UkaTarsadiaUniversity

B.C.A.

Computer Fundamentals and Organization(030010103)

1st Semester

EFFECTIVE FROM JUNE-2014

UKA TARSADIA UNIVERSITY

BCA (1st Semester) Syllabus, 2014-2015

Course Code: 030010103 Course Title: Computer Fundamentals and Organization

Course Credits: 4 Total Hours: 48 [Lectures: 4, Tutorial: 0, Practical: 0]

Prerequisites: Nil

Prerequisites By Topics: Nil

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

1 Computer Basics [06 Hours]

1.1. Simple Model Computer
1.2. Characteristic of Computer
1.3. Generations of Computer
1.4. Stored Program concepts: Vonn-Neumann architecture

2 Logic Circuits [09 Hours]

2.1. Introduction
2.2. Switching circuits
2.3. AND, OR and NOT operations
2.4. Logic Gates
2.5. Physical Devices used to construct Gates
2.6. Transistors
2.7. Integrated Chips

3 Input / Output Devices [09 Hours]

3.1. Bus, Ports: Serial, Parallel, USB ports
3.2. Input Units – Keyboard, Mouse, MICR, OMR, OCR, Barcode Reader
3.3. Output units – CRT, LCD, Printers, Plotters

4 Memory organization [09 Hours]

4.1. Memory Cell
4.2. Memory Organization
4.3. Read Only Memory
4.4. Serial Access Memory
4.5. Physical Devices Used to Construct Memories
4.6. Magnetic and Optical Disk
4.7. Virtual Memory

5 Computer Architecture [09 Hours]

5.1. Structure of Instructions
5.2. Description of Processor
5.3. Interconnection Units
5.4. Processor to Memory Communication, I/O to Processor Communication
5.5. Interrupt Structure
5.6. RISC and CISC

6 Microcomputers [06 Hours]

6.1. Introduction: Ideal and Actual microcomputer
6.2. Memory System
6.3. Minimum configuration
6.4. Special purpose microprocessors
6.5. Microcomputer software
6.6. Applications : Smartcard, RFID, Washing machine

Course Outcomes:

CO1: Able to understand basics of computer
CO2: Understand the components of computer
CO3: Understand I/O Devices working with computer
CO4: Understand organization of memory
CO5: Understand the organization of processor
CO6: Understand types of storage media in computer

Course Objectives and Course Outcomes Mapping:

To understand the computer organization: CO1,CO2
To understand the memory organization: CO4,CO5,CO6
To understand the working of devices:CO2,CO3

Course Units and Course Outcomes Mapping:

Unit No.	Unit	Course Outcome					
		CO1	CO2	CO3	CO4	CO5	CO6
1	Computer Basics	✓	✓				
2	Logic Circuits		✓	✓			
3	Input / Output Devices			✓			
4	Memory organization				✓	✓	✓
5	Computer Architecture					✓	✓
6	Microcomputers				✓		✓

Modes of Transaction (Delivery):

- Lecture method shall be used but along with it, as and when required, discussion method would be fruitful. It may be supplemented with various appropriate audio-visual aids.
- Activity assignment shall be given to the student.

Activities/Practicum:

The following activities shall be carried out by the students.

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

The following activities shall be carried out by the teacher.

- Demonstrating the Internal hardware parts of Computer.
- Comparison of various Processor models.
- Demonstrate the working of computer by various models/videos.

Text Book:

1. V. Rajaraman - Fundamentals of Computers - PHI.
2. Ron White – How Computers Work – Tech Media

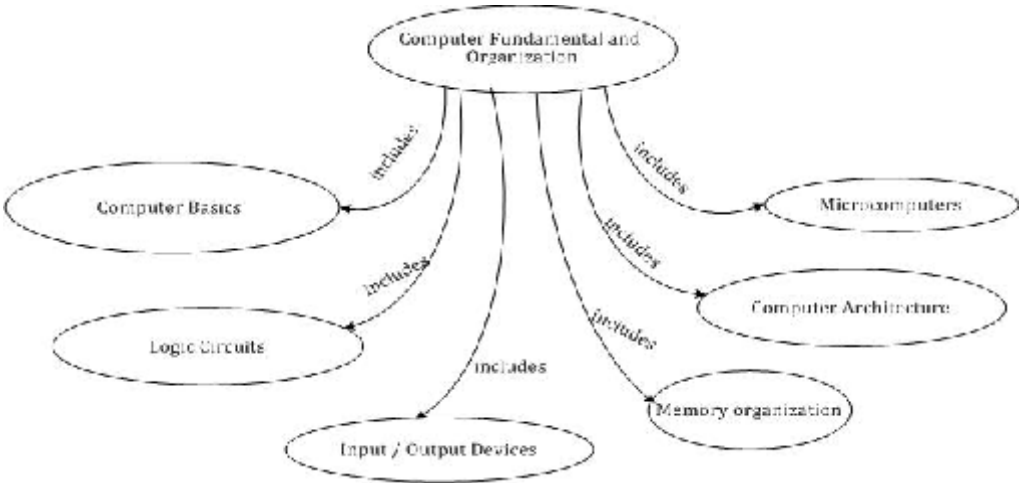
Reference Books:

1. B. Ram ,Computer Fundamentals, Architecture and organization ,New Age International Publication.
2. M. Morris Mano ,Computer System Architecture , Prentice Hall.
3. K M Hebbar, Computer Architecture ,MacMillan Publication
4. Sinha P. K. ,Computer Fundamentals, BPB Publication

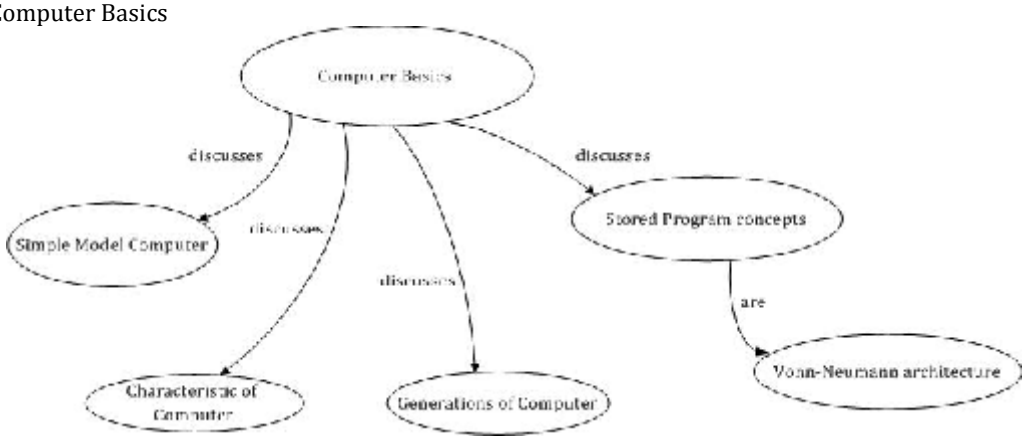
Concept Map:

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.

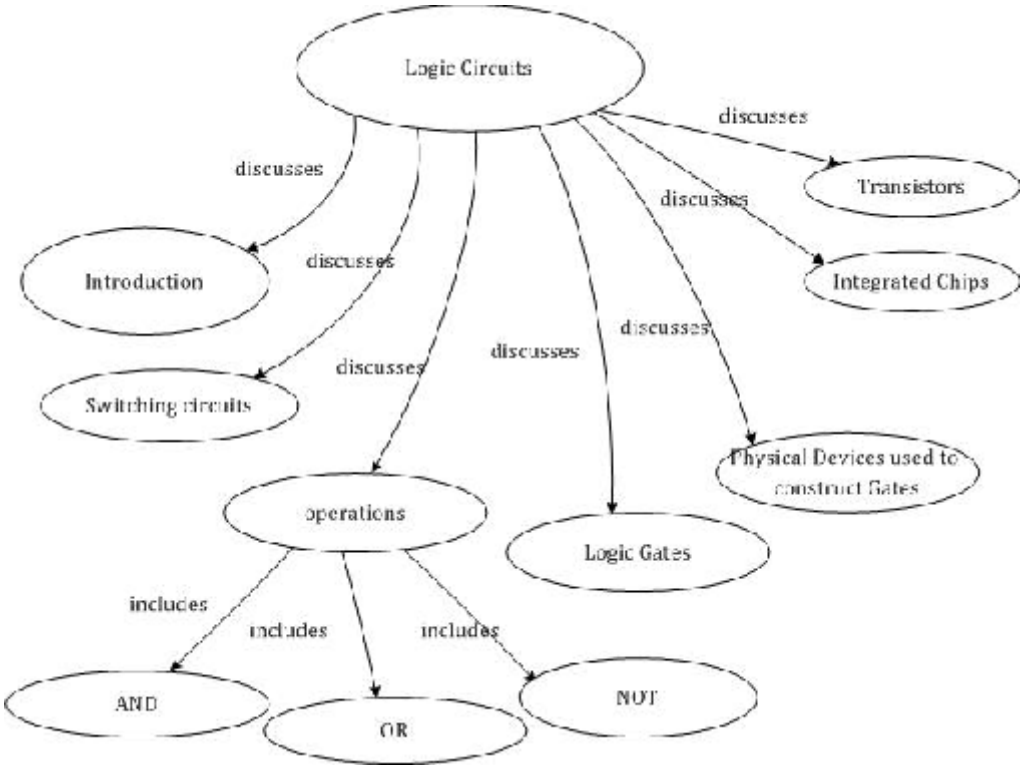
Computer Fundamentals and Organization



Unit-1: Computer Basics

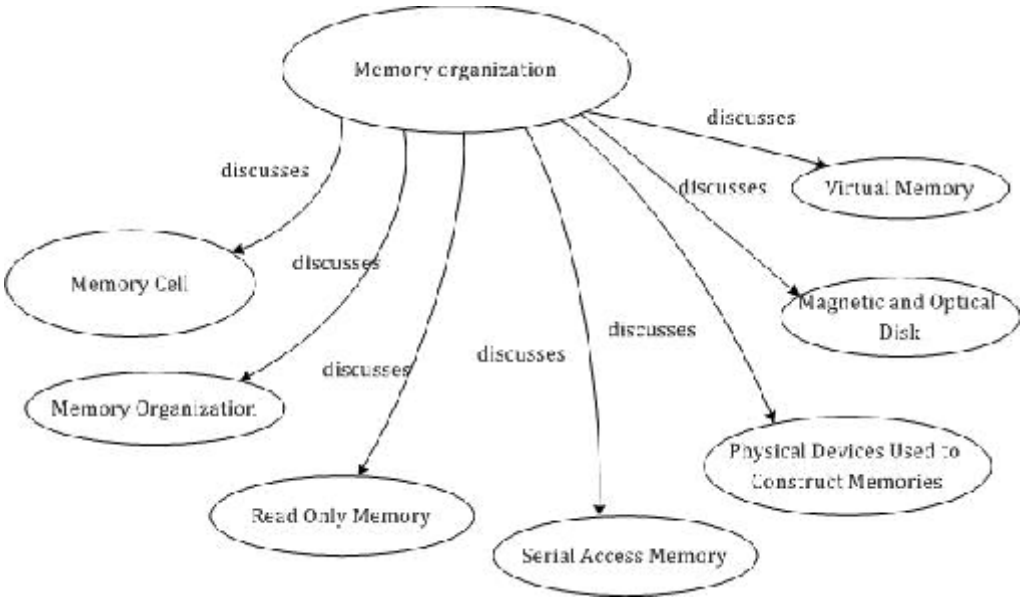


Unit-2: Logic Circuits

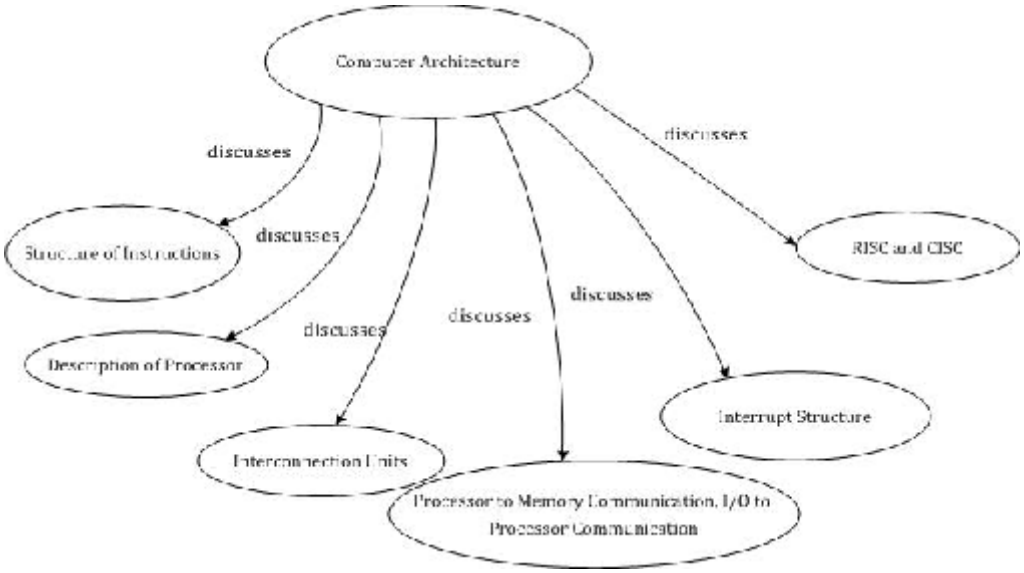


Unit-3: Input / Output Devices

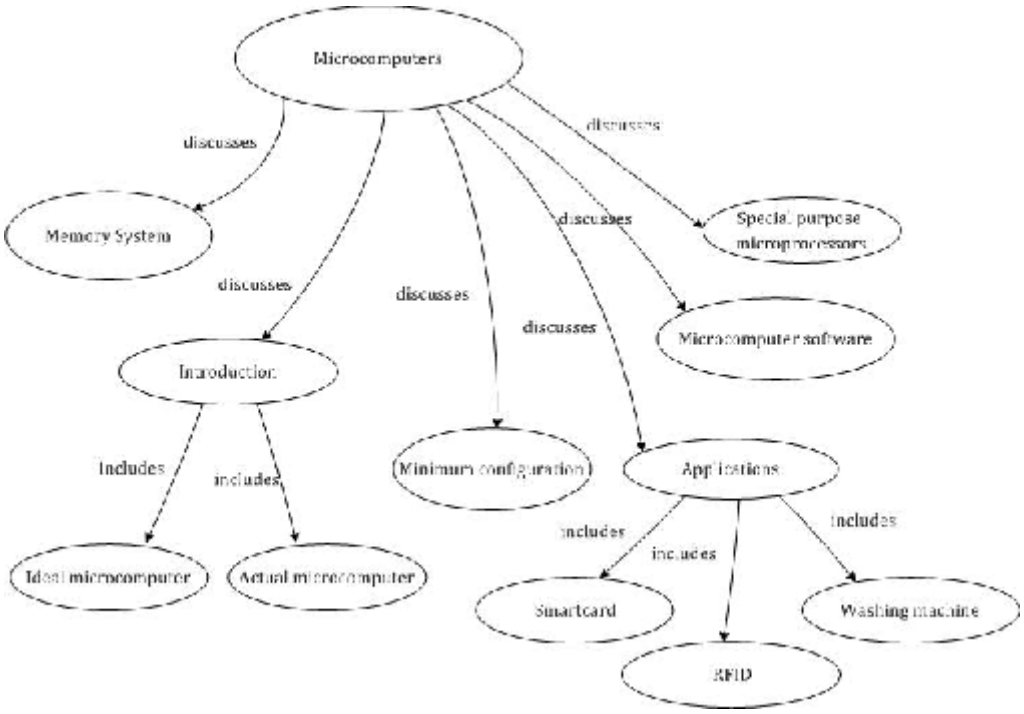
Unit-4: Memory organization



Unit-5: Computer Architecture



Unit-6: Microcomputers



Assessment:

The weightage of CIE and University examination shall be as per the University regulations.
Composition of CIE shall be

Assessment Code	Assessment Type	Duration of each	Occurrence	Each of marks	Weightage in CIE of 40 marks	Remarks
A1	Quiz	45 minutes	2	20	4X2 = 8	Taken at the end of unit 1,3,6
A2	Unit Test	45 minutes	3	20	4X3 = 12	Taken at the end of unit 2,4,5
A3	Assignment	2 weeks	1	20	5 X 1 = 5	Submit after completion

						of each unit
A4	Internal Exam	2 hrs.	1	50	15 X 1 = 15	Before completion of the term

- **A3 Guideline:**A teacher shall provide minimum 30 questions for assignment at the starting of the semester.
  Questions for assignment cover all the units equally and it shall be assess at regular interval as per completion of unit.
  Late submission shall be penalized as 5% of full marks per day for maximum two days after the cut-off date. No seminar shall be accepted thereafter with the corresponding mark set to 0.
  Syllabus for each CIE parameter shall be covered by the date of the corresponding test.
  No make-up work shall be accepted for missed or failed tests.

Course Assessment with Course Outcomes Mapping

Assessment	Course Outcomes					
	CO1	CO2	CO3	CO4	CO5	CO6
A1	✓		✓			✓
A2		✓		✓	✓	
A3	✓	✓		✓		
A4	✓	✓	✓	✓	✓	✓

Question Bank:

Question Bank must be prepared which consists of several types of questions namely Multiple Choice Questions, Fill in the blanks, Short type questions, Long type questions.

Academic Honesty:

Coursework is assumed to be accomplished individually (otherwise stated). Any portion of submission taken directly from anywhere (like statements in assignment/report etc.) without modification shall be accompanied with the properly formatted reference giving credit to the author and to the source.

UFM:

- Any ascertained fact of breaking institute policy shall be associated with one or all of the following: (i) zero marks for the work; (ii) report to the Course coordinator; (iii) report to the Director; (iv) report to parents.

Discussion Group:

Students are welcome to post on the Course Discussion Board available on SRIMCA View Course Webpage. It is responsibility of the concern subject teacher to maintain Discussion Board.

Attendance:

- Attendance means being present for the entire class session. Those arriving significant late or leaving significantly early without prior permission shall be counted as ABSENT for the entire class session.
- Concern teacher shall clearly state his/her attendance policies at the first class meeting.