

SEMESTER - I

MCA 111: FUNDAMENTALS OF PROGRAMMING

SCHEME FOR MASTER OF COMPUTER APPLICATIONS (M.C.A) COURSE SEM.I APPLICABLE FOR AUG.97 ONWARDS.

TEACHING SCHEME			EXAM SCHEME									
Sr. No.	Subject No.	Name of the Programming	Theory HR.	Tut. HR.	PR. HR.	SESSIONAL MARK	THEORY MARK	HR	PRACT ORAL	T.W. MARKS	TOTAL	
1.	MCA 111	FUNDAMENTALS OF PROGRAMMING	4	-	4	25	1	50	3	50	25	150

COURSE CONTENT:

INTRODUCTORY CONCEPTS:

INTRODUCTION TO COMPUTERS, COMPUTER CHARACTERISTICS, MODES OF OPERATION, TYPES OF PROGRAMMING LANGUAGES, INTRODUCTION TO CE, DESIRABLE PROGRAM, CHARACTERISTICS.

DATA REPRESENTATION:

FLOW CHARTS, ALGORITHMS

OVERVIEW OF C, CONSTANTS, VARIABLES & DATA TYPES, OPERATORS & EXPRESSION, MANAGING INPUT & OUTPUT OPERATORS. DECISION MAKING & BRANCHING, DECISION MAKING & LOOPING, ARRAYS, HANDLING OF

CHARACTER STRINGS, USER-DEFINED FUNCTIONS, STRUCTURES & UNIONS, POINTERS, FILE-MANAGEMENT IN C,
DYNAMIC MEMORY ALLOCATION & LINKED LIST, THE PREPROCESSORS.

REFERENCE BOOKS

1. PROGRAMMING IN C

BY BALAGURSWAMI (TATA MCGRAW HILL -95)

MCA 112 DISCRETE MATHEMATICS FOR COMPUTER SCIENCE (50 MARKS-3 HOURS)

SCHEME FOR MASTER OF COMPUTER APPLICATIONS (M.C.A) COURSE SEM.I APPLICABLE FOR AUG.97 ONWARD

Sr. No.	Subject No.	TEACHING SCHEME			EXAM SCHEME							
		Name of the Programming	Theory HR.	Tut. HR.	PR. HR.	SESSIONAL MARK	THEORY MARK	PRACT HR	T.W. ORAL MARKS	TOTAL		
2.	MCA 112	DISCRETE MATHEMATICS FOR COMPUTER SCIENCE	3	1	-	25	1	50	3	-	25	100

COURSE CONTENT:

1. LATTICES (20%)

RELATIONS AND ORDERING, PARTIALLY, ORDERED SETS, LATTICES AS POSETS, PROPERTIES OF LATTICES, LATTICES AS ALGEBRAIC SYSTEMS, SUBLATTICES, DIRECT PRODUCT AND HOMOMORPHISM, COMPLETE LATTICES, BOUNDS OF LATTICES, DISTRIBUTIVE LATTICE, COMPLEMENTED LATTICE.

2. BOOLEAN ALGEBRA (20%)

INTRODUCTION, DEFINITION AND IMPORTANT PROPERTIES, SUBBOOLEAN ALGEBRA, DIRECT PRODUCT AND HOMOMORPHISM, ATOMS, ANTIATOMS, STONE'S REPRESENTATION THEOREM, BOOLEAN EXPRESSIONS AND THEIR EQUIVALENCE, MINTERMS AND MAXTERMS, FREE BOOLEAN ALGEBRA, VALUES OF BOOLEAN EXPRESSIONS, CANONICAL FORMS, BOOLEAN FUNCTIONS, SYMMETRIC BOOLEAN EXPRESSIONS.

3. APPLICATIONS OF COOLEAN ALGEBRA (20%)

INTRODUCTION, SWITCHING ALGEBRA, REPRESENTATIONS OF BOOLEAN FUNCTIONS, KARNAUGH MAPS, MINIMIZATION OF BOOLEAN FUNCTIONS, QUINE MCCLOSKEY ALGORITHM, FINITE STATE MACHINES, INTRODUCTORY SEQUENTIAL CIRCUITS, EQUIVALENCE OF STATES EQUIVALENCE AND REDUCTION OF MACHINES.

4. PREDICATE CALCULUS (10%)

INTRODUCTION, OBJECTIVES, PREDICATES, STATEMENT FUNCTIONS, VARIABLE AND QUANTIFIERS, FREE AND BOUND VARIABLES, SPECIAL VALID FORMULAS INVOLVING QUANTIFIERS, THEORY OF INFERENCE FOR THE PREDICATE CALCULUS.

5. GROUP THEORY (20%)

DEFINITIONS AND EXAMPLES OF SEMI GROUPS, MONOIDS AND GROUPS, ABELIAN GROUP, CYCLIC GROUPS, SUBGROUPS, PERMUTATION GROUPS. SOSET DECOMPOSITION OF GROUPS, NORMAL SUBGROUPS, LARGANGE THEOREM, APPLICATIONS IN CODING THEORY.

6. FUZZY SETS (10%)

SOME USEFUL DEFINITIONS, BASIC OPERATIONS ON FUZZY SETS, IMAGE AND INVERSE IMAGE, \cap FUZZY SETS, SUZZY RELATIONS.

MCA 113 FUNDAMENTALS OF COMPUTER ORGANISATION (50 MARKS - 3 HOURS)

SCHEME FOR MASTER OF COMPUTER APPLICATIONS (M.C.A) COURSE SEM.I APPLICABLE FOR AUG.97 ONWARDS.

TEACHING SCHEME			EXAM SCHEME									
Sr. No.	Subject No.	Name of the Programming	Theory HR.	Tut. HR.	PR. HR.	SESSIONAL MARK	THEORY MARK	PRACT HR	T.W. ORAL	TOTAL MARKS	TOTAL	
3.	MCA 113	FUNDAMENTALS OF COMPUTER ORGANIZATION	4	-	2	25	1	50	3	50	25	150

NUMBER SYSTEMS, BOOLEAN ALGEBRA, COMBINATIONS (30%)

ARITHMETIC AND LOGIC UNIT, MEMORY DEVICES. (15%)

BUSES, INTERFACES AND CONTROL UNIT. (15%)

INSTRUCTION FORMATS, ADDRESSING MODES, INTRODUCTION TO 8-BIT, 16-BIT, 32-BIT MICROPROCESSORS. (10%)

I/O DEVICES: KEYBOARD, VDU, FLOPPY AND HARD DISKS, DIFFERENT TYPES OF PRINTERS. (15%)

STUDY OF IBM PC COMPATIBLES: (15%)

DIFFERENT TYPES OF BUSES.

FUNCTIONS OF MOTHERBOARD AND VARIOUS CONTROLLES (VIDEO, FDC, HDC, SERIAL AND PARALLEL I/O CONTROLLER)

REFERENCES :

1. DIGITAL COMPUTER FUNDAMENTALS (SIXTH EDITION)

- BY THOMAS BARTEE PUB - MCGRAWHILL

2. IBM PC AND CLONES- BY B. GOVINDRAJALU

3. THE 386/486 (SECOND EDITION)
- BY HARRY FAIRHEAD PUB-BPB

MCA 114 BUSINESS DATA PROCESSING (50 MARKS - 3 HOURS)

SCHEME FOR MASTER OF COMPUTER APPLICATIONS (M.C.A) COURSE SEM.I APPLICABLE FOR AUG.97 ONWARDS.

TEACHING SCHEME			EXAM SCHEME									
Sr. No.	Subject No.	Name of the Programming	Theory HR.	Tut. HR.	PR. HR.	SESSIONAL MARK	THEORY MARK	PRACT HR	T.W. ORAL MARKS	TOTAL		
4.	MCA 114	BUSINESS DATA PROCESSING	4		2	25	1	50	3	50	25	150

PREREQUISITES

OBJECTIVES OF THE COURSE

TO DISCUSS METHODS OF GATHERING INPUT DATA, COLLECTING THEM AND ORGANIZING THEM INTO FILES AND DATABASE.

TO ENABLE STUDENTS TO WRITE BUSINESS APPLICATION PROGRAMMES SUCH AS INVENTORY CONTROL, ACCOUNTING, PRODUCTION PLANNING AND SIMULATION IN COBOL.

COURSE CONTENT

I. INTRODUCTION TO BUSINESS ORGANIZATIONS (10%)

PRODUCTION, STOCK CONTROL, COSTING, PURCHASE CONTROL, SALES ORDER PROCESSING AND ACCOUNTING, WAGE ACCOUNTING, INFORMATION SYSTEMS NEEDS-ROLE OF MANAGEMENT SERVICES DEPARTMENT.

2. DATA CAPTURE AND VALIDATION (10%)

INPUT FORM DESIGN, PUNCHED CARDS, KEY TO DISK SYSTEMS, OPTICAL READERS, ON-LINE MAN-COMPUTER DIALOGUES.

3. SYSTEMS INVESTIGATIONS (10%)

PROJECT SELECTION, FEASIBILITY ANALYSIS, FACT GATHERING, HUMAN ASPECTS, SYSTEM DESIGN AND IMPLEMENTATION AND EVALUATION. INPUT EDITING/VALIDATION, AUDIT CONSIDERATIONS. COMPUTER WORK LOAD SCHEDULING, DOCUMENTATION AND ITS IMPORTANCE-SPECIFICATION LANGUAGES AND METHODS.

4. BUSINESS FILES - MASTER FILES - TRANSACTION FILES (20%)

FILE PROCESSING - SORTING, SEARCHING, MERGING, MATCHING, SUMMARIZING DIRECT ACCESS STORAGE AND RETRIEVAL, FILE ORGANIZATION TECHNIQUES.

5. CONCEPT OF GOOD STYLE IN DATA PROCESSING PROGRAMS DESIGN (50%)

EXAMPLES OF GOOD APPLICATION PROGRAMS IN COBOL. REPORT GENERATION IN COBOL.

COBOL - 85 STANDARD FEATURES ARE TO BE TAUGHT WITH AN INTRODUCTION TO 9% STANDARD.

LABORATORY:

THE LABORATORY SHOULD EMPHASIZE ON FILE ORGANIZATION AND FILE PROCESSING TECHNIQUES.

MCA 115 BASIC MICROCOMPUTER APPLICATIONS (MARKS 50 - 3 HOURS)

SCHEME FOR MASTER OF COMPUTER APPLICATIONS (M.C.A) COURSE SEM.I APPLICABLE FOR AUG.97 ONWARDS.

TEACHING SCHEME			EXAM SCHEME									
Sr. No.	Subject No.	Name of the Programming	Theory HR.	Tut. HR.	PR. HR.	SESSIONAL MARK	THEORY MARK	THEORY HR	PRACT ORAL	T.W. MARKS	TOTAL	
5.	MCA 115	BASIC MICROCOMPUTER APPLICATIONS	2	-	4	25	1	50	3	50	25	150

1. INSTALLATION & USE OF SINGLE USER OPERATING SYSTEMS:

NOTE. ANY TWO WIDELY USED OPERATING SYSTEMS MAY BE USED AS EXAMPLES.

HARDWARE REQUIREMENTS FOR MICROSOFT DOS & WINDOWS INSTALLATION, MS-DOS, ITS COMMANDS AND PROGRAMMING, CUSTOMIZING AND CONFIGURING WINDOWS, CONFIGURING THE TASKBAR, THE START MENU, USING THE WINDOWS INTERFACE TO CREATE, PRINT, AND STORE A FILE, USING EXPLORER, MANAGING DISK RESOURCES AND UTILITIES, MANAGE LONG AND SHORT FILENAMES, IN A MIXED ENVIRONMENT, DISK FRAGMENTER, SCAN DISK, RUNNING APPLICATIONS, INSTALLATION METHODS, ARCHITECTURE AND MEMORY, THE MEMORY USAGE OF A MS DOS BASED APPLICATION OPERATING IN WINDOWS.

2. FUNDAMENTALS OF A PC BASED DBMS SYSTEM:

USER INTERFACES, SOURCES OF HELP, COMPONENTS OF DBMS, APPLICATION DESIGN PROCESS, DEVELOPING THE DATABASE STRATEGY, DEVELOPING THE DATABASE DESIGN, DETERMINING THE QUERIES,

DETERMINING THE FORMS AND REPORTS, DETERMINING OTHER APPLICATION COMPONENTS, DESIGNING AND CREATING TABLES, USING THE TABLE WIZARDS, SETTING FIELD AND TABLE PROPERTIES, INDEXES AND THEIR USES, SETTING RELATIONSHIP BETWEEN TABLES, ADDING AND EDITING DATA, USING EXISTING DATA, BUILDING QUERIES, TYPES OF QUERIES, DESIGNING QUERIES, USING THE QUERY WIZARDS, DESIGNING SELECT QUERIES, DESIGNING ACTION QUERIES, USING THE QUERY WIZARDS, DESIGNING SELECT QUERIES, DESIGNING ACTION QUERIES, CREATING OTHER TYPES OF QUERIES, DESIGNING AND CREATING FORMS, USING FORM WIZARDS AND BUILDERS, USING EXPRESSIONS IN FORMS, CREATING SUBFORMS, CUSTOMIZING FORMS, DISPLAYING AND FILTERING INFORMATION, INCORPORATING GRAPHS AND OBJECT LINKING AND EMBEDDING (OLE), REUSING FORMS, PRINTING FORMS, CREATING REPORTS, USING REPORT WIZARDS, PRINTING REPORTS, CUSTOMIZING REPORTS BY CREATING CONTROLS, ADJUSTING CONTROLS AND SETTING CONTROL PROPERTIES, USING EXPRESSIONS IN REPORTS, SORTING AND GROUPING DATA WITHIN A REPORT, AUTOMATING WITH MACROS, CREATING AND EDITING MACROS, RUNNING MACROS, CREATING MACRO GROUPS, CREATING AN AUTOKEYS MACRO, CREATING AND CUSTOMIZING MENUS, CREATING A STARTUP MACRO, SECURITY REQUIREMENTS, ROLLING OUT AN APPLICATION, CONSIDERATIONS FOR DISTRIBUTING AN APPLICATION.

3. FUNDAMENTAL OF WORKSHEET USAGE:

WORKSHEET FUNDAMENTALS, EMBEDDING ENHANCING, AND MODIFYING CHARTED DATA, FORMATTING WORKSHEET DATA, PRODUCING LIST-TYPE INFORMATION, CUSTOMIZATION OF THE USER INTERFACE FOR OPTIMAL PERFORMANCE, DATA ORGANIZATION, DATA ANALYSIS, DATA, MANIPULATION, DATA ACCESS, QUERYING EXTERNAL DATABASES FORM WITHIN THE WORKSHEET, IMPORT AND EXPORT OF DATA, INTEGRATION WITH OTHER APPLICATIONS

REFERENCES:

1. MASTERING DOS 6.2 BY ROBBINS(BPB-97)
2. MASTERING WINDOWS-95 BY COWARD(BPB-97)
3. MASTERING MS OFFICE PROFESSIONAL 7.0 FOR WINDOWS -95.
4. BOOKS ON LINE BY MICROSOFT.