



Daffodil Institute of IT (DIIT)
CSE-520205 Computer Architecture
3 hours in a week, 3.00 Cr.
Year: 2nd, Semester: 3rd
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Lecturer, Department of CSE, DIIT

Course Objective:

They will study the basic organization and architecture of digital computers (CPU, memory, I/O, software). Discussions will include digital logic and microprogramming. Such knowledge leads to better understanding and utilization of digital computers, and can be used in the design and application of computer systems or as foundation for more advanced computer-related studies. The architectural overview of different instruction sets, registers, memory allocation can be studied on emerging vision that helps furthermore research. Classify the pipelining, as a basic practice for cumulative CPU performance as well as design factor, planning and control of pipeline units. Also improve critical thinking when assessing the presentation of a computer system conferring to objective standards.

Course Courtesy:

- Students must conform the course activity that enact to different set of protocols by DIIT and National University, narrated as course credit, syllabus, class ritual, attendance and examination.
- All course resources (Books, different lecture Notes, video Lecture, recordings, researches etc.) shared in SmartEdu system, student's duty is to cover all the resources in class.
- Student would prepare him/herself before scheduled class, as he update himself through e-learning where course material will be shared before class, participate in class, and communicate with course teacher for solving problem as well.

- Two classes per week, two or more Quizzes, one Mid Term Examination, one presentation, two or more assignment, one Internal Final Examination will be scheduled for entire course to accomplish the course objectives whether a student must attend all these prospects.
- Class lecture is 1 hour & 20 minutes, Mid Term Examination will cover in 1 hour 30 minutes, Internal Final Examination will cover in 2 hour and 30 minutes, and Quizzes will cover as per course teacher's requirements.
- Software medium is needed for communicating with SmartEdu, G-suits, Office, Language software, Whatsapp and so on.

Synopsis of Course		
LMS Class Link	http://college.ac/slides/computer-architecture-diit-cse-19th-batch-section-b-c-79	
SmartEdu Class Link	https://diit.df.daffodil.family/slides/computer-architecture-2	
Google Site Link	https://sites.google.com/diit.info/trisha/academics/online-featured-courses/computer-architecture?authuser=0	
Google Classroom Link	Section A- https://classroom.google.com/u/0/c/MTM3MDU5MDQ2ODQ4 Section C- https://classroom.google.com/u/0/c/MTM3MDU5MDQ2ODY3	
Google Classroom Code	Section A- maxuemx Section C- nuxlsce	
Reference Book	1. William Stallings, Computer Organization and Architecture. 2. Dr. M. Rafiquzzaman, Fundamentals of Computer System Architecture	
Class Order		
Class No	Topics	Annotations
Lecture 1	Introductory Conversation (Student Orientation, Introduction to DIIT, NU, CSE Department), Giving a brief on Course, Syllabus, Books etc.	
Lecture 2	Organization and architecture , Structure and function of computer	Problem solving
Lecture 3	IAS computer, expanded architecture of IAS computer	
Lecture 4	Computer component, instruction cycle ,	
Lecture 5	Computer bus, Bus architecture, element of bus	
Lecture 6	Quiz 1	
Lecture 7	Types of PCI architecture, PCI commands	Narrate all

Lecture 8	Characteristics of memory, memory hierarchy	the resources, quiz paper 1
Lecture 9	Cache memory principle, cache organization	
Lecture 10	Direct, associative, full associative mapping, replacement algorithm	
	Assignment 1	Class Adda
Lecture 11	Pentium 4 block diagram, semiconductor memory	Review on Assignments
Lecture 12	Quiz 2	
	Mid Term Examination	
Lecture 13	Types of ROM architecture, RAM vs ROM	Review on Quiz 2
Lecture 14	Magnetic Disk, RAID level	
Lecture 15	I/o module, module function, structure	Review on Mid Term Examination
Lecture 16	Intel 82C55A, DMA.	
Lecture 17	8237 DMA bus, I/O channels	
Lecture 18	Quiz 3	
Lecture 19	ALU, Booth algorithm, division, multiplication	Review on Quiz 3
Lecture 20	Memory addressing format, types addressing modes	
	Assignment 2	
Lecture 21	Huffman encoding technique	
Lecture 22	Internal structure of CPU, register organization, control and status register	Review on Assignments
Lecture 23	Indirect cycle, fetch cycle, Interrupt cycle , Branch prediction	
Lecture 24	Quiz 4	
Lecture 25	Micro operation, control unit, processor organization	Review on Quiz 3
Lecture 26	Presentation	
Lecture 27	Micro programmed control unit, control unit organization	Review on presentation
Lecture 28	Types of parallel processor, write back write through	
Lecture 29	Solve Cass	Review on Previous Years of NU questions
Lecture 30	Solve Class	
	Internal Final Examination	
	National University's Final Examination	

NB: The above schedule may be changed subject to the announcement of National University (NU) as well as the authority of DIIT.

Learning outcomes

- Understand the operation of electronic logic elements
- Comprehend the organization of a computer system in terms of its main components
- Grasp the detailed operation of a simple microprocessor
- Usage the different processor architectures
- Understand input/output mechanisms
- Know the prospective of a hierarchical memory system
- Be able to use standard levels to perform evaluation studies, and understand the equivalent result reports
- Nurture design skills of Instruction Sets
- Realize the visualization of the architecture of RISC and CISC processor