

NEW
Detailed Syllabus of
B.Sc.(Computer Science)
and

B.Sc.(IT)

Effective From July - 2011

SEMESTER SYSTEM
Scheme & Syllabus for B.Sc. (CS)
Pass and Hons. Course

Effective from July 2011 and onwards

CLASS /SEMESTER	B. Sc.(CS)	CCE 30%	MIN. MARKS	TERM END EXAM 70%	MIN. MARKS	TOTAL 100%
FIRST SEM.	CS-101- Computer Organization	30	10	70	24	100
	CS-101P- Practical on Computer Org. & MS Office	---	---	---	---	50
SECOND SEM.	CS-201- Prog. Problem Solving through C.	30	10	70	24	100
	CS-201P- Practical on C Language	---	---	---	---	50
THIRD SEM.	CS-301- Data Structure using C++	30	10	70	24	100
	CS-301P- Practical on Data Strucure	---	---	---	---	50
For Hons. Only	CS-302- Operating System using Linux	30	10	70	24	100
FOURTH SEM.	CS-401- DBMS	30	10	70	24	100
	CS-401P- Practical on DBMS	---	---	---	---	50
For Hons. Only	CS-402- System Programming	30	10	70	24	100
FIFTH SEM	To be Declare later					
SIXTH SEM	To be Declare later					

PS :- CCE ----- CONTINUOUS COMPREHENSIVE EVALUATION, **INDIVIDUAL PASSING REQUIRED FOR THEORY AND PRACTICAL SUBJECT.**

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FIRST SEM.	CS-101- Computer Organization	30	10	70	24	100
	CS-101P- Practical on Computer Org. & MS Office	---	---	---	---	50
SECOND SEM.	CS-201- Prog. Problem Solving through C.	30	10	70	24	100
	CS-201P- Practical on C Language	---	---	---	---	50
THIRD SEM.	CS-301 -Introduction to JAVA Prog.	30	10	70	24	100
	CS-301P-Practical on JAVA Prog.	---	---	---	---	50
FOURTH SEM.	CS-401-DBMS	30	10	70	24	100
	CS-401P-Practical on DBMS	---	---	---	---	50
FIFTH SEM	To be Declare later					
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CS – 101 COMPUTER ORGANIZATION

Effective From Session July 2011 & onwards

UNIT I

10 Hours

Evolution of Computers and Computer Generations, Computer Classification	2 hrs
Processing speed of a computer, Technology Trends, Measuring Computer Performance, MIPS	2 hrs
von Neumann Machine Architecture, Functional Units and Components in Computer Organization, Computers – Block diagram, Memory addressing capability of a CPU, Word length of a computer	2 hrs
Basic components of a Digital Computer - Control unit, ALU,	2 hrs
IO Subsystem of a Computer, Bus Structures, Uses of Program Development Tool, Editor, Compiler, Assembler, Interpreter)	2 hrs

UNIT II

10 Hours

Number systems – Decimal Number system, Binary number system and Hexa-decimal number system, 1's & 2's complement, Representation of Positive and Negative Numbers	2 hrs
Binary Fixed- Point Representation, Arithmetic operation on Binary numbers, Overflow & underflow.	2 hrs
Floating Point Representation, Codes, ASCII	2 hrs
Logic Gates, AND, OR, NOT GATES and their Truth tables, NOR, NAND & XOR gates.	2 hrs
Counters, Registers, Shift Registers	2 hrs

UNIT III

10 Hours

Storing data and Program in Memory, Memory Hierarchy in a Computer	2 hrs
Internal Organization of Semiconductor Main Memory Chips,	2 hrs
Semiconductor Memory RAM and ROM	2 hrs
Auxiliary Memory Peripheral Devices, Secondary Storage Memory, Magnetic Memories and Hard Disk	2 hrs
Optical Disks and CD Memories	2 hrs

UNIT IV

10 Hours

Algorithm, Flowchart, Logic Development & Problem solving. Algorithms for simple problems involving conditional manipulation of memory variables	5 hrs
The 8085 Programming Model, 8085 Hardware Model, Block Diagram and uses of Registers, Accumulator, Flag, Program counter and stack pointer	2 hrs
How to write, assemble and execute a simple program: Illustrate Program – Adding two hexadecimal numbers,	3 hrs

UNIT V

10 Hrs.

Input Devices, Keyboard, Mouse,	02 hrs
Output Devices, CRT Monitor, LCD Displays, Touch Screen Displays	02 hrs
Print Devices	02 hrs
Multiprocessor and Multi core Architecture	2 hrs

TEXT BOOK

Computer Fundamentals – B. Ram – New Age International Publishers

REFERENCE BOOKS

1. Rashid Sheikh, “**Computer Organization & Architecture**”
2. William Stallings, “**Computer Organization & Architecture**”, Pearson.
3. BARTEE, “*Digital Computer Fundamentals* ” TMH Publication
4. *MORRIS MANO, “Computer System Architecture ”* PHI
5. W. Hayes, Computer Architecture, McGraw-Hill

Problems Solving Skills Book

1. Nicholas P Carter, Schaum Outline on Computer Architecture and Organization, TMH, Special Indian Edition Adaptation,, 2010

Note: Faculty teaching the subject will also given to students the besides 50 hours teaching the appropriate exercises and assignments. .

CS-101P - PRACTICAL ON Comp. Org. and MS-OFFICE

Maximum Marks: 50

Minimum Pass Marks:17

Practical Session -01 - Practical on MS-OFFICE :**WINDOWS**

1. Creating folder, cut, copy, paste, managing file and folder in windows.
2. Arrange icons, set display properties
3. Adding and removing software and hardware
4. Setting date and time, screen saver and appearance.
5. Using windows accessories.
6. Settings of all control panel items
7. Search file

MS-Word

1. Creating & Editing Document
2. Formatting Document
3. Use of Auto-text, Autocorrect, Spelling and Grammar Tool,
4. Page Formatting, Page Border, Background,
5. Creation of MS-Word-Mail Merge, Macros, Tables.
6. Practice of Printing, page setup etc.

MS-Excel

1. Creating & Editing Worksheet, Fill Handle
2. Use Formulas and Functions
3. Preparing Charts

MS-Powerpoint

1. Creating, Manipulating & Enhancing Slides,
2. Inserting Organizational Charts, Excel Charts
3. Using Word Art

4. Putting Animations and Sounds
5. Inserting Animated Pictures
6. Inserting Recorded Sound Effect

Computer Organization
Practical Session 02 - Using Debug/MASM/TASM

To Study of DEBUG visit the following website :

http://kipirvine.com/asm/debug/Debug_Tutorial.pdf

Practical on Flip-flops, Logic Gates and Registers.

Do the following tasks: -

1. Add 3, 4 and 7 and display result in only AX register
2. Add 3, 8 and 9 using three different registers and show result of all registers
3. Take dump of location 110 and display
4. Add your name and date of birth at location 120. Move only the date of birth to location 200. Search through 100 to 300 to find the date
5. Move 3 to AX register and multiply it with 3 to show the result.
6. Use int 21 in all your assembled codes
7. Use comparison command to compare the date of birth at location 120 and 100.

Write complete assembly codes for the following tasks. Submit code and output trace:

1. A program that displays your name and date of birth.
2. A program that adds the following numbers
 - a. 1000
 - b. 4000
 - c. 1700
3. A program that does the following
 - a. Add two numbers X and Y
 - b. Multiply the result with C
 - c. Increment the result
4. A program that subtracts
 - a. Two numbers X and Y such that $X > Y$
 - b. Two numbers X and Y such that $Y > X$
5. A program that divides
 - a. Two numbers X and Y such that $X \% Y = 0$
 - b. Two numbers X and Y such that $X \% Y \neq 0$
 - c. Two numbers X and Y such that $Y = 0$

CS – 201- PROGRAMMING AND PROBLEM SOLVING THROUGH C LANGUAGE

Effective From Session July 2011 & Onwards

Maximum Marks: 70

Minimum Pass Marks: 24

Total 50 Hrs.

UNIT I

10 Hrs

Algorithm, Flowchart, Logic Development & Problem Solving.	05 hrs
Structure of C program, C declarations, keywords, identifiers, constants, variables, Data types, type conversion,	02 hrs
Types of operators and expressions, Input and output functions in C.	03 hrs

UNIT II

10 Hrs

Decision Statement – IF-ELSE statement, break, continue, goto, switch() case and nested IF statement.	02 hrs
Loop Control Statements – For loop, While loop , Do-while loop and nested loops.	03 hrs
Arrays – Definition, Initialization, characteristics, One, Two, Three and Multi-dimensional Arrays	03 hrs
Working with scanf, printf, Strings & Standard Functions.	02 hrs

UNIT III

10 Hrs

Pointers – Introduction, Features, Declaration & Arithmetic operations on pointers.	03 hrs
Pointers and Arrays, Array of pointers.	02 hrs
Pointers to pointers, pointers and strings, Void pointers	02 hrs
Functions – Declaration, Prototype, Types of functions, Call by value and reference, Function with operators	02 hrs

UNIT IV

10 Hrs

Function with decision statements, function with Loop statements.	02 hrs
Function with Arrays and Pointers.	02 hrs
Types of Storage Classes.	02 hrs
Introduction to Files, Streams and File Types,	02 hrs
Steps for file operations, File IO,	02hrs

UNIT V

10 Hrs

Files – Streams and file types, file operations	02 hrs
Write and Other file functions.	02 hrs
Command line arguments, Application of Command Line Arguments	02 hrs
Structure and Union – Declaration, Initialization, structure within	02 hrs

structure.	
Array of structure, Enumerated data types, Union of structure	02 hrs

TEXT BOOKS

1. E. Balaguruswamy, *“Programming In C”*, TMH Publications
2. Kanetkar, *“Let Us C”*

REFERENCES BOOKS

1. Ashok N. Kamthane, “Programming with ANSI and Turbo C”, Pearson Education
2. Ashok N. Kamthane et. al., Computer Programming and IT (for RTU), Pearson Education, 2011 (ISBN 978-81-317-5970-7)
3. Mahapatra, *“Thinking In C”*, PHI Publications

Problem Solving Skills Book:

1. Gottfried, *Schaums Outline Series, “Programming With C”*, TMH Publications

Note: Faculty teaching the subject will also given to students the besides 50 hours teaching the appropriate exercises and assignments. l.

CS-201P - PRACTICAL ON C PROGRAMMING

Maximum Marks: 50

Minimum Pass Marks:17

(Student Must Write 50 Programs including following 25 Programs in there Computer Practical Book with **Algorithm/Flowchart**)

1. Write a program for swapping two variables without using third variable.
2. Write a program to calculate simple Interest and Compound Interest.
3. Write a program to convert temperature entered into centigrade to Fahrenheit.
4. Write a program to find maximum of three numbers.
5. Write a program to read in a three digit number produce following output (assuming that the input is 539)
5 hundreds
3 tens
9 units
6. Write a program to find sum of digits of accepted number.
7. Write a program to find student grade using IF-ELSE ladder
8. Write a program that prints given three integers in ascending order using IF-ELSE
9. Write a program for simple calculator using switch/case loop.
10. Write a program for print Fibonacci series up to N number.
11. Write a program to find sum of first 50 odd numbers and even numbers.
12. Write a program to find reverse of given number.
13. Write a program to find factorial of accepted number.
14. Write a program to find all prime number between two given numbers
15. Write a program to find minimum, maximum, sum and average of given one dimensional array.
16. Write a program for sparse matrix.

17. Write a program to find addition, subtraction, multiplication of matrix.
18. Write a program to print terms of each of the following series
i. $\sin(x)$ ii. $\cos(x)$
19. Display the following output on the screen
a. b. c.
* 1 A
** 12 AB
*** 123 ABC
**** 1234 ABCD
***** 12345 ABCDE
20. Write a program to read and write a structure.
21. Write a program for factorial function.
22. Write a program to read a string and print its reverse.
23. Write a program to find a_b using Call by reference.
24. Write a program for create, open and append a file.
25. Write a program to copy the contents of one file to another.