

**B.C.A (Semester 1st)
Teaching Schedule
030010111: CC3: Computer Fundamentals and Organization**

Objectives: To understand the fundamentals of computer organization, memory organization and working of devices.

Course Outcomes: Upon completion of the course, students shall be able to

- C01: Describe basics of computer.
- C02: Discuss the working of computer components.
- C03: Distinguish working of Input/Output Devices.
- C04: Illustrate organization of memory.
- C05: Comprehend the architecture of computer.
- C06: Recognize the microcomputer and its applications.

Unit	Sub Unit	No. of Lecture(s)	Topics	Reference Chapter/Additional Reading	Teaching Methodology to be used	Evaluation Parameters
Unit 1: Computer Basics (Total: 05 lectures)						[12%]
1	1.1	1	Simple Model Computer	VR #1-Page No.5	Chalk and talk	
	1.2	1	Characteristics of Computer	VR#1-Page No.6, SPK#1-Page No.2-3	Book study and Group discussion	
	1.3	1	Generations of Computer	VR #12-Page No.250-256, SPK#1-Page No.5-13 (http://www.nptelvideo.s.in/2012/11/computer-	Video and Power Point Presentation	
	1.4	2	Stored program concepts: Von-Neumann architecture	VR #1-Page No.12, RW#6-Page No.46	Chalk and talk	
Unit 2: Logic Circuits (Total: 08 lectures)						[20%]
2	2.1	1	Introduction	VR #7-Page No.112	Power Point Presentation	
	2.2	1	Switching circuits	VR #7-Page No.113	Chalk and talk	
	2.3	1	AND, OR and NOT operations	VR #7-Page No.114-115	Discussion and Chalk and talk	

	2.4	1	Logic Gates	SPK#6-Page No.73-83,RW#6, Page No 68-69 MM #1-Page No.5-7	Chalk and talk	
	2.5	2	Physical Devices used to construct Gates	VR #7-Page No.127-130	Chalk and talk	
	2.6	1	Transistors	VR#7-PageNo.131-133, RW#10-Page No.112-115	Power Point Presentation & Chalk and talk	Quiz
	2.7	1	Integrated Chips	VR #7-Page No.133		
Unit 3: Input/ Output Devices (Total: 11 lectures)						[18%]
3	3.1	1	Bus, Ports: Serial, Parallel, USB ports	RW#21-Page No.201-203,209- 215	Power Point Presentation	
	3.2	4	Input Units – Keyboard, Mouse, MICR, OMR, OCR, Barcode Reader	VR #3-Page No.29-38, SPK#9- Page No.140-149	Group discussion & power point presentation	
	3.3	4	Output units – CRT, LCD, Printers, Plotters	VR #7-Page No.38-42, SPK#9- Page No.150-155		
Unit 4: Memory Organization (Total: 09 lectures)						[20%]
4	4.1	1	Memory Cell	VR #4-Page No.46	Chalk and talk	
	4.2	2	Memory Organization	VR #4-Page No.46-51	Discussion and Power Point Presentation	
	4.3	1	Read Only Memory	VR #4-Page No.51-52	Chalk and talk	
	4.4	1	Serial Access Memory	VR #4-Page No.53-55	Chalk and talk	
	4.5	1	Physical Devices Used to Construct Memories	VR #4-Page No.55-62	Chalk and talk	
	4.6	1	Magnetic and Optical Disk	VR #4-Page No.62-71	Power Point Presentation	

	4.7	2	Virtual Memory	VR #9-Page No.162-163 (http://www.nptelvideos.in/2012/11/computer-organization.html)	Power Point Presentation & Chalk and talk and video	Open Book Test
Unit 5: Computer Architecture (Total: 09 lectures)						
5	5.1	1	Structure of Instructions	VR #5-Page No.78-81	Chalk and talk	
	5.2	2	Description of Processor	VR #5-Page No.82-86	Power Point	
	5.3	1	Interconnection Units	VR #8-Page No.140-143 (http://www.nptelvideos.in/2012/11/computer-architecture.html)	Power Point Presentation & Video	
	5.4	2	Processor to Memory Communication, I/O to Processor Communication	VR #8-Page No.143-148	Power Point Presentation & Chalk and talk	
	5.5	2	Interrupt Structure	VR #8-Page No.148-151	Power Point Presentation	Unit Test-02
	5.6		RISC and CISC	VR #8-Page No.160-161	Chalk and talk	
Unit 6: Microcomputers (Total: 07 lectures)						[12%]
6	6.1	1	Introduction: Ideal and Actual microcomputer	VR #11-Page No.222-228	Chalk and talk	
	6.2	1	Memory System	VR #11-Page No.228-230	Power Point Presentation & Chalk and talk	
	6.3	1	Minimum configuration	VR #11-Page No.230-233	Power Point Presentation & Chalk and talk	

6.4	1	Special purpose microprocessors	VR #11-Page No.234-241	Power Point Presentation & Chalk and talk	Internal Theory Examination
6.5	1	Microcomputer software	VR #11-Page No.241-242	Power Point Presentation & Chalk and talk	
6.6	2	Applications : Smartcard, RFID, Washing machine	VR #11-Page No.242-246	Power Point Presentation & Chalk and talk	

Text Books:

1. Fundamental of Computers, V.Rajaraman, PHI -[VR]
2. How Computers work: Ron White, Tech Media - [RW]

Reference Books:

1. Computer Fundamentals, Architecture and organization, B.Ram, New Age International Publication - [BR]
2. Computer System Architecture, M.Morris Mano, Prentice Hall - [MM]
3. Computer Architecture , K M Hebbar, MacMillian Publication - [AMH]
4. Computer Fundamentals, Sinha P.K, BPB Publication -[SPK]

Note: # indicates chapter no.

❖ **Course Objectives and Course Outcomes Mapping:**

- To understand the computer organization: C01,C02
- To understand the memory organization: C04,C05,C06
- To understand the working of devices:C02,C03

❖ **Course Units and Course Outcomes Mapping:**

Unit No.	Unit	Course outcome					
		C01	C02	C03	C04	C05	C06
1	Computer Basics	✓	✓				
2	Logic Circuits		✓	✓			
3	Input / Output Devices			✓	✓		
4	Memory organization				✓	✓	✓
5	Computer Architecture				✓	✓	
6	Microcomputers				✓	✓	✓

Programme Outcomes:

The student will have

PO1: Ability to understand the concepts of key areas in computer science.

PO2: Ability to design and develop system, component or process as well as test and maintain it so as to provide promising solutions to industry and society.

PO3: Effective communication and presentation skill.

PO4: Ability to understand professional and ethical responsibility.

PO5: Recognition of the need for life-long learning.

❖ Programme outcome and Course Outcome mapping:

Programme Outcomes	Course Outcomes					
	C01	C02	C03	C04	C05	C06
P01	✓	✓	✓		✓	
P02				✓	✓	
P03			✓	✓		
P04				✓	✓	
P05		✓	✓	✓	✓	✓

❖ Modes of Transaction (Delivery):

Unit No	Topic Detail	Teaching Approach	PO mapped
2	2.6 Transistors	Students read about this topic from book. After that teacher shall discuss on this unit topic. After discussion students shall answer questions which ask by teacher.	P03
3	3.2: Input Units – Keyboard, Mouse, MICR, OMR, OCR, Barcode Reader	Form three groups of students in class and play Topic summary game. In this game students write one summary about topics before writing they read. After reading teacher shall discuss and evaluate a summary which was written by group.	P03,P04
4	4.6 Magnetic and Optical Disk	Form three groups of students in class and play Topic summary game.	P04

		<p>In this game students Write one summary about topics before writing they read.</p> <p>After reading teacher shall discuss and evaluate a summary which was written by group.</p>	
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❖ **Activities/Practicum:**

The following activities shall be carried out by the students.

- Study of current trends in computer.
- Study of the evolution in processor development.

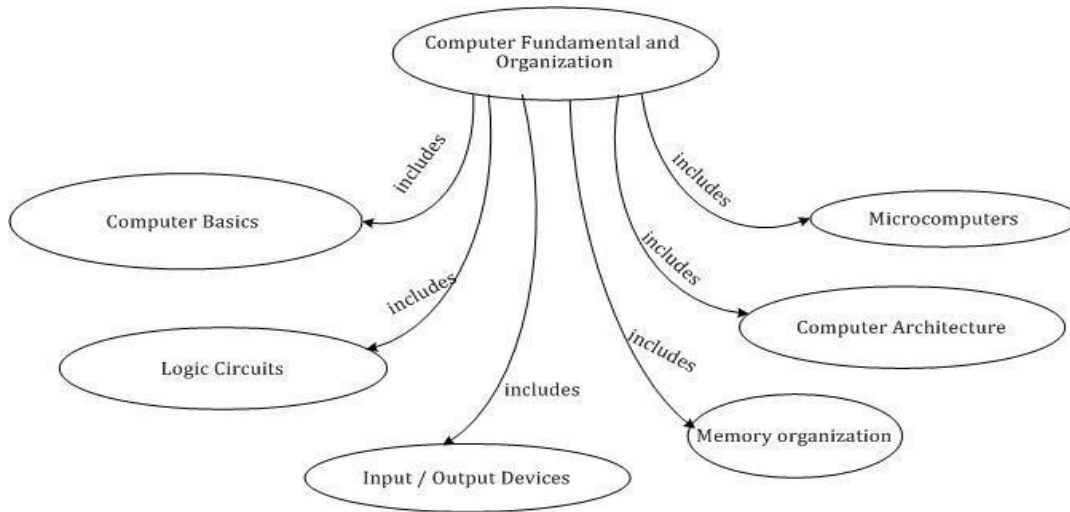
The following activities shall be carried out by the teacher.

Learner	Activities to be done	PO mapped
For slow learners	Give four questions from unit 2.2, 2.6, 4.2, 4.5, 5.6, 6.4 and discuss answer with them after they read and write.	PO1
For advanced learners	Students write any three real world system name or scenario which relates to topic: 1.4, 5.4. Students shall be discussing about his/her system/scenario in classroom.	PO3,PO4 and PO5
For all	Give questions and take a viva.	PO3, PO4

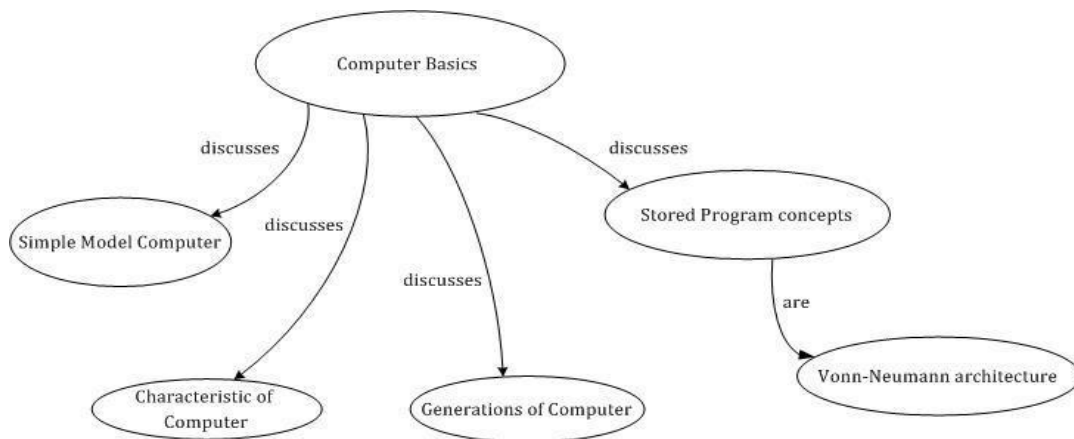
❖ **Concept Map:**

It is a hierarchical / tree based representation of all topics covered under the course. This gives direct / indirect relationship /association among topics as well as subtopics.

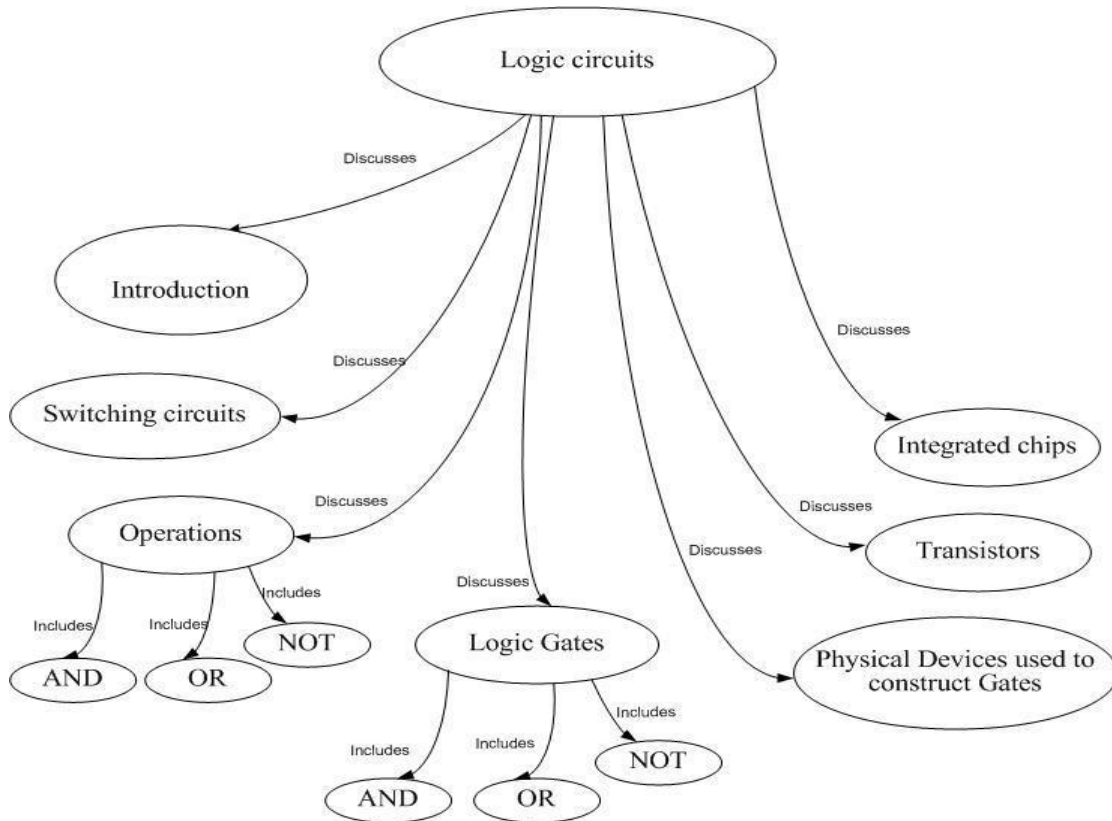
Computer Fundamentals and Organization



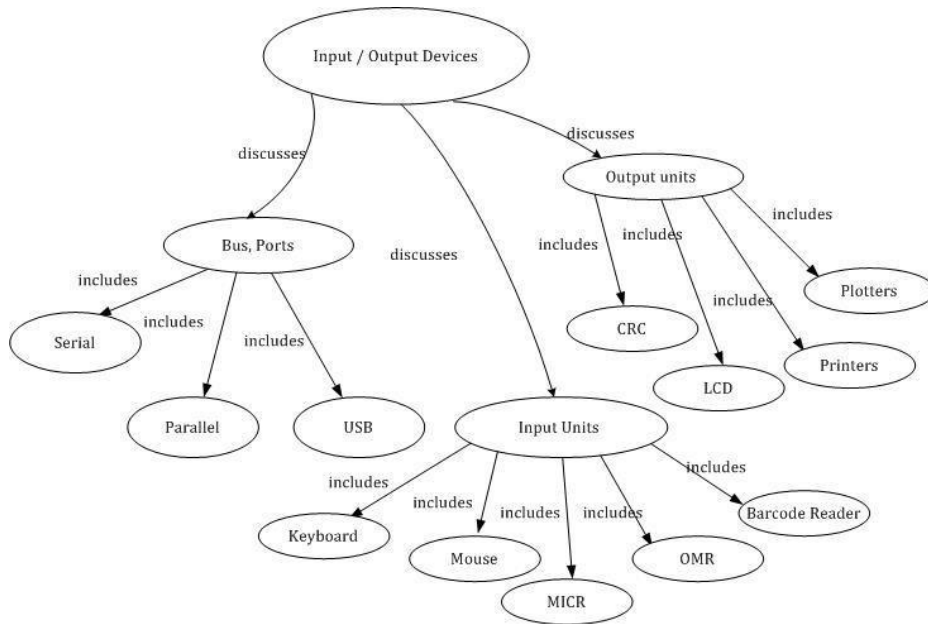
Unit 1: Computer Basics



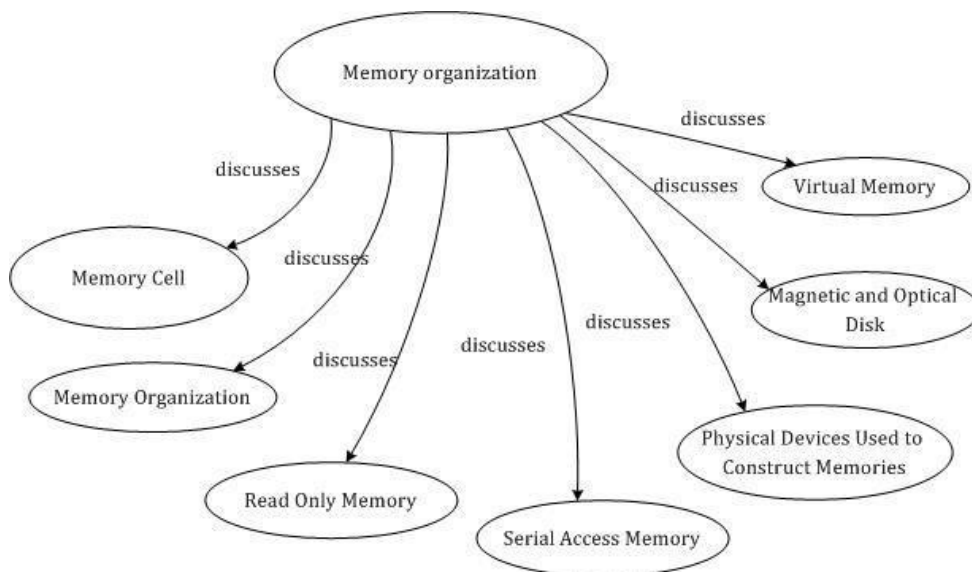
Unit 2: Logic Circuits



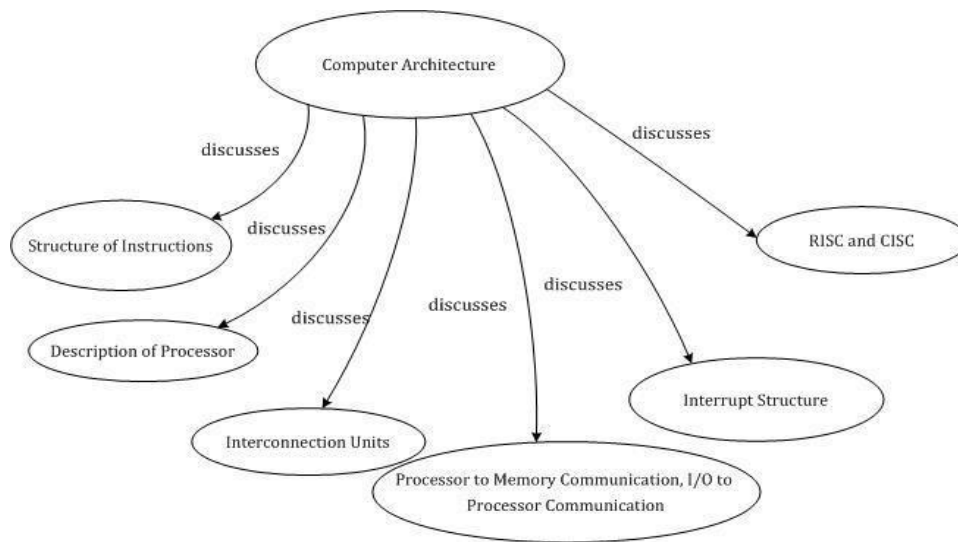
Unit 3: Input Output Device



Unit 4: Memory Organization



Unit 5: Computer Architecture



Unit 6: Microcomputers

