

अंतरी पेटवू ज्ञानज्योत



**NORTH MAHARASHTRA UNIVERSITY, JALGAON**

**SYLLABUS FOR**

**F.Y.B.Sc.  
COMPUTER SCIENCE**

(With effect from June 2009)

*North Maharashtra University, Jalgaon*  
F. Y. B. Sc. (Computer Science)  
(w.e.f. June -2009)  
Syllabus for UG-CS 111: Fundamentals of Computer

*Semester I*

**1.: Introduction (8L, 8M)**

- 1.1 Definition, History & Generation of Computers.
- 1.2 Block Diagram of Computer System.
- 1.3 Types of Computer
  - 1.3.1 Special purpose & General purpose.
  - 1.3.2 Analog, Digital & Hybrid Computer.
  - 1.3.3 Micro, Mini, Mainframe & Super Computer.

**2: Memory Concept (6L, 6M)**

- 2.1 Memory cell.
- 2.2 Types of Memory
  - 2.2.1 Primary Memory. RAM, ROM, PROM, EPROM, EAROM.
  - 2.2.2 Secondary Memory. Floppy Disk, Harddisk, Magnetic tape, Zip drive, Pen drive, Compact Disk, DVD.

**3. Input Output Devices. ( 6L, 6M)**

- 3.1 Input Devices
  - 3.1.1 Keyboard, Mouse, Scanner, Web camera.
- 3.1 Output Devices
  - 3.1.1 Impact Printers – Dot Matrix printer, Line printer.
  - 3.2.1 Non-Impact Printers – Inkjet printer, Laser printer, Plotter

**4. Algorithms, Flowcharts & Languages. ( 8L, 8M)**

- 4.1 Definitions- Algorithm, Flowchart, Program, Compiler, Interpreter, Hardware, Software
- 4.2 Symbols used for flowchart.
- 4.3 Some sample Algorithms & Flowcharts.
- 4.4 Programming Languages- Lower level language, Higher level language, 4GL.

## **5. Network Concepts.. ( 6L, 6M)**

- 5.1 Introduction to computer network.
- 5.2 Advantages of computer network.
- 5.3 Types of network- LAN, WAN, MAN, Internet.
- 5.4 Topologies – Bus, Star, Ring, Tree.
- 5.5 Introduction to transmission media – Twisted Wire pair, Optical –fibre, Wireless.

## **6. Operating system Concepts- ( 6L, 6M)**

- 6.1 Need of operating system.
- 6.2 Functions of operating system.
- 6.3 Types of operating system – Dos, Windows, Unix, Linux, Windows-vista.

## **References: -**

- 1. Fundamentals of Computers – V. Rajaraman, PHI publication.
- 2. Computers and Commonsense – Roger Hunt and John Shelley, PHI publication
- 3. Fundamentals of Computers – Comdex computer course kit Wiley publication.
- 4. Operating System concepts – Peterson Silberschatz.
- 5. Computer Network – A. S.Tananbaum.

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**Syllabus for UG-CS 121: Computer Organisation and Architecture**

***Semester II***

**1. Number Representation:- (8L, 8M)**

Integer- unsigned, signed (sign magnitude, 1's complement, 2's complement, r's complement);

Characters:- ASCII coding, other coding schemes;

Real number:- fixed and floating point representation.

**2. Boolean Algebra and Logic Circuits:- (6L, 6M)**

Introduction, Logic Gates, Overview of basic digital building blocks, truth tables, basic structure of a digital computer, half adder, full adder, Map Simplification.

**3. Flip flops and Integrated Circuits :- (8L, 8M)**

Introduction, flip flops(SR, D,JK flip flop) state table, state diagram, Design examples, Decoder, Encoder, Multiplexer, Shift register.

**4. Basic Machine Organization:- (10L, 10M)**

Memory organization- memory parameters, semiconductor memory cell, Memory organization of smac, CPU Organization, Input/Output for Smac, Basic Instruction set, Simulation of smac, Expanding the Instruction set of Smac, The use of Stack, Logical Operations.

**5. Introduction to Architecture of 8085:- ( 8L, 8M)**

Introduction, Block Diagram, Pin diagram

**References:-**

- 1) An Introduction of Digital Computer Design - V.Rajaraman
- 2) Introduction to 8085 Microprocessor - Gaonkar
- 3) Fundamental of Computer Organization and Design - Dandamundi (Wiley Publisher)
- 4) Computer organization - V. CARL HAMACHER
- 5) Structured Computer organization - ANDREW S. TANENBAUM

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Syllabus for UG-CS112: C programming I  
**Semester I**

**1. Introduction** (5L, 5M )

History, feature and application, data type and size, variable, constant, declaration statement, type modifiers, structure of C-program.

**2. Operators and Expression** (6L,6M)

Arithmetic, logical, relational, bit wise, increment, decrement, compound assignment, conditional, special operators, precedence and order of evaluation.

**3. Input-Output** (3L,3M)

Standard input-output statements, formatted input-output statements

**4. Control structure** (12L,12M)

If Statement, if-else Statement, nested if-else Statement, if-else ladder, break, continue, goto, switch statement

Loops : while, do-while, for, nested loops

**5. Arrays** (6L,6M)

Definition, one-dimensional array, multidimensional array, Initialization of array, application of array.

**6. Functions** (8L,8M)

Introduction, needs, function declaration and prototype, function calling(Call by value, Call by reference), function with return, function with arguments, recursion, storage class specifiers, string functions -strlen(), strcat(), strcmp(), strcpy(), strrev().

**References :-**

1. "C" Programming – Denis Ritchie.
2. Let us C – Yashwant P. Kanetkar,BPB publication.
3. Programming with C – Byron Gottfried – Tata McGRAW-Hill
4. Programming in C-E.Balguruswami
5. C programming in easy step – Wiley publication

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Syllabus for UG-CS122: C programming II  
**Semester II**

**1. Pointers (10L,10M)**

Introduction, address and arguments, ,declaration, accessing value through a pointer, address arithmetic, array and pointer, function and pointer, pointer to pointer, dynamic memory allocation and releasing dynamically allocated memory.

**2. Structure and union (10L,10M)**

Introduction, declaration and accessing, nested structure, self referential structure, array of structure, pointer to structure.

Union : Introduction ,declaration, typedef

**3. Graphics ( 6L,6M )**

Initgraph(), putpixel(),line(),circle(),rectangle(),ellipse(),arc(), closegraph()

**4) Pre-processor ( 4L,4M )**

Features, #defines and #includes, directives, macros.

**5) File handling ( 10L,10M)**

Concept of files, records, field, accessing a files, various mode of file opening, closing files

fprintf(),fscanf(),getc(),putc(),getw(),putw(),feof(),rewind(),fseek(),ftell(),fputs(), fgets(),command line argument.

**References :-**

1. "C" Programming – Denis Ritchie.
2. Let us C – Yashwant P. Kanetkar,BPB publication.
3. Programming with C – Byron Gottfried – Tata McGRAW-Hill
4. Understanding pointers in "C" - Yashwant P. Kanetkar,BPB publication.
5. Programming in C-E.Balguruswami
6. C programming in easy step – Wiley publication

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**Syllabus for UG-CS 103: Lab course**  
Semester –I

1. Program using various arithmetic operator
2. Program using control statement(if, if-else, if-else nesting ,switch)
3. Program using various loops(for, while ,do-while, nesting)(eg prime ,factorial, fibbonacci )
4. Program using 1-D arrays(eg:-sorting ,searching)
5. Program using 2-D array(eg:-matrix operation)
6. Program using function(call by value, call by reference, recursive)
7. Program using user define string function(at least two practical)

Semester –II

8. Program using pointers(arrays, functions, structures)
  9. Program using structures(at least two practical)
  10. Program using graphics function(at least two practical)
  11. Simple program using file(to be cover all functions)
  12. Program using files with structures
  13. Program using command line argument
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