डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद

परिपत्रक क्रमांक/एस.यु./विज्ञान/अभ्यासक्रम/७४/२०१४

या परिपत्रकाद्वारे सर्व संबंधीतांना सुचित करण्यात येते की, विज्ञान विद्याशाखेने शिफारस केल्यानुसार बी. एस्सी. / एम. एस्सी. प्रथम व द्वितीय वर्षाच्या सुधारित अभ्यासक्रमास आणि बी. एस्सी. प्रथम वर्षाच्या अभ्यासक्रमात किरकोळ बदल करण्यास विद्यापरिषदेच्या वतीने मा. कुलगुरु यांनी, त्यांना प्राप्त असलेल्या विशेष अधिकार महाराष्ट्र विद्यापीठ अधिनियम-१९९४ कलम १४(७) अन्वये मान्यता दिलेली आहे. त्या अनुषंगाने सुधारीत तयार केलेल्या अभ्यासक्रमाची प्रत या परिपत्रकासोबत आपल्या पुढील कार्यवाहीसाठी पाठविण्यात येत आहे.

[1]	B.Sc. Physics	Semester-III & IV,
[2]	B.Sc. Chemistry	Semecter-III & IV,
[3]	B.Sc. Botany	Semester-III & IV,
[4]	B.Sc. Zoology with minor changes	Semester-I & II,
[5]	B.Sc. Zoology	Semester-III & IV,
[6]	B.Sc. Fisheries	Semester-III & IV,
[7]	B.Sc. Electronics (Opt.)	Semester-III & IV,
[8]	B.A./B.Sc. Mathematics	Semester-III & IV,
[9]	B.Sc. Computer Science	Semester-I & II,
[10]	B.Sc. Information Technology	Semester-I & II,
[11]	B.C.A.	Semester-I & II,
[12]	B.Sc. Computer Science(Opt.)	Semester-I & II,
[13]	B.Sc. Information Technology(Opt.)	Semester-I & II,
[14]	B.Sc. Computer Application(Opt.)	Semester-I & II,
[15]	B.Sc. Computer Maintenance(Opt.)	Semester-I & II,
[16]	B.Sc. Biotechnology (Progressively)	Semester-I to VI,
[17]	B.Sc. Biotechnology (Opt.) (Progressively)	Semester-I to IV,
[18]	B.Sc. Sericulture Technology	Semester-I & II,
[19]	B.Sc. Networking Multimedia	Semester-III & IV,
[20]	B.Sc. Bioinformatics	Semester-I & II,
[21]	B.Sc. Hardware & Networking	Semester-I & II,
[22]	B.Sc. Animation	Semester-I & II,
[23]	B.Sc. Dairy Science & Technology	Semester-III & IV,
[24]	B.Sc. Biochemistry	Semester-III & IV,
[25]	B.Sc. Analytical Chemistry	Semester-III & IV,
[26]	B.Sc. Textile & Int. Decoration with minor changes	Semester-I & II,
[27]	B.Sc. Textile & Int. Decoration	Semester-III & IV,
[28]	B.Sc. Home Science with minor changes	Semester-I & II,
[29]	B.Sc. Home Science	Semester-III & IV,
[30]	B.Sc. Agro.Chem. & Fertilizers	Semester-III & IV,

..2..

[31]	B.Sc. Geology	Semester-III & IV,
[32]	B.A. Statistics with minor changes	Semester-I & II,
[33]	B.A. Statistics	Semester-III & IV,
[34]	B.Sc. Statistics with minor changes	Semester-I & II,
[35]	B.Sc. Statistics	Semester-III & IV,
[36]	B.Sc. Industrial Chemistry	Semester-III & IV,
[37]	B.Sc. Horticultural	Semester-I & II,
[38]	B.Sc. Dry land Agriculture	Semester-I & II,
[39]	B.Sc. Microbiology	Semester-III & IV,
[40]	M.Sc. Computer Science	Semester-I to IV,
[41]	M.Sc. Information Technology	Semester-I to IV.

हा सुधारीत व नवीन तयार केलेल्या अभ्यासक्रमाचा आराखडा शैक्षणिक वर्ष २०१४-१५ करिता मर्यादित असेल व विद्यापरिषदेच्या अंतिम मान्यतेनंतर हे परिपत्रक नियमित ठेवण्याबाबत या कार्यालयाद्वारे नवीन परिपत्रक पारीत करण्यात येईल. तसेच सुधारीत व नवीन तयार केलेल्या अभ्यासक्रमाची प्रत विद्यापीठाच्या संकेतस्थळावर उपलब्ध आहे.

करिता, या परिपत्रकाची सर्व संबंधितांनी नोंद घ्यावी.

विद्यापीठ प्रांगण,
औरंगाबाद-४३१ ००४.
संदर्भ क्र.एस.यु./सा.शा./सबवि /२०१३-१४/
६५९९-७०२
दिनांक :- २७-०५-२०१४.

संचालक,
महाविद्यालये व विद्यापीठ
विकास मंडळ.

****

या परिपत्रकाची एक प्रत :-

१) मा. परिक्षा नियंत्रक, परिक्षा विभाग,
२) मा. प्राचार्य, सर्व संलग्नीत महाविद्यालये,
३) संचालक, युनिक यांना विनंती करण्यात येते की, सदरील अभ्यासक्रम विद्यापीठाच्या संकेतस्थंळावर उपलब्ध करुण देण्यात यावेत.
४) संचालक, ई-सुविधा केंद्र, विद्यापीठ परिसर,
५) जनसंपर्क अधिकारी, मुख्य प्रशासकीय इमारत,
६) कक्ष अधिकारी, पात्रता विभाग, मुख्य प्रशासकीय इमारत,
७) कक्ष अधिकारी, बी.ए. / बी.एस्सी./ बी.सी.एस./एम.एस्सी. विभाग, परीक्षा भवन,
८) अभिलेख विभाग, मुख्य प्रशासकीय इमारती मागे,

डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.

NAAC 'A' Accredition

Dr. Babasaheb Ambedkar Marathwada University

Aurangabad-431004

Revised Syllabus of

B.C.A.Science – First Year

Semester I & II

Three Year Degree Course

(With Effective From : June 2014)

हे ज्ञानिची पवित्रता | ज्ञानीचि आथि ||

Dr. Babasaheb Ambedkar Marathwada University
Aurangabad-431004.
Tel.No. : 0240-2403400/431, Fax:0240-2403113
Website : www.bamu.ac.in, http://bamua.digitaluniversity.ac.in

Dr. Babasaheb Ambedkar Marathwada University.

Appendix 'A'

A Candidate shall be admitted to the I year of the B.C.A.(Science) degree course only if he/she satisfies the following condition:

1. He/ She must have passed the higher secondary (multipurpose) examination conducted by H.S.C. board Government of Maharashtra with science / technical subjects Or an Examination of any statutory University and Board recognized as equivalent thereto.

   OR

   He/She must have passed examination prescribed at the end of second year of the junior college conducted by the H.S.C. board, Government of Maharashtra with English, Second language, Physics, Chemistry, Mathematics and or Biology or one of the technical subjects prescribed at the said examination as the optional or elective subjects or an examination recognized as equivalent thereto.

   OR

   Candidate having offered prescribed vocational course (MCVC) with Computer techniques/I.T./Electronics.

   OR

   Three years Diploma Course in engineering conducted by the board of technical Education, Maharashtra State.

2. He/ She must have passed at qualifying examination.

A candidate who has passed the B.C.A.(Science) examination of this university may be allowed to present himself subsequently at the degree examination in a subject or subjects other than those he has taken earlier provided that he puts in three years of attendance as a regular candidate for First, Second and Third year in the subject or subjects concerned excluding compulsory English, Second Language and remaining optional subject(s).

A candidate shall not be allowed to appear for such examination if he has passed the higher examination.

The Degree of Bachelor of Science (Computer Application) shall be conferred on candidate who has pursued a regular course of study consisting of six semesters in the relevant subject as prescribed and has appeared at the end examination and passed under the credit based system in all the examination prescribed for the Degree course in the faculty.

The pattern of the examination and the scope is indicated in the syllabus.[Annexure B]

- The Number of students in a theory class shall not exceed 60.
- Maximum number of students in a batch for practicals in first four semesters shall consist of 20 students and for fifth & sixth semester the batch shall consist of 15 students.
- The rules for admission to the subsequent (next) semesters will be the same as per the University guidelines.
- For Each course the concerned teacher will have to conduct Class tests after completion of 15 and 20 lectures. The mark list of the same is to be submitted to the university authority within 7 working days after the completion of class tests.
- Final Examination will be conducted by the University based on the complete syllabus.
- Final Practical Examination will be conducted by the university and examiners will submit the mars in the prescribed format of students for practical examination to the university.

The Number of Teaching Staff & infra-structure required to run the course will be as follow :-

The graduation is very important phase in the life of our young students. The college responsibly is not only to deliver a quality syllabus based education, but also to motivate them to be a good healthy citizen. In this direction, the college must have sufficient facilities to run the course. A guideline is listed below. The College must have following minimum facilities :

Infrastructure:

1. One Class room to accommodate 60 students. (approximately 250 sq.ft.)
2. A well equipped software Laboratory having a LAN system of 30 nodes and having internet connectivity with broad band. All legal software, antivirus software, firewall be available for smooth functioning of the laboratory.

3. A hardware laboratory having twenty microprocessor kits with add on cards as per their syllabus. Staff room of 100 sq.ft. with one table and one Almeria for each faculty member.
4. One office space of 100 sq.ft. with appropriate furniture.
5. One lady room of 100 sq.ft. with attached toilet.
6. One reading room of 200 sq.ft. with seating arrangements for at least 30 people. The library may be accommodated in the library.
7. One copy of every text book among five student for each subject be available along with one copy of reference book as per the syllabus.
8. Library must subscribe for computer and scientific magazines. Appropriate general reading materials must be available for overall development of students.
9. An open space for sports activities. The college must be encouraged to have sport equipments.

Staff:

1. The head of the department in the scale of reader/Professor.
2. The minimum number of teachers must be appointed as per the work load.Per semester, the work load may be computed on the basis of theory classes, tutorials and practical class per batch. Minimum number of teachers to run the course must be five excluding the head. Teachers must be appointed by the university/UGC norms. The quality of the course is directly related to quality of teachers for the course.
3. There must be one clerk in the office to look after administrative work. The placement of all staffs must be maintained properly.
4. One qualified librarian

- An appropriate number of class IV employees.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

Curriculum Structure and Scheme of Evaluation: B.C.A.(Sci.)

Sr. No.	Paper Number	Name of the Paper Titles	Scheme of Teaching	Scheme of Evaluation(Marks)		
			Theory / Practical (hrs / week)	Theory / Practical (Marks)	Exam Duration (in hrs.)	Total Marks
I Semester						
1	CA101-T	Computer Fundamentals	3	50	2	50
2	CA102-T	Digital Electronics	3	50	2	50
3	CA103-T	Microprocessor – I	3	50	2	50
4	CA104-T	C Programming – I	3	50	2	50
5	CA105-T	Communication Skill – I	3	50	2	50
6	CA106-T	Mathematical Foundation	3	50	2	50
7	CA107-P	Office Suite	4	50	2	50
8	CA108-P	Digital Electronics	4	50	2	50
9	CA109-P	Microprocessor – I	4	50	2	50
10	CA110-P	C Programming – I	4	50	2	50
II Semester						
1	CA201-T	Data Structure	3	50	2	50
2	CA202-T	Operating System	3	50	2	50
3	CA203-T	I.T. Tools & Web Designing – I	3	50	2	50
4	CA204-T	C Programming – II	3	50	2	50
5	CA205-T	Communication Skill – II	3	50	2	50
6	CA206-T	Numerical Computation Methods	3	50	2	50
7	CA207-P	Data Structure	4	50	2	50
8	CA208-P	I.T. Tools & Web Designing – I	4	50	2	50
9	CA209-P	C Programming – II	4	50	2	50
10	CA210-P	Numerical Computation Methods	4	50	2	50

PATTERN OF QUESTION PAPERS

Note : 1) All questions carry equal marks.

2) All questions are compulsory.

Q. No.	Format	Marks
1.	Multiple Choice/Fill in the blank/Match the pair/ one line answer. 1) 2) . . 10)	1 x 10 = 10
2.	a) b) OR a)	5 * 2 =10 10
3.	a) b) OR a)	5 * 2 =10 10
4.	a) b) OR a)	5 * 2 =10 10
5.	Write Short Notes On: (Any Two) a) b) c)	5 * 2 =10
	Total	**50**

* Not More than 3 bits should be asked in each question of 10 Marks.

(Only for Paper Setter)

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

B.C.A. (Science)

Semester I

Course : B.C.A.(Sci.) I Seme. **Max. Marks :** 50

Paper Title: Computer Fundamentals **Paper No. :** CA101-T

UNIT – 1

1. Fundamentals of Computer System

- Characteristics & features of Computers.
- Components of Computers.
- Organization of Computer.

2. Algorithm and Flowcharts

- Algorithm : Definition , Characteristics , Advantages and disadvantages , Examples
- Flowchart : Definition , Define symbols of flowchart , Advantages and disadvantages , Examples

3. Computer Generation & Classification

- Generation of Computers : First to Fifth
- Classification of Computers : Distributed & Parallel computers

UNIT – II

4. Computer Languages

- Types of Programming Languages : Machine Languages , Assembly Languages, High Level Languages
- Assembler, Linker, Loader, Interpreter & Compiler.

5. Computer Memory

- Memory Cell & Organization
- Types of Memory (Primary And Secondary) : RAM , ROM , PROM , EPROM
- Secondary Storage Devices (FD, CD, HD, Pendrive, DVD, Tape Drive, DAT)

6. I/O Devices

- Input Devices : Touch screen , OMR, OBR , OCR, Light pen ,Scanners
- Output Devices: Digitizers, Plotters, LCD, Plasma Display, Printers

UNIT – III

7. Processor

- Structure of Instruction , Description of Processor , Processor Features
- RISC & CISC

8. Operating system Concepts

- Why Operating System?, Functions of Operating System , Booting of OS & it's type
- Types of Operating System : Batch O.S. , Multiprogramming O.S., Time Sharing O.S , Personal Computers O.S. , Network O.S.

Text Books:

1. Fundamentals of Information Technology; By Chetan Srivastava, Kalyani Publishers
2. Fundamentals of Computers: By V.Rajaraman, PHI Publication , IVth Edition.
3. Fundamentals of Programming: By Raj K.Jain, S.Chand Publication

Reference Books:

1. Computer Fundamental By B.Ram, BPB Publication.

Course : B.C.A.(Sci.) I Seme. **Max. Marks :** 50

Paper Title: Digital Electronics **Paper No. :** CA102-T

UNIT – 1

1. **Number Systems and Arithmetic**
   - Number System : Decimal , Octal , Hexadecimal & Binary Number System
   - Conversion within Binary, Octal, Hexadecimal & Decimal Number System.
   - Binary Arithmetic : Binary addition, subtraction, multiplication & division
   - Binary subtraction using 1' complement, 2's complement method.
   - Hexadecimal arithmetic: Addition, subtraction, multiplication & division
2. **Boolean Algebra and Logic Gates**
   - Postulates of Boolean Algebra
   - Theorems of Boolean Algebra: Complementation , commutative, AND, OR, Associative, Distributive, Absorption laws , De morgan's theorems
   - Reducing Boolean expressions
   - Logic Gates : AND, OR, NOT, Ex-OR, Ex-NOR
   - NAND as Universal building block
   - Logic diagrams of Boolean expressions Boolean expressions for logic diagrams

Unit – II

3. **Minimization Techniques**
   - Introduction , Minterms and Maxterms
   - K-Map, K-map for 2 variables
   - K-map for 3 variables
   - K-map for 4 variables
4. **Combinational and Arithmetic Logic Circuits**
   - Half Adder & Full Adder
   - Binary parallel Adder
   - Half Subtractor, Full Subtractor
   - Adder/Subtractor in 2's complement system
   - BCD to Decimal decoder
   - 2 : 4 demultiplexer
   - 4 line to 1 line multiplexer

Unit – III

5. **Flip Flops**
   - Introduction : RS FF
   - Clocked RS FF, D FF
   - Triggering, preset and clear
   - JK FF , T FF , Race around condition
   - Master slave FF

6. Counters

- Introduction : Asynchronous/ ripple counter
- Modulus Counter , MOD-12 counter
- Synchronous counter : Synchronous serial & synch parallel counter
- BCD counter
- Ring counter

7. Shift Registers

- Introduction, Buffer register
- Serial- in serial -out Serial-in parallel-out
- Parallel-in serial-out, parallel-in parallel-out

Text Book:

1. Digital Electronics and Micro-Computers – R.K.Gaur , Dhanpat Rai Publication

Reference Book:

1. Digital Electronics and Logic Design – N.G.Palan, Technova Publication

Course : B.C.A.(Sci.) I Seme. **Max. Marks :** 50

Paper Title: Micro processor - I **Paper No. :** CA103-T

UNIT – I

1. **Introduction to Microprocessor and Microcomputer**
   - Historical background
   - Microprocessor based personal computer system
   - Computer data formats
2. **8086 Hardware specification**
   - Microcomputer structure and operation
   - 8086 internal architecture ,
   - Real Mode & Protected Mode Memory Addressing, Memory Paging.
   - Introduction to programming 8086 : Prog.lang.

UNIT – II

3. **Addressing Modes**
   - Data addressing modes
   - Program memory addressing modes
   - Stack memory addressing modes
4. **Data Movement Instructions (Inst.related with 8086 only)**
   - MOV revisited: Machine language,the op-code, MOD field, resister assignment,R/M memory addressing,special addr.mode

UNIT – III

5. **Data Movement Instructions (..)**
   - PUSH/POP, initializing stack.
   - Miscellaneous data transfer instructions: XCHG, LAHF & SAHF
6. **Arithmetic instructions**
   - Addition, subtraction and comparison
   - Multiplication and division
   - BCD and ASCII arithmetic

Text Books:

1. The Intel Microprocessors: Architecture, programming and interfacing –
   By Barry B. Brey
2. Microprocessors and Interfacing : Douglas Hall.

Course : B.C.A.(Sci.) I Seme. **Max. Marks :** 50

Paper Title: 'C' Programming - I **Paper No. :** CA104-T

UNIT – I

1. **Introduction :**
   a. An Overview of C , History of C language, C as a Structured Language, Features of C.
2. **Basic Elements & Operators**
   - Character set, C Token, Identifier & Keywords, Variables
   - Constant and its types. Integer constant, floating point constant, character constant, string constants.
   - Operators: Arithmetic, Relational, Logical, Unary operators: Increment & decrement Assignment and Conditional operator.
   - Precedence & Associatively of Operators
3. **Data Types**
   - Data Types: *int*, *char*, *float*, *double*. Declaration & Initialization.
   - Type modifier: long, short, signed & unsigned

UNIT – II

4. **C Program & I/O statements**
   - Structure of C Program, Compilation & Execution of C program
   - I/O: Introduction, Formatted Input/Output function: *scanf & printf*, Escape sequence characters.
   - Library functions: General & Maths.
5. **Control and Iterative Statements :**
   - Simple if, nested if, if-else, else if ladder
   - Switch-case statement
   - The conditional expression (? : operator)
   - *while* and *do-while* loop, and *for* loop
   - *break* & *continue* statement, *goto* statement

UNIT – III

6. **Arrays:**
   - Introduction, Declaration and initialization Accessing array elements, Memory representation of array.
   - One dimension and multidimensional arrays, character array, Introduction to string.

Text Books::

1. Let us C : Y.P. Kanetkar [bpb publication]
2. Programming in C : E. Balaburuswamy [Tata macgraw hill]
3. Programming in C : Goterfried [Shaums' Series]

Reference Books:

1. Spirit of "C" : Moolish Kooper.

Course : B.C.A.(Sci.) I Seme. **Max. Marks :** 50

Paper Title: Communication Skill- 1 **Paper No. :** CA105-T

UNIT – I

1. **Introduction to Communication**
   Importance of Communication, Definition of Communication
   Elements of Communication, Communication process
2. **Types of Communication**
   Upward Communication, Downward Communication
   Horizontal Communication
3. **Method of Communication :** Verbal , Oral , Written

UNIT – II

4. **Written Communication**
   Punctuation marks.
   Grammar: Parts of Speech, tenses,
   vocabulary building, constructing para.
   'C's of good communication
   Language of business writing
5. **Oral Communication**
   Speeches and Presentation
   Dialogues

UNIT – III (English Language Lab)

6. **Listening Comprehension**
   Listening and typing – Listening and sequencing
   of sentences .
7. **Reading Comprehension and Vocabulary**
   Filling in the blanks - Cloze Exercises –
   Vocabulary building –
   Reading and answering questions.
8. **Speaking**
   a. Phonetics**:** Intonation – Ear Training – Correct
   Pronunciation – Sound recognition exercises -
   Common Errors in English
   b. Conversations: Face to Face Conversation -
   Telephone conversation –

Text Books

1. Business Communication , By urmila Rai & S.M.Rai. Himalaya Pub.
2. Communication Skill for Effective Management By Dr.Anjali Ghanekar. Everest Pub. House.
3. Developing Communication Skill By Krishna Mohan, Meera Banerji. McMillan

Course : B.C.A.(Sci.) I Seme. **Max. Marks :** 50

Paper Title: Mathematical Foundation **Paper No. :** CA106-T

UNIT – I

1. **Set Theory**-
   - **Basic Definitions:** Set, Finite set, Infinite set, Singleton Set, Empty set, Subset, Proper Subset, Universal set, Power set, Venn diagram ,
   - **Operations on set:** Union of sets, Intersection of Sets, Complement of a set, Equality of two sets, Disjoint sets, Difference of two sets, Symmetric Difference, Cartesian Product; explanation of each using Venn-diagram and simple examples. Principle of Inclusion and Exclusion.
   - **Algebraic Properties of Set**: Statement and proof of Commutative Laws, Associative Laws, Distributive Laws, Idempotent Laws, Properties of Compliment, Principle of Duality.

UNIT – II

2. **Graph Theory:**
   - **Introduction:** Graph Definition & Terminologies, Application of Graph, Finite & Infinite Graphs, Incidence and Degree, Isolated Vertex, Pendant Vertex and Null Graph.
   - **Matrix Representation of Graph:** Incidence & Adjacency Matrix.
   - **Path & Circuits:** Isomorphism, Subgraphs, Walks, Paths and Circuits, Connected Graphs, Disconnected Graphs and Components, Euler Graphs.
   - **Operations on Graph:** Union, Intersection & Ring Sum.
   - **Directed Graph :** Definition, Types of Directed Graph, Directed Path & Connectedness.

UNIT – III

3. **Relation and Function**
   - **Introduction:** Binary Relation, Tabular Form, Graphical Form, Ternary Relation, Quaternary Relation.
   - **Properties of Binary Relations:** Reflexive Relation, Symmetric Relation, Antisymmetric Relation, Transitive Relation, Equivalence Relation.
   - **Function :** Introduction, Function Mapping, Types of Functions: 1:1 , 1:M

4. **Boolean Algebra**
   - Finite Boolean Algebra, Boolean Expression, Boolean Function.
   - Disjunctive Normal Form & Simplification.

Text Books:

1. "Discrete Mathematical Structures" by Bernard Kolman, Robert C. Busby,Sharon Cutler Ross, Pearson Education Asia.
2. "Elements of Discrete Mathematics" by C.L. Liu, Tata McGraw-Hill
3. "Discrete Mathematics" by Dr. Bembalkar.
4. "Graph Theory" by Narsingh Deo

Course : B.C.A.(Sci.) I Seme. **Max. Marks :** 50

Paper Title: Office Suite **Paper No. :** CA107-P

- **GUI Operating System :** Mouse Practice, Starting, Login, Shutdown, Exploring Directories, Resizing, Moving, Minimizing, closing of software windows, familiarization with file icons, Launching Applications, Deleting, Renaming files, Managing Directories, Searching for files, Using Accessories.

- **Web Browser:** Basic Browsing, Buttons: forward, backward, home, adding to favorites, stop, save, save as, Saving an Image from the Web, printing, Specifying a Home Page, **Browsing**: Using Web URLs, Anatomy of a URL, Membership Websites: Signing up for email service, **Searching:** Academic Search on the web**.**

- **Word Processing Tool**: Menus, Shortcut menus, Toolbars, Customizing toolbars, Creating and opening documents, Saving documents, Renaming documents, Working on multiple documents, Close a document ; **Working With Text** :Typing and inserting text, Selecting text, Deleting text, Undo, Formatting toolbar, Format Painter, Formatting Paragraphs: Paragraph attributes, Moving, copying, and pasting text, The clipboard, Columns, Drop caps; **Styles** : Apply a style, Apply a style from the style dialog box, Create a new styles from a model, Create a simple style from the style dialog box, Modify or rename a style, Delete a style; **Lists** : Bulleted and numbered lists, Nested lists, Formatting lists **Tables** :Insert Table button, Draw a table, Inserting rows and columns, Moving and resizing a table, Tables and Borders toolbar, Table properties **Graphics** :Adding clip art, Add an image from a file, Editing a graphic, AutoShapes; **Spelling and Grammar**: AutoCorrect, Spelling and grammar check, Synonyms, Thesaurus; **Page Formatting**: Page margins, Page size and orientation, Headers and footers, Page numbers, Print preview and printing.

- **Spreadsheet Basics**: Screen elements, Adding and renaming worksheets, The standard toolbar - opening, closing, saving, and more; **Modifying A Worksheet**, Moving through cells, Adding worksheets, rows, and columns, Resizing rows and columns, Selecting cells, Moving and copying cells,, Freeze panes; **Formatting Cells:** Formatting toolbar, Format Cells dialog box, Dates and times; **Formulas and Functions:** Formulas, Linking worksheets, Relative, absolute, and mixed referencing, Basic functions, Function

Wizard, Autosum, **Sorting and Filling:** Basic ascending and descending sorts, Complex sorts, Autofill; Alternating text and numbers with Autofill, Autofilling functions; Graphics; Adding clip art; Add an image from a file; Editing a graphics; AutoShapes; **Charts:** Chart Wizard; Resizing a chart; Moving a chart, Chart formatting toolbar; **Page Properties and Printing:** Page breaks, Page orientation, Margins, Headers, footers, and page numbers, Print Preview, Print; Keyboard Shortcuts.

- **Presentation Tool**: AutoContent Wizard, Create a presentation from a template, Create a blank presentation, Open an existing presentation, AutoLayout, Presentation Screen: Screen layout, Views, Working with Slides: Insert a new slide, Applying a design template, Changing slide layouts, Reordering slides, Hide slides, Create a custom slide show, Edit a custom slide show Adding Content: Resizing a text box, Text box properties, Delete a text box, Bulleted lists, Numbered lists, Adding notes, Video and Audio Working with Text: Adding text, Editing options, Formatting text, Replace fonts, Line spacing, Change case Spelling check Color & Background: Color schemes, Backgrounds, Graphics, Adding clip art, Adding an image from a file, Editing a graphic, AutoShapes, WordArt Slide Effects: Action buttons, Slide animation, Animation preview, Slide transitions, Slide show options, Master Slides, Slide master, Header and footer, Slide numbers, Date and time Saving and Printing, Save as a web page, Page setup, Print
- **Integrating Programs** Word, spreadsheet and Presentation.

Note:

The above practical is to be conducted using the either Microsoft-Office or OpenOffice.

Course : B.C.A.(Sci.) I Seme. **Max. Marks :** 50

Paper Title: Digital Electronics **Paper No. :** CA108-P

Instruction: The Laboratory work will have to be performed during the semester consisting of any of the 8 experiments from the given list below***:***

List of Experiments:

1. Study and Testing of measuring instruments: Digital and Analog multimeters, CROs and Signal Generators – measurement of AC & DC voltages, measurement of frequency.
2. Study of Components: Identification and testing of resistors, capacitors, inductors, diodes, LEDs & transistors
3. Study of Logic Gates: Study of truth table of basic gates, realization of Boolean functions
4. Study of Half adder and Full Adder
5. Study of Half Subtractor and Full Subtractor
6. Study of Implementation of a 3:8 decoder,
7. Study of 4-line to 16 bit decoder
8. Study of BCD to 7-segment decoder
9. Study of Generating a Boolean expression with a multiplexer
10. Study of Clocked JK Flip Flop
11. Study of 4-bit ripple counter
12. Study of Parallel-in, serial-out, 4-bit shift register

Course : B.C.A.(Sci.) I Seme. **Max. Marks :** 50

Paper Title: Micro Processor - I **Paper No. :** CA109-P

List of Experiments:

1. Addition and subtraction of two 8-bit numbers with programs based on different Addressing modes of 8086.
2. Addition and subtraction of two 16-bit numbers. (Using 2's complement method, also programs which access numbers from specified memory locations)
3. Multiplication of two 8-bit numbers using the method of successive addition and Shift & add.
4. Division of two 8-bit numbers using the method of successive subtraction and shift & subtract.
5. Block transfer and block exchange of data bytes.

Course : B.C.A.(Sci.) I Seme. **Max. Marks :** 50

Paper Title: 'C' Programming **Paper No. :** CA110-P

List of Experiments:

1. Find Area, Perimeter of Triangle & Rectangle.
2. Find maximum amongst 3 numbers.
3. Program for nested loops.
4. Program to Calculate x^y
5. Program to check Prime Number, Program reverse of digit.
6. Program to find Armstrong Number.
7. Program to print the Fibonacci Series
8. Searching and element from array.
9. Transpose of matrices
10. Multiplication of matrices
11. Sorting array using bubble sort technique
12. Program for factorial.

Note : Any other five program of faculty's interest.

B.C.A. (Science)

Semester II

Course : B.C.A.(Sci.) II Seme. **Max. Marks :** 50

Paper Title: Data Structure **Paper No. :** CA201-T

UNIT – I

1. **Introduction to Data Structure:**
    - Basic Terminology : Data item, Fields, Records, Files, Entity, Attributes
    - Data Organization and Data Structure
2. **Arrays**
    - Representation of Linear Arrays
    - Traversing, Insertion and Deletions
    - Sorting & Searching Algorithms
    - Multidimensional Arrays : 2D & M-D Concept
    - Record: Record Structures, Representation in Memory

UNIT – II

3. **Linked List**
    - Concept of Linked List
    - Representation of linked List in memory
    - Traversing a linked list
    - Searching a linked list : sorted and unsorted
    - Insertion & Deletion in Linked List
    - Header Linked List & Two way List

UNIT – III

4. **Stacks, Queues , Recursion**
    - Stack: Operation , Array Representation of Stack, linked representation of stack, Arithmetic Expression POLISH & POSTFIX,
    - Application of stacks: Quicksort, Recursion.
    - Queue: Representation of queues & link.
    - Types of Queues : Deques & Priority Queues

Text Books:

1. Data Structures : By Seymour Lipschutz, Tata Mcgraw- Hill Publication.

Reference Books:

1. Fundamentals of Data structures, by Horowitz & Sahani (Galgotia pub).
2. An introduction to data structures and application, by Jean Paul Tremblay & Pal G. Sorenson (McGraw Hill).
3. Data Structures, by Tannenbaum, (PHI).

Course : B.C.A.(Sci.) II Seme. **Max. Marks :** 50

Paper Title: Operating System **Paper No. :** CA202-T

UNIT – I

1. **Process Management**
   - **Concept of Process**: Process State, Operation on Processes, thread.
   - **CPU Scheduling** : Types of Schedulers, Criteria for scheduling, Scheduling Algorithms.
   - **Process Synchronization:** Need for synchronization, Critical Section, Hardware Synchronization, Semaphores, Monitors, Problem of synchronization.
   - **Deadlocks:** Concept of Deadlock, Deadlock Modeling, Methods for Handling Deadlock

UNIT – II

2. **Storage Management**
   - **Memory Management**: Address Binding, Logical Vs. Physical Address space, Memory Allocation, Paging, Segmentation, Segmentation and paging of Intel Pentium.
   - **Virtual Memory:** Demand Paging, Page replacement Algorithms (FIFO, Optimal, LRU), Virtual Memory in windowsXp.
   - **File System Interface**: Files, File Access, Directory Structure, Protection.
   - **Implementation of File System:** Allocation Methods, Free space Management

UNIT – III

3. **Device Management**
   - **Introduction :** Dedicated Devices, Shared Device & Virtual Device
   - **Device Characteristics:** Input and Output devices , Storage devices , Device allocations
   - **Concept of I/O Traffic Controller:** I/O Scheduler, introduction to Virtual Devices.
4. **Information Management**
   - Concept of File system
   - Symbolic file system
   - Access control verification
   - Logical and physical file system

Text Books:

1. "Operating System", By S.R.Sathe & Anil S.Mokhade , MacMillan Publication.
2. "Operating System", By Stuart E.Madnick, John J.Donovan.

Reference Books:

1. Operating System Concepts- A. Silberzchaz & P.B. Galvin, Addison – Wesley Publishing Company.

Course : B.C.A.(Sci.) II Seme. **Max. Marks :** 50

Paper Title: IT Tools & Web Designing-I **Paper No. :** CA203-P

Unit I

1. **Basic concepts**
    - Web standard : Standard Process, Advantage of Standard, Current Web Standard.
    - Basic web designing: Introduction to web browser, architecture of web browser, web page, Static & dynamic web pages, home page, web-site. Web-servers & clients.
    - Basic's of Internet, Internet Domains
    - Protocols definition, Overview of TCP/IP, Telnet, FTP
    - Communication between browser and web server
2. **Introduction to HTML**
    - Structure of HTML program
    - **HTML paired tags, Singular Tag**
    - **Text formatting:** paragraph, line break, headings , drawing lines.
    - **Text styles:** Bold, italics, underline.
    - **Centering & Spacing**

Unit II

3. **HTML**
    - **Lists:** types of lists viz. unordered, ordered, definition lists
    - **Adding graphics:** image, background, border, using width and height attributes.
    - **Tables:** creation and setting attributes of table, width & border attribute, Cell Padding, Cell Spacing, Colspan & Rowspan Attributes, background color.
    - **Linking documents (Links):** External document references, internal document references.
    - **Introduction to frames:** frameset and frame tag.

Unit III

4. **Introduction to DHTML**
    - Overview of dynamic HTML.
    - **Cascading Style Sheets:** Font Attributes, Color & background Attributes, Text Attributes, border & Margin Attributes, List Attributes.
    - **Class**
    - **Using the <SPAN>...</SPAN> , <DIV> … </DIV> Tag**.
    - External Style Sheets.
5. **Introduction to javascript:**
    - Javascript in web pages, Advantages of Javascript, Writing Javascript into HTML, Basic Programming Techniques, Operators and expressions in Javascript,

Text Books:

1. Web Enabled commercial Application Development Using HTML, DHTML, JavaScript by -Ivon Bayross.
2. Complete reference HTML
3. JavaScript Bible.

Course : B.C.A.(Sci.) II Seme. **Max. Marks :** 50

Paper Title: 'C' Programming – II **Paper No. :** CA204-T

UNIT – I

1. **Functions**
    - Introduction, types of functions. Defining functions, Arguments, Function prototype, actual parameters and formal parameters, Calling function, Returning function results, Call by value, Recursion.
2. **Structure & Union**
    - Structure: Introduction, Declaration and initializing structure, Accessing structure members, Nested structures, Arrays of structure, *typedef* statement.
    - Unions: Declaration, Difference between structure and union

UNIT – II

3. **Pointers:**
    - Introduction, Memory organization. Declaration and initialization of pointers. The pointer operator * and &, De-referencing, Pointer expression and pointer arithmetic, Pointer to pointer.
4. **Storage Class & Library Functions:**
    - Storage classes, Scope, visibility and lifetime of variable, block and file scope, auto, extern, static and register storage classes.
    - **String handling functions**: strcpy(), strcmp(), strcat(), strlen(), strupr(), strlwr(), gets(), puts()
    - **Data conversion functions from stdlib.h**: atoi(), atol(), atof(), itoa(), ltoa(), random(), calloc(),malloc(),exit(), abs(), toupper(), tolower()
5. **Preprocessor Directives:**
    - File inclusion and conditional compiler directives, Macro substitution, #define, #if, #ifdef, #else, #elif, #endif,
6. **Miscellaneous Features:**
    - Bitwise Operators: Introduction, Masking, Internal representation of data, Bit fields, Enumerated data types, Type casting.

UNIT – III

7. **File Handling**
    - **File handling**: Introduction, Opening & closing a file, Input/Output operations on files, text and binary files, getc(), putc() function. File copy program, fprintf() and fscanf(). fread() and fwrite() function.

Writing and reading records from binary file, Appending, modifying and deleting a record from file, Random access functions fseek(), rewind(), flushall(), remove(), rename().

Text Books:

1. Let us C Solutions : Y.P. Kanetkar [bpb publication]
2. Programming in C : E. Balagurusamy. [Tata macgraw hill]
3. Programming in C : Goterfried [Shaums Series]

References Books:

1. Spirit of “C” : Moolish Kooper.
2. Test your Skills in C : Y.Kanetkar

Course : B.C.A.(Sci.) II Seme. **Max. Marks :** 50

Paper Title: Communication Skill-II **Paper No. :** CA205-T

UNIT – I

1. **Communication with Media**
   - Written media of Communication: Letters, Notices, Minutes, Manual, Leaflet, Complaints & Suggestion, Job Application.
   - Visual Media of communication: slide presentation, Pictures & Photographs, Posters & Advertisement.
   - Non-Verbal Media of Communication
2. **Written Communication: Reports**
   - Types of Report, characteristics of Good Report , Essential Requisites of Good Report-Writing, Planning the Report, Outlining Issues for Analysis, Writing the Reports.

UNIT – II

3. **Group Communication**
   - Problem of Group Communication- Meeting - types of meeting, Advantages & Disadvantages of Meeting, - Preparation for Meeting – conduct of a Meeting – Responsibility of participants.
4. **Interview**
   - Purpose, Types of interviews – promotion, appraisal, exit, telephone.
   - Employment or selection Interview : Candidate's preparation, Question commonly asked in interview, role of interviewer, Interviewer's preparation.

UNIT – III

5. **Listening Comprehension**
   - Cassettes: "*Tiger's Eye*" Series.(vol. 1 & 2) , "*Twist in the Tail*"
   - The Listening drill is to be given and question should be framed.
6. **Reading Comprehension and Vocabulary**
   - Reading with proper pronunciation and ideal reading is to be recorded.
7. **Speaking:**
   - **CIEFL'** Spoken English exercises part one and two.
   - Drilling : Proper Pronunciation of word and sentences

Core Books

1. Business Communication,By urmila Rai & S.M.Rai. Himalaya Pub.(Tenth Ed.)
2. Communication Skill for Effective Management By Dr.Anjali Ghanekar. Everest Pub. House.

Note : 1. Teacher should demonstrate various format of concerned contents.
2. For Report writing practice demonstrate IEEE paper Format.(http:// www.ieee.org/portal/cms_docs/pubs/confpubcenter/pdfs/samplems.pdf , http://www.ieee.org/portal/cms_docs_iportals/iportals/publications/journmag/transactions/TRANS-JOUR.doc)

Course : B.C.A.(Sci.) II Seme. **Max. Marks :** 50

Paper Title: Numerical Computation Methods **Paper No. :** CA206-T

UNIT – I

1. **Introduction**
   - Mathematical Modeling, Characteristics, Error in Calculation
   - Significant Error , Absolute, Percentage Relative Error
   - Chopping off and Rounding off Error.
   - Truncation Error, Propagation Error.
2. **Matrices and Determinants.**
   - Definitions, Matrix Operations
   - Determinant of Square Matrix, Cofactor
   - Adjoint of Matrix, Rank of Matrix
3. **Numerical Solutions of Transcendental Equations**
   - Concept of Iterative Methods, Search Method for Initial Guess.
   - Bisection Method
   - False Position Method
   - Newton-Raphson Method

UNIT – II

4. **Elimination Methods for Solving Simultaneous Equations**
   - Introduction and Matrix Notation of set of Equations
   - Gauss Elimination Method
   - Gauss Seidal Method
   - Matrix Inversion Method
5. **Interpolation**
   - Introduction and Polynomial Interpolation
   - Newton-Gregory Forward Difference Interpolation Formula
   - Newton-Gregory Backward Difference Interpolation Formula

UNIT – III

6. **Interpolation - II**
   - Newton's divided Difference Interpolation
   - Lagrange's Interpolation
7. **Least Square Curve Fitting**
   - Best Fit and Criteria for Best Fit and Least Square Fit.
   - Linear Regression.

Text Books:

1. "Numerical Computational Methods" - Dr. P.B.Patil, Narosa Publication Hous.

Reference Books:

1. Numerical methods -S.C.Chapra, R.P.Canale-McGraw Hill

2. Numerical methods-E.Balguruswamy

Course : B.C.A.(Sci.) II Seme. **Max. Marks :** 50

Paper Title: Data Structure **Paper No. :** CA207-P

Assignments: Write the Program using C (if applicable) :

Data Structure:

1. Write a program using DIV(J,K) which reads a positive integer N>10 and determines whether or not N is a prime number.
2. Write a program which counts the number of particular character/word in the String.
3. Write a program which reads words WORD1 and WORD2 and then replaces each occurrence of word1 in text by word2
4. Write the programs for traversing of n item using the array.
5. Write the programs for insertion and deletion of n item using the array.
6. Implement Linear and binary search algorithm using C.
7. Implement Bubble sort using C.
8. Write the programs for traversing of n item from the linked list.
9. Write the programs for push and pop operation using the stacks.
10. Write the programs for insertion and deletion of n item from the queues.

Course : B.C.A.(Sci.) II Seme. **Max. Marks :** 50

Paper Title: Micro Processor - II **Paper No. :** CA208-P

Any ten experiments from the list given below:

1. Addition and subtraction of two 8-bit numbers with programs based on different Addressing modes of 8086.
2. Addition and subtraction of two 16-bit numbers. (Using 2's complement method, also programs which access numbers from specified memory locations)
3. Multiplication of two 8-bit numbers using the method of successive addition and Shift & add.
4. Division of two 8-bit numbers using the method of successive subtraction and shift & subtract.
5. Block transfer and block exchange of data bytes.
6. Finding the smallest and largest element in a block of data.
7. Arranging the elements of a block of data in ascending and descending order.
8. Generating delays of different time intervals using delay subroutines and measurement of delay period on CRO using SOD pin of 8086.
9. Program for Summation of First n Number.
10. Program for Factorial of n.
11. Program for Addition of Array elements.
12. Program for Reversing the Array elements.

Course : B.C.A.(Sci.) II Seme. **Max. Marks :** 50

Paper Title: C Programming-II **Paper No. :** CA209-P

1. Swapping of numbers by using call by reference
2. Program to pass array to function.
3. Program for passing structure pointer to function.
4. String manipulation function e.g. string copy, concatenation, compare, string length, reverse
5. Program for reading/writing text file.
6. Program for reading/writing binary file
7. Program for File copy program.
8. Program to modify a record from binary file
9. Program to delete a record from binary file
10. Program on conditional compiling
11. Program on macro substitution.
12. Program for data conversion
13. Program to demonstrate the storage class.
14. Program to sort names.

Course : B.C.A.(Sci.) II Seme. **Max. Marks :** 50

Paper Title: Numerical Computational Method **Paper No. :** CA210-P

1. Program in C for representation of, Bisection Method
2. Program in C for representation of, False Position Method
3. Program in C for representation of, Newton-Raphson Method
4. Program in C for representation of, Gauss Elimination Method
5. Program in C for representation of, Matrix Inverse Method
6. Program in C for representation of, Newton-Gregory Forward Difference Interpolation Formula
7. Program in C for representation of, Newton-Gregory Backward Difference Interpolation Formula
8. Program in C for representation of Newton's divided Difference Interpolation
9. Program in C for representation of Lagrange's Interpolation

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Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

Curriculum Structure and Scheme of Evaluation: B.C.A.(Sci.)

Sr. No.	Paper Number	Name of the Paper Titles	Scheme of Teaching	Scheme of Evaluation(Marks)		
			Theory / Practical (Lect. /week)	Theory / Practical (Marks)	Exam Duration (in hrs.)	Total Marks
I Semester						
1	CA101-T	Computer Fundamentals	3	50	2	50
2	CA102-T	Digital Electronics	3	50	2	50
3	CA103-T	Microprocessor - I	3	50	2	50
4	CA104-T	C Programming – I	3	50	2	50
5	CA105-T	Communication Skill – I	3	50	2	50
6	CA106-T	Mathematical Foundation	3	50	2	50
7	CA107-P	Office Suite	4	50	2	50
8		C Programming – I	4	50	2	50
9	CA108-P	Microprocessor – I	4	50	2	50
10		Digital Electronics	4	50	2	50
II Semester						
1	CA201-T	Data Structure	3	50	2	50
2	CA202-T	Operating System	3	50	2	50
3	CA203-T	I.T.Tools& Web Designing I	3	50	2	50
4	CA204-T	C Programming – II	3	50	2	50
5	CA205-T	Communication Skill – II	3	50	2	50
6	CA206-T	Numerical Computation Methods	3	50	2	50
7	CA207-P	Data Structure	4	50	2	50
8		I.T.Tools&Web Designing I	4	50	2	50
9	CA208-P	C Programming – II	4	50	2	50
10		Numerical Comp. Methods	4	50	2	50

Sr. No.	Paper Number	Name of the Paper Titles	Scheme of Teaching	Scheme of Evaluation(Marks)		
			Theory / Practical (Lect /week)	Theory / Practical (Marks)	Exam Duration (in hrs.)	Total Marks
III Semeste						
1	**CA301-T**	Database Management System	**3**	**50**	**2**	**50**
2	**CA302-T**	Mobile Maintenance-I	**3**	**50**	**2**	**50**
3	**CA303-T**	Principal of Management	**3**	**50**	**2**	**50**
4	**CA304-T**	Programming in CPP	**3**	**50**	**2**	**50**
5	**CA305-T**	Personality Development	**3**	**50**	**2**	**50**
6	**CA306-T**	Statistical Method	**3**	**50**	**2**	**50**
7	**CA307-P**	Programming in C++	**4**	**100**	**2**	**100**
8		DBMS	**4**		**2**	
9	**CA308-P**	Mobile Maintenance-I	**4**	**100**	**2**	**100**
10		Statistical Method using Excel	**4**		**2**	

IV Semester						
1	**CA401-T**	Advance DBMS	**3**	**50**	**2**	**50**
2	**CA402-T**	Mobile Maintenance-II	**3**	**50**	**2**	**50**
3	**CA403-T**	Software Project Management	**3**	**50**	**2**	**50**
4	**CA404-T**	Core Java	**3**	**50**	**2**	**50**
5	**CA405-T**	Aptitude and Logical Reasoning	**3**	**50**	**2**	**50**
6	**CA406-T**	Linear Programming Problem	**3**	**50**	**2**	**50**
7	**CA407-P**	Programming in Java	**4**	**100**	**2**	**100**
8		Adv. DBMS using SQL	**4**		**2**	
9	**CA408-P**	Mobile Maintenance-II	**4**	**100**	**2**	**100**
10		Mini Project	**4**		**2**	

B.C.A.(Science)

Semester –III

Course: B.C.A.(Sci.) **Semester : III**

Topic: DataBase Management System **Paper No.: CA301-T**

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1 Unit – I: Basic Concept

- Data Definition, Types of Data, Record and File, File based System & Processing
- Database System Application, Purpose of Database System
- Abstraction & Data Integration
- Three level Architecture proposal for a DBMS.
- Component of a DBMS: Users, Facilities &Structure.
- Advantageous & Disadvantageous of DBMS.

Data Modeling & Design

- Data Association – Entities , Attributes & Association, Relationship among Entities, Representation of Association & Relationships
- Data Model: Importance of Data Model, Types of Data Model: Relational, E-R, Semi-structured, Object-Oriented, Network & Hierarchical Data Model. Advantageous & Disadvantageous of above model.

2 Unit – II: Entity-Relationship Data Model

- Entity , Entity Set, Types of Entities, Strong & Weak Entity, Representation
- Attribute, Types of Attributes , Representation
- Relationship : Binary & Ternary , Representation
- Mapping Cardinality, Entity-Relationship Design Issues

Relational Data Model

- Basic Structure of Relational Data Model, Database Schema
- Constraints : Integrity Rule 1 & 2
- Normal Form: Anomalies, Functional Dependency, Dependency Diagram, First Normal Form, Second Normal Form, Third Normal Form, Conversion from Universal to 1 NF, 1NF to 2 NF and 2NF to 3NF.

3 Unit – III:Relational Algebra

- Basic Operation – Union , Intersection, Difference and Cartesian Product
- Advance Operation- Projection, Selection, Join (Inner and Outer) & Division
- Examples based on above Operation.
- Relation Algebraic Queries.

Introduction to Oracle

- Oracle Software : Versions of Oracles, Products of Oracle, Tools of Oracle
- SQL: Logging to SQL/ iSQL, SQL plus worksheet.

Books:

1) Database System Concepts (Sixth Edition) AviSilberschatz, Henry F. Korth,S. Sudarshan
2) An Introduction to Database Systems byBipin C. Desai

3) Easy Oracle SQL: Get Started Fast Writing SQL Reports with SQL*Plus By John Garmany

4) Mastering Oracle SQL By Sanjay Mishra, Alan Beaulieu

Course: B.C.A.(Sci.) **Semester : III**

Topic: Basic Mobile Repairing-I **Paper No.: CA302-T**

1 Unit – I

Basic Electronic and Microcomponents

Introduction and Determining values of SMD (Surface Mounted) components: Resistors, Condenser, Semiconductor Diodes, PNP and NPN Transistors, N-Channel and P-Channel mosfets, Connectors, Coils, Fuse.

2 Unit-II

Fundamentals of Mobile Phone

Assembly and Disassembly of Different Mobile Phones, Testing of Batteries and Battery Chargers, Rework Station, Solder Iron, External Charger and Multi-Tester.

Human Interface Devices

Keyboard, Touchpad, Trackball, Block Diagram & Schematic Diagram of Different Mobile Phones, Replacing LCD Displays and FPC Belts of Mobile Phone, Identification of Chips and Crystals on the Mobile PCB Board, Track Tracing and Jumpering.

3 Unit-III

Introduction to Motherboard

Power section, Charging Section, Audio Section, Network Section, Display Section, Light Section, Keyboard Section, Replacing of Faulty Chips using Rework Station.

Introduction to Software for Mobile Repairing

Introduction to Flasher Software, Selection and Installation of EPROM Files, Unlocking of Phone Codes, Formatting of Internal Memory

Reference:

1. Modern Mobile Phone Repairing Using Computer S/W & Service Devices by ManaharLotia. BPB Publication.

   Link:http://www.saffroninstitute.com/mobile.html

Course: B.C.A.(Sci.) **Semester : III**

Topic: Principle of Management **Paper No.: CA303-T**

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1 Unit – I

Introduction:

Management administration, organization concepts, definition, scope and importance of management. Evaluation of management, early contribution and modern management thought and pattern.

Principles of Management:

Division of work authority & responsibility, discipline – unity of command and direction, centralization remuneration. Scar, chain order equity, initiative

2 Unit-II

Function of management

Planning:

nature and purpose, objectives – planning premise,forecasting decision making, policy formulation and planning in action

Organizing:

forms and complexities or organization in business, trading forms and modern forms. University of organization, nature and purpose of organization, organization charts – span of management, departmentationline, staff relationships, functional aspects, delegation and decentralization of authority making the organization work role of committee.

Staffing:

The managerial job selection of managers, appraisal of management, personnel, development and training of managers, developing the executive tomorrow

3 Unit-III

Direction:

Nature of direction, motivation – Human factors in business administration, organization as a special behaviours, participation in management, communication leadership in administration, dimensions leadership role –leader –follower relationship

Controlling

Control process devices of control, overall control of performance ration analysis- management audit,control, quality control- advance control techniques,PERT, CPM etc.

Coordination:

Need, principles and techniques

Reference Books

1. Principles of Management – T. Ramaswami, Himalaya Publication
2. Principles of Management – T.N. Chhabra – DhanpatRai& Co. Pvt. Ltd.
3. Principles of Management – L.M. Prasad – Sultan Chand & Sons, Delhi

Course: B.C.A.(Sci.) **Semester : III**

Topic: Programming in C++ **Paper No.: CA304-T**

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1 Unit – I:Introduction of OOPs

Procedural Vs Object Oriented Programming, Basic concepts of Object Oriented Programming, Class, Object, Data Abstraction, Encapsulation, Inheritance, Polymorphism, Dynamic Binding, Message Passing. Benefits and applications of OOP, History and overview of C++, C++ program structure. Reference variables, Scope resolution operator, Member de-referencing operators, new and delete, cin and cout, The endl and setw manipulator.

Functions in C++:

Function prototype, Call by reference (using reference variable), Return by reference, Inline function, Default arguments, Const arguments.

2 Unit – II: Function overloading:

Different numbers and different kinds of arguments,

Objects and Classes:

Specifying a class, private and public, Defining member functions, Nesting of member function, Object as data types, Memory allocation for objects, static data members and member functions. Array of objects, Objects as function argument, returning objects, Friend function and its characteristics.

3 Unit – III:Constructors and Destructors:

Introduction, default and parameterized constructors, Multiple constructors in a class, Copy Constructor, Destructors

Operator Overloading:

Overloading unary operators, Rules for operator overloading, Overloading without friend function and using friend function, Overloading binary operators such as arithmetic and relational operators, Concatenating

Strings, Comparison operators.

Reference Books:

1. Object Oriented Programming with C++ E. Balagurusamy, Tata McGraw-Hill Publishing
2. Object Oriented Programming In C + + Robert Lafore, Galgotia
3. Let us C++ YeshwantKanetkar; bpb publication

Course: B.C.A.(Sci.) **Semester : III**

Topic: Personality Development **Paper No.: CA305-T**

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1 Unit-I

Introduction

Definition &Basics of Personality, Determinants of Personality- biological, psychological and socio- cultural factors., Need for personality development

Self-Awareness and Self Motivation

Self analysis through SWOT and Johari window, Elements of motivation Techniques and strategies for self motivation, Motivation checklist and Goal setting based on principle of SMART, Self motivation and life, Importance of self-esteem and enhancement of self-esteem

2 Unit-II

Power of positive thinking:

Nurturing creativity, decision-making and problem solving, Traits of positive thinkers and high achievers, Goals and techniques for positive thinking Enhancement of concentration through positive thinking, Practicing a positive life style.

Public Speaking Skills:

Importance of public speaking, Voice Modulation, Audience Analysis Speaking with confidence, Body Language

3 Unit-III

Interpersonal Skills:

Concept of team in work situation, promotion of team spirit, characteristics of team player.,Awareness of one's own leadership style and performance. Nurturing leadership qualities., Emotional intelligence and leadership effectiveness- self awareness, self management, self motivation, empathy and social skills, Negotiation skills- preparation and planning, definition of ground rules, clarification and justification, bargaining and problem solving, closure and implementation

Etiquette; Telephone and Mail

Telephone Etiquette; The usage of proper language, content, tone etc.

Email Etiquettes: right usage of grammar, right style layout and other policies

PRACTICAL TRAINING

The course would include the following practical exercises:.

1. Ice- breaking. Brainstorming and simulation exercises.
2. Thought stopping. Memory and study skills training
3. Role- play, Social skills workshop
4. Transactional Analysis

REFERENCES

1. Mile, D.J (2004). Power of positive thinking. Delhi: Rohan Book Company.
2. Pravesh Kumar (2005). All about self- Motivation. New Delhi: Goodwill Publishing House.
3. Dudley, G.A. (2004). Double your learning power. Delhi: Konark Press. Thomas Publishing Group Ltd.
4. Lorayne, H. (2004). How to develop a super power memory. Delhi: Konark Press. Thomas Publishing Group Ltd.
5. Hurlock, E.B (2006). Personality Development, 28th Reprint. New Delhi: Tata McGraw Hill.
6. Swaminathan. V.D &Kaliappan. K.V(2001). Psychology for Effective Living. Chennai.The Madras Psychology Society.
7. Robbins, S.B.(2005). Organizational Behavior. New Delhi: Prentice Hall of India.
8. Smith, B (2004). Body Language. Delhi: Rohan Book Company.
9. Hurlock, E.B (2006). Personality Development, 28th Reprint. New Delhi: Tata Mcgraw Hill.

Course: B.C.A.(Sci.) **Semester : III**

Topic: Statistical Method **Paper No.: CA306-T**

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1 Introduction and basic concepts of Statistics

- Definition of Statistics, Scope and importance of Statistics.
- Primary and Secondary data, Types of data : qualitative, quantitative,
- discrete, continuous, cross-section, time series, failure, industrial, directional data.
- Graphical presentation: Histogram, frequency polygon, frequency
- Curves Diagrammatic presentation: Bar diagrams, Pie diagram, scatter diagram.
- Classification of data: Discrete and continuous frequency
- distributions, inclusive and exclusive methods of classification,
- relative and cumulative frequency distributions.

2 Measures of Central Tendency

- Concept of central tendency. For group and Ungroup data
- Arithmetic mean (A.M.) simple and weighted Merits and demerits of
- A.M.,Mode: Computation for frequency and non-frequency data.
- Computation of mode, Merits and demerits of mode. Median:
- Computation for frequency and non-frequency data, computation.Merits& demerits of median.
- Geometric mean (G.M.) computation for G M ,Merits demerits and
- applications of G.M.Harmonic Mean (H M) computation for
- frequency, non-frequency data, merits, demerits.

3 Measures of Dispersions

- Dispersion and measures of Dispersion ,
- Range (definitions and problems) Quartile Deviation (definitions and problems) Mean Deviation (definitions and problems) Standard Deviation (definitions and problems) Variance, different formulae for calculating Variance.

Books:

1. Fundamental of Mathematical Statistics By S.C.Gupta and V.K. Kapoor

Course: B.C.A.(Sci.) **Semester : III**

Topic: Practical Based on C++ **Paper No.: CA307P (A)**

Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

Course: B.C.A.(Sci.) **Semester : III**

Topic: Practical Based onDatabase Management System **Paper No.: CA307P(B)**

1) Design five schemas for any organization like: College, school, hospital, travel agency, company, bank etc.
2) Normalize the above five selected schemas as per 1NF,2NF and 3NF
3) Draw E-R Diagram for the same.
4) Solve atleast ten Relational Algebraic Queries

Course: B.C.A.(Sci.) **Semester : III**

Topic: Practical Based on Mobile Repairing-I **Paper No.: CA308P(A)**

Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

Course: B.C.A.(Sci.) **Semester : III**

Topic: Practical based on Statistical Method **Paper No.: CA308P(B)**

Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.
The Practical is to be conducted in the Excel / Spread-Sheet.

B.C.A.(Science)

Semester –IV

Course: B.C.A.(Sci.) **Semester : IV**

Topic: Advance Database Management System **Paper No.: CA401-T**

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1 Unit – I: Structured Query Language

- DDL Statements to Create and Manage Tables using Create & Alter
- Manipulating Data using Insert, Update & Delete Statement
- Retrieving Data Using SQL Select, Restricting and Sorting Data, Using Single-Row functions, Conversion Functions and Conditional Expressions
- Aggregated Data Using Group Function, Displaying data from Multiple tables, Sub queries, Set Operators

2 Unit – II:Data Storage

- Overview of Physical Storage Media
- Magnetic Disk
- RAID
- Tertiary Storage
- Storage Access

Database System Architecture

- Centralized and Client-Server Architecture
- Server System Architecture
- Parallel System

3 Unit – III:Transaction Processing

- Transaction Concept
- Transaction State
- Implementation of Atomicity and durability
- Concurrent Execution

Concurrency Control Techniques

- Lock-Based Protocol
- Timestamp-Based Protocol
- Deadlock Handling

Books:

1) Database System Concepts (Sixth Edition) AviSilberschatz, Henry F. Korth,S. Sudarshan
2) An Introduction to Database Systems byBipin C. Desai
3) Easy Oracle SQL: Get Started Fast Writing SQL Reports with SQL*Plus By John Garmany
4) Mastering Oracle SQL By Sanjay Mishra, Alan Beaulieu

Course: B.C.A.(Sci.) **Semester : IV**

Topic: Advance Mobile Repairing **Paper No.: CA402-T**

1 Unit – I

Knowledge of Mobile Phone Technology

Introduction to Mobile Phone Technology, Types of Technology, Working Principle of Mobile, Features of Mobile Phone.

Microchip & Microprocessor Technology

Introduction of Microchip & Microprocessor, Identification of Different Types of Microchip & Microprocessor, Processor in Different types of Mobile Phones, Soldering & D-Soldering of Microchip and Microprocessor

2 Unit-II

Chip Level Practical Training

Use of Micro Iron, SMD Machine and Hotgun, Chip Component Removing & Replacing, Jumper Connectivity (Antenna Switch Jumper, Track Break Jumper, Drive IC Jumper), Jack Changing (SIM Jack, Charging Jack, Hand Free Jack, Battery Connection).

Circuit Diagram of Mobile and Complete Software Installation

Circuit Diagram of Charging Section, CPU Section. Logo Manager, Ringtones, Wallpaper, Songs, Games and Picture Installation in Mobile. Flashing by USF, DCT. Installation of Application Program. Locking and Unlocking. Card Reader, Bluetooth, DKU.

3 Unit-III

Tracing & Fault Finding in Hardware & Software

Track Reading, Track Checking using Multi meter, Cool Testing in Mobile, Hot Testing in Mobile. Fault Finding using Software (SIM Locked, SIM Rejected, Hanging Problem, Restart Problem). Fault Finding using Hardware (Dead, Network Problem, SIM Card Rejected, Mic/Speaker not Working, No Charging, No Vibration).

Reference:

1. Advance Mobile Repairing: (Multicolour Circuits, Service Diagrams & Repairing)byManaharLotia. BPB Publication.

   Link:http://www.slideshare.net/jyotichhabra/mobile-repairing-course-details2

Course: B.C.A.(Sci.) **Semester : IV**

Topic: Software Project Management **Paper No.: CA403-T**

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1 Unit – I

Introduction to Software Project Management:

Software project versus other types of project. Problems, Requirement specifications. Introduction to step wise project planning Select identify scope and objectives - identify project infrastructure -

Analyse project characteristics - products and activities.

2 Unit - II

Project evaluation

Introduction to Strategic assessment – technical assessment - cost benefit analysis - cash flow forecasting – cost benefit evaluation techniques - risk evaluation.

3 Unit – III

Selection of an appropriate project approach –

Choosingtechnologies - technical plan contents list - choice of process models - structured methods - rapid application development -waterfall model - spiral model - software prototyping - ways ofcategorizing prototypes - tools - incremental delivery.

Books for Study:

1. **Software project management** : Bob Hughes and Mike Cotterell - - Fourth edition - McGraw Hill

2. **Software Project Management** : Walker Royce - - Addison Wesley.

Course: B.C.A.(Sci.) **Semester : IV**

Topic: Core Java **Paper No.: CA404-T**

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1 Unit-I: Object oriented paradigm

Basic concepts of Object oriented programming: class & object, data abstraction and encapsulation, inheritance, polymorphism, dynamic binding, message communication. Benefits and applications of OOP. History and features of Java. Java Vs. C++. Java and Internet, Java and www. Java environment. Structure of java program, symbolic constants. Data types.

Arrays, Classes and Objects

Declaration and initialization, one and multidimensional arrays Defining a class, adding variables and methods, creating objects, static fields and static methods. Method overloading, Constructors: types and multiple constructors in class. Command line arguments.

2 Unit-II: Inheritance

Super and sub class, defining a subclass. Single inheritance, multilevel inheritance and hierarchical inheritance. Subclass constructors. Super keyword, Visibility controls, Method overriding, Dynamic method dispatch, Abstract methods and class.

Interfaces, String and Vector Class

Defining interfaces, implementing interfaces, extending interfaces, accessing interface variables. String class and its methods, Vectors

3 Unit-III: Packages

Introduction, Java API packages, Naming conventions, creating and accessing user defined package, using a package, adding a class to a package, importing classes from package.

Exception handling and Multithreading

Exceptions, syntax of exception handling code, multiple catch statements, throw: throwing own exceptions, throws and finally Introduction to multithreading, creating threads by extending the Thread class and by implementing Runnable interface, implementing the run() method, Life cycle of a thread, Thread methods and thread priority.

Books:

1. Prgramming with JAVA: E. Balagurusamy, Tata Mc-Graw Publishing Company Ltd.
2. The Complete Reference J2SE: Herbert Schildt, Tata Mc-GrawPub. Comp.Ltd.
3. Core Java-2 Vol-I &Vol-II - Cray S. Horstmann, Gray Corneel; Pearson Education, Low Price edition

Course: B.C.A.(Sci.) **Semester : IV**

Topic: Aptitude and Logical Reasoning **Paper No.: CA405-T**

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1 Unit –I

Arithmetical Ability- I

Numbers- types of numbers, face value and place value, operations on numbers, decimal fractions, problem on numbers, average, square roots and cube roots, problems on numbers, percentage, area, surds and indices, profit and loss, True discounts, Banker's Discounts

2 Unit - II

Arithmetical Ability- II

Ratio and Proportion, Partnership, Time and Work, Time and Distance, Problems on trains, simple interest, compound interest, logarithms, volume and surface areas, Permutations and Combinations, Probability, Odd man Out and series

3 Unit – III

Data Interpretation

Tabulation, Bar graphs, Pie Charts, Line Graphs

Logical Reasoning -Clocks, calendars, binary logic, seating arrangement, blood relations, logical sequence, assumption, premise, conclusion, linear and matrix arrangement

Reference Books:

1) Quantitative Aptitude- R S Agrawal

2) Quantitative Aptitude for Competitive Examiners- By AbhijitGuhal

3) A Modern Approach to Verbal Reasoning - By R S Agrawal

4) Logical and analytical reasoning - By R Gupta

5) Quantitative Aptitude - By S N Jha

Course: B.C.A.(Sci.) **Semester : IV**

Topic: Linear Programming Problem **Paper No.: CA406-T**

Unit –I

Introduction to LPP, some important definitions, Formulation of LPP, Graphical Method, General formulation of LPP, Slack and Surplus Variables, Standers form, matrix form of LPP. Problems on Graphical Method

Unit –II

Simplex Method : Computational procedure of Simplex Method, Computation by Simplex Method, artificial variable method. Problems on Simplex method.

Unit –III

Duality in Linear Programming: Introduction, Definition of Primal□Dual Problem, converting Primal into its Dual, Duality and Simplex Method, Problems.

Unit –IV

Assignment Problem: formulation of Assignment Problem, Hungarian Method for assignment problem

Unit –V

Transportation Problem: formulation of Transportation Problem, Matrix form of Transportation Problem, Feasible Solution, Basic Feasible solution, and Optimal Solution, problems.

Books:

1. Operation Research by S.D. Sharma
2. Introduction to Operations Research by Frederick S.Hiller, Gerald J.Lieberman
3. Operations Research An introduction by Hamdy A. Taha,
4. Operations Research by Kantiswarup, Gupta P.K. and ManMohan. “Operating System”, By Stuart E.Madnick, John J.Donovan.

5.

Course: B.C.A.(Sci.) **Semester : IV**

Topic: Practical Based on Java Programming **Paper No.: CA407P (A)**

Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

Course: B.C.A.(Sci.) **Semester : IV**

Topic: Practical Based on Adv. DBMS **Paper No.: CA407P (B)**

1) Using SQL commands to create the tables and views of five schemas for any organization like: College, school, hospital, travel agency, company, bank etc.

2) Perform Data Definition Language Commands

3) Perform Data Manipulation Language Commands

4) Perform Minimum 10 Queries on each of the above five schemas.

Course: B.C.A.(Sci.) **Semester : IV**

Topic: Practical Based on Mobile Repairing **Paper No.: CA408P(A)**

Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

Course: B.C.A.(Sci.) **Semester : IV**

Topic: Mini Project Using Web Technology **Paper No.: CA408P(B)**

Note:A mini project having minimum 5 forms, using Web Technology as a front end and any DBMS as backend. Team size maximum 2 students.

Minimum contents of Project Report

1. Introduction
2. Problem definition.
3. System Requirement Specification
   3.1. User Interview
   3.2. Current System flow diagram
   3.3. Proposed System.
4. E-R Diagram
5. DFD
6. Sample Screens

7. Conclusion

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO. SU/Sci./B.Sc. Syllabi/100/2016

It is hereby notified for information to all concerned that, on the recommendation of the Ad-hoc Board in Computer Science and I.T. the **Academic Council at its meeting held on 01 & 02 June, 2016** has accepted the following revised syllabi as mentioned against their names under the Faculty of Science :-

Sr. No.	B.Sc. III Year Revised Syllabus		Semester
[1]	B.Sc. Computer Science	Degree Course	V & VI
[2]	B.Sc. Information Technology	Degree Course	V & VI
[3]	B.C.A. Science	Degree Course	V & VI
[4]	B.Sc. Animation	Degree Course	V & VI
[5]	B.Sc. Computer Science	Optional	V & VI
[6]	B.Sc. Information Technology	Optional	V & VI
[7]	B.C.A. Science	Optional	V & VI
[8]	B.Sc. Computer Maintenance	Optional	V & VI

This is effective from the **Academic Year 2016-2017** and onwards.

These **syllabi are also available on the University Website www.bamu.ac.in**

All concerned are requested to note the contents of this circular and bring the notice to the students, teachers and staff for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.NO.SU/B.Sc./2016/2389-639
A.C.M.A.I.No.10

Date:- 07-06-2016.

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Director,
Board of College and
University Development.

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Copy forwarded with compliments to :-

1] The Principals, affiliated concerned Colleges,
Dr. Babasaheb Ambedkar Marathwada University.

Copy to :-

1] The Controller of Examinations,

2] The Section Officer, [B.Sc. Unit],

3] The Section Officer, [B.C.S. Unit],

4] The Programmer [Computer Unit-1] Examinations,

5] The Programmer [Computer Unit-2] Examinations,

6] The In-Charge, E-Suvidha Kendra, [Professional Unit], Rajarshi Shahu Maharaj Pariksha Bhavan, Dr. Babasaheb Ambedkar Marathwada University,

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Dr. Babasaheb Ambedkar Marathwada University.

-=**=-

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NAAC Re-accredited with Grade 'A'

Dr. Babasaheb Ambedkar Marathwada University

Aurangabad-431004

REVISED SYLLABUS OF

B.C.A.(Science)

Three Year Degree Course

Semester – V and VI

(With Effective From: 2016-17)

हे ज्ञानिची पवित्रता | ज्ञानीचि आथि ||

Dr. Babasaheb Ambedkar Marathwada University
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Website : www.bamu.ac.in, http://bamua.digitaluniversity.ac.in

Curriculum Structure and Scheme of Evaluation: B.C.A.(Sci.)

Sr. No.	Paper Number	Name of the Paper Titles	Scheme of Teaching	Scheme of Evaluation(Marks)		
			Theory / Practical (Lect./week)	Theory / Practical (Marks)	Exam Duration (in hrs.)	Total Mark
V Semester						
1	**CA501-T**	Software Project Management –II	**3**	**50**	**2**	**50**
2	**CA502-T**	Computer Graphics-I	**3**	**50**	**2**	**50**
3	**CA503-T**	Core JAVA-II	**3**	**50**	**2**	**50**
4	**CA504-T**	Data Warehouse	**3**	**50**	**2**	**50**
5*	**CA505-T**	Ethical Hacking	**3**	**50**	**2**	**50**
6*	**CA506-T**	Data Communication Networking	**3**	**50**	**2**	**50**
7#	**CA507-T**	Beginning with PHP Programming	**3**	**50**	**2**	**50**
8#	**CA508-T**	ASP.NET-I	**3**	**50**	**2**	**50**
9	**CA509-P**	**Pr. Based on Comp. Graphics**	**4**	**100**	**2**	**100**
10		**Pr. Based on Core Java-II**	**4**		**2**	
11	**CA510-P**	**Pr. Based on Ethical Hacking/ DCN**	**4**	**100**	**2**	**100**
12		**Pr. Based on PHP / ASP.NET**	**4**		**2**	
VI Semester						
1	**CA601-T**	Software Testing and Quality Assurance	**3**	**50**	**2**	**50**
2	**CA602-T**	Computer Graphics-II	**3**	**50**	**2**	**50**
3	**CA603-T**	Java Server Pages (JSP)	**3**	**50**	**2**	**50**
4	**CA604-T**	Data Mining	**3**	**50**	**2**	**50**
5*	**CA605-T**	Network Security	**3**	**50**	**2**	**50**
6*	**CA606-T**	Cloud Computing	**3**	**50**	**2**	**50**
7#	**CA607-T**	Advanced Programming with PHP	**3**	**50**	**2**	**50**
8#	**CA608-T**	ASP.NET-II	**3**	**50**	**2**	**50**
9	**CA609-P**	**Pr. Based on JSP**	**4**	**100**	**2**	**100**
10		**Pr. Based on PHP / ASP.Net**	**4**		**2**	
11	**CA610-P**	**Major Project**	**8**	**100**	**3**	**100**
12						

*** and #: Any one paper is to be opted from the group**

PATTERN OF QUESTION PAPERS

Note : 1) All questions carry equal marks.

2) All questions are compulsory.

Q. No.	Format	Marks
1.	Multiple Choice/Fill in the blank/Match the pair/ one line answer. 1) 2) . . 10)	1 x 10 = 10
2.	a) b) OR a)	5 * 2 =10 10
3.	a) b) OR a)	5 * 2 =10 10
4.	a) b) OR a)	5 * 2 =10 10
5.	Write Short Notes On: (Any Two) a) b) c)	5 * 2 =10
	Total	**50**

* Not More than 3 bits should be asked in each question of 10 Marks.

(Only for Paper Setter)

Semester –V

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Software Project Management -II **Paper No.:** CA 501-T

Unit - I

- **Software Efforts estimation**

  Introduction, where estimates done, problems with over and under estimates done, basics for software estimating, estimation techniques, function point analysis, COCOMO model.

- **Activity Planning**

  Objectives, project schedule, projects and activities, sequence and schedule, adding time dimension, identifying the critical path.

Unit – II

- **Risk Management:**

  Risk, category of risk, frame work for dealing with risk, risk identification, risk assesment, risk planing, risk management, PERT Technique.

- **Resource Allocation**

  Nature of resources, identificying resource requirement, scheduling resources, counting the cost, scheduling sequence.

Unit – III

- **Monitoring and control**

  Framework creation, data collection, visualizing progress, monitoring of cost and prioritizing.

- **Software Quality**

  Importance, defining software quality, product versus process quality management, Quality plan.

Books for Study:

1. Bob Hughes and Mike Cotterell - Software project management – fourth edition - McGraw Hill

2. Walker Royce - Software Project Management - Addison Wesley.

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Computer Graphics-I **Paper No.:** CA 502-T

Unit-I

Basics Concept in Computer Graphics

Introduction to Computer Graphics, Application of Computer Graphics, Classification of Computer Graphics, Types of Graphics Devices, Video Display Devices, Input Devices, Display File and its Structure, Display file Interpreter, Display Processor, Graphics file Format.

Graphics in C:

Introduction to graphics in C : initgraph(), detectgraph() and closegraph() function, Drawing object in C , Line, Circle, Rectangle, Ellipse, Changing foreground & background colors, Filling object by color function.**,**drawpoly, fillpoly, floodfill, getcolor, settext, outtext,style,fonts,coloring.

Unit-II

2-D Transformation

Translation, Rotation, Scaling, Homogenous Coordinates for Translation, Homogenous Coordinates for Rotation, Homogenous Coordinates for Scaling, Composogation from 2D Transformation, Other TransformationReflection, Shear, and Inverse Transformation.

Unit-III

Line, Circle and Character Generation

Basics concept in line Drawing, Line Drawing Algorithm, Digital Differential Analyzer, Bresenham's Line Algorithm, Antialiasing of Lines, Method of Antialiasing, Increasing Resolution, Unweighted Area Sampling, Pixel Phasing, Representation of Circle ,Polynomial Method, Trigonometric Method, Circle Drawing Algorithm, DDA Circle Drawing Algorithm, Bresenham's Circle Drawing Algorithm, Character Generation, Stroke Method, Starbust Method, Bitmap Method.

Text Books:

1. Procedural Elements for Computer Graphics: D.F.Rogers
2. Mathematical Elements for Computer Graphics: D.F.Rogersand J.A.Adams
3. Computer Graphics : A.P.Godse, (IIIrd Edition) ,Technical Publication

Reference Books:

1. Computer Graphics by M. Pauline Baker, Donald Hearn, (2ndEdition) PHI Publication
2. Principles of Interactive Computer Graphics By. William. M. Newman. (IInd Edition) Mc.Graw Hill Publication.
3. Computer Graphics by V.K. Pachghare, (II nd Edition), Laxmi Publication

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Core JAVA-II **Paper No.:** CA 503-T

Unit – I

Input/Output Stream: File, Directories, FilenameFilter, Byte stream, Character stream**,** InputStream ,OutputStream ,Working with Reader classes, InputStreamReader, BufferedReader , FileInputstream , FileOutputStream, Writer classes

Utilities: Simple Type Wrapper: Number**,** Character, Boolean,

Enumerations: Dictionary and StringTokenizer, Date,Math :Tramsendentals, Exponential, Rounding function,

Unit -II

Applets : Introduction to Applet , Types of Applet, Applet vs Application , Applet class, advantages of Applet , Applet Lifecycle, My First Applet, Applet tag, Passing Parameters to Applet .

Graphics:Basic Shapes: drawLine, drawArc, fillArc, drawPolygon, fillPolygon, Color & Color Methods, Fonts.

Unit III

Java Database Connectivity (JDBC): Design of JDBC, JDBC configuration, Executing SQL statement, QueryExecution, Scrollable and updatable resultsets, row sets, metadata, Transaction Processing.

Networking: InetAddress, Datagrams, Socket for client and Server, URL, URL Connection.

Reference Books:

1. Java Complete Reference, Herbert Schildt, Seventh Edition, Tata McGraw Hill.
2. Java Handbook, Herbert Schildt, Tata McGraw Hill.
3. Java EE 6 for Beginners, Sharanam Shah, Vaishali Shah, Shroff Publishers and Distributors
4. Advanced Java™ 2 Platform How to Program by H. M. Deitel , P. J. Deitel,S. E. Santry Prentice Hall publication.

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Data Warehouse **Paper No.:** CA 504-T

Unit -I

- **Concept of Data Warehousing(DW):** Need for Data Warehousing, Need & Characteristics of Strategic Information, Decision Support System: History Features & disadvantageous, Differentiation of Operational & informational System. Data warehousing: Definition & Advantage.
- **Data warehouse Building blocks**: Features, Data warehouse Applications, Types of Data warehouse, Differentiate DW and operational DB, Data Warehouses and Data Marts: Approaches, Overview of the Components, Metadata in Data Warehouse.
- **System Process:** Process Flow in Data Warehouse,

Unit -II

- **Architecture:** Business Analysis Framework, 3 – tier DW Architecture, DW Models, Load Manager, Warehouse Manager, query Manager.
- **Multidimensional Data Models:** Data cube, Dimensional Modeling, Lattice of cuboids, DW schemas: Star schema, Snowflake schema, Fact Constellation, Schema Definition.

Unit - III

- **OLAP:** Definition, types of OLAPs, OLAP operations: roll-up, drill-down, slice and dice, pivot.
  Relational OLAP: Feature, Architecture, pro & cons.

  Multidimensional OLAP: Feature, Architecture, pro & cons.
- **Data Warehousing and the Web:** Web-Enabled Data Warehouse, Web-Based Information Delivery, OLAP and the Web, Building a Web-Enabled Data Warehouse.

Reference Books:

1) DATA WAREHOUSING FUNDAMENTALS: A Comprehensive Guide for IT Professionals, By, PAULRAJ PONNIAH, Wiley-Interscience Publication.
2) Data mining Techniques, By Arun K. Pujari, Universsities Press.
3) Mastering Data Warehouse Design, By, Claudia Imhoff, Nicholas Galemmo, Jonathan G. Geiger, Wiley Publishing.
4) DWH tutorial from Tutorial Points.
   Weblink: http://www.tutorialspoint.com/dwh/

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Ethical Hacking **Paper No.:** CA 505-T

Unit -I

Concept of Ethical Hacking

Introduction

What is hacking, Hackers, types of hackers, why hackers hack? Prevention from hacker, steps performed by hackers, working of ethical hacker

Email Hacking

How email works? Email service protocol's, Email Security, email spaoofing, Methods to send fake Emails, email spaming, phishing, prevention from phishing, email tracing, keystroke loggers

Unit -II

Trojans

Introduction, types of Trojans, components of Trojan, mode of Transmission for Trojans, detection and Removal, Counter measures.

Mobile Hacking

Introduction, Call Spoofing/forging, SMS Forging, Bluesnarfing.

Sniffers

What is Sniffers? Defeating Sniffers, Ant Sniff

Unit -III

What is Penetration Testing?

Introduction, Setting the Stage, Introduction to Kali and Backtrack Linux: Tools. Lots of Tools, Working with Your Attack Machine: Starting the Engine, The Use and Creation of a Hacking Lab, Phases of a Penetration Test

Reference Books

1. "Hacking for Beginners" by Manthan Desai
2. "The Basics of Hacking and Penetration Testing: Ethical Hacking and Penetration Testing Made Easy" second Edition by Patrick Engebretson, ELSEVIER.

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic:Data Communication Network **Paper No.:** CA 506-T

Unit -I

Introduction : Data Communication System and its components, Computer network and its goals. Protocols, Standards, Standards Organizations , Data Flow, broadcast and point to point networks, Network topologies.

Data and Signals: Analog and Digital Data, Analog and Digital Signals, Periodic and Nonperiodic Signals, periodic analog signals, Sine Wave, Phase, Wavelength, Time and Frequency Domains, Composite Signals, Bandwidth, Digital Signals, Bit Rate, Bit Length, Digital Signal as a Composite Analog Signal, Transmission of Digital Signals. Transmission of impairment :Attenuation, Distortion, Noise.

Transmission Media: Guided Media : Twisted-Pair Cable, Coaxial Cable, Fiber-Optic Cable, Unguided Media : Radio Waves, Microwaves, Infrared.

Unit -II

Digital Transmission: Line Coding, Line Coding Schemes, Block Coding, Scrambling, Pulse Code Modulation, Delta Modulation, Transmission modes: Parallel & Serial Transmission.

Analog Transmission: Aspects of Digital to Analog Conversion, Amplitude Shift Keying, Frequency Shift Keying, Phase Shift Keying, Quadrature Amplitude Modulation, Amplitude Modulation, Frequency Modulation, Phase Modulation.

Unit -III

Multiplexing: Frequency-Division Multiplexing, Wavelength-Division Multiplexing, Synchronous Time-Division Multiplexing, Statistical Time-Division Multiplexing.

Switching: Circuit switching: Circuit switching networks switching concepts, Datagram networks, Virtual circuit networks, Routing in circuit switched networks, Packet switching principles, - Routing in packet switching,

Text Book

1) Data Communication & Networking (Forouzan), Tata McGraw-Hill Education.

Additional Reference

1) Computer Networks and Internets - Douglas Comer, Prentice Hall

2) Computer Networks - Andrew Tanenbaum, Prentice Hall

3) William Stallings, Data and Computer Communications Fifth Edition, Prentice Hall of India, 1997.

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: Beginning with PHP Programming **Paper No.:** CA 507-T

Unit-I

- **Introduction to PHP**: What is PHP? Why PHP? Evolution of PHP.
- **Installation**: PHP on windows and Linux, Configuring: Apache & PHP, Running & Testing PHP Script, Combining PHP with HTML.
- **PHP Language Basics:** Building blocks of PHP: Variables, Data Types, Operators and Expressions and Constant.
- **Decision within PHP:** *if , if.. else, if.. elseif .. else, switch,* Ternary Operator

Unit – II

- **Looping within PHP:** *while, do…while, for, Break* & *Continue* statement
- **Functions in PHP:** What is function, why functions, Calling function, Returning Value from function, Recursive function.
- **Arrays in PHP:** What & Why Array, Creating Array, Associative Array, Multidimensional Arrays, Accessing Array, Manipulating Arrays, Sorting Arrays, Merging Arrays,

Unit –III

- **Objects in PHP:** What is Class & Object, Creating a Class & Object, Object properties, object methods, Overloading, inheritance, Constructor and Destructor.
- **String in PHP:** Creating and Accessing String, formatting String, Searching String, Manipulating String.
- **Date and Time:** Understanding TimeStamp, Getting Date and time, Extracting values of date-time, Formatting date-time.

Reference Books:

1) **Beginning PHP 5.3 ,** Author: Matt Doyle**,** Wiley Publishing, Inc.
2) **SAMS Teach yourself PHP in 24 hours,** Author: Matt Zandstra, Sams Publishing.
3) **"PHP, MySQL and Apache All in One"** , Author: Juliea C. Meloni, SAMS series

Course: B.C.A.(Sci.) - V Semester **Max. Marks:** 50
Topic: ASP.NET-I **Paper No.:** CA 508-T

UNIT I -

Web designing, web browser, web pages, home page, web site, web servers, world wide web , Concepts of hypertext, hypermedia, versions of HTML ,Evolution of .NET, Benefits of .NET Framework, Architecture of .NET Framework, Components of .NET Framework.

UNIT II –

ASP.NET Page Life Cycle, understanding ASP.NET controls, applications, web servers, installation of IIS. Web forms, web form controls, server controls, client controls, adding controls to web form, buttons, text box, labels, checkbox, radio buttons, list box, drop, down list, Ad rotator control . Adding controls a runtime, Running a web application.

UNIT III –

Creating a multiform web project, Form validation: client side and server side validation, Validation controls: Required Field Validator, Range Validator, Comparison Validator, Regular Expression Validator, Custom Validator, Validation Summary, Calendar control.

References:

1) .NET 4.0 Programming(6-in-1) Black Book- (Dremtech Press)
2) The Completer Reference ASP.NET – Mathew Macdonald (TMH)
3) Professional ASP.NET – Wrox publication
4) VB.NET Programming Black Book – Steven Holzner (Dreamtech pub.)
5) Introduction to .NET framework – Wrox publication.
6) ASP.NET Unleashed - bpb publication.

Course: B.C.A.(Sci.) **Semester : V**

Topic: Practical Based on Comp. Graphics **Paper No.: CA509P (A)**

Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

Course: B.C.A.(Sci.) **Semester : V**

Topic: Practical Based on Core Java-II **Paper No.: CA509P (B)**

Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

Course: B.C.A.(Sci.) **Semester : V**

Topic: Practical Based on Ethical Hacking / DCN **Paper No.: CA510P (A)**

Ethical Hacking:

Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

DCN:

1. Study of Networking Devices & tools
2. Study of IP Address with Class
3. Virtual Setup of Practical setup of Intra-Network.
4. Installation of Server & Client System
5. Peripheral Device Sharing of Devices in LAN
6. Proxy Network Setting.

Note : Any Five Addition practical Assignment as per faculty directive.

Course: B.C.A.(Sci.) **Semester : V**

Topic: Practical Based on PHP / ASP.Net **Paper No.: CA510P (B)**

Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

SEMESTER-VI

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Software Testing and Quality Assurance **Paper No. :** CA 601-T

Unit-I

1. Introduction:

Software Quality, Role of testing, verification and validation, objectives and issues of testing, Testing activities and levels, Sources of Information for Test Case Selection, White.

Unit-II

2. Unit Testing:

Concept of Unit Testing , Static Unit Testing ,Dynamic Unit Testing , Outline of Control Flow Testing, Overview of Dynamic Data Flow Testing, Data Flow Graph, Data Flow Terms, Data Flow Testing Criteria, Comparison of Data Flow Test Selection Criteria, Feasible Paths and Test

Selection Criteria, Comparison of Testing Techniques.

Unit-III

3. System Integration Testing:

Concept of Integration Testing, Different Types of Interfaces and Interface Errors, Test Plan for System Integration, System Test Categories: Basic Tests, Functionality Tests, Robustness Tests, Interoperability Tests, Performance Tests, Reliability Tests, and Documentation Tests.

Text books:

1. “Effective methods for Software Testing “William Perry, Wiley.
2. “Software Testing and Quality Assurance: Theory and Practice”, Sagar Naik, University of Waterloo, Piyu Tripathy, Wiley , 2008

Reference Books:

1. “Software Testing - A Craftsman’s Approach”, Paul C. Jorgensen, CRC Press, 1995.
2. “The Art of Creative Destruction”, Rajnikant Puranik, SPD.
3. “Software Testing”, Srinivasan Desikan and Gopalaswamy Ramesh - Pearson Education

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Computer Graphics-II **Paper No. :** CA 602-T

Unit-I

1. **3-D Transformation and clipping**

Translation, Scaling Rotation, Shearing, Reflection, Multiple Transformation Projection, Perspective Projection, Parallel Projection, Types of Parallel & Perspective Projection, Vanishing Points. Diffuse Illumination, Specular Reflection.

Clipping, Point clipping, Line clipping, Sutherland and Cohen subdivision line clipping, Mid point subdivision algorithm, Liang-Barsky Line clipping algorithm

Unit-II

2. **Curves and Fractals**

Curve Generation, Representation of Parametric & Non-Parametric Curves, Spline Representation Parametric Representation of Circle & Ellipse, Bezier curves, B-Spline curves Fractals, classification of fractals, Topological Dimension, fractal Dimension, Hilbert's curves ,Koch curve.

Unit-III

3. **Colour Model and Animation**

Properties of Light, CIE Chromaticity Diagram, Colour Primary Systems, Color Matching Experiments, Colour Models: RGB, CMY and HSV.Introduction of Animation, Animation Using Colour Table, Animation of Wireframe Models.

Text Books:

1. Procedural Elements for Computer Graphics: D.F.Rogers
2. Mathematical Elements for Computer Graphics: D.F.Rogers and J.A.Adams
3. Computer Graphics by M. Pauline Baker, Donald Hearn, (2nd Edition) PHI Publication

Reference Books:

1. Computer Graphics: A.P.Godse, (IIIrd Edition), Technical Publication
2. Principles of Interactive Computer Graphics By. William. M. Newman. (II nd Edition) Mc.Graw Hill Publication.
3. Computer Graphics by V.K. Pachghare, (II nd Edition), Laxmi Publication

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Java Server Pages (JSP) **Paper No. :** CA 603-T

UNIT I

- Introduction to JSP, Architecture of JSP page , Life cycle of JSP page , Scripting tags – (Scriptlet , Declarative, Expression)

UNIT II

- Implicit objects(all 9 objects) , Directive tags (Page, Include Tag lib)
- ActionTags:<include>,<forward>,<param>,<usebean>,<setproperty>,<getproperty>, <plugin>, <params>,<fallback>,<attribute>,<body>,<element>,<text>
- JSP & Java Beans

UNIT III:

- Database Access to JSP page , Session Tracking , Session API in JSP.
- Introduction to JSTL, Core tag library, XML tag library, Internationalization tag library, SQL tag library, Functions tag library.

Reference Books:

1. **JSP : The Complete Reference - Phil Hanna (Tata Mcgraw Hill)**
2. **Java Server Programming Java EE6(J2EE 1.6) – Black Book (Dreamtech Publication)**

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Data Mining **Paper No. :** CA 604-T

Unit -I

- **Introduction:**

  What is Data Mining?, Definition, DBMS Vs Data Mining, DM Techniques, Issues and Challenges in DM, DM Application Areas, DM Applications-Case Studies, Current Trends Affecting DM, Basic Data Mining Task.

Unit – II

- **Association Rule:**

  What is an Association rule?, Method to discover Association Rule, A Priori Algorithm, Partition Algorithm.

- **Clustering Techniques:** Clustering Paradigm, Partitioning Algorithm, Similarity and Distance Measure, Hierarchical Algorithm.

Unit – 3

- **Decision Tree:** What is a decision tree? Tree Construction Principle, Best Split, Splitting indices, Splitting Criteria
- **Web Mining:** Introduction, Web Content Mining, Web Structure Mining, Web Usage Mining.

Reference Books:

1. **Data Mining Techniques :** Arun K. Pujari ,
2. **Data Mining: Introductory and Advanced Topics:** M.H.Dunham Pearson Education.
3. **Data Mining: Concepts & Techniques,** Morgan Kaufman. 2006

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Network Security **Paper No. :** CA 605-T

Unit - I

Introduction Basic concepts: confidentiality, integrity, availability, security policies, security mechanisms and assurance.

Basic Cryptography, Historical background , Transposition/Substitution, Caesar Cipher Introduction to Symmetric crypto primitives, Asymmetric cryptoprimitives, and Hash functions

Secret Key: Cryptography Data Encryption Standard (DES) Encrypting large messages (ECB, CBC,

OFB, CFB, CTR) Multiple Encryptions DES (EDE)

Unit-II

Public Key: Cryptography Theory: Euclidean algorithm, Euler Theorem, RSA, multiplicative and additive inverse RSA, Selection of public and private keys

Authentication Security: Handshake pitfalls Online vs. offline password guessing

Reflection attacks Per-session keys and authentication tickets Key distribution centers and certificate authorities

Trusted Intermediaries: Public Key infrastructures, Certification authorities and key distribution centers Kerberos

Unit - III

Real-time Communication Security: Introduction to TCP/IP protocol, security protocols and implications, IPsec: AH and ESP IPsec: IKE SSL/TLS

Electronic Mail Security: Source authentication, message integrity, non-repudiation, proof of submission, proof of delivery, message flow confidentiality.,

Pretty Good Privacy (PGP): Firewalls and Web Security, Packet filters Application level gateways,Encryptedtunnels,Cookies

Text Book:

1. William Stallings, "Cryptography And Network Security - Principles and Practices",

Prentice Hall of India,. Third Fditinn, ?003.

REFERENCES

1. Atul Kahate, "Cryptography and Network Security", Tata McGraw-Hill, 2003.

2. Bruce Schneier, "Applied Cryptography", John Wiley & Sons Inc, 2001.

3. Charles B. Pfleeger, Shari Lawrence Pfleeger, "Security in Computing", Third Edition,

Pearson Education, 2003.

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Cloud Computing **Paper No. :** CA 606-T

UNIT I

Cloud Computing Fundamentals: Introduction, Layers of Cloud Computing,
Types of Cloud Computing: Public, Private, Hybrid cloud.
Cloud Services: Infrastructure as a Service(IAAS), Platform As a Service(PAAS), Software As a Service (SAAS).
Enabling Technologies, Cloud Computing Features, Cloud Computing platform, Cloud Computing Challenges, First movers in the cloud, When you use the cloud computing, Benefits, Limitations.

UNIT II

Cloud Computing Technologies and Applications: Cloud Computing: IT as a Service, Cloud Computing Security, Cloud Computing Model Application Methodology, Cloud Computing in Development/Test,
Key Enabling Technologies for Virtual Private Clouds: Virtual Private Clouds, Virtual Data Centers and Applications.

UNIT III

Role of Networks in Cloud Computing: Introduction, Cloud Deployment Models and the Network, Network Architectures for Clouds: Data Center Network & Data Center **Interconnect Network, Foundation:** Virtualization, Automation and Standards,
Data-Intensive Technologies for Cloud Computing: Data-Intensive Computing Applications, Data-Parallelism, The "Data Gap",
Characteristics of Data-Intensive Computing Systems: Processing Approach, Grid Computing
Data-Intensive System Architectures: Google MapReduce & Hadoop

Text Book:

1. Handbook of Cloud Computing, Editors: Borko Furht · Armando Escalante, Springer
2. Cloud Computing A Practical Approach, Anthony T. Velte, Toby J.Velte, Robert Elsenpeter, McGraw Hill Education (India) Private Limited.

References:

1. Cloud Computing Bible , Barrie Sosinsky, WILAY India Pvt. Ltd
2. . CLOUD COMPUTING, Miichael Miller, PEARSON Publication.
3. ClOUD COMPUTING Principles and Paradigms, Rajkumar Buyya, James Broberg, Andrzehj Goscinski, WILAY India Pvt. Ltd.
4. Hybrid Cloud for DUMMIES, Judith Hurwitz, Marcia Kaufman, Dr. Fern Halper, Danies Kirsch, WILAY India Pvt. Ltd

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: Advanced Programming with PHP **Paper No. :** CA 607-T

Unit-I

- **Handling HTML Forms in PHP:** Creating HTML Form, Capture Data Sent,
- **Handling:** Empty form data, Multi-Value fields, Validating Form Data, Difference between GET and POST, Global and Environment Variables, Generating Web-form in PHP, Create Multi-step Form, Hidden fields, Redirecting the user.

Unit – II

- **Cookies and user sessions in PHP:** State and Stateless Webpage,
- **Cookies:** Anatomy of cookies, Setting a cookies with PHP, Deleting a cookies, Creating Session Cookies.
- **QueryString:** Working with QueryString, Creating QueryString.
- **Session:** Using PHP Session to Store Data: Creating a Session, Reading & Writing Session Data, Destroying a Session, Create a User Login System.

Unit – III

- **Introducing Database and SQL:** Basics of MySql, Connecting to the Database Server, Creating Database, Creating Table.
- **Retrieving data:** Limit the number of results returned, Order and group results, Query multiple tables at once, Use various MySQL functions and other features to build more flexible queries
- **Manipulating data from SQL with PHP:** Inserting new records into tables using INSERT statements, changing field values within records with UPDATE statements, deleting records using DELETE statements.

Reference Books:

1) **Beginning PHP 5.3 ,** Author: Matt Doyle**,** Wiley Publishing, Inc.
2) **SAMS Teach yourself PHP in 24 hours,** Author: Matt Zandstra, Sams Publishing.
3) **"PHP, MySQL and Apache All in One"** , Author: Juliea C. Meloni, SAMS series

Course: B.C.A.(Sci.) - VI Semester **Max. Marks:** 50
Paper: ASP.NET-II **Paper No. :** CA 608-T

Unit-I

Overview of ADO.NET: From ADO to ADO.NET, ADO.NET architecture, Accessing data using data adapters and datasets, using command and data reader, binding data to data bind controls, displaying data in data grid

Unit-II

XML in .NET : XML Basics, XML validation, Introduction to Web Services ,State Management, using session in ASP.NET Application, Caching in ASP.NET

Unit-III

Threading: Introduction to Threading , Difference between process and thread, Creating a thread, starting a thread, putting a thread to sleep, suspend and resuming a thread, Multi threading, Thread Priorities.

References:

1) .NET 4.0 Programming(6-in-1) Black Book- (Dremtech Press)
2) The Completer Reference ASP.NET – Mathew Macdonald (TMH)
3) Professional ASP.NET – Wrox publication
4) VB.NET Programming Black Book – Steven Holzner (Dreamtech pub.)
5) Introduction to .NET framework – Wrox publication.
6) ASP.NET Unleashed - bpb publication.

Course: B.C.A.(Sci.) **Semester : VI**

Topic: Practical Based on JSP **Paper No.: CA 609P (A)**

Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

Course: B.C.A.(Sci.) **Semester : VI**

Topic: Practical Based on PHP / ASP.Net **Paper No.: CA 609P (B)**

Minimum 10 Practicals to be performed as per the guidelines of teaching Faculty depending upon all theory units of concerned subject.

Course: B.C.A.(Sci.) **Semester : VI**

Topic: Major Project **Paper No.: CA- 610 P**

Note:

1) It is expected that concerned Faculty is to introduce and make the students aware about the Project Development Environment as well as distribute all the students in group with minimum 2 and maximum 4 student's strength.

Minimum contents of Project Report

1. Introduction
2. Problem definition.
3. System Requirement Specification
   - 3.1. User Interview
   - 3.2. Current System flow diagram
   - 3.3. Proposed System.
4. E-R Diagram
5. DFD
6. Sample Screens
7. Conclusion

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