

1.	Name of Course					Computer Architecture				
2.	Course Code					JCAR2033				
	JCAR = the first alphabet identify the faculty within which the subject is offered., JCAR = the remaining three alphabets identify the course that offers the subject, 2033= the first digit identify level of study; in this case undergraduate level, 2033 = the second and third digits identify subject identity and 2033 = the fourth digit identify credit value or credit hours									
3.	Name(s) of academic staff					To be Assigned				
4.	Rationale for the inclusion of the course/module in the programme					Knowledge of computer Architecture is essential in both electrical and electronics engineering. Moreover, acquiring knowledge in properties of system architecture enable engineer to design and analyze computer memory and CPU.				
5.	Semester and Year offered					Year 1, Semester 2				
6.	Total Student Learning Time (SLT)		Face to Face				Total Guided and Independent Learning			
	L = Lecture T = Tutorial P = Practical IS= Independent Study		L	T	P	IS	Total Guided and Independent Learning = 120			
			42	7	6	65				
7.	Credit Value					3.0				
	Lecture: 3 hours per week x 14 weeks Tutorial: 1 hour per week x 7 weeks Practical: 2 hours x 3 weeks									
8.	Prerequisite (if any)					None				
9.	Course Objectives 1. To design principles of computer hardware and its related software. Course Learning Outcomes (CLO) At the end of the semester students should be able to: CLO1: Identify related component of a computer system and their function; CLO2: Describe features provided by a typical operating system and explain how these features facilitate program execution; CLO3: Explain the computer system architecture in general and the related component and Design and simulate simple computer system;									
10.	Transferable Skills: This course is expected the development of the following transferable skills: - An ability to manage time and task - An ability to learn both independently and co—operatively; - An ability to take responsibility and carry out laboratory test; - An ability to take initiative and lead other; - An ability to use software where relevant to the subject.									
11.	Teaching-learning and assessment strategy A variety of learning strategies are used throughout the course, including the following - Classroom Lesson; Lecturer and power point presentation - Tutorial session - Student- lecturer Discussion									

- Collaborative and co-operative learn;
- Independent study.

Assessment:

Course works		40%
Assignment	5%	
Tutorial	5%	
Quizzes	5%	
Laboratory works	10%	
Test	15%	
<u>Final Examination</u>		<u>60%</u>
<u>Total</u>		<u>100%</u>

12. **Synopsis:**

This course is very important course in the field of electrical and electronics. The objective of course is to provide a strong understanding of basic system architecture and its applications.

13. **Mode of Delivery:**

Lectures;
Tutorials;
Laboratory works

14.	Assessment Methods and Types:						
	Performance Criteria :						
	CLO-PLO	Assessment Tool	1	2	3	4	5
	Marks		0-39	40-49	50-59	60-74	75-100
	Grade		(F)	(D,D+)	(C-,C,C+)	(B-,B,B+)	(A-,A,A+)
	CLO1: To Identify related component of a computer system and their function.	Assignment Tutorials Lab work Test Quizzes Examination	Fail To: - learn both independently and cooperatively - take responsibility and carry out laboratory test	Poor To: - learn both independently and cooperatively - take responsibility and carry out laboratory test	Satisfactory To: - learn both independently and cooperatively - take responsibility and carry out laboratory test	Good To: - learn both independently and cooperatively - take responsibility and carry out laboratory test	Excellent To: - learn both independently and cooperatively - take responsibility and carry out laboratory test
	CLO2: To Describe features provided by a typical operating system and explain how these features facilitate program execution;	Assignment Tutorials Lab work Test Quizzes Examination	Fail To: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	Poor To: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	Satisfactory To: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	Good To: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	Excellent To: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test
	CLO3: To Explain the computer system architecture in general and the related component and Design and simulate simple computer system;	Assignment Tutorials Lab work Test Quizzes Examination	Fail To: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	Poor To: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	Satisfactory To: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	Good To: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	Excellent To: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test

15.	Mapping of the Programme Objectives to the Programme Learning Outcomes										
Programme Learning Outcomes (PLO) Programme Objectives (PO)	PLO1: Ability to acquire and apply knowledge of science and engineering fundamentals.	PLO2: Acquired in-depth technical competence in electronics engineering discipline.	PLO3: Ability to undertake problem identification, formulation and solution;	PLO4: Ability to utilise systems approach to design and evaluate operational performance.	PLO5: Understanding of the principles of design for sustainable development;	PLO6: Understanding of professional and ethical responsibilities and commitment to them.	PLO7: Ability to communicate effectively, not only with engineers but also with the community at large.	PLO8: Ability to function effectively as an individual and in a group with the capacity to be a leader or manager;	PLO9: Understanding of the social, cultural, global and environmental responsibilities of a professional engineer	PLO10: Recognising the need to undertake lifelong learning, and possessing/acquiring the capacity to do so	PLO11: Ability become entrepreneur
	PEO1: To produce graduates with excellent knowledge and competency in Electrical and Electronic Engineering;	✓	✓	✓	✓						
	PEO2: To produce graduates with professional, generic attributes to meet the present and future global demands.										
	PEO3: To produce graduates with Islamic humanistic values and reinvention skills to meet the requirement of a dynamic environment. These skills include Civil Intelligence, Moral Intelligence, Self-Reliance and Communication Skills;										

16.	Mapping of the course Learning Outcome to the Programme Outcome											
Programme Learning Outcomes (PLO) Course Learning Outcome (CLO)		PLO1: Ability to acquire and apply knowledge of science and engineering fundamentals.	PLO2: Acquired in-depth technical competence in electronics engineering discipline.	PLO3: Ability to undertake problem identification, formulation and solution;	PLO4: Ability to utilise systems approach to design and evaluate operational performance.	PLO5: Understanding of the principles of design for sustainable development;	PLO6: Understanding of professional and ethical responsibilities and commitment to them.	PLO7: Ability to communicate effectively, not only with engineers but also with the community at large.	PLO8: Ability to function effectively as an individual and in a group with the capacity to be a leader or manager;	PLO9: Understanding of the social, cultural, global and environmental responsibilities of a professional engineer	PLO10: Recognising the need to undertake lifelong learning, and possessing/acquiring the capacity to do so	PLO11: Ability become entrepreneur
CLO1: To Identify related component of a computer system and their function;		✓	✓	✓	✓							
CLO2: To Describe features provided by a typical operating system and explain how these features facilitate program execution;		✓	✓	✓	✓							
CLO3: Explain the computer system architecture in general and the related component and Design and simulate simple computer system		✓	✓	✓	✓							

17.	Content outline of the course/module and the SLT per topic						
	Details		SLT (Hour)				
			L	T	P	IS	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	6	1	-	10	17
	Topic 2	Hardware Interface • Introduction, • The Buses, • The Interface (Ports), • Parallel and Serial Transmissions, • Serial interface	6	-	-	10	16
Topic3	CPU and Memory • Introduction, • The Components of CPU, • The Instruction Cycle • Register Organization, Memory Storage Devices • Introduction, • Storage Structure, • Disk Structure, • Caching	9	2	-	12	23	
Topic4	Input and Output Technologies • Introduction, • I/O Structure and Hardware, • Application of I/O Subsystem Services File • File Concept, • File Access, • File Organization, • File Management, • Protection, • Consistency Semantics, • Performance and Efficiency, File Recovery	9	2	-	13	24	

