SOLAPUR UNIVERSITY, SOLAPUR.

Revised Syllabus and Structure of the

Bachelor of Computer Applications (BCA)

To be effective from June 2012 (Under Commerce Faculty)

1. Title :
    The degree shall be titled as Bachelor of Computer Applications (BCA)

2. Objectives of the course:
    This is a three years bachelor degree course in computer applications aimed at developing computer professional versatile in use of computers mostly in business world. The emphasis is to have generality of developing professionals as programmer, system analysts, database administrators, documentation officer etc.

3. Duration:
    i) The course shall be a full time course.

    ii) The duration of course shall be three years.

    iii) The course shall be run on self-supporting basis.

4. Number of Students:

    A batch shall consist of not more than 60 students.

5. Eligibility:

    i) A candidate for being eligible for admission to the Degree Course in Computer. Candidate shall have passed XII std. Examination of the Maharashtra Board of Higher Secondary Education or its equivalent or any Diploma of not less than two years.

    ii) A candidate has to appear for a common entrance test to be conducted by respective college for getting admission to this course.

1 Percentage at HSC –   100

2. Percentage at entrance –   100

                                    200

The merit list will be prepared on the basis of percentage of HSC and percentage at entrance examination. Students will be admitted on the basis of Merit list.

6. Medium: The medium of instruction and examination will be only English.

a) Details of Internal evaluation

Attendance -   5 Marks

Assignment –   10 Marks (2 home and 2 Class assignments)

Mid-test   -   5 Marks

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20 Marks

b) Marks of Lab course and mini project will be given by the concerned college. On the basis of evaluation by the internal teacher.

c) Project Report and Viva-Voce: Project Report will be assessed by the internal teacher at the end of sixth semester out of 70 marks and there will be viva-voce examination of 80 marks. The panel of examiners will consist of one internal and one external appointed by university.

Standard of Passing:

A candidate must obtain minimum 40% marks for passing in each university examination paper, internal examination, Lab course, Mini and Major Project.

i) Class will be awarded on the basis of marks obtained by the candidate in all the six semester examination.

ii) Candidate who has secure 40% marks in each head of internal credit and semester examination shall be declared to have passed in the paper.

iii) A candidate who fails in any particular theory papers shall be allowed to reappear for that theory paper. However, his/her internal credit marks shall be carrying forwarded.

iv) Internal as well as External marks has separate passing head.

Award of Class:

Class should be awarded to the students of BCA on the basis of aggregate marks in the six semesters.

The award of class shall be as under:

Aggregate 70% and above   First class with distinction,

Aggregate 60% and above   First Class But less than 70%,

Aggregate 50% and above   Second Class But less than 60%

Aggregate 40% and above   Pass Class But less than 50%

SEMESTER –I

Paper Code	Name Of Subject	Total Marks	University Exam	Internal Evaluation	Work load Per weak
BCA101	Introduction to Information Technology	100	80	20	04 hours
BCA102	Procedural Programming through 'C'	100	80	20	04 hours
BCA103	Fundamentals Of Financial Accounting	100	80	20	04 hours
BCA104	Business Communication	100	80	20	04 hours
BCA105	Discrete Mathematics	100	80	20	04 hours
BCA106	Lab Course -1 Practical Paper-I based on Paper Code BCA101 Practical Paper-II based on Paper Code BCA102	100	----	50 50	04 hours per batch (Batch includes 20 students)
	Total	600	400	200	

SEMESTER – II

Paper Code	Name Of Subject	Total Marks	University Exam	Internal Evaluation	Work load Per weak
BCA201	OOP with C++	100	80	20	04 hours
BCA202	Web Technology	100	80	20	04 hours
BCA203	Financial Accounting with Tally	100	80	20	04 hours
BCA204	Development of Human Skills	100	80	20	04 hours
BCA205	Business Statistics	100	80	20	04 hours
BCA206	Lab. Course-2 Practical Paper- I based on: Paper Code BCA201 & Paper Code BCA202 Practical Paper-II based on : Paper Code BCA203 & Paper Code BCA204	100	----	50 50	04 hours per batch (Batch includes 20 students)
	Total	600	400	200	

BCA- I (SEMESTER-I)

Paper Code: BCA101

INTRODUCTION TO INFORMATION TECHNOLOGY

Max. Marks: 100

External Assessment: 80

Internal Assessment: 20

Unit-1:   Introduction to Computer:

Computer characteristics of computer, concepts of hardware, software, firmware, Evolution of computer and Generations, classification and types of computers. Limitation of computer, Applications of computer in various fields.   (5)

Unit-2:   Structure of computer:

Block diagram of computer, Input unit, CPU- ALU, Memory unit and control unit, output unit. Introduction of motherboard, SMPS math co-processor, expansion slots, serial and parallel ports.   (5)

Unit-3:   Computer codes and Number system:

BCD, EBCDIC, ASCII, Number system, Decimal, Binary, Octal and Hexadecimal, Inter-conversion of number system, Binary arithmetic- addition, subtraction, multiplication and division.   (10)

Unit-4:   Input/Output Devices:

Input Devices- Keyboard, Mouse, Light pen, Joystick, Scanner, Graphic Pad, MICR, OMR, Bar Code reader, Digitizer, Touch Screen. Output Devices- VDU, Printers- Dot Matrix, Daisywheel, Ink Jet, Laser, Line (Chain and Drum), and Plotters.
         (6)

Unit-5:   Introduction to Operating Systems & its functions:

Definition of Simple batch processing, multiprogramming, multiprocessing, real-time, time-sharing systems, Concept of Spooling   (4)

Unit-6:   Computer Memory:

Memory Concepts, Semiconductor memory, magnetic memory-RAM, ROM, EPROM, EEPROM, Secondary Storage Devices-Magnetic Tape, Magnetic Disk (Floppy disk and Hard Disk), Compact Disk.   (5)

Unit-7:   Computer Languages:

Analogy with natural languages, Machine language, Assembly Language, High Level Languages, Compiler, Interpreter, Characteristics of good languages.   (5)

Unit-8:   Computer Communication and Networks:

Computer communication, concepts, communication components, computer network, Topologies, Data Communication Channels, Protocols, LAN, WAN, Introduction to internet. Overview of modem, E-Mail, Fax   (9)

Unit-9:   Security and Safety of Data:

Security: Passwords and write protection. Safety- Periodic backup, protection from virus. Computer viruses- Characteristics, types, Detection and removing the viruses, Protection of Computer from virus and vaccines.   (5)

Unit-10:   Decision making while purchasing computer:

Factors- Type and size of business need and benefits of computer, configuration of computer, Identifying suitable software and precautions while shifting from manual system to computer system.   (4)

Books Recommended:

1. Computer Fundamental –   P.K. Sinha

2. Computer Fundamental –   V. Rajaraman

3. Computer Today –   Donaid N. Sanders.

Paper Code: BCA102

Procedural Programming through 'C'

Max. Marks: 100

External Assessment: 80

Internal Assessment: 20

Unit –1:   Programming Methodology   [09]

- Step involving in problem solving.
- Problem definition
- Algorithm, Characteristics, Notation of Algorithm
- Flowcharts- Definition, Symbol, features
- Running and debugging the program.

Unit-2:   Introduction to 'C'   [05]

- History
- Character set and keywords
- Structure of 'C' programming
- Constant and its type
- Variable and its type (Data types)
- Operators- Arithmetic, logical, relational, bitwise, increment, decrement, Conditional

Unit-3:   Control Statements   [15]

- Conditional control statements- if, if else, nested if, switch
- Looping – for statements, nested for, while, do-while statements
- Unconditional control statements- break, continue, goto

Unit-4:   Arrays   [15]

- Array definition and declaration
- Single and multidimensional array
- String functions

Unit-5:   Functions   [15]

- Definition, declaration, prototype of function
- Local and global variable
- User defined function
- Storage classes
- Preprocessor

Unit -6:   Pointers   [10]

- Definition and declaration
- Operation on pointer
- Pointer initialization
- Pointer and function
- Pointer and array
- Pointer of pointer
- Call by value and Call by reference
- Dynamic memory allocation

Unit -7:   Structures and Union   [10]

- Definition and declaration
- Array of structures
- Passing structure to function
- Pointer to structure
- Nested structure, self referential structure
- Size of and type def

Unit -8:   File Handling   [10]

- Standard input- get char (), getch(), getche ().
- Standard output- put char (), putch (), putche ()
- Formatted input- scanf (), sscanf (), fsclose ()
- File opening mode- open, modify, write, append
- Text and binary mode.

Books Recommended:

1) Let Us C -   Y.C. Kanetkar.

2) The C programming Language - Ritchie and Kernighan.

3) Schaums Get line Series -   The C programming language.

4) Programming in ANSII-C – E. Balgurusamy

Paper Code: BCA103

Fundamentals of Financial Accounting

Max. Marks: 100

External Assessment: 80

Internal Assessment: 20

Unit-1:   Financial Accounting: [10]

   Definition of Book Keeping and Accountancy, Need for accounting, Internal and External uses of Accounting, Accounting Concepts and conventions.

Unit -2:   Double Entry System of Accounting: [10]

   Journal Entries and Posting to ledger, Subsidiary Books. Bank Reconciliation Statement.

Unit -3:   Accounting Policies: [10]

   Inventory Valuation Policy- LIFO, LIFO, Simple Average and weighted Average Methods. Depreciation Policies- SLM, WDV-change in method of depreciation.

Unit -4:   Final Accounts: [20]

Preparation of Final Accounts including adjustment, final accounts for sole proprietary concern, Format of Final account under company law.

Recommended Books:

1. Elements of double entry book keeping – Batliboi

2. Advanced Accounts – M.C.Shukla, T.S.Grewal and S.C.Gupta

3. An Introduction to Accountancy – S.N.Maheshwari.

4. Accounting for Management – S.K.Bhattacharyya & John Dea

Paper Code: BCA104

BUSINESS COMMUNICATION

Max. Marks: 100

External Assessment: 80

Internal Assessment: 20

Unit -1:   Nature of Communications: [20]

Definition, significance of Good Communication, Objectives of Communication, communication Process Type of Communication, Principles of Communication and barriers to communication.

Unit -2:   Communication in organization: [10]

Nature, function, scope and limitation. Downward communication, upward communication, horizontal communication, purpose of constraints and limitation.

Unit -3:   Written Communication: [10]

The process of formal written communication- The 'you' attitude, classify, conciseness, preciseness, style, flow, accuracy and readability. Mechanism of writing- Space and indention, use of equation, abbreviations, numerals, reference and access devices, capitalization, spelling, punctuation.

Unit -4:   Business Correspondence: [10]

Business Correspondence in organization, Essentials, the layout, planning the letter, letter related to purchase, sales, business related inquiries, claims and adjustment letters, credit and collection letter, bank and insurance. Job application and resume.

Unit -5:   Foundation of Effective Writing: (AIDS)   [08]

Meetings- Kinds of meetings, the agenda, minutes of the meeting, paper work for regular meetings. Report- Common features, routing reports and non-routine reports, steps in writing report.

Modern- office Communication- Electronic communication, Telephone, EPBAX, Teleconferencing, Answering Machine , E-mail , Voicemail, fax, internet, video conferencing.

Notes –

1. The General approach will be to give broad idea of business communication.

2. Practical work will consist of

      a. Letter writing

      b. Report writing

      c. Arranging meetings and Seminars.

3. Every student will have to deliver minimum two prepared speeches and one

 extempore speech.

Books Recommended –

1) Essentials of Business Communication – Rajendra Pal & L.S.

2) Business Communication – U.S.Rai & S.M.Rai.

3) Communication skill – P.C. Pardesi

Paper Code: BCA105

Discrete Mathematics

Max. Marks: 100
External Assessment: 80
Internal Assessment: 20

Unit -1:   Elementary logic: [08]

Prepositional Calculus: proposition, logical connectives, disjunction, conjunction, negation, conditional connectives, converse, inverse and contrapositive of conditional statement precedence rule, logical equivalence, Argument and validity of argument.

Unit -2:   Finite Induction: [06]

First principle of finite induction, generalized principle of finite induction and examples.

Unit -3:   Boolean algebra and circuits: [06]

Boolean algebra, logic circuits, Boolean functions.

Unit -4:   Sets and subsets: [08]

Definition: Set, Subset, power set, Operations on sets (Union, intersection, complement, difference & symmetric difference), Algebraic properties of set operations, cardinality of set.

Unit -5:   Relations: [12]

Cartesian product, relation and their types, matrix representation of relation, graphical representation of relation, in degree and outdegree of a vertex, Transitive closure: Warshall's algorithm, equivalence relation and equivalence class, properties.

Unit-6:   Function: [08]

Definition, injective function, surjective function, bijective function and inverse function.

Unit -7:   Divisibility of integers: [10]

Introduction, GCD, LCM, Euclidean algorithm, Primes, relatively prime integers, Congrunces, properties of the congruence relation, Fermat's theorem.

Unit -8: Some more computing principles: [06]

Pigeonhole principle, Inclusive-exclusive principles and applications

Books Recommended:

1)   Elements of Discrete Mathematics-   C.L.Liu

2)   Discrete Mathematical structure for Computer Science-Alan Doerr and K.Levessuer

3)   Combinatorics-   V. Krishnamurthy

Paper Code: BCA106

LAB COURSE-1

Practical Paper-I based on-   Paper Code BCA101
Practical Paper-II based on-   Paper Code BCA102

Max. Marks: 100

Internal Assessment: 100

Practical Paper-I based on   Paper Code BCA101

1) DOS:

 Internal Commands-Date, Time, Dir, Copy, Del, Ren, Cls, Path, Type, Mkdir, Chdir, Rmdir, External Commands- Format, Find, Chkdisk Disk copy, Backup, Doskey

2) Windows:

 Starting Windows- Browsing Start Menu, Manipulating Windows- Moving, Resizing, Closing, Windows, Minimizing and Maximizing Windows, Working With Multiple Windows Using Windows Application. Using Word- Pad to create a document, entering text and saving the work. Using my computer- Changing the icon arrangement, To View the floppy disk. To manage files, selecting one or more files, copying a file, delete a file, Drag and drop to move a file.

3) File Management using Windows Explorer:

To Copy, move and delete files, using copy and paste, using drag and drop, creating a folder. Creating a file to a folder, copying and moving the files between drives, renaming files and folders, find Program- To search by file name, by name, by date, by type, by specific text.

4) Control panel:

Changing date and time changing display, choosing background, placing folder on desktop. Adding shortcuts to folder and creating shortcut

5) MS-Office 2007:

    a.   MS-Word

    b.   MS-Excel

    c.   MS-PowerPoint

    d.   MS-Access

Practical Paper-II based on   Paper Code BCA102

Write program in 'C' language

1. Using input and output statements

2. Using control statements.

3. Using functions.

4. Using array

5. Using Pointers

6. Using structure.

7. Using Union

8. Using files.

BCA- I (SEMESTER-II)

Paper Code: BCA201

OOP with C++

Max. Marks: 100

External Assessment: 80

Internal Assessment: 20

Unit-1:   Principles of Object-Oriented-Programming   [4]

A Look at Procedure Oriented programming, Object oriented

Programming paradigm, Basic concepts of object oriented programming,

Benefits of OOP, object oriented Languages, Applications of OOP.

Unit-2:   Tokens, Expressions and Control structures   [3]

Introduction, Tokens, Keywords, Identifiers and constants, Basic Data types, User defined data types, Derived data types, symbolic constants, Type compatibility, Declaration of variables, Dynamic initialization of variables, reference variables, operators in C++, Scope resolution operator, member dereferencing operators, Memory management operators, Manipulators, Type cast operator, Expressions and their types, special assignment expressions, Implicit conversions, Operator overloading, Operator precedence, Control structures.

Unit-3:   Functions in C++   [8]

Introduction, The main function, Function prototyping, call by reference, Inline functions, Default arguments, Function Overloading, Math library Functions.

Unit-4:   Classes and Objects   [8]

Introduction Structures revisited, specifying a class, Defining member functions, A C++ program with class, Making an outside function inline, Nesting of member functions, Private member functions, Array within a class, Memory allocation for the objects, Static data members. static member functions, Array of objects, objects as Function arguments, Friendly functions, Returning objects, Constant member functions, Local classes.

Unit-5:   Constructors and Destructors   [6]

Constructors, Parameterized constructors, Multiple Constructors in a class, Constructors with default arguments, Dynamic initialization of objects, Copy constructors, Dynamic Constructors, Constructing two Dimensional Arrays, Const Objects, Destructors

Unit-6:   Operator overloading and Type Conversions   [6]

        Introduction, Defining operator overloading, Overloading Unary and Binary operators, Manipulation of string using operators, Rules for Overloading operators, Type Conversion

Unit-7:   Inheritance (Extending classes)   [6]

        Introduction, Defining derived classes, Single Inheritance, Making private member Inheritable, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Hybrid Inheritance, Virtual base classes, Abstract classes, Constructors in derived classes, Member classes : Nesting of classes

 Unit-8:   Pointers, virtual functions and Polymorphism   [8]

        Introduction, Pointers to objects, this pointer, Pointer to derived classes, virtual functions, pure virtual functions

 Unit-9:   Managing Console I / O Operations   [6]

 Introduction, C++ Streams, C++ stream classes, Unformatted I/O Operations, Managing output with manipulators

Unit-10:   Working With Files: [6]

        Introduction, classes for file stream operations, Opening and closing a file, Detecting end of file.

        More about open( ) : File modes, file pointers and their manipulations, sequential input and output operations, Updating a file :Random access, Error handling During file Operations, Command line arguments.

Reference Books:

1.   C++ the Complete Reference By Herbert Schildt-TMH

2.   C++ By E. Balgurusamy-TMH

3.   C++ by Kumar-TMH

4.   Mastering C++ - Venugopal.

Paper Code: BCA202

Web Technology

Max. Marks: 100
External Assessment: 80
Internal Assessment: 20

Unit-1:   The Internet Technology Background   [8]
            Evaluation of Internet-1951-2000,The Internet key technology concept-packet swithcing,TCP/IP,Client-Server Computing other internet protocols and utility programs sending Email-SMTP,POP and IMAP ,file transfer FTP,Telnet,Finger,Ping,ISP.

Unit-2:   Design web Sites   [6]

       The World Wide Web: architecture of World Wide Web, steps in web development, introduction to SGML and XML, cross browser testing.

Unit-3:   Introduction to HTML   [8]

       For development of HTML document required software's, naming scheme for HTML documents, The general structure of HTML document, tag and types of tags, tags-HTML, title, meta,   body,   text   formatting   tags-
<H>,<I>,<U>,<S>,<Strike>,<Del>,<TT>,<small>,<Big>,<P>,<Center>,<Sup>,<Sub>,<H>,<Font>,<Basefont>,<Pre>,<Ins>,<Address>,
,<Hr>

Unit-4:   Advanced HTML   [12]

Links-(Internal hyperlink and external hyperlink ,image as hyperlink, image map),Lists-(ordered,unordered,menu,defination),table,frames,inline frames, forms-attributes of form methods(Get and Post) & objects(Input:text,checkbox,radio,submit,button,reset,file,hidden,
image ,the<select> tag, the <textarea> tag, navigation tabs, tips for form design DHTML: Introduction to CSS, types of CSS(ISS,ESS),classes and ids, contextual selectors, positioning using CSS(absolute and relative),3D layers

Unit-5:   Introduction to JavaScript   [10]

       Introduction to client-side and server-side script, introduction to JavaScript, java script variables and data types, operator, built in functions, control structure, document object model(DOM), user defined functions, working with forms, event and event handling, JavaScript validation, Array and properties of array.

Unit-6:   Introduction to VbScript   [8]

Introduction to vbscript, data types, variables, constant, operator, statement in vbscript (dim, option explicit,rem,const),built in functions, selection statements, iteration statements, VbScript procedure(subprocedure,function),Msgbox and Inputbox, working with HTML form, vbscript coding convention.

Reference Books:

1.   HTML 4 understand – (SAMS Techmedia)
2.   Internet Complete – (BPB Publications)
3.   HTML, DHTML, JAVASCRIPT, COI, PERL – By Ivan Bayross (BPB Publishing)
4.   HTML 4.0 Platinum Edition
5.   Practical HTML 4 – Philips Lee Anne – Prentice Hall, New Delhi.
6.   The Internet Book – Douglas E. Corner – Pretice Hall, New Delhi.

Paper Code: BCA203

Financial Accounting with Tally

Max. Marks: 100

External Assessment: 80

Internal Assessment: 20

Unit-1:   Introduction to Financial Accounting   [5]

   Accounting Concepts

Unit-2:   Financial Accounting Basics   [5]

   Company Creation, Accounts Configuration, Accounts Classification, Accounts Master Creations, Voucher Types and Classes, Accounts Vouchers

Unit-3:   Financial Accounting Advanced
             [5]

   Final Accounts, Bank Reconciliation Statement

Unit-4:   Inventory   [5]

   Introduction to Inventory, Stock Groups , Stock Categories , Stock Item ,Reorder Levels , Locations / Go downs , Units of Measure , Price List , Tariff classification , Dealer Excise opening stock , Pure Inventory Voucher , Entry of Pure Inventory Voucher , Bill of Material , Purchase and Sales Order , Invoice Entry , Foreign Exchange Transactions

Unit-5:   Business Management   [5]

   New Year Books, MIS Reports, Budget Management, Scenario Management

Unit-6:   Document Printing   [5]

   Printing, Printing Configuration for Vouchers, Printing Reports, Printing of Inventory Reports

Unit-7:   Software Maintenance & Upgrades   [5]

   Upgrades, Data Maintenance, Import & Export of Data, Security

Unit-8:   TDS   [5]

   Introduction to Tax Deducted at Source (TDS), TDS in Tally, TDS Masters, Vouchers / Transactions , Advance to a Party , TDS Reports , TDS Return , TDS E-Return , TDS Outstanding , Exception Report

Unit-9:   VAT – Value Added Tax   [5]

Introduction to VAT, VAT Masters, Vouchers and Transactions, VAT on MRP, VAT Computation

Unit-10:   Service Tax   [5]

Introduction to Service Tax, Service Tax in Tally, Creating Masters, Voucher Creations, Service Tax Reports

Reference Books:

1.   Tally.ERP 9 (Training Guide)   -   Asok k. Nandani
2.   Tally 9   -Vishnu Priya Singh

Paper Code: BCA204

Development of Human Skills

Max. Marks: 100

External Assessment: 80

Internal Assessment: 20

Unit-1:   Basics or Human Skills   [10]

   Introduction to Human Skills, Types of Human Skills- reading, writing, learning, listening. Basic abilities- muscular, sensor, mental, social and conceptual. How skills are gained.

Unit-2:   Self Discovery and Behavior   [10]

   Journey of Self Discovery- SWOT Analysis- concept, how to make use of SWOT analysis, Goal setting to overcome weakness, Learning through reinforcement. Learning through feedback, learning by observing, learning through experience, individual Behavior and process- Thinking, memory, learning, emotions, intelligence and ability.

Unit-3:   Human Attitudes & Values   [10]

   Attitudes-Meaning & Definition, Features. Formation of Attitudes, Functions of Attitudes Values-Meaning & Definition, Formation of Values, Types of Values (Mr. Milton Rokeach's Classification) Five universal values, Truth, Righteous conduct, peace, love and non violence and their sub values

Unit-4:   New skills in Management   [08]

   Creative style – emotional intelligence- leadership skills, work style, sales competencies, sports mental skills, stress management, team role skills, critical thinking skills, computing skills.

Unit-5:   Presentation Skills   [08]

   Importance of Presentation Skills, Capturing Data, Voice & Picture Integration, Guidelines to make Presentation Interesting, Body Language, Voice Modulation, Audience Awareness, Presentation Plan, Visual Aids, Forms of Layout, Styles of Presentation.

Unit-6:   Oral Communication   [04]

   Giving speeches and oral presentation, preparing to speak, developing formal speech, extempore speech.

Unit-7:   Seminar   [04]

   Preparation for seminar, conducting seminar, organizing conference, writing and preparation of paper.

Unit-8:   Interview Preparation   [04]

        Types of Interview, Preparing for the Interviews, Attending the Interview,
Interview Process, Employers Expectations, General Etiquette, Dressing Sense, Postures &
Gestures

Unit-9: Group Discussion &Presentation   [04]

        Definition, Process, Guidelines, Helpful Expressions, Evaluation

Reference Books :

1)   Modern business Vol. III, Personnel Management, A.C. Croft
2)   Education to human values – Tilak Raj Bhardwaj, A. Mittal Publication
3)   Web. Site: http/etesting. Moddwest.com
4)   Personnel Management – Edwin Filppo, McGraaw Hill International Editions.

Paper Code: BCA205

Business Statistics

Max. Marks: 100

External Assessment: 80

Internal Assessment: 20

Unit-1:   Introduction: [06]

Definition, importance and scope of statistics in business, common statistical issues in research.

Unit-2:   Population and Sample: [07]

Concept of statistical population with illustration concept of sample with illustrations, method of sampling (description only)

Unit-3:   Data Condensation and Graphical Methods: [07]

Raw Data, Attributes and variables, discrete and continuous variables, principles of classification of raw data, frequency distribution, graphical representation, frequency distribution.

Unit-4:   Concepts of Central Tendency: [06]

Concept, Arithmetic mean, weighted mean combined mean, Introduction to median and mode.

Unit-5:   Measure of Dispersion: [07]

Concept of dispersion and measures of dispersion Absolute and relative measures of dispersion, Range, variance, merits and demerits of Range and Variance, Standard Deviation, Coefficient of Variation.

Unit-6:   Correlation (For ungrouped data):   [06]

Bivariate data scatter diagrams Concept of Correlation, Positive correlation, negative correlation , Cause and effect relation, Karl Pearson's Coefficient of Correlation.

Unit-7:   Regression (for ungrouped data):   [07]

Concept of regression, Derivation of Lines of Regression by method of least squares, Properties of regression coefficient.

Unit-8:   Index Numbers: [07]

        Need of Index numbers, general problems in construction of Index numbers, un-weighted and weighted index numbers. Price index numbers by Laspeyre's Paacher's and fishers formulae, Stock Market Index – (only introduction of BSE sensitive index and NSE – Nifty Index)

Unit-9:   Probability   [07]

        Definition, additive and multiplicative law of probability complementary events, conditional probability.

Books Recommended:

1. Fundamentals of statistics: S.C.Gupta

2. Statistical methods – S.P.Gupta

3. Business Statistics – Sancheti and Kapoor

4. Business and Statistics – Suranjan Saha

Paper Code: BCA206

LAB COURSE-2

Practical Paper-I based on- **Paper Code BCA201 & Paper Code BCA202**
Practical Paper-II based on- **Paper Code BCA203 & Paper Code BCA204**

Max. Marks: 100

Internal Assessment: 100

Practical Paper-I based on   Paper Code BCA201 & Paper Code BCA202

OOP with C++

1. Write Object Oriented Program in C++ to print given Series : 1! + 2!+….+3!

2. Write Object Oriented Program in C++ to print matrix calculations

3. Write Object Oriented Program in C++ to print Fibonnacci Series

4. Write Object Oriented Program in C++ to read a set of lines and find out no. of lines, words, and Character in a given Text.

5. Write Object Oriented Program in C++ to store and display the information of the employees.

6. Write Object Oriented Program in C++ to print factorial of the given no. using copy, constructor and distruster member.

7. Write Object Oriented Program in C++ to print details of the students using friend   function.

8. Write Object Oriented Program in C++ to use concepts of friends function class and exchange the student class object along with faculty class object by specifying faculty class in friend of student Class.

9. Write Object Oriented Program in C++ to perform operations of many string class initialization, concatenation , comparison, assign string.

10. Write Object Oriented Program in C++ to illustrate constant parameters, constant function and default argument concept.

Web Technology

1) Design website for your favorite Person or Organization.
2) Design webpage for image map.
3) Design webpage for Nested List.
4) Design webpage for admission form.
5) Design webpage which uses all CSS.
6) Design webpage for all java script objects.

Question: Solve the following programs by using JavaScript and VbScript

   1) Write a program to find digit sum of entered number.
   2) Write a program to check whether given number is Armstrong or Not.
   3) Write a program to find face value of given number.
   4) Write a program to check whether given number is Palindrome or Not.
   5) Write a program to check whether given number is Prime or Not.
   6) Write a program to check whether given number is Perfect or Not.
   7) Write a program to find factorial of given number.

Practical Paper-II based on-   Paper Code BCA203 & Paper Code BCA204

Financial Accounting with Tally

Do practice with real life industry examples using Tally.

Development of Human Skills

1) Test on listening skills and Reading skills

2) Every Student has to give two extempore Speeches & Every student has to participate in

  2 GDs. (Max. 10 students in a one Group).

 3) Student has to present a paper on topics related to IT Industry, for this presentation   should exclusively from the periodicals and internet only. This paper should be of minimum 4 page hand written. Student has to speak for minimum 5 minutes and with minimum 6 PPTs.

 4) Teacher should arrange one mock interview for each student. Student may be provided with the question bank.