REVISED STRUCTURE & SYLLABUS OF MCA (wef 2008-2009)

FYMCA PART – I

Code of the subject	Name of the subject	L	T	P	TH	TW	P/O	TOTAL
1SMCAR1	Digital Electronics and Microprocessor	4		2	100	50		150
1SMCAR2	Computer Organization	4			100			100
1SMCAR3	Computer Oriented Numerical & Statistical Methods	4			100			100
1SMCAR4	Behavioral & Organizational Science	4			100			100
1SMCAR5	Discrete Mathematical Structure	4			100			100
1SMCAR6	Programming Laboratory-I		2	4		50	50	100
1SMCAR7	Professional Communication Skills		2	2		50		50
		20	4	8	500	150	50	700
		Total Load: 32			**Total Marks: 700**			

FYMCA PART – II

Code of the subject	Name of the subject	L	T	P	TH	TW	P/O	TOTAL
2SMCAR1	Data Structure	4		2	100	25	50	175
2SMCAR2	Software Engineering	4			100			100
2SMCAR3	Computer Oriented Operation Research	4			100			100
2SMCAR4	System Programming	4			100			100
2SMCAR5	Data Communication	4			100			100
2SMCAR6	Programming Laboratory-II		2	4		50	50	100
2SMCAR7	Web Programming Laboratory		2	2		25		25
		20	4	8	500	100	100	700
		Total Load: 32			**Total Marks: 700**			

Note:

1. The term work as prescribed in the syllabus is to be periodically and jointly assessed by a team of teachers from the concerned department.
2. In case of tutorials, students of different batches be assigned problems of different types and be guided for the solution of the problem during tutorial session. Problems thus solved be translated into computer programs wherever applicable and executed by respective batches during practical session.
3. The assignments of tutorials and practicals need to be submitted in the form of soft copy and / or written journal.

First Year Master of Computer Applications (Part-I)
(w.e.f. 2008-09)

1SMCAR1 - DIGITAL ELECTRONICS AND MICROPROCESSOR

Lectures: 4 Hours Per Week Total Lectures: 40 Theory: 100 Marks
Practical: 2 Hours Per Week Term Work: 50 Marks

Section – I

1. Fundamental Concepts:- Introduction , Digital Signal, Basic Digital Circuits, The NAND-NOR Operations, EX-OR Operation, Boolean Algebra.
2. Number System And Codes- Introduction, Number Systems, Binary Number Systems, signed binary numbers, binary arithmetic, 2's complement arithmetic, Octal Number Systems, Hexadecimal Number Systems., Codes, Error Codes
3. Combinational Logic Design- Introduction, Standard Representation For Logic functions, K-map representation, simplification of logical function using K-map, Minimization of logical function, don't care conditions, design examples (half adder, full adder, half subtractor, full subtractor).
4. Combinational Logic Design using MSI Circuits – Multiplexer and their use in combinational logic design, Demultiplexer and their use in combinational logic design, Adders And Their Use As Subtractors, Digital Comparators, Parity Generators/Checkers, Code Convector, Parity Encoders, Decoder/Driver For Display Devices.

Section – II

5. Flip Flops: Introduction, Clocked S-R Flip Flop, J-K Flip Flop, D- Type Flip Flop, T-Type Flip Flop, Excitation Table Of Flip Flop, Clocked Flip Flop Design, Edge Triggered Flip Flop, Applications Of Flip Flop.
6. Introduction to microprocessor- introduction, Intel 8085, ALU, Timing and control unit, Registers, Data and Address bus, Pin configuration. PSW and Flags: Status flag-carry, zero, sign, parity, Auxiliary carry, Symbols and abbreviations.
7. Intel 8085 instructions- instruction word size- one byte, two byte, three byte instructions, Timing and control signals, Fetch operation, execute operation, Machine cycle and state, Instruction and data flow, System timing diagram, I/O read, Memory Write, I/O write.
8. Programming-Instruction Set, Instruction and data format, single byte instruction, two byte instruction, three byte instruction, Addressing mode-direct addressing, register addressing, register indirect addressing, Immediate addressing, Implicit addressing, 8085 instruction group-Data transfer groups- Arithmetic group, logical group, branch group, and Stack, I/O and machine group.

Term Work : Term Work will consist of minimum 08 experiments based on above syllabus and should be evaluated internally.

Text Book:

1. Modern Digital Electronics By R P Jain (for unit no 1 to 5)
2. Microprocessor systems by B.Ram (for unit no 6 to 8)

Reference Books:

1. Digital Electronics Technology By D C Green, Wheeler And Company
2. Digital Electronics circuits and systems by V.K.Puri, TMH
3. Digital Computer Fundamental By P C Bartee Inter-National Student Edition
4. Digital systems and microprocessors by Douglas Hall, TMH
5. Microprocessor Architecture, Programming and Application by Gaonkar, Wiley Eastern Publication.

Standard Scheme for setting question paper

1. There should be two sections in the question paper (50 marks each).
2. Each section consists of five questions at least one per unit as per syllabus.

1SMCAR2 - COMPUTER ORGANIZATION

Lectures: 4 Hours Per Week Total Lectures: 40 Theory: 100 Marks

Section – I

1. Basic Structure of Computers: Computer types, functional units, Basic functional concepts, Bus structures; historical prospective, machine instruction and programs, numbers, arithmetic operations and characters, memory locations and addresses, memory operations, addressing modes subroutine.
2. Processing Unit; Pentium: Register and addresses, program flow control, I/O operations, subroutines, other instructions
3. Input-Output Organization: Accessing I/O Devices, Interrupts, handling multiple devices, direct memory access, buses, interface circuit, standard I/O interfaces.

Section – II

4. Memory Systems: Semiconductor RAM/ROM memories, cache memories, Virtual memory, memory management requirement .
5. Secondary Memory: Basic Concepts in memory hierarchy, medias HDD, FDD, CD, DVD & allies, Optical Memory, their Physical Organization and working.
6. Other Peripherals: Scanners, Sound Cards and Microphone Interface, Speaker Interfaces, Modems, Their characteristics & working, Case study of Motherboards.

Text Books:

1. Computer Organization by Carl Hamacher, 5/e (Mc-Graw Hill)

Reference Books:

1. Structured computer organization, A.S. Tenenbaum, (PHI)
2. Computer Organization by W. Stallings (PHI)

Standard Scheme for setting question paper

1. There should be two sections in the question paper (50 marks each).
2. Each section consists of five questions at least one per unit as per syllabus.

1SMCAR3 - COMPUTER ORIENTED NUMERICAL & STATISTICAL METHODS

Lectures: 4 Hours Per Week Total Lectures: 40 Theory: 100 Marks

Section – I

1. Solution of transcendental polynomial equations- Bisection method, False-position method, N-R method. (Implementation of these methods using 'C' language)
2. Linear equations- Cramer's rule, Gauss elimination method, Gauss Jordon method, Gauss seidel iterative method (Implementation of these methods using 'C' language)
3. Interpolation- Lagrange's method, Newton's forward and backward formulae, sterling interpolation. (Implementation of these methods using 'C' language)
4. Numerical Integration- Trapezoidal, Simpson's Rule 1/3, Simpson's Rule 3/8, Romberg's method (Implementation of these methods using 'C' language)

Section – II

5. Ordinary differential equations: Euler's method, Taylor series method, Runge-Kutta method (Implementation of these methods using 'C' language)
6. Frequency distributions- Mathematical expectations, moment generating and cumulative functions discrete probability distribution, least square co-relation and regression method.
7. Sampling and test- Introduction, types of sampling, sampling distribution, standard error, test of significance, null hypothesis, test of significance for large samples, test for difference of proportions, test for single mean and difference of standard deviation, CHI square distribution, CHI square variate, test for population variates.
8. Data validation and information abstraction- Method of collecting data, efficiently gathering information from data, charting, deciding between alternatives, estimating cost of uncertainty, forecasting technique.

Text Books

1. Computer oriented Numerical methods by V.Rajaraman, PHI
2. Introductory methods of Numerical Analysis by S.S. Sastry, PHI

Reference Books:

1. Numerical Methods for engineers by S.C. Chapra, TMH
2. Fundamentals of mathematical statistics by S.C. Gupta, V.K Kapoor, S. Chand

Standard Scheme for setting question paper

1. There should be two sections in the question paper (50 marks each).
2. Each section consists of five questions at least one per unit as per syllabus.

1SMCAR4 - BEHAVIORAL & ORGANIZATIONAL SCIENCE

Lectures: 4 Hours Per Week Total Lectures: 40 Theory: 100 Marks

Section – I

1. Introduction to organizational behavior – The challenges facing management approach to organizational behavior, cognitive framework, behaviorist framework, social learning frame wok and organizational behavior frame work
2. The early practice of management, organizational specialist scientific managers, human relations movements, approaches to management, function of a management
3. Planning, importance of planning in an organization, type of plans, objectives, strategies, policies.
4. Organization – Organization structure, classical, neo-classical and modern theories of organization, line, staff and functional organization, authority and responsibility, centralization and decentralization, The organization as an open system, project design, the modern organization design.
5. Conflict – Source and types of conflicts in organization, conflict management

Section – II

6. Motivation- primary and secondary, motives, Maslow's theory of motivation, Herzberg's two factor theory, Adam's equality theory, Mogregpr's theory X and theory Y, Mclelland's theory, leadership- it's theories and skills, styles of managements, leadership like its system of management system
7. Job satisfaction – Majoring job satisfaction, factors influencing job satisfaction, out come of job satisfaction with respect to productivity, tern over, absenteeism, etc.
8. Job enrichment – Job rotation, MBO technique
9. Control – its significance to organizations, steps in setting of an effective control system, how to make control acceptable, Characteristics of an effective control system, Budget and budgetary control
10. Communication- Process of Communication, verbal and non verbal Communication, upward and downward Communication, its importance, barriers to Communication, ways of improving Communication, significance of an organization.

Reference Books:

1. Organizational behavior by Fred Luthans
2. Principal of management by Koont Weihrich
3. Principal of management by Terry Franklin

Standard Scheme for setting question paper

1. There should be two sections in the question paper (50 marks each).
2. Each section consists of five questions at least one per unit as per syllabus.

1SMCAR5 - DISCRETE MATHEMATICAL STRUCTURES

Lectures: 4 Hours Per Week Total Lectures: 40 Theory: 100 Marks

Section – I

1. Graph Theory - Basic Graph terminologies and basic theories, Types of graphs, Operations on graph, Re-presentation of graph, Adjacency and Incidence Matrix,
2. Eulerian Graphs- Fleury's algorithm, Hamilton graph, Gray code, Bipartite graph, weighted graph, traveling salesman problem Trees, properties of tree, Spanning tree, Rooted tree, Binary tree, tree traversal and polish notations.
3. Lattice Theory: Relations, Binary relations, equivalence relations, equivalence classes, partition of a set, partials order relation, poset, hasse diagram, properties of lattice, complemented lattice, distributed lattice, bounded lattice.
4. Boolean algebra - Definition of Boolean algebra, properties of Boolean algebra, atoms of Boolean algebra, Boolean functions and expressions, application of Boolean algebra to switching circuits.

Section- II

5. Theory of Automata – Definition of an automata, Description of Finite Automata, Transition Systems, Properties of transition function, Acceptability of a string by FA. Non- Deterministic Finite State Machines – Non- Deterministic Finite State Machines, The equivalence of DFA and N-DFA, Mealy and Moore machine, Minimization of Finite Automata.
6. Regular Sets and Regular Grammar – Regular Expressions, Finite Automata and Regular Expressions, Pumping Lemma for Regular sets, Application of Pumping Lemma, Closure properties of regular sets, Regular sets and regular grammar.
7. Context free languages: Context free language and derivation tree, ambiguity in CFG, specification of CFG, normal forms for CFG.
8. Pushdown automata- basic definitions, acceptance by PDA, PDA and CFG, parsing and push PDA, Introduction to Turing machine, model, representation, language acceptability and design.

Text Book:

1. Discrete Mathematics by Lipschutz, MGH (for unit 1 to 4)
2. Theory of Computer Science by K. L. P. Mishra, PHI(for Unit 5 to 8)

Reference Books:

1. Discrete Mathematical Structure by Tremblay and Manohar
2. Graph Theory by Narsing Deo
3. Discrete Mathematical Structure by Rosen
4. Introduction to computer theory by Danniel I.A. Cohen, John Wiley and sons
5. Introduction to languages and Theory of computation by John C. Martin, TMH

Standard Scheme for setting question paper

1. There should be two sections in the question paper (50 marks each).
2. Each section consists of five questions at least one per unit as per syllabus.

1SMCAR6 - PROGRAMMING LABORATORY – I

Tutorials: 2 Hours Per Week
Practicals : 4 Hours per Week

Term Work: 50 Marks
Practical-Oral Exam: 50 Marks

1. Introduction - Programming language concepts, Algorithm flow chart, program, Machine language, Assembly language, High-level language
2. Fundamentals of C Language - Constants, Variables, Data Types, Storage classes, Operators, Operator Precedence, Preprocessor, Expressions, IO statements.
3. Control Statements – Go to, If, Blocked If, Iterative Loops (For, While, Do-While), Case statements, nesting of control statements
4. Arrays and Strings - Single and two dimensional arrays (matrix manipulation), Strings, Operation on strings (with and without library functions)
5. Functions – Library Functions and user defined functions, recursion, parameter passing techniques
6. Structures & Unions - Declaring a structure and accessing structure elements, use of structures, array of structures, declaring a union and accessing union elements, use of unions, and array of union.
7. Pointers – Declaration of pointers, use of pointers, pointers to functions and arrays,Pointers Basics: Pointer concept, Pointer Variable, Declaring & Using Pointer, Pointer arithmetic, Arrays concepts, Pointer to arrays, Array of Pointer, Pointer and function.
8. File handling – File type, opening and closing of files, functions related to files.

Text Book-

1. **C The Complete Reference, 4th Edition** by Herbert Schildt

Reference Books –

1. Programming in ANSI C by Kerningham & D. Richie
2. Let us C by Y. Kanetkar BPB publication
3. Programming in C by Gottfried, Schaum Series, TMH

Term work: Term Work and Practicals should consist of minimum 14 experiments. The experiments should be performed using ‘C’ language (based on the above syllabus)

1SMCAR7 - PROFESSIONAL COMMUNICATION SKILLS

Tutorials: 2 Hours Per Week Term Work: 50 Marks
Practicals : 2 Hours per Week

Section I

1. Communication:- Nature and Importance of Communication, Process and barriers to Communication, Forms of Communication
2. Techniques of Communication :- Verbal Communication Techniques of Formal Speech, Meetings, Interviews, Group Discussion, Debate, Elocution, Extempore etc. Nonverbal Communication – Body Language.
3. Rapid review of Grammar:- Corrections of common errors, Use of phrases and idioms.
4. Precise writing:- Importance and Techniques of precise writing.

Section II

5. Techniques of Professional Correspondence: - Importance of professional correspondence,
   Techniques of professional correspondence.
6. Types of professional correspondence: - Application Letter, Enquiries and replies, order, complaint and their reply, invitation letters and its reply.
7. Report writing :- Importance and Techniques of report writing, Investigation Reports (Losses, Strikes, Declines) Survey Reports (Examining feasibility of proposals), Inspection Reports (of departments, branches, factory etc.)
8. Paragraph writing: Techniques of paragraph writing.

Term work : Term work should be based on the following:

1. A letter each on different types of professional correspondence should be practiced.
2. Report writing – At least one report on each types should be practiced.
3. Technical paragraph writing – At least four topics should be written out of following;
   a. Nanotechnology b. Deforestation
   c. Metro Train d. Modern Civilization
   e. Green House Effect f. Waste Water Management
   g. Search Engines h. Hydropower
   i. Mobile Mania j. Energy Conservation
4. Presentation techniques.
5. Formal speech on following topics: About myself, The problems I face while communicating, current affairs
6. Group Discussion on current topics.
7. Vocabulary exercise – Synonyms, Antonyms, Phrases and Idioms.
8. Language Lab. Sessions on phonetics and grammar.
9. Precise writing exercises – Exercises of summarizing English Articles and News.
   Games on team building, communication and public speaking.
10. A letter each on different types of professional correspondence should be practiced.

11. Report writing – At least one report on each types should be practiced.

References :

1. R. K. Chaddha, Communication Techniques and skills – Dhanpat Rai Publication, New Delhi.
2. Pravil S. R. Bhatia, Professional Communication Skills S. Chand and Co., New Delhi.
3. J. D. O'Connor, Better English pronounciation.
4. Wren and Martin, Highschool English Grammar and Composition – Chand and Co., New Delhi.
5. Sunita Mishra, C. Muralikrishna, Communication Skills for Engineers – Pearson Education.
6. Aspi Doctor, Principles and Practice of Business Communication Rhoda Doctor, Sheth Publications, Mumbai.

2SMCAR1 - DATA STRUCTURES

Lectures: 4 Hours Per Week	Total Lectures: 40	Theory: 100 Marks
Practical: 2 Hours Per Week		Term Work: 25 Marks
		POE: 50 Marks

Section – I

1. Basic Concepts – Data, Data representation, Data Types, Notations of Data Structure, Linear, Non-linear Types data structure operations, Array, Records, Pointers.
2. Linked Lists –Representation in memory, traversing a singly linked list, searching a linked list, insertion into and deletion from a linked list, header linked list, doubly linked list.
3. Stacks and Queues – Definitions, array representation of stacks, arithmetic expression: polish notation, application of stack (quick sort, recursion, tower of Hanoi), queues, De-queues, priority queues.
4. Trees –Binary trees, representing binary trees in memories, traversing binary trees, binary search trees, searching and inserting in binary trees, deleting in a binary search tree, Heap, Heap sort, path lengths, Huffman's algorithm, general trees.

Section – II

5. Graphs – Graph theory terminology, sequential representation of graphs, adjacency matrix, path matrix, Warshall's algorithm for shortest path, Link representation of graphs, operation on graphs, traversing a graph.
6. Searching and sorting – sorting - insertion, selection, merge, radix sort, searching and data modification.
7. Indexing and Hashing – Basic concepts, indexing, B-tree index file, static and dynamic hash function.
8. File structure – physical storage media, records, files, sequential and random access files, index sequential files, data dictionary, buffer management, inverted list and multi-lists.

Term work:

It should consist minimum 08 programs based on above syllabus in 'C'

Text Books:

1. Data structure by Lipschutz, MGH

Reference Books:

1. Data and file structure by A. Tanenbaum by PHI
2. Data structure using C by Tremblay
3. Database system concepts by H.P.Korth

Standard Scheme for setting question paper

1. There should be two sections in the question paper (50 marks each).
2. Each section consists of five questions at least one per unit as per syllabus.

2SMCAR2 - SOFTWARE ENGINEERING

Lectures: 4 Hours Per Week Total Lectures: 40 Theory: 100 Marks

Section – I

1. Introduction to software engineering- Characteristics, Applications, crisis, problem and causes, software engineering paradigms, definitions, classic life cycles, models: prototyping, spiral, Linear sequential, RAD models, fourth generation techniques.
2. Analysis concepts and principles: Communication techniques, analysis principals, software prototyping specifications, specification review.
3. Analysis modeling: The elements of analysis model, data modeling, functional modeling and information flow. Behavioral modeling, mechanics of structured analysis, data dictionary.
4. Design concepts and Principles: Software design and engineering, design process, design principles, design concepts, effective modular design, design heuristics, design model.

Section – II

5. Design methods: data design, architectural design, architectural design process, transform mapping, transaction mapping, design post processing, architectural design optimization, interface design, procedure design.
6. Software testing: testing fundamentals, test case design, white box testing, basis path testing, control structure testing, black box testing.
7. Strategic approach to testing: unit testing, integration testing, validation testing, system testing, debugging.
8. Software maintenance- definition, maintenance characteristic, maintainability,

maintenance task, maintenance side effects, reverse engineering and re-engineering.

Text Books:

1. Software engineering – a practitioner's approach by Roger S. Pressman, MGH

Reference Books:

1. Software engineering by Shoomar, PHI
2. System analysis and design by Award, TMH

Standard Scheme for setting question paper

1. There should be two sections in the question paper (50 marks each).
2. Each section consists of five questions at least one per unit as per syllabus.

2SMCAR3 - COMPUTER ORIENTED OPERATION RESEARCH

Lectures: 4 Hours Per Week Total Lectures: 40 Theory: 100 Marks

Section – I

1. Introduction- Classification of problems, Mathematical modeling in OR, Dynamic programming, Investment problem, DP solution of general allocation problem, Stage coach problem, Production Scheduling, Equipment replacement.

2. Linear Programming- Formulation of LP models, Simplex methods, properties of simplex method, transportation problem, assignment problems.

1. Integer Programming- Introduction to integer programming, implicit enumeration and cutting plane technique, Introduction to branch & bound techniques.

2. Deterministic Inventory models -Introduction to deterministic inventory models, infinite delivery rate with no back ordering, Finite delivery rate with one back ordering, Infinite & Finite delivery rate with back ordering, Introduction to Sequencing problems, Two-machine, N-job three machine Sequencing Problem.

Section – II

3. Introduction to game theory – Minmax, Maximum pure strategies, Mixed strategies and excepted pay offs, Solution of 2 X 2 games, relevant row and columns, Dominance solution of 2 X N and M X 2 games, Browns algorithm.

4. Introduction to PERT – PERT network, ET, TE, TL, SE, critical path, Probability of

completing events on schedule.

5. Introduction to queuing theory – queuing model with poison input, exponential service, Poison - input arbitrary service time, simulation of single queue, Single server queuing system, generation of random variates, simulation languages.

6. Introduction to probabilistic inventory models – Single and multi-periods model, Markov Chains, formulation of Markov chains, First passage time.

Text Book:

1. Introduction to OR, Billey E. Gillet, TMH

Reference Books:

1. LP and NW model : S K Gupta, EWF
2. Optimization theory: S .S. Rao Wiley
3. Principals of database system by J. D. Ullman, Galgotia
4. Database design by Wiederhold, McGraw Hill

2SMCAR4 - SYSTEM PROGRAMMING

Lectures: 4 Hours Per Week Total Lectures: 40 Theory: 100 Marks

Section – I

1. Assemblers – General design procedure- Design of assembler, statement of problem, data structure, format of databases, algorithm and flowchart of various passes of assembler.
2. Macro-processor – Macro-instructions, Features of a Macro facility -Macro-instruction argument, Conditional macro expansion, macro calls within macros, macro instructions defining macros, implementation.
3. Loaders – Loading schemes – Compile and go, General loader, absolute loader, subroutine linkages, Relocating loaders, Direct linking loaders, Binders, linking loaders, Overlays, Dynamic Binders, Design of an absolute loader and designing of direct linking loader.

Section -II

4. Compilers: Statement of problem, Phases of Compiler
5. Compiler: Data Structures, recursion call and return statement, storage classes, implementation, block structure, complier writing tools.
6. Softwares tools: text editors, Interpreters and program generator, debug monitors, Incremental complier, programming environments.

Text Book:

1. System Programming by J.J.Donovan, TMH (For Unit 1 to 4)

Reference Books:

1. Introduction to system software by D.M.Dhamdhere, TMH
2. System programming and operating system by D.M.Dhamdhere, PHI

Standard Scheme for setting question paper

1. There should be two sections in the question paper (50 marks each).
2. Each section consists of five questions at least one per unit as per syllabus.

2SMCAR5 – DATA COMMUNICATION

Lectures: 4 Hours Per Week Total Lectures: 40 Theory: 100 Marks

Section-I

1. Data Communication concepts: Data Communication and networking overview, communication model, data communications, networking, protocol architecture, need of architecture, simple architecture, OSI, TCP/IP protocol architecture.
2. Data transmission: concept and terminology, analog and digital transmission, transmission impairments, channel capacity.
3. Guided and wireless transmission: Guided transmission media, wireless transmission , wireless propagation, line of sight transmission.
4. Signal Encoding techniques: Digital data signal, digital analog signal, analog digital signal, analog data analog signal.

Section-II

5. Digital Data Communication techniques: Asynchronous and synchronous transmission, types of errors, error detection, error correction, line configuration, interfacing
6. Data link control: flow control, error control, HDLC.
7. Multiplexing: frequency division multiplexing, synchronous time division multiplexing, statistical time division multiplexing, asymmetric digital subscribe line, XDSL.
8. Spread spectrum: Concept of spread spectrum, frequency hoping, spread spectrum, direct sequence spread spectrum, code division multiple axis.

Text Book:

1. Data and computer communication by W stallings 7/E (Pearson Education)

Reference Books:

1. J. Fitzgerald & A Denis Business data communication & networking (5/e)(John Wiley & Sons)
2. Schweber data Communication (McGrawHill)
3. Miller digital & Data Communication (Jaico)
4. Computer Network by Tanenbaum 4/e (PHI)

Standard Scheme for setting question paper

1. There should be two sections in the question paper (50 marks each).
2. Each section consists of five questions at least one per unit as per syllabus.

2SMCAR6 - PROGRAMMING LABORATORY – II

Tutorials: 2 Hours Per Week
Practical: 4 Hours Per Week

Term Work: 50 Marks
Practical-Oral Exam: 50 Marks

1. C++ Fundamentals: Keywords, Variables, Built-in Data types, Constants, Statements, Functions, Program Control statements, looping constructs, Parameter Passing to functions.
2. Object s & Classes: Defining Class, Using a Class, Data Members, Member functions, Access Modifiers, Static member functions Volatile, In-line Member Functions, Constructors.
3. Polymorphism: Dynamic memory allocation & de-allocation, Concept of destructors, Basic concept of polymorphism, Function overloading, operator overloading.
4. Inheritance: Deriving the classes, Levels of inheritance, Visibility & Scope of members. Role of constructors in inheritance. Friend functions: concept & inheritance. Virtual Functions & inheritance.
5. Streams & Exception Handling: C++ streams, Standard stream I/O with basic data types, Manipulators, File I/O with streams concepts of exception handling. Exception as class objects. Handling common errors.

Text Books:

1. **C++: The Complete Reference, 4th Ed.** by Herbert Schildt

Reference Books

1. The C++ Programming Language by Bjarne stroutstrup(Addison – Wesley)
2. C++ Primer by Ranade & Zamir(McGraw-Hill)
3. OOP with C++ by Robert Lafore (Galgotia)
4. OOP with C++ by E. Balaguruswami PHI

Term Work: Term Work and Practicals should consist of minimum 14 experiments. The experiments should be performed using 'C++' language (based on the above syllabus).

2SMCA7 - WEB PROGRAMMING LABORATORY

Tutorials: 2 Hours Per Week
Practicals: 2 Hours Per Week

Term Work: 25 Marks

1. Overview of Internet Technology: Internet, web site, www, server, client, IP address, tcp/ip protocol
2. Detail Study of HTML: What is HTML, History, creating, installing, viewing, checking web pages, TAGS, core HTML elements
3. HTML links and addressing: What are URL's, linking in HTML, Anchor attributes, Image maps,
4. Presentation and layout: Image preliminaries, HTML image basics, maps and buttons
5. Text colors and background: Fonts colors in HTML, color attributes for bod, background images
6. Tables, layouts and frames: Table creation and layouts, frame creation and layouts
7. Multimedia: Audio, video and animation
8. Cascading style sheets: basics, creation and use
9. DHTML: Introduction to java-script and DHTML, text, tables as dynamic elements of web page, use of dynamic fonts, filters and transitions, drag-drop and data binding.
10. JavaScript: Introduction to JavaScript, Form validation, control structures, array, function and procedures.

Text Books:

1. The Complete Reference HTML and XHTML 4/e Thomas A. Powell - TMH

Reference Books:

1. HTML beginners guide – by Wendy Willard – TMH
2. HTML black book by Steven Holzner – Dream-tech press
3. Professional Javascript For Web Developers -Wrox Press
4. Sams Teach Yourself Javascript in 24 Hours

Term Work: Term Work and Practical should consist of minimum 10 experiments. The experiments should be performed based on the above syllabus with the use of tools like DREAM Viewer, Flash etc.