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दुरध्वनी : (ईपीएबीएक्स) २६०९००० BOS. २६०९०९४
फॅक्स : ००९१-०२३१-२६९१५३३ व २६९२३३३. e-mail : bos@unishivaji.ac.in
B
Accredited By NAAC (2009)

SU/BOS/Com/M.C.A/6225 Date : 27-08-2014

The Director, M.C.A. Department of Commerce Shivaji University, Kolhapur.	The Principal, All Affiliated M.C.A. Colleges/Institutions, Shivaji University, Kolhapur.

Subject: Regarding revised syllabi, nature of question paper and structure of M.C.A. Part I (Sem. I & II) under the Faculty of Commerce.

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the revised syllabi of M.C.A. Part I (Sem. I & II) under the Faculty of Commerce.

This revised syllabi shall be implemented from the academic year 2014-2015 (i.e. from June 2014) onwards. A soft copy (C.D.) containing the syllabus is enclosed herewith and it is also available on university website www.unishivaji.ac.in.

Further, it is hereby informed that the syllabi, pattern of examination & Credit System shall be the same for the University Department & Affiliated Colleges. The question papers on the pre-revised syllabi of above mentioned course will be set for the examinations to be held in Oct/November 2014 , March/April 2015, Oct/November 2015 & March/April 2016. These chances are available for repeater students, if any.

You are therefore, requested to bring this to the notice of all Students and teachers concerned.

Thanking you,

Yours faithfully,

Sd/-

Dy. Registrar

Encl: C.D. of the above mentioned syllabi

Copy to:-

1 Dean, Faculty of Commerce
2 Chairman, BOS in 1.Bus. Management — For information
3 Appointment Section
4 O.E.-3 Section
5 Affiliation Section (U.G.) — For information & n. a.
6 Computer Centre

SHIVAJI UNIVERSITY, KOLHAPUR
Master of Computer Applications (M.C.A.)
(Under The Faculty of Commerce)
(Choice Based Credit System)

MCA (Part I) From Academic Year 2014-2015
MCA (Part II) From Academic Year 2015-2016
MCA (Part III) From Academic Year 2016-2017

1. Introduction

1. The name of the programme shall be **Master of Computer Applications** (MCA) Integrated.

2. The knowledge and skills required planning; designing and to build Complex Application Software Systems which are highly valued in all industry sectors including business, health, education and the arts. The basic objective of the education in Masters Programme as Computer Applications (MCA) is to provide to the country a steady stream of the necessary knowledge, skills and foundation for acquiring a wide range of rewarding careers into the rapidly expanding world of the Information Technology.

3. Job Opportunities: Many graduates begin their career as a junior programmer and, after some experience, are promoted as system analysts. Other seek entrepreneurial role in the Information Technology world as independent business owners, software authors, consultants, or suppliers of systems and equipments. Career opportunities exist in such areas as management software and hardware sales, technical writing, training others on computer, consulting, software development and technical support.

Application areas include transaction processing, accounting functions, sales analysis, games, forecasting and simulation, database management, decision support and data communications.

4. Specific elective courses to be offered in functional areas have to depend on student preferences and needs of the user systems in the region in which the educational institution is located.

5. The MCA programme is a mixture of computer-related and general business courses. The computer related courses includes standard techniques of programming, the use of software packages, databases and system analysis and design tools. The general business courses include the functional areas of management like accounting, sales, purchase, inventory, and production. The course would emphasis the study and creation of business applications. Inclusion of projects in each semester (Except Sem-I) improves student's technical orientation, understanding of IT environment and domain knowledge. It will build right platform for students to become a successful Software professional. This would emphasize on domain knowledge of various areas, which would help the students to build software applications on it. The students are exposed to system development in the information-processing environment with special emphasis on Management Information Systems and Software Engineering for small and medium computer systems. Inclusion of Business Management Labs will help students to acquire thorough knowledge of management practices in organization. Subjects such as ERP, Information Security and Business Intelligence will work as new application domains. Major focus is also given on Mobile technologies so that student can choose Mobile Technologies as their career options.

Also, exposure to microcomputer technology, micro-based systems design and micro applications software, including network and graphical user interface systems is also provided.

Advanced Internet and Web technology includes variety of new technologies. Soft skills techniques are covered in first four semesters, which will lead to overall personality development of the student and that will help them in their placement activities and to sustain in the organization successfully.

6. The new curricula would focus on learning aspect from three dimensions viz. Conceptual Learning, Skills Learning and Practical / Hands on.

7. The inclusion of projects at each semester (except Sem-I) ensures the focus on applying the skill learnt at respective levels. It will enhance student's capability to work on various technologies. It will make appropriate platform for students to work in IT Industry. It will also improve documentation, Coding and Design standards in students. Inclusion of project for subject such as Mobile Computing will definitely improve student's innovativeness and creativity. Student's technical orientation, eagerness will be enhanced.

8. The Institutes should organize placement programme for the MCA students, by interacting with the industries and software consultancy houses in and around the region in which the educational Institution is located.

9. At the end of the syllabus various certifications possible for each Semester is given in the list. Students should try to do maximum certifications in their learning phase only to make their resume rich.

10. Ordinarily, in each class, not more than 60 students will be admitted.

2. Duration of the Course

The MCA is integrated programme and will be a **full-time three years** i.e. 6 semesters. Pattern of examination will be Semester System.

3. Medium of Instruction

The medium of Instruction will be English only.

4. Admission Procedure

(A) Eligibility

The eligibility criteria for appearing to MAH-MCA-CET conducted by DTE and CET conducted by Management Association of MCA Institutions (MAMI), and admission for the MCA course will be as decided by the Competent Authority (Directorate of Technical Education Maharashtra State, Mumbai &/or AICTE, New Delhi) every year.

(B) Reservation of Seats

As per rules of by the Competent Authority

(C) Selection Basis

The selection would be done as per the guidelines given by the Directorate of Technical Education Maharashtra State time to time.

5. Course Structure

Lectures and Practical should be conducted as per the scheme of lectures and practical indicated in the course structure.

Master of Computer Applications

(Under Faculty of Commerce)

(Choice Based Credit System)

Course Structure

Semester - I						
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**	**Workload per Week**	
					T	**P**
1	MCA101	Computer Organization and Architecture	20	80	4	-
2	MCA102	Problem solving using C Programming	20	80	4	-
3	MCA103	Database Management System	20	80	4	-
4	MCA104	Management Information System	20	80	4	-
5	MCA105	Principles and Practices of Management	20	80	4	-
6	MCA106	Communication Skill-I	50		2	
7	MCA107	LAB I (C programming)		100		4
8	MCA 108	LAB II (Database Management System)		100		4
		Total	**150**	**600**	**22**	**8**

Semester – II						
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**	**Workload per Week**	
					T	**P**
9	MCA201	Operating System	20	80	4	-
10	MCA202	Web Technology	20	80	4	-
11	MCA203	Object Oriented Programming using C++	20	80	4	-
12	MCA204	Software Engineering	20	80	4	-
13	MCA205	Accounting for Managers	20	80	4	-
14	MCA206	Mini Project-I		50	-	2
15	MCA207	LAB III (Web Technology)		100	-	4
16	MCA208	LAB IV (OOPS)		100		4
		Total	**100**	**650**	**20**	**10**

Semester – III						
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**	**Workload per Week**	
					T	**P**
17	MCA301	Data Communication and Networks	20	80	4	-
18	MCA302	Java Programming	20	80	4	-
19	MCA303	Data Structure using C++	20	80	4	-
20	MCA304	Research Methodology	20	80	4	-
21	MCA305	Enterprise Resource Planning	20	80	4	-
22	MCA306	Communication Skill-II	50		2	
23	MCA307	LAB V (Java)		100		4
24	MCA 308	LABVI (Data Structure using C++)		100		4
		Total	**150**	**600**	**22**	**8**

Semester – IV						
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**	**Workload per Week**	
					T	**P**
25	MCA401	Mobile Computing	20	80	4	-
26	MCA402	Advance JAVA	20	80	4	-
27	MCA403	Advance Database Technology	20	80	4	-
28	MCA404	Optimization Techniques	20	80	4	-
29	MCA405	Elective I E1.1 Network Security E1.2 Knowledge Management E1.3 Information System Audit E1.4 Social Networking	20	80	4	-
30	MCA406	Mini Project -II		50	-	2
31	MCA407	LAB VII (Advance JAVA)		100	-	4
32	MCA408	LAB VIII (ADBT)		100		4
		Total	**100**	**650**	**20**	**10**

Semester – V						
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**	**Workload per Week**	
					T	**P**
33	MCA501	Emerging Trends in Information Technology	20	80	4	-
34	MCA502	Cloud Computing	20	80	4	-
35	MCA503	Software Project Management	20	80	4	-
36	MCA504	Advanced Web Technology	20	80	4	-
37	MCA505	Elective II E2.1 Computer Graphics E2.2 Big data Management E2.3 Software Testing and Quality Assurance E2.4 Artificial Intelligence and Expert System	20	80	4	
38	MCA506	Communication Skill -III	50		2	-
39	MCA507	LAB IX (Advanced Web Technology)		100	-	4
40	MCA508	LAB X (Elective II)		100	-	4
		Total	**150**	**600**	**22**	**8**

Semester – VI				
Sr. No.	**Subject Code**	**Subject Title**	**Internal**	**External**
41	MCA601	Project Work	200	300
		Total Credits	12	18

6. Teaching and Practical Scheme

1. Period for teaching or practical should be of 60 minutes each.
2. Minimum 45 periods should be conducted for each subject of 80 Marks.
3. One Practical Batch should be of 30 students.
4. Practical evaluation should be conducted before the commencement of University examination.

7. Project Work

At the end of the sixth semester of study, a student will be examined in the course" Project Work".

1. Project work may be done individually or in groups in case of bigger projects. However if project is done in groups, each student must be given a responsibility for a distinct module and care should be taken to see the progress of individual modules is independent of others.

2. Students should take guidance from an internal guide and prepare a Project Report on "Project Work" in **2 copies** to be submitted to the Director of the Institute.

3. The Project Report should contain an Introduction to Project, which should clearly explain the project scope in detail. Also, Data Dictionary, DFDs, ERDs, File designs and a list of output reports should be included.(Refer annexure 1)

4. The project Work should be of such a nature that it could prove useful or should be relevant from the commercial/management angle.

5. The project report will be duly accessed by the internal guide of the subject and internal marks will be communicated by the Director of the Institute to the University.

6. The project report should be prepared in a format prescribed by the University, which also specifies the contents and methods of presentation.

7. The major project work carry 200 marks for internal assessment and 300 marks for external viva. The external viva shall be conducted by a panel of minimum of three external examiners out of which one will be the Chairman of the panel.

8. Project work can be carried out in the Institute or outside with prior permission of the Institute.

9. Project viva-voce by the University panel will be conducted in the month of june after completion of 150 days training.

8. Assessment

The final total assessment of the candidate is made in terms of an internal assessment and an external assessment for each course.

1. For each theory paper, 20% marks will be based on internal assessment and 80% marks for semester examination (external assessment), unless otherwise stated.

2. The division of the 20 marks allotted to internal assessment of theory papers is as follows –

Sr. No.	Internal Marks Distribution (20)	
1	Attendance	5
2	Mid Test	5
3	Preliminary Examination	5
4	Assessment by the Subject faculty (Presentation /Group Activity/ Assignments)	5
	Total→	**20**

3. The mini project will be evaluated by the university appointed panel and submitted to the university by the panel.

4. The final practical examination will be conducted by the university appointed panel at the end of semester for each lab course and marks will be submitted to the university by the panel. The pattern of final practical examination will be as follows-

Sr. No.	Practical Marks Distribution (100)	
1	Coding and Execution of Program	60
2	Viva-voce	20
3	Journal	20
	Total→	**100**

5. The internal marks will be communicated to the University at the end of each semester, but before the semester end examinations. These marks will be considered for the declaration of the results.

9. Examination

The final Examinations shall be conducted at the end of the semester i.e. during November and in May.

10.Nature of question paper:

Nature of question paper is as follows for University end semester examination

a. Theory Examination:

There will be seven (7) questions of 16 Marks and out of which four (4) to be attempted from question no 1 to 6. Question NO.7 is compulsory and is of short answers type. It must consist four (4) sub-question of Eight(8) marks each out of which two (2) to be attempted.

b. Practical Examination:

i. Duration of Practical Examination : 3 Hrs

ii. Nature of Question paper

There will be three questions out of which any two questions to be attempted and each question carries 30 Marks.

11. Standard of Passing

1. Internal as well as external examination will be held at the end of semester. The candidate must score 40% marks in each head of internal as well as external Examination and Aggregate 50% marks are required for passing in each head.(Internal + External)

12. Backlog

1. No candidate will be admitted to Second Year MCA (Sem-III) of the course unless he/she
   i) passes MCA sem-I and Sem- II examination. Or
   ii) fails in not more than three heads of passing at the first year MCA Sem-I and Sem-II examination.
2. No candidate will be admitted to Third Year MCA (Sem-V) of the course unless he/she –
   i) passes MCA sem-I, Sem-II, Sem-III and Sem- IV examination. Or
   ii) passes his MCA Sem-I and MCA Sem-II examination and fails in not more than three heads of passing at the Second year MCA Sem-III and Sem-IV examination.

13. Board of Paper Setters /Examiners

For each Semester and examination there will be one board of Paper setters and examiners for every course. While appointing paper setter /examiners, care should be taken to see that there is at least one person specialized in each unit course.

14. Award of Class

There will be numerical marking on each question. At the time of declaration of the result the marks obtained by the candidate is converted into classes as shown below.

15. Credit system implementation

As per the University norms

16. Clarification of Syllabus

The syllabus Committee should meet at least once in a year to study and clarify any difficulties from the Institutes. The Workshop on syllabi should be organised at the beginning of every semester.

17.Certification

Te students are expected to complete two certifications on latest technology and softskills.

18. Revision of Syllabus

As the computer technology is changing very fast, revision of the syllabus should be considered every 3 years.

(Choice Based Credit System)

To be implemented from the academic year 2014-2015

(Introduced from June 2014 and Onwards)

Semester - I				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
1	MCA101	**Computer Organization and Architecture**	20	80

Objective: To give basic knowledge of Electronics, Microprocessor, its architecture, components, and their organization. This will introduce the hardware and upcoming processor architecture and its evolution with change in working style.

UNIT-1	**Introduction to Digital Computer:** Digital Computer, Concept of Computer Organization and Concept of Computer Architecture. **Data Representation Systems:** **N**umber systems, Inter-conversion between number systems, Coding schemes **Digital signals and Logic Gates**: Signals, Binary Logic, Logic Gates, Boolean Algebra, Postulates of Boolean Algebra, Implementation of Boolean Functions Algebraic Simplification, Karnaugh maps
UNIT-2	**Combinational Circuits:**, Half Adder, Full Adder, Binary Adder and Subtractor, Decoder / Encoder, Multiplexer / De-multiplexer. **Sequential Circuits:** Flip Flops - SR, D, JK, Shift Registers, serial/Parallel, Counters: Synchronous and Asynchronous Counter.
UNIT-3	**Memory organization :**Memory hierarchy, Use of cache memory, address mapping with cache, Associative memory , Virtual memory, **CPU Organization:** CPU Building Blocks, Instruction codes, Registers, Addressing Modes, Instruction sets, RISC,CISC and its characteristics, Instruction execution and microoperation., Interrupts.
UNIT-4	**Control organization :** -Hardwired Control, Micro Programmed Control, micro instructions, micro instructions format, sequencing and execution of micro instructions, micro operation. **Input-Output Processing**-Accessing I/O devices, I/O Modules, I/O Techniques, Processor bus, Sub routines, Input- Output Interface, synchronous Data Transfer, Modes of Data Transfer, Priority Interrupt, Direct Memory Access (DMA) Controller, DMA transfer modes, I/O Processor, Serial Communication

Reference Books:

Sr. No.	Title	Author/s	Publication	Edition
1	Computer System Architecture	Morris Mano	Pearson	3rd
2	Computer Organization	ISRD Group	TMH	
3	Computer Architecture & Organization	Murdocca	Wiley India	
4	Computer Organization	Carl Hamacher, Zvonko and Zaky	MGH	5th
5	Digital Computer Electronics	Malvino	TMH	3rd
6	Computer Organization & Design	Pal Chaudhary	PHI	3rd
7	Computer Architecture & Organization	J. P. Hayes	MGH	3rd

Semester - I				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
2	MCA102	**Problem solving with C Programming**	20	80

Objective: This is the first programming language subject that student will learn. This subject will teach them programming logic, use of programming instructions, syntax and program structure. This subject will also create foundation for student to learn other complex programming languages like C++, Java etc.

UNIT-1	Problem Specifications Problem Specifications and solutions, Requirements for solving problems by computer, Getting started on a problem, General problem-solving strategies, Solution Designing Using Flowcharts -Drawing A Flowchart, Advantages, Limitations, Analyzing Algorithms, implementation efficiency of algorithm And Problems. Simple algorithms – factorial computation, Fibonacci series, reversing digit, determine GCD, prime number, sorting and searching techniques. **Introduction to Programming: Language paradigm,-procedural, modular, object, event driven etc.** A Brief History of C, The structure of C Program, Library & Linking, Compilation & Execution of C, Program on Dos & Unix **Variable and Data Types:** Character Set, C Token, Identifier & Keyword, Constant, Data Types in C, Type Conversion
UNIT-2	**Operators:** Tyes of Operator & Expression, Precedence & Associability of Operators **Console I/O:** Introduction, Character input & Output, String Input & Output, Formatted Input/output (scanf/printf), sprintf & sscanf. **Branching and Looping Statements:** Introduction of If, Nested if, if-else-if, else if ladder, Conditional Expression, switch, Nested switch, Iteration Statements, for loop, while loop, do-while loop, Jump Statements, Goto & label, break & continue, exit() function.
UNIT-3	**Array:** Single Dimension Arrays, Accessing array elements, Initializing an array, two dimensional and Multidimensional Arrays, Initializing the arrays, Memory Representation, Accessing array elements, Passing Single Dimension array to Function, Operations on array. **String:** Built in string functions, passing string to the function as argument. **Function:** Introduction, Arguments & local variables, Returning Function Results by reference & Call by value, Recursion, command line argument, Utility Functions. Storage Classes modifiers.
UNIT-4	**Structure and Union:** Introduction to Structures, Declaration and Initializing Structure, Accessing Structure members, Structure Assignments, Arrays of Structure, Passing Structure to function, Pointer and Structures. Introduction to Union, accessing union members, application of union. **Preprocessors:** Preprocessor Directive **Pointer:** Introduction to pointer, Memory Organization, The Pointer operator, Application of Pointer, Pointer Expression, Declaration of Pointer, Initializing Pointer, De-referencing Pointer, Void Pointer, Pointer Arithmetic, Precedence of & * operators, Pointer to Pointer, Constant Pointer, pointer to function, Array & Pointer, Array of Pointer **File Handling:** Introduction, Defining & Opening a File, Closing a File, Input/output Operations on Files, Sequential and Random Access To Files. **Introduction to Computer Graphics**

Reference Books:

Sr. No.	Title	Author/s	Publication	Edition
1	How to solve it by computer	R.G. Dromey	PHI	2nd
2	C: The Complete Reference	Herbert Schildt	TMH	4th
3	C Programming Language	Kernighan & Ritchie	PHI	2nd
4	C Programming a step ahead	Dr. S.D. Mundhe	Charleston pub. USA	1st

5	Programming In ANSI C	E. Balagurusamy	TMH	4th
6	Simplifying C	Arolkar	Wiley Dreamtech	1st
7	C test your aptitude	K. R. Venugopal and N Chandrakant	TMH	2007
8	Graphics Under C	Y. Kanetkar	BPB	1st
9	Let us C Solutions	Y.P. Kanetkar	BPB	10th
10	Objective – C	Devoe	Wiley India	1st

Semester - I				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
3	**MCA103**	**Database Management System**	20	80
Objective: The concepts related to database, database Models3, SQL and database operations are introduced in this subject. This creates strong foundation for application data design and database designs mechanisms.				
UNIT –1	**Introduction to DBMS:** Database Concept, Characteristics and architecture of DBMS, Database users, 3-tier architecture of DBMS-its advantages over 2-tier, Views of data – Schemas and instances, Data independence. **Data models**: Conventional data models, NDM & HDM, Physical Data Organization-Hashed files, Indexed files, B-trees			
UNIT -2	**Database Design and E-R Model:** Entities, Attributes, Relationships, Representation of entities**,** relationship set, Generalization, aggregation Structure of relational Database and different types of keys, E-R diagrams, E-R design Issues in Relational database design, Functional dependencies. **Normalization and Database Recovery systems:** Codd's rules, Normalization, Database Recovery System- Failure classification, storage structure, recovery and atomicity, log-based recovery. Role of DBA.			
UNIT -3	**Introduction to Oracle:** History, Generations and characteristics, difference between DBMS & RDBMS. Data constraint- primary key, foreign key, unique key, null, not null, default key etc. **SQL:** Introduction to SQL, Features of SQL, Basic data types, SQL statements/commands, Set operations in SQL,order by and group by clause ,like between, in, like, create index , view and join command Nested queries, GRANT and REVOKE, Commit, Rollback, Savepoint. **Join concept**: Simple, Equi, non-equi, Self, Outer join. **View-** Introduction, Create, Update, Drop, Index. **SQL functions:** MAX, MIN SORT, COUNT, AVERAGE, Numeric, String, Date Functions, Type conversion functions.			
UNIT -4	**Introduction to PL /SQL:** Introduction, Difference between SQL AND PL/SQL, Block definition structure and Data types, Block Functions - %Type, %RowType, Control statements, Looping statements and sequential statement, Exception handling.Simple PL/SQL blocks. Cursor management : meaning, types and importance , implicit and explicit cursor management using simple example. Trigger: meaning importance and types of trigger, examples using trigger **Procedures**-Definition, creating procedures, passing parameters. Function-Definition, syntax and calling methods, passing parameters.			

Reference Books:

Sr. No.	Title	Author/s	Publication	Edition
1	Introduction to database systems	C. J. Date	Pearsons Education	8th
2	Database system concept	Korth, Silberschatz and Sudarshan	MGH	5th
3	Fundamentals of Database Systems	Elmasri Navathe	Pearson Education	5th
4	SQL /PL SQL For Oracle 11G Black Book	Dr.Deshpande	Wiley Dreamtech	2012
5	ORACLE PL/SQL Programming	Scott Urman	TMH	9th
6	SQL, PL/SQL the programming language of Oracle	Ivan Bayross	BPB	4th
7	Advance Database Management System	Chakrabharati/ Dasgupta	Wiley Dreamtech	2011
8	Understanding SQL	Martin Gruber	BPB	2nd
9	SQL	Scott Urman	TMH	4th

Semester – I				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
4	**MCA104**	**Management Information System**	**20**	**80**

Objective: The concepts related to decision making, information system and design and implementation of Information system are introduced in this subject. This creates strong foundation for Information system design and development.

UNIT-1	**Scope and Objectives of Information System** Concept of Data and Information, Introduction and characteristics of System. Concept of Information System, components of information system, The role and importance of information systems, Difference between computer literacy and information system literacy. Information needs of different organizational levels.
UNIT-2	**Decision Making :** introduction to decision making , Enhancing management decision making, Types of Decisions, Phases in Decision making, role of information system in decision making.
UNIT-3	**Types of information System:** Major types of information system in Organisation- TPS,OAS,KWS,MIS,DSS,ESS and relationship between them, TPS- Introduction, need and significance. KWS & OAS- Introduction, need and significance. MIS –Introduction, need, characteristics and significance. Decision support systems (DSS) – understanding DSS, characteristics components, DSS applications. Group decision support systems (GDSS), - Elements, characteristics and significance. Executive support systems (ESS) – Introduction, need and significance of ESS , Information as a strategic resources and concept of strategic information system.
UNIT-4	**Design, Development and Implementation of Information System** Building information systems: Contemporary approaches. Systems as a planned organisational change. System development & analytical tools used in information system, Major problem areas in information system, causes of information system success and failure, evaluation of success of information systems. **Case studies on:** Marketing Information System, Financial Information System, Human Resource Information System, Production Information System.

Reference Books:

Sr. No.	Title	Author/s
1	Management Information Systems: Managing the Digital Firm	Kenneth C. Laudon (Pearson)
2	Management of Information systems –	Gordon B. Davis & Margreth H.Olson
3	Management of Information systems	Jawadekar W.S.
4	Information systems management in practice –	Ralph H. Sprague Jr. & Barbara C. McNurlin
5	Management of information systems –	James A. O'Brien
6	Information system concepts for management – 4th edition	Lucas
	Management of information systems – 2nd edition –	Kroenke David.

Semester – I				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
5	**MCA105**	**Principles and Practices of Management**	**20**	**80**
UNIT-1	**Management-** Concept , nature ,Scope , importance; Management Vs. Administration, Levels of Management, functions of Management Contribution of f.w. Taylor, Henry Fayol, Peter Drucker in the development of Management thought.			
UNIT-2	**Planning –** Concept **,** steps in Planning Process, types of plan, importance and limitations of planning. Forecasting- Meaning techniques of forecasting Decision making –types of decisioins, decision making process, Organsing – meaning, Organisation structure, Departmentation – Bases of departmentation, Concept of Authority, Responsibility and Accountability, Delegation.			
UNIT-3	**Staffing-** Meaning need, Human Resource Planning, Recruitment sources and selection procedure. **Directing-**concept, need Elements of directing- supervion , communication, Leadership and motivation Leadership styles, types of motivation .			
UNIT-4	**Controlling:** Concept, Types of control , steps in control process, Importance of controlling, Techniques of controlling- Break Even Analysis, Budgetory Control, Zero-based budgetting PERT, CPM. Benchmarking –importance and limitations of benchmarking , Six Sigma- importance , limitations and process of sixsigma. Total Quality Management – Importance of TQM.			

Reference Books:

Sr. No.	Author/s	Title
1	Koontz and weirich	Essentials of Management
2	Certo	Modern Management prentice hall
3	L.M. Prasad	Principles of Management
4	R.M. Srivastara	Principles of Management
5	Peter Drucker	Essentials of management
6	Stephen P. Eobbines	Management; Prentices Hall
7	Sherlekar S.A.-	Modern Business Administration and Management; Himalaya Publishing House
8	J.S.Chandra	Management Concept and Strategies
9	Das Gupta A	Business Management in India, Vikas Publishing

10	Mc Farland Daltion-	Management Principles and Practices, Macmillan
11	Terry Georgy R	Principles of Management, Ill inions
12	Rabbins Stephen P. and Decenzo David-	Fundamentals of Managment
13	Kazmi Azhar	Business Policy and Strategic Managment
14	Choudhari Subir	The power of six sigma
15	Ross Joel	Totoal Quality Management

Semester – I				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
6	**MCA 106**	**Communication Skill-I**	**50**	

UNIT-1	**Unit-I- Introduction to Communication** (15 Hours) -Meaning and Importance of Communication, Characteristics of Communication. -Process of Communication -Forms of Communication-Verbal, Non-Verbal -The seven Cs of effective Communication -Barriers of effective Communication -Techniques to improve Communication
UNIT-2	**Non-Verbal Communication** (15 Hours) -Personal Appearance -Posture -Gestures -Eye-contact -Space Distancing -Body Language
UNIT-3	**Communication Skills** (15 Hours) -Listening skills-Active Passive -listening, improving listening -Reading, Skimming /scanning Techniques -Speaking- speech process, Strategies for good Communication, Fluency.
UNIT-4	**Writing Skills** (15 Hours) -Organizing a paragraph -Application Letter and C.V.

Reference Books:

Sr. No.	Title	Author/s
1	Effective Business Communication	Murphy
2	Business English & Communication	Cleark
3	Basic Business Communication	Robert Ma Archer
4	Business Communication	Robert Marcher & Ruth Pearson
5	Esseatials of Business Communication	Rajendra Pal & J.S.Korlahalli
6	Basic Business Communication Skills	Raymond Lesikar & Marie Flatlety, 10th Edition, Tata McGraw-Hill Edition
7	Business Communication-	V.K. Jain & Omprakash Biyani S.Chand k company, New Delhi

Nature of Question Paper

No. 1- Two Home Assignments of 10 Marks based on Units No.1 and 4.

(20 Marks)

No.2-One Class tutorial/ 1 unit Test (based on Units No.1 and 4.)

(15 Marks)

No.3-Seminar Paper- Presentation- based on Units No.2 and 3.

(10 Marks)

No.4-Reading (a Specific Topic)/ Listening activity (by playing CD/DVD followed by objective oral questions- thus evaluating) based on Units No.3

(05 Marks)

Total -50 Marks

Semester – I				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
7	**MCA107**	**Lab-I C Programming**	--	100
Objective: The students will get hands on experience of programming Concepts, Logic and Implementation in C Language.				

Lab Exercise

The following are the some examples of the problems to be implemented in Laboratory.

No	**Title**
1.	Write a program to Convert the temperature given in Celsius to Fahrenheit
2.	Find the given year is leap or not by using ternary operator.
3.	Perform arithmetic operation on number by using switch.
4.	Find even and odd number
5.	Check prime number.
6.	Find given character is vowel or not.
7.	Find the sum $s=1+x+x^2+x^3$ and print the same format.
8.	Write a program to check whether given number is palindrome or not?
9.	Write a program to calculate the percentage of marks entered by the student by using else if ladder.
10.	Calculate sum of digit of entered number using while loop.
11.	Find the Fibonacci series using do while loop.
12.	Find Armstrong number using for loop.
13.	Plot the Floyd's triangle using nested loop.
14.	Find factorial of given number.

15.	Program to demonstrate Convertion of one number system to another.
16.	WAP to Demonstration on Storage classes.
17.	Write a program to demonstrate the simple array.
18.	Write a menu driven program to demonstrate the operations on one dimensional array. a) insert b) delete c)searching d) sorting e)merging
19.	Write a program to reverse the array.
20.	Write a program to remove duplicate elements from an array.
21.	Write a menu driven program to demonstrate the operations on two dimensional arrays. a) addition b) subtraction c) multiplication d) print sum of diagonal elements e) transpose *Take appropriate input elements from user.*
22.	Print pascal's triangle.
23.	Write a program to add upper triangular elements of two dimensional array
24.	WAP to perform the various operations on string.
25.	WAP to accept a text of lines, calculate number of lines, words and characters. Also convert uppercase to lowercase and vice versa.
26.	Demonstrate the function by call by value and call by reference.
27.	Write a program to create a simple and scientific calculator.
28.	Find Fibonacci series using recursive function.
29.	Write a menu driven program for taking employee details and insert, delete, display, update employee details using dynamic memory allocation.
30.	WAP to demonstrate Arithmetic operation on pointer.
31.	Addition of array elements by passing array of pointer to function
32.	Counting occurrence of character by passing string to function.
33.	Perform simple program for structure and union.
34.	WAP to demonstrate array of structure and array within structure.
35.	Write program for command line argument to count number of inputs.
36.	Count the number of tabs, number of lines and character as well as blank spaces and insert this information into another file.
37.	Perform menu driven program for online examination using file and structure.
38.	WAP to demonstrate the macros.
39.	WAP to demonstrate bitwise operators.
40.	Write a program to create a file fact.h and calculate factorial of given number.

41.	Draw the shapes (circle, rectangle, arc, ellipse, square) using graphics
42.	Draw a car and move it using graphics.
43.	Write a program to demonstrate a random access file.
44.	WAP to demonstrate Integer file handling.

Semester – I				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
8	**MCA108**	**LAB II (Database Management System)**	**---**	**100**
Objective: This lab work will enhance database handling, data manipulation and data processing skills through SQL & PL/SQL, which will help the students in developing data centric computer applications.				

Lab demonstrations are expected on following topics –

Sr. No.	Title
1.	SQL-create table. Insert rows and update.
2.	Alter existing table structure (ALTER-ADD, MODIFY, DELETE).
3.	Simple queries based on single table to view rows.
4.	Simple queries based on multi table.
5.	Complex queries based on single and multi table.
6.	Working of View and Index
7.	Use of PL / SQL Block.
8.	Use of IF....ELSE.
9.	Use of FOR-LOOP and WHILE-LOOP.
10.	Use of Cursors.
11.	Use of – (% type, & row type)
12.	Use of Triggers.
13.	Use of Functions and Procedures

Reference Books:

Sr. No.	Title	Author/s	Publication	Edition
1	Understanding SQL	Martin Gruber	BPB	2nd
2	SQL	Scott Urman	TMH	4th
3	ORACLE PL/SQL Programming	Scott Urman	TMH	9th
4	SQL, PL/SQL the programming language of Oracle	Ivan Bayross	BPB	4th
5	SQL & PL/ SQL For Oracle Black book	Dr. Deshpande	Wiley Dreamtech	2012

Semester - II				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
9	**MCA201**	**Operating System**	**20**	**80**

Objective:-The core structure, functions and design principles of operating system, Basics of Distributed, Mobile Operating System and Fundamentals of Unix will be introduced with this subject.

UNIT-1	**Introduction:** Operating system definition, Functions of Operating System, Logical View, System View, Types of operating System, System Calls, System Programs, Interrupt Concept, Concept of Virtual Machine. **Processes:** Process Concept, Thread Concept, Difference between Process and Thread, Process Control Block, Process operations, Inter-process Communication, Communication in Client-Server (RPC, RMI, Socket Programming).
UNIT-3	**CPU Scheduling** : Scheduling Concept, Scheduling Criteria, Scheduling algorithms, Scheduling Evaluation, Simulation Concept, Numerical Exercises Based on CPU Scheduling Algorithms. **Process Synchronization**: Synchronization concept, Need for Synchronization, Critical Section Problem, Semaphore, Monitor. **Deadlock** : Deadlock concepts, Necessary Conditions for Deadlock, Deadlock Prevention, Deadlock Avoidance, Bankers Algorithm, Deadlock Detection, Deadlock Detection Algorithm for Single and Multiple Instance of Resources, Deadlock Recovery, Numerical Exercises Based on Bankers Algorithm and Deadlock Detection Algorithm.
UNIT-3	**Memory Management:** Concept, Memory Management Techniques, Contiguous & Non Contiguous allocation, Relocation, Compaction, Logical & Physical Memory, Conversion of Logical to Physical address, Paging, Segmentation, Segment with paging, Virtual Memory Concept, Demand paging, Page fault, Need for Page Replacement, Page Replacement algorithms, Thrashing, Numerical Exercises Based on Page Replacement Algorithms. **File Management**: File Structure, Protection, FILE system, Implementation, Directory structure, Free Space Management, File Access Methods, File Allocation Methods, Recovery. **Disk Management**: Disk Structure, Disk Scheduling algorithm, Disk management, Swap Space concept and Management, RAID structure, Disk performance issues, Numerical Exercises Based on Disk Scheduling Algorithms.
UNIT-4	**Distributed Operating System**: Difference Between Distributed & Centralized OS, Examples of Distributed Operating System- Chorus, Amoeba, Advantages of Distributed OS, Types of Distributed OS. **Mobile Operating System**: Introduction, Examples of Mobile OS (Palm, Symbian, Andriod, Apple iOS), Features. **Introduction to Unix/Linux**: History, Architecture, Features, Essential Commands (like ls, cat, cal,, file, mkdir, chdir, pwd, wc, grep etc), Introduction of VI editor) **Case study- Install individually at least one o.s. (Windows/Linux/Android)**

Reference Books:

Sr. No.	Title	Author/s	Publication	Edition
1	Operating System	Silberschatz, Galvin, Gagne	Wiley	8th
2	Operating System Concepts and Design	Milan Milenkovic	MGH	2nd
3	Distributed Operating System	P.K. Sinha	PHI	6th
4	Operating system	Achyut Godbole		
5	Operating System In Depth	Doeppner	Wiley India	1st
6	Unix Concept and Applications	Das Sumitabha	TMH	4th
7	Mobile Computing	Ashok Talukdar	TMH	2nd
8	Operating System	Rohit Khurana	Vikas pub.	

Semester - II				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
10	**MCA202**	**Web Technology**	**20**	**80**

Objective: This course enables students to understand website planning, management & maintenance. The course explains the concept of developing advanced HTML pages with the help of frames, scripting languages and evolving technologies

UNIT-1	**HTML:** Introduction To HTML, WWW, W3C, web Publishing, Common HTML tags, Physical & Logical tags, Some basic tags like <body>, background color of page, text color etc. Text formatting tags <p>, , <hr> tags, List tags: Ordered, Unordered & Definition Lists, Inserting image, Links: text, image links, image mapping, Tables, Frame & iframe. **HTML Forms:** Form Introduction, elements of form: text box, text area, buttons, List box, radio, check box etc.
UNIT-2	**CSS:** Introduction to DHTML, Introduction To Style sheet, Types of style sheets, Text formatting properties, CSS Border properties, List properties, margin properties, Positioning properties, Use of classes & Id in CSS, color properties, use of & . **JavaScript:** Introduction to script, types, introduction of JavaScript, JavaScript identifiers, operators, control &Looping structure, JavaScript built-in objects with methods, Array, Math, String, Regular Expression, Date, Number. User defined & Predefined functions, DOM objects: Window, Navigator, History, Location & Screen, Document object, Event handling, Validations on Forms.
UNIT-3	**Web Servers:** Introduction and types to web servers, Installation & configuration of web server, web server Architecture, Demonstration of web servers with example: IIS, wamp server, xamp server, Apache HTTP, websphere server. **PHP:** Introduction of PHP, Overview of PHP Capabilities, PHP HTML embedding tags & syntax, Simple script exemples, PHP & HTTP Environnent variables, PHP Language Core Variables, constants, data types, PHP operators, flow control & loops, Arrays, string, functions, Include & require statements, Simple File & Directory access operations, Error Handling Processing, HTML form using GET, POST, SESSION, COOKIE variables, Sending E-mail.
UNIT-4	**Database Operations with PHP:** Introduction to My-SQL**,** Built in functions Connecting to My-SQL (or any other database) Selecting a db, building & Sending Query, retrieving, updating & inserting data. Introduction of Object- oriented PHP. Design and develop simple applications using PHP and My-SQL.

Note: Any editor like front page or Visual Interdev will be taught to the students. For HTML as well as PHP, It will be taught for practical purpose only and will not be considered for the exams.

Reference Books:

Sr. No.	Title	Author/s	Publication	Edition
1	Complete Reference HTML	Thomas A. Powell	TMH	5th
2	HTML, DHTML, JavaScript, Perl & CGI	Ivan Bayross	BPB	3rd
3	Web enabled commercial application development using HTML, DHTML, JavaScript, PERL-CGI	Ivan Bayross	BPB	4th

4	Sams Teach Yourself PHP in 24 Hrs.	Matt Zandastra	Sams	2nd
5	Beginning PHP6, Apache, MySql web development	Elizabeth Naramore, Jason Gerner, Yann Le Scouarnec, Jeremy Stolz, Michael K	Wrox Press	5th
6	Programming the World Wide Web	Robert W. Sebesta	Pearson	4th
7	Beginning HTML,XHTML, CSS & Java Script	Ducket	Wiley India	
8	www.w3schools.com	-	-	-
9	www.devguru.com	-	-	-
10	www.tutorials.com	-	-	-

Semester – II				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
11	**MCA203**	**Object Oriented Programming Using C++**	**20**	**80**

Objective: By the end of the course students will be able to write C++ programs using more esoteric language features, utilize OO techniques to design C++ programs, use the standard C++ library, exploit advanced C++ techniques

UNIT-1	**Principle of OOP's:** Introduction, Procedural Vs Object Oriented Programming, basic concepts of OOP, Object Oriented Languages Vs Object Based languages. concepts of C++: C Vs C++, A Simple C++ Program, Applications of C++, Structure of a Class, Compiling & Linking **C++ Basics:** Tokens, Type Compatibility, Reference Variables, Operator in C++, Scope Resolution Operator, Member De-referencing Operators, Memory Management Operators, Manipulators, Type Cast Operator. **Functions In C++:** The Main Function, Function Prototyping, Inline Function, Default Arguments, Const Arguments, Function Overloading.
UNIT-2	**Classes & Objects:** A Sample C++ Program with class, Access specifiers, Defining Member Functions, Making an Outside Function Inline, Nesting of Member Functions, Private Member Functions, Arrays within a Class, Memory Allocation for Objects, Static Data Members, Static Member, Functions, Arrays of Objects, Object as Function Arguments, Friend Functions, Returning Objects, Const member functions, Pointer to Members, Local Classes, Object composition & delegation. **Constructor & Destructor:** Constructor, Types of Constructor, Multiple Constructor in a Class, Constructors with Default Arguments, Dynamic Initialization of Objects, Dynamic Constructor, Const Object, Destructor. **Operator Overloading & Type Conversion:** Defining operator Overloading, Overloading Unary Operator, Overloading Binary Operator, Overloading Binary Operator Using Friend function, Overloading Insertion & Extraction operators, Manipulating of String Using Operators, Type Conversion Rules for Overloading Operators.

UNIT-3	**Inheritance:** Defining Derived Classes, types of Inheritance, Making a Private Member Inheritable, Virtual Base Classes, Abstract Classes Constructor in Derived Classes, Nesting of Classes. **Pointer, Virtual Function & Polymorphism:** Introduction, Pointer to Object, This pointer, Pointer to Derived Class, Virtual Function, Pure Virtual Function, Early Vs Late Binding. **The C++ I/O System Basics:** C++ Streams, C++ Stream Classes, Unformatted I/O Operation, Formatted I/O Operation.
UNIT-4	**Working with Files:** Introduction, Classes for File Stream Operation, Opening & Closing Files, Detection of End of File, More about Open( ): File modes, File pointer & manipulator, Sequential Input & output Operation, Updating a File: Random Access, Command Line Arguments. **Template, Namespace and Exception handling:** Exception Handling Fundamentals, The try Block, the catch Exception Handler, The throw Statements, The try/throw/catch sequence, Exception Specification, Unexpected Exception, Catch – All Exception Handlers, Throwing an exception from handler, Uncaught Exception.

ReferenceBooks:

Sr. No.	Title	Author/s	Publication	Edition
1	Object Oriented Programming with C++	E. Balagurusamy	TMH	4th
2	Object Oriented Programming in C++	Rajesh K. Shukla	Wiley	2008
3	C++: The Complete Reference	Herberst Schildt	TMH	5th
4	Mastering C++	K. R. Venugopal, Rajkumar and T. Ravishankar	TMH	5th
5	Let us C++	Yashwant Kanetkar	BPB	2nd
6	C++ Programming Language	Bjarne Stroustrup	Pearson	3rd
7	Computer Programming in C++	Junaid Khateeb and Dr. G T. Thampi	Dreamtech	2010
8	Object Oriented Programming in-C++	Robert Lafore	Techmedia	4th
9	C++ Programming Bible	Al Stevens & Clayton Walnum	Wiley IDG	2000
10	Programming in c++	D. Ravichandran		

Semester – II				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
12	**MCA204**	**Software Engineering**	**20**	**80**

Objective: Software Systems Analysis and Design, Analysis and Design Models and Techniques, recent trends and methods will be taught to student. The repetition in previous syllabus is removed in this course, integrating ISAD and SE subject in one. This subject develops systematic approach for development of application in students.

UNIT-1	**Introduction to Software Engineering:** The evolving role of software, What is Software engineering?, Changing nature of software, Software Myths, Basic System Development Life Cycle, Different approaches and models for System Development- Waterfall, Prototyping, Spiral, RAD, Group Based Approach: JAD, Role & Skills of system Analyst. **Activities in Requirements Determination:** Fact finding methods, Requirements Specifications, Software requirement Specification, (SRS) Characteristics of SRS, Structure and contents of the Requirements, Specification analysis modeling, types of requirements, functional and non- functional, Quality criteria, requirements definition, SRS format, Fundamental problems in defining requirements. Case Studies on Decision analysis tools, DFDs should be covered
UNIT-2	**Information Requirement Analysis:** Decision Analysis Tools: Decision Tree, Decision Table, Structured English, Process modeling with physical and logical Data Flow Diagrams, Entity Relationship Diagram: Identify Entity & Relationships, Data Dictionary. **Systems Design:** Design of input & Control, Objectives of Input Design, Data Capture Guidelines Design of Source Document, Input Validations, Design of output, Objectives of Output, Design Types Of Output, coupling & cohesion, User Interface design: Elements of good design, design issues, features of modern GUI, Menus, Scroll bars, windows, buttons, icons, panels, error messages etc., Design of program Specification, Code Design, Case studies should be covered on the Topic
UNIT-3	**Testing:** S/W testing terminology, need of testing, testing life cycle, types of testing- Unit Testing, Integration Testing, System Testing, Acceptance Testing- Alpha testing & Beta testing, Black Box & White Box Testing. **Maintenance:** Types of Maintenance, Maintenance Cost, Reverse Engineering, Introduction to legacy systems, Role of documentation in maintenance and types of documentation.
UNIT-4	**Introduction to UML**-Use case diagram, Relationships, class diagrams- associations, generalizations, Interfaces (protocols), Packages and templates, Quality of models, Dynamic modeling – State diagrams, Sequence diagrams, Collaboration diagrams, Activity diagrams etc. **Real time modeling in UML** – Real concepts, special real time modeling concerns. **Logical and physical architecture** – Component diagram, Deployment diagrams etc. **Case Studies:** Airline reservation System, Tours & Travels management System, Sales & Purchase Management System, Library Management System, Hospital Management System.

Reference Books:

Sr. No.	Title	Author/s	Publication	Edition
1	Software Engineering	Pressman	MGH	7th
2	Software Engineering	Sommerville	Pearson	8th
3	Software Engineering Concepts	Richard Fairley	TMH	-
4	Software Engineering	Vliet	Wiley India	3rd
5	Software Engineering	Jawadekar	TMH	-
6	Software Engineering	Pankaj Jalote	Wiley	1st
7	UML Toolkit	Hans – Erik Erikson and Magnue Penker		
8	System Analysis and Design- in a changing world	–John Satzinger, Robert Jackson, Stephen Burd		

Semester – II				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
13	**MCA 205**	**Accounting for Managers**	**20**	**80**
UNIT-1	**Financial Accounting-** Need for Accounting, Internal and external users of accounting information, Accounting concepts and conventions, Accounting process and System: Nature of accounting transactions- journal entries and posting into ledger, subsidiary books. (15 Hours)			
UNIT-2	**Trial Balance and Final Accounts -** Preparation of trial balance, Preparation of final accounts- Trading and Profit and Loss Account, Balance Sheet. Computerised Accounting - Role of computeriesed accounting, Tally package - features and application. (15 Hours)			
UNIT-3	**Cost Accounting -** Meaning, objectives, scope, importance and advantages financial and cost accounting. Cost unit and cost centre; Elements of cost:- Material, Labour and overheads; Preparation of cost sheet. Inventory valuation methods (FIFO, LIFO, Simple Average and weighted Average) (15 Hours)			
UNIT-4	**Management Accounting** - Concept, meaning, Definition, Features, Functions., CVP Analysis - Contribution, PV Ratio, BEP, Margin of Safety, Angle of incidence. Decision making based on CVP Analysis (15 Hours)			

Reference Books:

Sr. No.	Title	Author/s
1	Advanced Accountancy	Gupta R.L. and Radhaswamy

2	Advanced Accountancy	Shukla M.C. and Grewal T.S.
3	Cost Accounting	Jawahar Lal
4	Advanced Cost Accounting	Jain S.C. and Narang K.L.
5	Principles and Practice of Management Accounting	Manmohan Goel
6	Management Accounting	Sharma and Gupta
7	Cost Accounting	Arora M.N.
8	Advanced Accountancy-	Mahesuari

Nature of Question paper

Accounting for Managers

Time- 3 Hourse Total Marks- 80

Instructions : 1. Solve any 4 questions from Q 1 to Q.5

2. Q.No. 6 is compulsory

3. All questions carry equal marks

Q.1	Problem	16 Marks
Q.2	Problem	16 Marks
Q. 3	Problem	16 Marks
Q.4	Problem	16 Marks
Q.5	a) Broad Question ----------8 Marks b) Broad Question ----------8 Marks	16 Marks
Q.6	Short Notes (Any 4 out of 6)	16 Marks

Semester – II				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
14	**MCA206**	**Mini Project**	**--**	**50**

Objective: To develop a web application using the technologies and scripting students have learnt during the semester.

Project Work:

This mini project is based on subjects C / C++/ Web Technology in semester I and II. Simple projects such as Shopping Cart, Online Reservations, Social Networking based on HTML, JavaScript, and PHP, that will give some idea to the students about web application.

- Project must be done in a group of 2 students.
- Project must include at least 5 dynamic pages with database connectivity and validations
- Use MYSQL as a Database

General Instruction Regarding Preparation Of Project Report

For MCA-I Semester - II

Typing:

(a) The typing should be standard 12 pts in 1 ½ spaced using black ink only

(b) Margins must be Left 2 inches, Right 1.5 inches, Top 2 inches & Bottom 1.5 inches

(c) Paper A4 size

Project Report Copies:

Each project group should prepare N copies (N=1 Institute copy + m copies, where m indicates number of students in a group).

Format For Title Page:

A

PROJECT REPORT

ON

<TITLE OF THE PROJECT>

FOR THE PARTIAL FULFILLMENT OF

MCA-I, SEM-II

BY

<NAME OF STUDENT/S>

UNDER THE GUIDANCE OF

<NAME OF GUIDE>

SUBMITTED TO

Shivaji University, Kolhapur

Through

< Principal/Director >

< NAME OF THE INSTITUTE>

<Year>

Project Report Contents:

- Title Page
- Project Completion Certificate
- Declaration
- Acknowledgement
- CONTENTS with printed Page Numbers

CHAPTER 1: INTRODUCTION

1.1 Existing System and Need for System

1.2 Scope of Work

1.3 Operating Environment – Hardware and Software

1.4 Detail Description of Technology Used

CHAPTER 2: PROPOSED SYSTEM

2.1 Proposed System

2.2 Objectives of System

2.3 User Requirements

CHAPTER 3: ANALYSIS & DESIGN

3.1 Data Dictionary

3.2 Table Specifications (Design)

3.3 Menu Tree(Web Site Map)

3.4 User interface Design (Screens etc.)

3.5 Report Formats(Optional)

CHAPTER 4: USER MANUAL

4.1 Operations Manual / Menu Explanation

DRAWBACKS AND LIMITATIONS

PROPOSED ENHANCEMENTS

CONCLUSION

BIBLIOGRAPHY

ANNEXURES:

ANNEXURE 1: USER INTERFACE SCREENS

ANNEXURE 2: OUTPUT REPORTS WITH DATA (if any)

ANNEXURE 3: SAMPLE PROGRAM CODE (which will prove sufficient development is done by the student)

Semester – II				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
15	**MCA207**	**LAB III (Web Technology)**	**--**	**100**
Objective: To impart practical implementation of the Web Technology concepts learned.				

Lab demonstrations are expected on following topics –

Sr. No	Title
1.	Practical programs based on basic HTML tags.
2.	Practical programs based on text formatting tags, list, table, frame, etc.
3.	Practical programs based image mapping and forms.
4.	Practical programs based CSS attributes.
5.	Practical programs based JavaScript with validations and verifications with forms.
6.	Practical programs based on control structures and event handling of JavaScript.
7.	Practical programs based simple concepts of PHP.
8.	Design and develop various applications using PHP and My-SQL.

Semester – II				
Sr. No.	**Subject Code**	**Subject Title**	**Internal Marks**	**External Marks**
16	**MCA208**	**LAB IV (OOP C++)**	**--**	**100**
Objective: To impart practical implementation of the C++ concepts learned.				

Lab demonstrations are expected on following topics –

Sr. No	Title
1.	Practical programs based on control structures, structures, functions.
2.	Practical programs based on Arrays and String.
3.	Practical programs based on Operator Overloading, Object and Classes.
4.	Practical programs based on Inheritance.
5.	Practical programs based on Pointer.
6.	Practical programs based on Virtual Function and Polymorphism.
7.	Practical programs based on Streams and Files.
8.	Practical programs based on Templates and Exceptions.