

SYLLABUS FOR MCA PROGRAMME

1.0 Objectives of the MCA course

The M.C.A. program prepares students to take up positions as systems analysts, systems designers, programmers, and managers in any field related to information technology. The program, therefore, aims at imparting comprehensive knowledge with equal emphasis on theory and practice. The M.C.A. students are encouraged to spend a full semester working in the industry/ in the institute giving them insight into the workings of the IT world. However, the course curriculum will have enough flexibility to enable a student to undertake advance studies in Computer Science later on.

2.0 Course Structure

The course is to be completed in 6 semesters. The first semester will comprise mostly of common subjects needed to build a base for the subjects to follow in pursuance of the objectives of the course. The 2nd to the 5th semesters will be mostly divided into core subjects and electives, which offer the student a choice to build expertise in some fields based on personal choice. The last semester will be devoted to project work testing the student's application in the fields studied so far and provide valuable experience before stepping into the professional world of Information Technology.

3.0 Course Outline Semester Wise

| | | Semester 1 | |
|--------------|--|--------------|-----------|
| Theory | | Contact Hrs. | Credit |
| Code | Subject | L-T-P | |
| PCS1001 | Programming in 'C' | 3-0-0 | 3 |
| PES2001 | Microprocessor and Assembly Language Programming | 3-1-0 | 4 |
| SCM2005 | Discrete Mathematics | 3-1-0 | 4 |
| HSS1001 | Communicative English | 2-0-0 | 2 |
| HSS1901 | Communicative Practice Laboratory - I | 0-0-2 | 1 |
| MGT3001 | Engineering Economics and Costing | 3-0-0 | 3 |
| PCS2901 | Lab-I: 'C' Programming | 0-0-6 | 4 |
| PMC2902 | Lab- II: Assembly Language Programming | 0-0-3 | 2 |
| Total | | | 23 |

| | | Semester 2 | |
|--------------|--|--------------|-----------|
| Theory | | Contact Hrs. | Credit |
| Code | Subject | L-T-P | |
| PCS1002 | Data Structures Using 'C' | 3-0-0 | 3 |
| PCS2001 | Computer System Architecture | 3-1-0 | 4 |
| PCS2002 | Object Oriented Programming using C++ | 3-0-0 | 3 |
| SCM2006 | Numerical Methods | 3-1-0 | 4 |
| HSS1002 | Business Communication in English | 2-0-0 | 2 |
| HSS1902 | Communicative Practice Laboratory - II | 0-0-2 | 1 |
| PCS2903 | Lab III : Data Structure in 'C' Laboratory | 0-0-3 | 2 |
| PMC2904 | Lab IV : OOP with C++ | 0-0-6 | 4 |
| PSV2001 | Seminar | 0-0-3 | 2 |
| Total | | | 25 |

Semester 3

| Theory | | Contact Hrs. | Credit |
|--------------|--|--------------|-----------|
| Code | Subject | L-T-P | |
| PCS 3001 | Analysis and Design of Algorithms | 3-1-0 | 4 |
| PCS 3002 | Operating System | 3-1-0 | 4 |
| MGT 3002 | Management Information System | 3-0-0 | 3 |
| PCS 3003 | Relational Database Management Systems | 3-0-0 | 3 |
| MGT 3003 | Financial and Management Accounting | 3-0-0 | 3 |
| PMC 3901 | Operating System Laboratory | 0-0-6 | 4 |
| PMC 3902 | RDBMS Laboratory | 0-0-6 | 4 |
| Total | | | 25 |

Semester 4

| Theory | | Contact Hrs. | Credit |
|--------------|----------------------------------|--------------|-----------|
| Code | Subject | L-T-P | |
| PCS 3004 | Software Engineering & OOAD | 3-1-0 | 4 |
| PCS 3006 | Programming with Java. | 3-1-0 | 4 |
| PCS 3007 | Computer Graphics | 3-1-0 | 4 |
| MGT 3004 | Human Resource Management | 3-0-0 | 3 |
| PMC 3903 | Quantitative Techniques- I | 3-0-0 | 3 |
| PMC 3904 | Computer Graphics Laboratory | 0-0-6 | 4 |
| PSV 3001 | Programming with Java Laboratory | 0-0-6 | 4 |
| SEM 3901 | Seminar | 0-0-3 | 2 |
| Total | | | 28 |

Semester 5

| Theory | | Contact Hrs. | Credit |
|--------------|--|--------------|-----------|
| Code | Subject | L-T-P | |
| PCS 5008 | Internet Technology | 3-1-0 | 4 |
| PMC 5905 | Quantitative Techniques-II | 3-1-0 | 4 |
| PCS 5009 | Computer Networks | 3-1-0 | 4 |
| PCS 5010 | Enterprise Web-based Computing with Java | 3-1-0 | 4 |
| | Elective I (<i>Any one</i>) | 3-1-0 | 4 |
| PEE 5001 | Computer Security | | |
| PEE 5002 | Image Processing | | |
| PEE 5003 | Artificial Intelligence | | |
| PEE 5004 | Parallel Computing | | |
| PSV 3905 | Enterprise Web based computing with Java | 0-0-6 | 4 |
| PMC 3906 | Network Programming using Socket (C / Java) | 0-0-6 | 4 |
| CVV 3901 | Comprehensive Viva-Voce (after 5 th Semester) | | 2 |
| Total | | | 30 |

Semester 6

| Theory | | Contact Hrs. | Credit |
|----------|-----------------------------|--------------|--------|
| Code | Subject | L-T-P | |
| PRJ 6001 | Project work (for 16 weeks) | | 20 |

(To be carried out in an industry. There will be one assessment of the project conducted jointly by the supervisor from the industry and the supervisor from the college for four credits. Final evaluation for 16 credits will be done as per section 4.9 of the regulation)

Semester 1

PCS 1001 PROGRAMMING IN 'C'

Module 1: Introduction to computers (4 hrs)

Evolution of computers, processor families - Intel, Motorola, AMD series, basic concepts of computer organisations, CPU, memory, RAM, ROM, EPROM, I/O units such as hard disk, floppy disk, CD ROM/Writer, scanner, printers, keyboards, power supplies etc.

Module 2: Number Representation in computers (4 hrs)

Binary Representation of numbers, integers, floating point numbers, negative number representation, Arithmetic operations, addition, subtraction, multiplication, division, overflow and underflow exceptions.

Module 3 : Introduction to programming and programming languages (4 hrs)

Evolution of programming languages, flow charts, structured programming, the compilation process, object code, source code, executable code, operating systems, interpreters, linkers, loaders etc.

Module 4: C Language Fundamentals (4 hours)

Character set, Identifiers, Keywords, Data Types, Constant and Variables, Statements, Expressions, Operators, Precedence of operators, Input - output Assignments, Control structures, Decision making and Branching, Decision making & looping.

Module 5 : Arrays and Strings (4 hrs)

One dimensional, Multidimensional and their applications, Declarations, Manipulation & String-handling functions

Module 6 : C Functions (6 hrs)

Monolithic vs Modular programs, User defined vs standard functions, formal vs Actual arguments, Functions category, function prototypes, parameter passing, Recursion, Storage Classes : Auto, Extern, Global, Static.

Module 7 : Pointers (6 hrs)

Pointer variable and its importance, Pointer Arithmetic, passing parameters by reference

Module 8 : Structures, Union and File handling (8 hrs)

Declaration of structures, pointer to pointer, pointer to structure, pointer to function, unions, dynamic memory allocations, unions, file management

Books :

1. E. Balaguruswamy "Programming in C", Tata McGraw Hill
2. H. Schildt, "C The Complete Reference", Tata McGraw Hill
3. Y. Kanetkar, "Let us C", BPB Publications.

PES 2001 MICROPROCESSOR AND ASSEMBLY LANGUAGE PROGRAMMING

Module - 1 (10 hrs)

Microprocessors: Their emergence from 8-bit, Introduction to the basic features of RISC and CISC processors, Microcontrollers. Their areas of use Introduction to 8085 Microprocessor: Architecture, Bus organization, registers, ALU, Control section, Basic Fetch and Execute cycle of a program, Timing diagrams, Instruction set of 8085, Instruction format, Types of instructions, Addressing modes.

Memory Interfacing: Logic devices for interfacing: Tri-state devices, Buffers, Bi-directional buffers, Decoders, Encoders and Latches. R/W and ROM models, Memory map addresses, Memory address range of a 1K memory chip, Memory address lines, memory word size, Memory and instruction fetch, Memory classification. Memory structure and its requirements, Basic concepts in memory interfacing, Address decoding and memory addresses, Interfacing the 8155 memory segment, Absolute vs. partial decoding and multiple address ranges.

Module - 2 (10 hrs)

Assembly Language Programming: Instruction and data format, How to write, Assemble and execute a simple program, Writing assembly language programs, Debugging a program, Programming techniques such as looping, counting and indexing, Additional data transfer and 16-bit arithmetic instructions, Arithmetic operations related to memory, Logic operations such as rotate and compare, Dynamic debugging, Counters and delays, Stacks and subroutines, Advanced subroutine concepts.

Module - 3 (10 hrs)

Data Transfer Techniques: Programmed data transfer, Parallel data transfer using 8155, Programmable peripheral interface (8255) and handshake input/output, Asynchronous and synchronous data transfer using 8251A, Programmable interrupt controller 8259A, DMA transfer, Cycle stealing and burst mode of DMA, 8257-DMA controller.

Various Interfacing Protocols: Polling Interrupts of various types (software, hardware, vectored), Interrupt service routines, CALL vs. hardware & software interrupts, Preliminary concepts of Exceptions/ Traps, DMA and its use.

Module - 4 (10 hrs)

Analog Digital Interfacing: A/D/ & D/A converters, Analog Signal Conditioning circuits, Data Acquisition Systems.

Some Standard Interfaces: Data communication buses such as IEEE 488 and CAMAC standard, Serial data communication Standards such as 20-mA current loop and RS-232C, Network communication protocol such as SDLC.

Books :

1. Ramesh S. Gaonkar, "Microprocessor Architecture, Programming and Applications with the 8085", Fourth Edition, Penram International Publishing (India).
2. F. Cady "Microcontrollers and Microcomputers: Principles of hardware and software", OXFORD Press.

SCM 2005 DISCRETE MATHEMETICS

Module 1 (16 hrs)

Sets, Relation, Proposition, Functions (16 hours)

Sets, combination of sets, finite and infinite sets, uncountable sets, relation, properties of relations, composition of relations, closure operation on relations, equivalence relations and partitions, partial ordering relation, lattices, function as a relation, injection, surjection, bijection, composition of function, inverse of function, cardinality, characteristic functions, proposition and logical operations, methods of proof, mathematical induction.

Module 2 (12 hours)

Graph theory

Directed and undirected graphs, basic terminology, paths and circuits, shortest paths in weighted graphs, eulerian paths and circuits, Hamiltonian paths and circuits, Trees; definition and properties, rooted trees, binary trees, spanning trees, cut sets, minimal spanning trees.

Module 3 (6 hours)

Algebraic structures and application

Binary operation, semigroups, groups, subgroups, cosets, Lagrange's theorem, codes, group codes.

Module 4 (6 hours)

Basic properties of lattices, distributive and complemented lattices, Boolean algebra, finite Boolean algebra, atomic structure, disjunctive and conjunctive normal forms.

Text Book:

C. L. Liu, "Elements of Discrete Mathematics", Mc Graw Hill International Student Edition.

Alan Doerr, Kenneth Levasseur, "Applied discrete structure for Computer Science", Galgotia Publication Private Limited

Reference Books:

1. Bernardl Kolman, Robert C. Busby, Sharon Ross, "Discrete Mathematical Structures" Prentice Hall of India.
2. N.Ch. S.N. Iyengar, Chankrasekaran, Venkatesh, Arunachalam, "Discrete Mathematics", Vikas Publication.

HSS 1001 COMMUNICATIVE ENGLISH

Rationale / Objectives

This is a practice-oriented, need-based, functional-communicative course. It seeks to develop the student's skills of communication in listening, speaking and writing. Reading, though formally not included, is still a recommended activity. The student is advised to cultivate the habit of reading newspapers, magazines and books in a free, extensive manner to consolidate the skills already achieved. A more interactive process of teaching/learning is called for in order to achieve the skills of effective communication.

Specific Objectives

The course attempts to

- a) Familiarize the student with the sounds of English in a nutshell, particularly long and short vowels, some consonants, stress and intonation.
- b) Provide adequate listening and speaking practice so that the learner can speak with ease, fluency and reasonable clarity in common everyday situations and on formal occasions.
- c) Use grammar in meaningful contexts.
- d) Things with words, i.e to perform functions like ordering, requesting, inviting and so on

Module - 1 Communication (6 hours)

- 1.1 Verbal and non-verbal spoken and written
- 1.2 Language functions-descriptive, expressive and social
- 1.2 To inform, enquire, attract, influence, regulate and entertain
- 1.3 Bias-free and plain English
- 1.4 Formal and informal style

Module - 2 Communicative Grammar (9 hours)

- 2.1 Time, tense and aspect
- 2.2 Verbs of states and events
- 2.3 Statements, questions and responses
- 2.4 Omission of information
- 2.5 Expressing emotion and attitude: hope, pleasure, disappointment, regret, approval, surprise.

Module - 3 The Sounds of English (9 hours)

- 1.1 Length of vowels-Long vowels / l:, a:,),,U:, 3: / as in feel, card, court, food and first respectively.
- 1.2 Short vowels / e, x, n / as in pen, bag, and sun respectively
- 1.3 Consonants / f, v, Q, x, s, z, ————— / as in fine, vast, thought, them, sosng, zoo, shame, pleasure and judge respectively.
- 1.4 Stress pattern
- 1.5 Intonation-Rising and falling
- 1.6 Friendly communication- greetings, farewells, introductions, thanks, apologies, regrets, good wishes, congratulations, condolences, offers.

Module - 4 Doing things with words (6 hours)

- 1.1 To ask for information, help, permission
- 1.2 To instruct, command, request, accept, refuse, prohibit, persuade, promise.

Books prescribed

1. Geoffrey Leech and Jan Svartvik, Longman, A communicative Grammar of English,
2. J.D. O'connor, Better English Pronunciation, Cambridge University Press.
3. J.K. Chand and B.C.Das, A Millennium Guide to writing and Speaking English, Friends' Publishers
4. John Sealy, Oxford Guide to Writing and Speaking, OUP.

HSS1901 COMMUNICATIVE ENGLISH LABORATORY - I

Some tasks

1. Make a list of nonverbal communication
2. How is body language casually conditioned?
3. Take passages of descriptive, expressive and social functions and analyse them.
4. Expressive (exposing feelings) language in English and your mother-tongue
5. Make a list of sexist language (e.g. poetess, chairman)
6. Mentally retarded should be replaced by mentally challenged. Make a list of similar expressions
7. Say formulaic expressions (Thank you, sorry, hello, that's right) with proper Intonation.
8. Make a list of words which should be avoided because they sound pompous. Which words would you use instead of them.
9. How to express pleasure, regret, approval ?
10. Time and tense are not the same. Give some examples.
11. Take similar vowels and consonants and practice them in pairs of words
12. Practice, stress and intonation in connected speech.
13. Conversation practice in familiar situations (Play the role of a tailor and a customer, for example)
14. Ask for specific information (can you tell me where the railway station is ?)
15. Making a request (can I borrow your scooter, please ?)
16. Asking for permission (Do you mind if I smoke ?)
17. Say the following pairs of words
 - a) Beg, bag, full, fool, sit, seat, same, shame, judge, jazz, major, measure.
 - b) Progress as noun verb, similarly, object, record, supplement, perfect (adj), perfect (v.)
 - c) Say the following words with correct stress. teacher college, village, building, ago, above, apart, accuse, advice, education, examination, individual (The list is only illustrative and not exhaustive).

MGT 3001 ENGINEERING ECONOMICS AND COSTING

Module – I (8 hrs.)

Time Value of money, Interest formulae, Time Value equivalence, Present worth, Future worth and Annual worth methods. Comparison of assets with equal, unequal and infinite lives. Internal Rate of Return.

Module – II (7 hrs)

Maintenance and Replacement decisions, Determination of economic life of assets, Concept of challenger and defender. Methods of depreciation of assets, Straight line and Declining balance method. Evaluation of Public Projects, Cost Benefit analysis.

Module – III (7 hrs.)

Cost concepts and classification, Preparation of Cost Sheet, Process Costing, Joint product and By-product Costing, Marginal Cost, Limitation of Marginal Costing.

Module – IV (8 hrs.)

Methods of segregation of cost into fixed and variable cost, Break-even and cost volume-profit analysis, Standard costing, Variance analysis, Reasons for variances, Relevant costs and revenue, Outsourcing decision.

Text Books

1. Riggs., J.L. et al, Engineering Economics, McGrawHill, International Edition
2. Dutta, Manasha, Cost Accounting Principles & Practice Pearson

Reference

1. Park, Chan. S, Contemporary Engineering Economics, PHI
2. Sullivan W.G. et al., Engineering Economics Pearson
3. Panneerselvam, Engineering Economics PHI
4. Bhattacharya A.K. Principles and Practice of Cost Accounting PHI
5. Nigam & Jain Cost Accounting, PHI
6. Jain & Narang, Advanced Cost Accounting, Kalyani

LAB I : 'C' PROGRAMMING (72 hrs)

Introduction to OS : Linux/Unix, DOS, Windows, vi editor, Shell Programming (on Unix), file handling, directory structures, file permissions, creating and editing simple C programme, compilation and execution
C programming on variables and expression assignment, simple arithmetic
Loops, If-else, Case statements, break, continue, goto
Single & Multidimensional arrays
Functions, recursion, file handling in C
Pointers, address operator, declaring pointers and operators on pointers
Address of an array, structures, pointer to structure, dynamic memory allocation

PMC 2902 Laboratory - II : Assembly Language Programming (36 hrs)

1. Verification of 8085 Instruction Set.
2. Addition, Subtraction, Multiplication & Division of two 8-bit numbers
3. Development of code conversion programs:
 - a) Binary to Gray
 - d) Gray to Binary
 - c) ASCII to Binary
 - d) Binary to ASCII
4. Identification of the ports and pins of I/O ports of Intel 8255.
5. Generation of Square, Triangular and Sinusoidal waveforms using DAC.
6. Study of Interrupt RST 7.5.
7. Stepper Motor control using 8085 Microprocessor.

Semester 2

PCS 1002 DATA STRUCTURE USING 'C'

Module 1 (8 hrs)

Development of Algorithms : Notations and Analysis. Storage structures for arrays - sparse matrices - structures and arrays of structures. Stacks and Queues: Representations and applications.

Module 2 (8 hrs)

Linked Lists : singly linked lists - Linked stacks and queues - operations on Polynomials - Linked Dictionary - Doubly Linked Lists - Circularly Linked Lists. Dynamic storage management - Garbage collection and compaction.

Module 3 (8 hrs) :

Binary Trees : Binary Search Trees - General Trees - Tree Traversing - Operations on Binary Trees - Expression Manipulations - Symbol Table construction - Height Balanced Trees.

Module 4 (16 hrs)

Graphs : Representation of Graphs - Path Matrix - BFS, DFS – Bi-connected Graphs - Topological sort - Shortest path problems. Strings - Representation - Manipulations - Pattern Matching.

Sorting Techniques : Selection, Bubble, Insertion, Merge, Heap, Quick, Radix and address calculation. Linear searching - Binary Searching . Hash Table Methods.

Text Books :

1. Data Structures in C by Tanenbaum.
2. Fundamentals of Data Structure

Reference Book : Data Structures, by Tremblay and Sorenson.

PCS 2001 COMPUTER SYSTEM ARCHITECTURE

Module 1 (8 hrs)

Basic organization of the computer and block level description of the functional units as related to the execution of a program.

Fetch, decode and execute cycle. role of operating systems and compilers (introduction only).

Module 2 (10 hrs)

Assembly language programming: instruction set, instruction cycles, registers and storage, addressing modes; discussions about RISC versus CISC architectures;

Inside a CPU: information representation, computer arithmetic and their implementation; control and data path, data path components, design of ALU and data path, controller design.

Module 3 (10 hrs)

Memory and IO access: Memory maps, Read Write operations, Programmed IO, Concept of handshaking, Polled and Interrupt driven IO, DMA data transfer.

IO subsystems: Input-Output devices such as Disk, CD-ROM, Printer etc.; Interfacing with IO devices, keyboard and display interfaces.

Module 4 (12 hrs)

Inside the Memory: memory organization, static and dynamic memory; Cache memory and Memory Hierarchy – cache memory access techniques; Virtual memory.

Introduction to Multiprogramming and Multiprocessing; Introduction to pipelined operation and architecture.

Text Books :

1. Computer System Architecture by M. Morris Mano.
2. Computer Organization and Architecture by William Stallings.

PCS 2002 OBJECT ORIENTED PROGRAMMING USING C++

Module 1 (10 hrs)

Introduction to object oriented programming, user defined types, polymorphism, and encapsulation. Getting started with C++ - syntax, data-type, variables, strings, functions, exceptions and statements, namespaces and exceptions, operators. Flow control, functions, recursion. Arrays and pointers, structures.

Module 2 (10 hrs)

Abstraction Mechanisms: Classes, private, public, constructors, destructors, member functions, static members, references etc. Class hierarchy, derived classes.

Inheritance: simple inheritance, polymorphism, object slicing, base initialization, virtual functions.

Module 3 (12 hrs)

Prototypes, linkages, operator overloading, ambiguity, friends, member operators, operator function, i/o operators etc. Memory management: new, delete, object copying, copy constructors, assignment operator, this Input/output.

Exception handling: Exceptions and derived classes, function exception declarations, Unexpected exceptions, Exceptions when handling exceptions, resource capture and release etc.

Module 4 (8 hrs)

Templates and Standard Template library: template classes, declaration, template functions, namespaces, string, iterators, hashes, iostreams and other type.

Design using C++ design and development, design and programming, role of classes.

Text Books:

1. Herbert Schildt – C++ . The Complete Reference, Tata McGraw Hill Publications
2. Balaguru Swamy- C++, Tata McGraw Hill Publications.

SCM 2006 NUMERICAL METHODS

Module 1 (8 hours)

Fixed point arithmetic, rounding error, truncation error, loss of significance and error propagation, condition and stability, computational methods for error estimation, convergence of sequences, some mathematical preliminaries.

Module 2 (16 hours)

1. Roots of $f(x)$ by bisection method, method of false position, secant method, Newton-Raphson method, fixed point iteration method.
2. Solution of $Ax = b$: Solution of simultaneous linear equations by Cramer's rule, Gauss' elimination method, Gauss-Jordan method, Gauss-Seidel method, matrix inversion by Gauss-Jordan method.
3. Curve Fitting: Least square approximation of functions by linear regression, polynomial regression.

Module 3 (10 hrs)

Numerical differentiation and integration: Differentiation formulae, integration by trapezoidal rule, Simpson's 1/3 rule and 3/8 rule,
Numerical solution of Ordinary Differential Equation:
Euler's method, modifications of Euler's method, Runge-Kutta methods of the third and fourth order, Predictor- corrector methods.

Module 4(6 hrs)

Miscellaneous topics: Determination of eigen values and eigen vectors of a matrix by iteration, Inverse of a matrix.

Text Books

1. Numerical Methods For Engineers – S.C. Chopra and R.P. Canole
2. Elementary Numerical Analysis – S.D. Conte and C. deBoor

Reference Books

1. Applied Numerical Analysis – C.F. Gerald, P.O. Wheatley
2. Numerical Methods for Scientific and Engineering Computation by M.K. Jain, S.R.K. Iyengar and R.K. Jain.

HSS 1002 BUSINESS COMMUNICATIONS IN ENGLISH

Objectives:

The objectives are to prepare the student to

- (a) Produce written communication of different forms such as paragraph, report, letter, etc.
- (b) Make notes/ Summarize from a given passage
- (c) Organise Meetings, prepare agenda, draft resolutions and write minutes.
- (d) Make presentations and face interviews.
- (e) Document sources and prepare bibliographies.
- (f) The objectives of managerial oral communication; Improving the facility of oral communication. Both Transmission and reception in six managerial situations such as.
 - (i) Information sharing (ii) Conversation (iii) Interview (iv) Committee (v) Negotiation (vii) Presentation.

Module-1 WRITING-I (7 hours)

- 1.1 Paragraph writing – topic sentence, cohesion and coherence – sentence linkers (so, but, however etc.)
- 1.2 Preparation of a business report – writing a business proposal – format, length, structure

Module-2 WRITING-II (7 hours)

- 2.1 Preparing notes – writing business letters and E-Mail messages
- 2.2 Documentation: References, notes and bibliographies.

Module-3 WRITING-III (7 hours)

- 3.1 Writing a curriculum vitae (both chronological and functional) along with an application for a job.
- 3.2 Public relations – concept and relevance – PR in a business organisation – handling the media.

Module-4 Meeting and presentation (9 hours)

- 1.1 Organising a meeting, preparing an agenda, chairing a meeting drafting resolutions, writing minutes.
- 1.2 Making an oral Presentation
- 1.3 Facing an interview

Books Prescribed

1. (John Sealy) Oxford Guide to Writing and Speaking English, OUP.
2. (Bovee et al) Business Communication Today Pearson Education.
3. (Rovi and Rai) Business Communication,
4. (J.V. Cilanilam) More Elective Communication, Sage Publications.
5. (J.K. Chand and B. C. das) A Millennium Guide to Writing and Speaking, (Friends Publishers)
6. The Chicago manual of style (Part 2 Section 15) Prentice-Hall of India.
7. (Sushil Bahl) Business communication Today, Sage Publications.

HSS1902 COMMUNICATIVE PRACTICE LABORATORY - II

Some tasks:

1. Write a paragraph with the topic sentence "Protection of environment should not be at the cost of development". Identify the supporting details and sentence connectors.
2. Make notes from a given passage.
3. Prepare a short bibliography on the list of books prescribed in this course.
4. Write a letter complaining to a firm, which supplied defective computers.
5. Write a functional CV of your own.
6. prepare an agenda of Mock meeting.
7. Imagine that you are chairing the meeting. How would you go about it ?
8. How would you propose a vote of thanks?
9. Make an oral presentation on a new product your company has brought out/ make a seminar presentations.
10. Make a checklist for preparing for an interview.
11. Hold a mock job interview.
12. Prepare the agenda for a meeting you are organizing.

(The list is only illustrative and not exhaustive).

PCS 2903 Lab III : DATA STRUCTURE IN 'C' LABORATORY

Stack : Problems of stack, evaluation of Arithmetic expressions in Infix, prefix, post fix forms.

Queue : Problems of queue, circular queues, insertion and deletion on queues.

List : Problems on single linked list, doubly linked list with list operations, circular list

Trees : Creation of Binary trees, determination of depth of binary tree, counting nodes, tree traversals, balanced tree

Graphs : Problems on graphs, Breadth First Search, Depth First Search

Heap : Problems on Heaps, Operations on heaps, Heap Sort, Priority Queues

Searching and Sorting Algorithm : Problems on Binary Search, selection sort, Quick sort, Bubble sort, merger sort.

PMC 2904 Lab IV : OOP WITH C++ LABORATORY (72hrs)

Concept of classes and objects Programs using inheritance and polymorphism Use of operator overloading, memory management etc.

Exception handling, use of templates. File handling in C++

Design problems – stock, and accounting of a small organization, Railway reservations pay roll preparation, Optimization problems.