<table>
<tr><td colspan="6" align="center">Addis Ababa Science and Technology University</td></tr>
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1	College: Electrical and Mechanical	Department: Software Engineering	
	Course Name	Computer Architecture and Organization	
	Course Code:	SWEG3105	
3	Synopsis:	Computer Organization and Architecture, Computer function and Structure, Computer Evolution and Performance, Top level view of Computer function and interconnection, Cache Memory, Internal and External Memory, CPU instruction sets and Assembly programming language will be discussed.	
4	Name(s) of Academic Staff:	Tameru H.	

5	Semester and Year offered:	Semester:	I	Year:	3	

6	Credit Hour:	4
7	Prerequisite/ Co-requisite: (if any)	

8	Course Learning Outcome (CLO): At the end of the course the student will be able to do:
	CLO1	Understand the basics of computer hardware and how software interacts with computer hardware
	CLO2	analyze and evaluate computer performance
	CLO3	demonstrate an understanding of how computers represent and manipulate data
	CLO4	Analyze MIPS microprocessor design and MIPS Instruction set architecture.
	CLO5	demonstrate proficiency in assembly Programming

9 Mapping of the course Learning Outcomes to the program Learning Outcomes, Teaching Methods and Assessment:

Course Learning Outcomes (CLO)	Program Learning Outcomes (PO)											Teaching Methods				Assessment				
	PO1	PO2	PO3	PO4	PO5	PO6	PO8	PO9	PO10	PO11	PO12	L	T	P	O	Test	Quiz	Assignment	Project	Lab-report
CLO1	√															√				
CLO2	√															√				
CLO3		√															√			

	CLO4				√													√		
	CLO5			√													√	√	√		
	CLO6																				

Indicate the relevancy between the CLO and PO by ticking "√" on the appropriate relevant box

10	Transferable Skills (if applicable)	
	(Skills learned in the course of study which can be useful and utilized in other settings)	
	1	An ability to apply mathematical foundations, algorithmic principles, and computer science theory to the modeling and design of computer based systems
	2	An ability to design, implement, and evaluate assembly programming language
	3...etc.	

11	Distribution of Student Learning Time (SLT)								

Course Content Outline	CLO	Teaching and Learning Activities						Total (SLT)
		Guided learning (F2F)				Guided Learning (NF2F)	Independent Learning (NF2F)	
		L	T	P	O			
Chapter 1: Introduction to Computer architecture and organization	1	4		3			5	12

Topic							
1.1 Organization and Architecture							
1.2 Function and Structure							
Chapter 2: **Computer Evolution and Performance** 2.1 History of Computers 2.2 Design for performance	2	4		6			10	20
Chapter 3: **Top Level View of Computer Function and Interconnection** 3.1 Computer Components 3.2 Computer Function 3.3 Interconnection Structures 3.4 Bus Interconnection	1	4		3			10	17
Chapter 4: **Cache Memory** 4.1 Computer Memory System Overview 4.2 Cache Memory Principles	3	4		9			10	25

4.3 Elements of Cache Design							
Chapter 5: **Internal and External Memory** 5.1 Semiconductor Main Memory 5.2 Error Correction 5.3 Magnetic Disk 5.4 RAID 5.5 Solid State Drives	4	5		6			10	21
Chapter 6: **CPU instruction sets** 6.1 Characteristics and Functions 6.2 Addressing Modes and Formats 6.3 Processor Structure and Function	5	5		9			5	19
Total		28		36			50	114

Assessment				
Continuous Assessment	Percentage Total-50(%)	F2F	NF2F	SLT

	1	Tests	10%	X		4
	2	Lab-report	20%	X		20
	3	Quize	5%	X		2
	4	Project	15%		X	20
					Total	46

Final Exam	Percentage 50 (%)	F2F	NF2F	SLT
Final Exam	50%	X		
			Grand Total SLT	160

	L = Lecture, T = Tutorial, P = Practical, O = Others, F2F = Face to Face, NF2F = Non Face to Face Note: indicates the CLO based on the CLO's numbering in item 9.			
12	Special requirements and resources to deliver the course (e.g. software, computer lab,	1	Software	
		2	Computer Lab	

	simulation room ...etc.)		
13	Text book and reference:	1	*Computer Organization and Architecture by William Stallings ninth edition*