COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	INFORMATION TECHNOLOGY	CA-101	Min £D/	Min £D/	5.0

INFORMATION TECHNOLOGY

UNIT-I

Basic Concepts of IT, Concepts of Data and Information, Data Processing, History of Computers (Generation,Type of Languages), Organization of Computers, Input/Output Devices, Storage Devices, Software Tools: System Software and Application Software, Software Tools for Program Development , Editors, Debug Monitors, Programming Environment, User Interfaces.

UNIT-II

Representation of Information: Number Systems, Integer and Floating-Point Representation, Character Codes(ASCII, EBCDIC), Error Detection and Correction Codes, Parity Check Code, Cyclic Redundancy Code, Hamming Code.

UNIT-III

Assembler: Elements of Assembly Language Programming, A Simple Assembly Scheme, Pass Structure of Assembler, Design of Two Pass Assemblers, A Single Pass Assemblers, Compilers and Interpreters: Aspects of Compilation, Memory Allocation, Compilation of Expression, Compilation of Control Structures, Code Optimization, Interpreters.

UNIT-IV

Linker & Loaders: Relocation And Linking Concepts, Design of Linkers, Self Relocating Programs, A Linker for MS-DOS, Linking for Overlays, Loaders: A Two Pass Loader Scheme, Relocating Loaders, Subroutine Linkage, Direct Linkage Loader, Binders Overlays.

Unit –V

Sequential File Organization, Random File Organization, Index Structure, Indexed File Organization, Alternate Key Indexed Sequential Files, Multikey Organization , Multikey Access, Multilist File Organization, Inverted Files and their Definitions, Insertion, Deletion, Operations with Optimum Utilization of Memory, Comparison of Various Type of File Organization.

References:

1. **D.M. Dhamdhere £System Programming & O.S./ 2nd Ed.,Tata Mc.Graw Hill.**
2. **Sanders D.H./ Computer's Today/ Mc.Graw Hill 1988.**
3. **J. Donovan £System Programming :THM.**
4. **Rajaraman V. £Fundamental of Computers/ (4th Ed.) Prentice Hall of India,New Delhi 2004.**
5. **S.Jaiswal, £Fundamental of Computer & IT/, Wiley Dreamtech Indial.**

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE	MA-105	Min £D/	Min £D/	5.0

MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE

UNIT-I

Set Theory and Mathematical Logic: Sets, Subsets(with Operations), Cartesian Products, Relations and its Properties, Equivalence Relations , Functions, Types of Functions, Characteristic Functions, and Mathematical Induction. Statement and Notations of a Set, Prepositions, Connectives, Normal Form, Theory of Inference.

UNIT-II

Algebric Structures: Algebric Systems, Semigroups and Monoids, Groups, Application of Residue Arithematic to Computers, Group Codes, Elementry Properties of Rings and Fields.

UNIT-III

Lattices and Boolean Algebra: Partial Order Set, Hasse Diagrams, Upper Bounds, Lower Bounds, Lattices, Sublattices, Isotonicity, Lattice Homomorphism, Lattice Isomorphism, Complete Lattice, Complemental Lattice, Distribution Lattice.

UNIT-IV

Graph Theory: Graphs, Subgraphs, Computer Representation of Graphs, Isomorphic Graphs,Walk, Path, Cycles and Circuits, Connectedness of Graph, Matrix Representation of Graphs, Incedence and Adjacency Matrix and Their Properties, Eulerian and Hamilton Graphs, Trees, Binary Tree, Rooted Tree, Spanning Tree, Pandent Vertices in Tree, Centre of Tree.

UNIT-V

Discrete Numeric Function and Recurrence Relation: Introduction to Discrete Numeric Functions and Generating Functions, Introduction to Recurrence Relation and Recursive Algorithms, Linear Recurrence Relation with Constant Cofficients, Homogeneous Solutions, Particular Solutions and Total Solutions.

References :

1. **Bernard Kolman & Robert C.Busby- £ Discrete Mathematical Structures £ PHI Publication NewDelhi.**
2. **Thomas Koshy- £Discrete Mathematics with Applications/ Elsevier Publication New Delhi.**
3. **Semour Lipschutz, MarkLipson- £Theory and Problems of Discrete Mathematics/ TMH Publishing Company Limited.**
4. **J.P Tremblay And R Manohar, Discrete Mathematical Structures with Applications.**

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	PROGRAMMING & PROBLEM SOLVING IN C	CA-102	Min £D/	Min £D/	5.0

PROGRAMMING & PROBLEM SOLVING IN C

UNIT-I

An Overview of Programming, Introduction of Computer Based Problem Solving: Problem Definiton, Problem Solving, Goals and Objectives, Problem Identification, Algorithm for Problem Solving and Flow Charts, Program Design and Implementation, Coding , Testing and Debugging, Modification and Maintenance, Characteristics of a Good Program-Accuracy,
Simplicity, Robustness, Portablility, Minimum Resource and Time Requirements, Modularization,Top-Down Design,Bottom-Up Design.

UNIT-II

Fundamentals of C Programming, History of C, Structure of C Programs: Data Types, Variable sand Constants, Operators, Priority and Associativity of Operators Type Modifiers and Expressions, Control Constructs: if, if-else, while, do-while, for, case-switch, break, continue,
goto statement, Storage Classes, Type Conversion and Type Casting, Formatted and Unformatted I/O.

UNIT-III

Arrays, Searching-Sequential and Binary Search, Sorting-Bubble Sort, Selection Sort, Insertion Sort, Modular Programming, String Processing, Functions, Arguments, Return Value, Parameter Passing, Call by Value, Call by Reference, Return Statement, Scope, Visibility and Life Time of Variable Declaration, Calling a Function, Recursion.

UNIT-IV

Dynamic Data Structures: Pointers & and * operator, Pointer Notation, Declaration,
Initialization, Accessing Variables through Pointers, Pointer Expression, Pointer Arithmetic,
Dynamic Memory Management Functions like malloc(), calloc(), free(), Pointer vs Array,
Pointer to Pointer, Array of Pointer, Function Returning Pointers, Pointer to Function, Function
as Parameter, Structure-Basic, Declaration, Membership Operator, Pointer to Structure, Referential Operator, Self Referential Structure, Structure within Structure, Array in Structure,
Array of Structure, Union-Definition, Declaration, Accessing, Union of Structures, Users of Union, Typedef.

UNIT-V Miscellaneous Features: File Handling and Related Functions, C Preprocessors Basics #include, #define, #undef, Conditional Compilation Directive like #if ,#else, #endif, #ifdef and #ifndef.

References :

1. **Kerninghan and Ritchie £The C Programming Language/ Pearson.**
2. **R.G Dromey:/ How To Solve It By Computer/, PHI.**
3. **Programming In ANSIC: By Balaguruswasmy.**
4. **Schildt £C:The Complete reference/ 4th ed TMH.**
5. **Cooper Mullish £The Spirit of C/ ,Jaico Publishing House,Delhi.**
6. **Kanetkar Y £Let us C/ ,BPB.**
7. **Kanetkar Y:/ Pointers in C/ , BPB.**
8. **Gottfried: £Problem Solving in C/ , Schaum Series.**
9. **Jones, Harrow Brooklish £C Programming with Problem Solving/ , Wiley Dreamtech India.**

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	COMPUTER ARCHITECTURE & ASSEMBLY LANGUAGE PROGRAMMING	CA-103	Min £D/	Min £D/	5.0

COMPUTER ARCHITECTURE & ASSEMBLY LANGUAGE PROGRAMMING

UNIT-I

Basics Building Blocks: Boolean Algebra,Simplification of Boolean Functions, Combinational Blocks: Gates, Multiplexers, Decoders, Implementation of Boolean Function in form of Gates etc., Sequential Building Blocks, Flip-Flops, Registers: Buffer Register, Right and Left Shift Register, Bidirectional Shift Register, Counters:Ripple Counter, Binary Counter, MOD-10 Counter, Ring Counter, ALU, Random Access Memory etc., Register Transfer Language and Micro-operations: Concept of Bus, Data Movement among Registers, a Language to Represent Conditional Data Transfer, Data Movement from/to Memory.

UNIT-II

Design of Simple Arithmetic and Logic Unit and Control Unit, Arithmetic and Logical Operations along with Register Transfer, Timing in Register Transfer, Architecture of a Simple Processor: A Simple Computer Orgainzation and Instruction Set, Instruction Formats, Addressing Modes, Instruction Cycle, Instruction Execution in terms of Microinstructions, Interrupt Cycle, Concept of Interrupt and Simple I/O Organization, Synchronous and Asynchronous Data Transfer.

UNIT-III

Data Transfer Mode: Program Controlled, Interrupt Driven, DMA(Direct Memory Access), Implementation of Processor using the Building Blocks, Pipelining Technology, Microprocessor v/s Microcontroller, Concepts of Segmentation and Paging, Associative Memory, Cache Memory Organization, Virtual Memory Organization.

UNIT-IV

Assembly Language Programming: Pin Diagram of 8086, Architecture of 8086, Addressing Mode of 8086, Detailed Study of 8086/8088 Assembly Language Instruction Set of 8086, Loops and Comparisons, Conditions and Procedures, Arithmetic Operations in Assembly Language, Simple Assembly Language Program of 8086, Illustrations using Typical Programs like: Table Search, Subroutines, Symbolic and Numerical Manipulations and I/O.

UNIT-V

Difference between 32-bit and 64-bit Processors, Latest Trends in Design of Processor, Introduction of Pentium Series Processors, Core-2 Duo , Dual-Core-2, MMX, HT.

References :

1. M.Morris Mano,/ Computer System Architecture/ , Pearson 3rd ed.
2. Govindarajalu £Computer Architecture and Organization/ .
3. Liu and Gibson, £8086/8088 Micro processor Assembly Language/ .
4. M.Mano £Digital Logic and Computer Design/ , Pearson.
5. Malvino, £Digital Computer Electronics/ .

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	COMMUNICATION SKILLS	HS-101	Min £D/	Min £D/	5.0

COMMUNICATION SKILLS

UNIT-I

Communication: Meaning and Process of Communication, Importance of Effective Communication, Communication Situation, Barriers to Communication, Objectives of Communication, Types of Communication, Principles of Communication, Essentials of Effective Communication.

UNIT-II

Media of Communication: Written , Oral, Face-to-Face , Visual, Audio-Visual, Merits and Demerits of Written and Oral Communication.

UNIT-III

Developing Communication Skills: Listening, Speaking, Reading-Writing (Oral and Written), Body Language, Utility Aids of Communication.

UNIT-IV

Spoken Skills: Preparing for Oral Presentation, Conducting Presentations, Debates, Seminars, Speeches, Lectures, Interviews, Telephonic Conversation, Negotiations, Group Discussions.

UNIT-V

Written Skills: Preparing of Bio-data, Seminar, Paper, Bibliography and Official Correspondence, Mechanics of Writing, Formal & Informal Writings, Letters, Paragraphing, Precise, Report Writing, Technical Reports, Length of Written Reports, Organizing Reports, Writing Technical Reports, Creative Writing, Common Errors in Language.

References :

1. **Rajendra Pal and J.S. Korlahalli £Essentials of Business Communication/, Sultan Chand and Sons Publishers, New Delhi.**
2. **U.S. Rai and S.M. Rai £Business Communications/, Himalaya Publishing House.**
3. **Menzal and D.H. Jones £Writing a Technical Paper/, Mc Graw Hill, 1961.**
4. **Strategy and Skill £Business Communication/, Prentice Hall New Jersey,1987**
5. **Scot Ober £C ontemporary Business Communication/, Wiley India.**

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE LAB	CA-104L	Min £D/	Min £D/	5.0

MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE LAB

1. **Write a Program to find the Union and Intersection of given ¡n¢ sets , 2≤n≤10.**
2. **Write a Program to find out Perfect number ¡n¢, 1≤n≤1000.**
3. **Write a Program to find the Range of a given function in given domain.**
4. **Write a Program to find the characteristic function of any Subset s of Universal set U.**
5. **Write a Program to find the distance function satisfies the Commutative Property and Triangular Inequality.**
6. **Write a Program to find the distance function satisfies the Associative Property and Triangular Inequality.**
7. **Let A and B are two non-empty set. Then Write a Program to find a relation R={(a,b)/a is a factor of b}, where a belongs to A, b belongs to B.**
8. **Write a Program to determine value of n for f(n)= n^2-n+41, which is Prime, where 0≤n≤41.**
9. **Write a Program to find the triangular numbers ≤ 1000 that are Primes.**
10. **Write a Program to find the Adjacency matrix of a Graph G with n vertices and edges {i,j}, 1≤i, j≤n, 1≤n≤10.**
11. **Write a Program to find the degree of each vertex in a graph G with n vertices and edges {i,j}, 1≤i, j≤n, 1≤n≤10.**
12. **In a Party there are ¡n¢ guests each of ¡n¢ guests shakes hands with everybody else exactly once. Write a Program to find the number of handshakes made.**
13. **If e denote the number of edges of a graph G with n vertices v1,v2– vn. Write a Program to find the sum of degree of all the vi.**
14. **Write a Program to find the path of Shortest length between two vertices v0 and vn.**
15. **Write a Program to read in the adjacency matrix of a simple graph and determine if it is r-reguler.**
16. **Write a Program to find the height of a rooted tree with n vertices, 1≤n≤20.**
17. **There are n entraints in a single tennis tournament. The winner of each round is advanced to next round. Write a Program to find the number of matches and the number of rounds played to determine the Champion.**
18. **Write a Program to draw a Hasse diagram D(n){set of all positive divisors of n} where n=6,16,24,30,32,60–**
19. **Let G={0,1,2– – n-1} be a group under the Binary operation addition modules n. Write a Program to find the order of elements of group.**
20. **In a city A% of the resident can speak German and B% can speak French and C% cannot speak any of these two languages. Write a Program to find what percentage of residents can speak both the lanuguages.**
21. **Let A={1,2– .n}, n is positive integer ≤ 20. Write a Program to read in the elements of a relation R on A. Print its adjacency matrix MR to enumerate the elements in the relation.**
22. **Read in the adjacency matrices of two relations of A. Print the adjacency matrices of their Union, Intersection, Complements and Inverse.**

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	PROGRAMMING LAB IN C	CA-105L	Min £D/	Min £D/	5.0

PROGRAMMING LAB IN C

1. **Write a program to find the Factorial of a given number.**
2. **Write a program to Reverse a String.**
3. **Write a program to find whether the given number is Prime or not.**
4. **Write a program to find the given String is Pallindrome or not.**
5. **Write a program to find the given number is Pallindrome or not .**
6. **Write a program to generate the Fabonnacci Series.**
7. **Write a program find the given number is Armstrong.**
8. **Write a program to generate Marksheet.**
9. **Write a program to build Calculater.**
10. **Write a program to simulate the Power Function.**
11. **Write a program to find the Roots of Quadratic Equation.**
12. **Write a program to find out the Multiplication of two Matrics.**
13. **Write a program to find out the Addition of two Matrics.**
14. **Write a program to find the Greatest number among the three by using user define function.**
15. **Write a program to swap two values using Pointers and Function.**
16. **Write a program to find out addition of two Complex number using Structure and Function.**
17. **Write a program to determine whether a number is Odd or Even.**
18. **Define a function Insert_list which can insert a given element at the required position use this function from main to insert a given element at the desired position.**
19. **Write a program to sort n-number using Bubble Sort.**
20. **Write a program to sort n-number using Selection Sort.**
21. **Write a program to sort n-number using Insertion Sort.**
22. **Write a program to find the number by using Binary Search.**
23. **Write a program to find the number by using Sequential Search.**
24. **Write a program to merge two files into third file.**
25. **Write a program to create a text file, copy the entire text file into the second text file and display the second text file.**

COURSE CONTENT & GRADE (w.e.f. July 2010)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
	COMPUTER ARCHITECTURE & ASSEMBLY LANGUAGE PROGRAMMING LAB	CA-106L	Min £D/	Min £D/	5.0

COMPUTER ARCHITECTURE & ASSEMBLY LANGUAGE PROGRAMMING LAB

1. **Write a program to display alphabets A to Z .**
2. **Write a program to print a message.**
3. **Write a program to find largest of three numbers.**
4. **Write a program to find square of a number.**
5. **Write a program to find sum of first n numbers.**
6. **Write a program to print a string given by user.**
7. **Write a program to read a string and print.**
8. **Write a program to read a string and print its reverse.**
9. **Write a program to find sum of 2 integers.**
10. **Write a program for Subtraction of 2 numbers.**
11. **Write a program for Multiplication of 2 numbers.**
12. **Write a program to find factorial of given numbers.**
13. **Write a program to convert decimal number to binary equivalent.**
14. **Write a program to convert binay number to decimal equivalent.**
15. **Write a program to decide whether a string is palindrome or not.**
16. **Write a program for swapping 2 numbers .**
17. **Write a program to search an element in an array.**
18. **Write a program to check whether a number is prime or not.**
19. **Write a program to display ascii character for given character.**
20. **Write a program that reads 2 lines of data from the keyboard using DOS INT 21H function number 0AH .**