

COURSE SYLLABUS

Computer Architectures

Course code: 220001

1. General information

<i>Course type</i>		<i>Number of credits</i>	<i>Number of learning periods</i>
General	<input type="checkbox"/>		
Basic	<input checked="" type="checkbox"/>	Theory: 02	Theory: 30
Specialized	<input type="checkbox"/>	Exercise:	Exercise:
Required	<input checked="" type="checkbox"/>	Practice: 01	Practice: 30
Elective	<input type="checkbox"/>		

Learners:

Level	Bachelor
Discipline	Information Technology

Course requirements:

Prerequisites	Discrete mathematics
Parallels	None
Other requirements	None

2. Learning resources

Books	[1] William Stalling (2015). <i>Computer Organization and Architecture Tenth Edition</i> . Pearson.
References	[2] Trần Công Hùng (2014). <i>Kiến Trúc Máy Tính Tiên Tiến</i> . NXB Thông tin và Truyền thông [3] Andrew S. Tanenbaum, Todd Austin (2013). <i>Structured Computer Organization</i> . Pearson.
Other learning materials	

3. Course description

The course provides students basic knowledge on computer organization and architecture including basic digital circuits, data representation in computer and operation principles of computer hardware. The course also aims to provide opportunities to practice professional skills related to computer hardware such as assembling, installing computer' components, troubleshooting hardware and software problems. Additionally, the course develops students' appropriate awareness and attitudes on computer architecture as well as required soft skills related to course content.

4. Course learning outcomes (CLOs)

After finishing the course, students will be able to:

		Satisfy LOs of the program	Satisfy LOs of the ABET
❖ Topic 1: Disciplinary Knowledge and Reasoning			
L1.	Explain architecture of a computer system	1.2.3 1.2.4	B.1.1
L2.	Optimize basic digital circuits		B.1.2
L3.	Utilize numerical operators to represent data in computer		B.1.4
L4.	Assemble and install personal computers		B.1.5
❖ Topic 2: Personal and Professional Skills and Attributes			
L5.	Problem identification and formulation	2.1.1	B.1.6
L6.	Survey of print and electronic literature	2.2.2	
❖ Topic 3: Interpersonal Skills: Teamwork and Communication			
Lx.	Forming effective teams and team operation	3.1.1 3.1.2	
❖ Topic 4: Conceiving, Designing, Implementing and Operating Systems in The Enterprise, Societal and Environmental Context – The Innovation Process			
Lx.	Recognize the impact of engineering on society and the environment	4.2.1	

5. Course content

<i>Course content</i>	<i>CLOs</i>	<i>Number of learning periods</i>		
		<i>Theory</i>	<i>Practice</i>	<i>Others</i>
Chapter 1. Computer history	L1	4		
1.1. Computer generations				
1.2. Computer classification				
1.3. Achievements of computers				
<input type="checkbox"/> <i>Personal and Professional Skills and Attributes</i>	<i>L5(I); L6(I)</i>			
<input type="checkbox"/> <i>Interpersonal Skills: Teamwork and Communication</i>				
<input type="checkbox"/> <i>CDIO in the enterprise, societal and environmental context</i>	<i>L8(I)</i>			
Chapter 2. Logic gates – Optimization of digital circuits using Boolean algebra and Karnaugh map	L2, L3	8		
2.1. Introduction to digital circuits and logic gates				
2.2. Optimization of digital circuits using Boolean algebra and Karnaugh map				
<input type="checkbox"/> <i>Personal and Professional Skills and Attributes</i>	<i>L5 (I)</i>			
<input type="checkbox"/> <i>Interpersonal Skills: Teamwork and Communication</i>	<i>L7(U)</i>			
<input type="checkbox"/> <i>CDIO in the enterprise, societal and environmental context</i>				
Chapter 3. Data representation in computers	L2, L3	8		
3.1. Number systems: complement representation, integers and BCD numbers				
3.2. Conversion among number systems				
<input type="checkbox"/> <i>Personal and Professional Skills and Attributes</i>	<i>L5 (I) ; L6(I)</i>			

<input type="checkbox"/> <i>Interpersonal Skills: Teamwork and Communication</i>	<i>L7(U)</i>			
<input type="checkbox"/> <i>CDIO in the enterprise, societal and environmental context</i>				
Chapter 4. Microprocessor and Memory	L1	8		
4.1. Computer architecture concepts				
4.2. Components of personal computers				
4.3. Microprocessor architecture				
4.4. Memory types and levels				
4.5. Structures of magnetic disks, optical disks and memory cards				
<input type="checkbox"/> <i>Personal and Professional Skills and Attributes</i>	<i>L5 (I) ; L6(I)</i>			
<input type="checkbox"/> <i>Interpersonal Skills: Teamwork and Communication</i>	<i>L7(U)</i>			
<input type="checkbox"/> <i>CDIO in the enterprise, societal and environmental context</i>				
Chapter 5. Computer installing and troubleshooting	L1, L4	2	30	
5.1 Installing PC's hardware.				
5.2 CMOS configuration				
5.3 HDD partition and formatting				
5.4 Operating system installing				
5.5 Installing/Uninstalling common used software.				
<input type="checkbox"/> <i>Personal and Professional Skills and Attributes</i>	<i>L5(I); L6 (I)</i>			
<input type="checkbox"/> <i>Interpersonal Skills: Teamwork and Communication</i>	<i>L7(U)</i>			
<input type="checkbox"/> <i>CDIO in the enterprise, societal and environmental context</i>	<i>L8(T)</i>			
<i>Summary of skills in course level</i>				

<input type="checkbox"/> <i>Personal and Professional Skills and Attributes</i>	<i>L5(I); L6 (I)</i>
<input type="checkbox"/> <i>Interpersonal Skills: Teamwork and Communication</i>	<i>L7(U)</i>
<input type="checkbox"/> <i>CDIO in the enterprise, societal and environmental context</i>	<i>L8(T)</i>

6. Teaching and learning methods

ID	Teaching method/technique		Description
M1.	Lecturing	<input checked="" type="checkbox"/>	
M2.	Questions – Answers	<input type="checkbox"/>	
M3.	Group-based Learning	<input checked="" type="checkbox"/>	
M4.	Problem-based Learning	<input type="checkbox"/>	
M5.	Project-based Learning	<input type="checkbox"/>	
M6.	Case studies	<input type="checkbox"/>	
M7.	Role play	<input type="checkbox"/>	
M8.	Demo	<input checked="" type="checkbox"/>	
M9.	Simulations	<input type="checkbox"/>	
M10.	Debate	<input type="checkbox"/>	
M11.	Game	<input type="checkbox"/>	
M12.	Brainstorming	<input type="checkbox"/>	
M13.	Think-Pair-Share	<input type="checkbox"/>	

7. Course assessment

ID	Assessment activity		Quantity	Weight	LOs assessed
T1.	Text-based midterm exam	<input checked="" type="checkbox"/>	1	50%	<i>L1, L3,</i>
T2.	Text-based final exam	<input type="checkbox"/>			

T3.	Practice midterm exam	<input type="checkbox"/>			
T4.	Practice final exam	<input checked="" type="checkbox"/>	1	50%	<i>L4, L5</i>
T5.	Report	<input type="checkbox"/>			
T6.	In-class exercises	<input type="checkbox"/>			
T7.	Homework assignments	<input type="checkbox"/>			
T8.	Question – Answer	<input type="checkbox"/>			
T9.	Term Project	<input type="checkbox"/>			
T10.	Final Exam	<input checked="" type="checkbox"/>	1	50%	<i>L4, L5, L6, L7, L8</i>
Formula for Overall score		$((T1 + T4)/2 + T10)/2$			

8. Course requirements and expectations

8.1. Requirements on attendance

- Students are responsible for attending all classes. In case of absence due to force majeure circumstances, there must be sufficient and reasonable evidence.
- Students who do not attend more than 20% of the class sections, whether for reason or not, are deemed not to have completed the course and must re-enroll in the following semester.

8.2. Requirements and expectations on student behaviors

- Students must show their respects for teachers and other learners.
- Students must be on time. Students who are late more than five minutes will not be allowed to attend the class.
- Students should not make noise and interfere with others in the learning process.
- Students should not eat, chew gum, and use devices such as cell phones, music players during class hours.
- Laptops and tablets can only be used in class for the purpose of learning.
- Students who violate the above principles will be asked to leave the class and considered absent from the class.

8.3. Requirements on learning issues

Issues related to applying for score reservation, scoring complaints, scoring, exam disciplines are done according to the Learning Regulation of Tra Vinh University.

9. Tentative course instructor

Khau Van Nhut

DEAN

DEPARTMENT HEAD

LECTURER

Khau Van Nhut