, inter-process communication.		2		1
CPU Scheduling				
Basic concepts, scheduling criteria, scheduling algorithms, multiple processor scheduling, real-time scheduling, algorithms evaluation.		2	1	1
Synchronisation				
The critical section problem, synchronization hardware, classical problems of synchronisation.		4		1
Deadlocks				
System model, deadlock characterization, methods for handling deadlocks, prevention, avoidance, detection, recovery, combined approach.		2	1	1
Memory Management				
Address space, swapping, contiguous allocation, paging, segmentation, paged segmentation.		4	1	1
Virtual Memory				
Demand paging, page replacement, page replacement algorithms, frame allocation, thrashing.		2	1	1
File Systems				
File concept, access method, directory structure, protection, file system structure, allocation methods, free space management, directory implementation, efficiency and performance, recovery.		2		1
Secondary Storage Management				
Disk scheduling. Disk management, swap space management.		2		1
TOTAL		28	6	11
Total Student Learning Time (SLT)		Face to Face / Guided Learning		Independent Learning
Lecture		28		28
Tutorials		11		11

SUMMARY OF INFORMATION ON EACH COURSE

	Laboratory/Practical	6	3
	Presentation	-	-
	Assignment	-	10
	Mid Term Test	1	4
	Final Exam	2	16
	Sub Total	48	72
	Total SLT	120	
16.	Credit Value	3	
17.	Reading Materials :		
	Textbooks		
	1. Abraham Silberschatz, Peter Galvin, Greg Gagne, (2012). Operating Systems Concepts, 9th Ed. Wiley.		
	Reference Material (including 'Statutes' for Law)		
	1. William Stallings, (2011). Operating Systems: Internals and Design Principles, 7th Ed. Prentice Hall.		
	2. Gary Nutt, (2003). Operating Systems, 3rd Ed. Addison Wesley.		

SUMMARY OF INFORMATION ON EACH COURSE

Appendix (to be compiled when submitting the complete syllabus for the programme) :

1. Mission and Vision of the University and Faculty
2. Programme Objectives or Programme Educational Objectives
3. Programme Outcomes (POs)
4. Mapping of POs to the 8 MQF domain
5. Summary of the Bloom's Taxonomy's Domain Coverage in all the Los in the format below :

Subject	Learning Outcomes (please state the learning Outcomes)	Bloom's Taxonomy Domain		
		Affective	Cognitive	Psychomotor
ABC1234	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			
DEF5678	Learning Outcome 1			
	Learning Outcome 2			
	Learning Outcome 3			
	Learning Outcome 4			

6. Summary of LO to PO measurement
7. Measurement and Tabulation of result for LO achievement
8. Measurement Tabulation of result for PO achievement