

Bachelor of Computer Sciences (Hons) in Computer Networking

1.	Name of Course				Computer Architecture			
2.	Course Code				CICT2533			
3.	Name(s) of academic staff							
4.	Rationale for the inclusion of the course/module in the programme				Faculty The module has been designed to provide students with a firm understanding of the theories and principles associated with digital computers and their architectures. It will provide students with a detailed understanding of Computer Systems in general and the importance of their role in the modern IT world. It will present students with the opportunity to understand the evolutionary development of hardware and software and appreciate the underlying technology. It has been designed on the premise that understanding how the machine works is a prerequisite For other modules in the program such as CCP0105 Operating System.			
5.	Semester and Year offered				1/2			
6.	Total Student Learning Time (SLT)		Face to Face			Total Guided and Independent Learning		
	L = Lecture T = Tutorial P = Practical O= Others		L	T	P	O	Independent = 84 Total =126	
	28		14					
7.	Credit Value				3			
8.	Prerequisite (if any)				CCP0003 Digital Systems			
9.	Objectives: To introduce students to • The knowledge related to a typical component of a system and their function. • the architectural features of a modern computer system in general and the related component of the CSO. • The features provided by typical operating systems and explain how these features facilitate program executions.							
10.	Learning outcomes: Upon completion of CCP0102, students should be able to: • Identify what's related to a typical component of a system and their function. • Describe features provided by a typical operating system and explain how these features facilitate program execution. • Explain the computer system architecture in general and the related component of the CSO.							
11.	Transferable Skills: • Identify and describe the architectural features of a modern computer system for a variety of purposes. • Develop skills of interfacing a computer system with the external world. • Skilled in tracing the influences of important computing developments (such as compiler technology, networking, the web, multimedia, safety, security.) on the architecture of computer systems							

12.	Teaching-learning and assessment strategy A variety of teaching and learning strategies are used throughout the course, including: - Classroom lessons: Lectures and Power Point presentations - Tutorial sessions: Practice exercises - brainstorming; - student-Lecturer discussion - collaborative and co-operative learning; - Independent study. Assessment strategies include the following: - Ongoing quizzes - Midterm tests - Performance Assessment (project, Assigned exercises) - Lecturer Observation																																																																																									
13.	Synopsis: This course introduces students to the principles of Computer System and Organisation. Upon completion of the course, students should be able to explain and understand the basic component of system organisation, methods, computational systems, different computer architecture.																																																																																									
14.	Mode of Delivery: - Classroom lessons. Lectures and Power Point presentations - Tutorial sessions: Practice exercises																																																																																									
15.	Assessment Methods and Types: The assessment for this course will be based on the following: <table><tr><td>Coursework</td><td>50%</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>• Quizzes</td><td></td><td>10%</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>• Project and assignments</td><td></td><td>20%</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>• Mid-Semester Exam</td><td></td><td>20%</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Final Examination</td><td>50%</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>100%</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>												Coursework	50%												• Quizzes		10%											• Project and assignments		20%											• Mid-Semester Exam		20%											Final Examination	50%													100%											
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18.	Content outline of the course/module and the SLT per topic <table><tr><td></td><td></td><td colspan="7">SLT</td></tr><tr><td></td><td>Details</td><td>L</td><td>T</td><td>Indep.</td><td>Total</td><td colspan="7"></td></tr><tr><td>Topic 1</td><td>Overview of a Computer System - Introduction - Definition of Computer and Computer System - Functional Capabilities of a Computer System - Conceptual Components of a Computer - Computer System Components - Classes of Computer Systems </td><td>2</td><td>1</td><td>6</td><td>9</td><td colspan="7"></td></tr></table>														SLT								Details	L	T	Indep.	Total								Topic 1	Overview of a Computer System - Introduction - Definition of Computer and Computer System - Functional Capabilities of a Computer System - Conceptual Components of a Computer - Computer System Components - Classes of Computer Systems	2	1	6	9																																																		
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	Topic 2	Hardware Interface • Introduction • The Buses • The Interface (Ports) • Parallel and Serial Transmissions • The Parallel Interface • The Serial Interface • The IEEE-488 Interface.	4	2	12	18
	Topic 3	CPU and Memory • Introduction • The Components of CPU • The Instruction Cycle • Register Organization • Memory	2	1	6	9
	Topic 4	Storage Devices • Introduction • Storage Structure • Disk Structure • Caching	4	2	12	18
	Topic 5	Input and Outpun Technologies • Introduction • I/O Structure and Hardware • Application I/O Subsystem Services	4	2	12	18
	Topic 6	File • Introduction • File Concept • File Access • File Organization • File Organization and Type • File Management • Protection • Consistency Semantics • Performance and Efficiency • Recovery	4	2	12	18
	Topic 7	Operating System • Introduction • Virtual Machine • Concurrency • Virtual Memory • Process Management • Interrupt • Spooling • Time Sharing • Time Slicing	4	2	12	18

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	Topic 8	Security and Access Control • Security • Domain Protection • Program and System Thrats • Encryption • Computer Security Classifications	4	2	12	18
		Total	28	14	84	126
19.	Main references supporting the course: 1. Irv Englander, The Architecture of Computer Hardware, Systems Software, & Networking: An Information Technology Approach, Fourth Edition, 2009					
	Additional references supporting the course: 1. William Stallings ,Computer Organization and Architecture: Designing for Performance, 8th Edition, 2009 2. Sajjan G. Shiva , Computer Organization, Design, and Architecture, Fourth Edition. 2007, 3. John L. Hennessy , David A. Patterson, Computer Architecture: A Quantitative Approach, Fourth Edition, The Morgan Kaufmann Series in Computer Architecture and Design, 2006. 4. Joseph D. Dumas,Computer Architecture: Fundamentals and Principles of Computer Design.2005					
20.	Other additional information All materials will be available to the students online.					