# BACHELOR OF COMPUTER APPLICATION (BCA)

## Effective From June 2009.

O _____ THE NAME OF THE COURSE SHALL BE "**BACHELOR OF COMPUTER APPLICATION"** **(B.C.A.)**

O._716 A candidate who has passed his H.S.C examination from any stream from Maharashtra State Board of Secondary & Higher Secondary Education, Pune, or any other examination equivalent thereto, is eligible to join the First Semester of Bachelor of Computer Application (BCA) Course.

OR

A candidate who has passed Diploma of Engineering from the Board of Technical Education Govt. of Maharashtra or any other examination equivalent thereto shall be eligible to join the first semester of BCA.

O._717 The Bachelor of Computer Application (BCA) shall be conferred on a candidate who has persued a regular course of study consisting of Three years ( Six Semesters) in the relevant subjects as prescribed and has appeared at and passed in all the examinations prescribed for Bachelor of Computer Application Course.

R _1335 B.C.A. Programme will be a full time Six Semesters (Three Years) duration. Each semester will be of one academic term (15 weeks). The total marks for the entire examination shall be 3600.

R 1336.- The following shall be the scheme of examination: -

## FIRST SEMESTER

| Paper No | Title | Weekly Th Pr | Credit Th Pr | Marks Theory | Marks Sessional or Practical S Pr | Total Marks | Duration Theory Exam |
|---|---|---|---|---|---|---|---|
| I | Accountancy I | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| II | Industrial Economics | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| III | Business Statistics | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| IV | Office Automation Tools | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |
| V | Communication Skills | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| VI | Operating System I | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |
| | Total | 20 8 | 20 + 4 = **24** | 360 | 160 80 | 600 | -- |

## SECOND SEMESTER

| Paper No | Title | Weekly Th Pr | Credit Th Pr | Marks Theory | Marks Sessional or practical S Pr | Total Marks | Duration Theory Exam |
|---|---|---|---|---|---|---|---|
| VII | Accountancy II | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| VIII | Industrial Organisation | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| IX | Mathematics | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| X | Programming in C | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |
| XI | Principles of Management | 4 | 4 - | 60 | 40 | 100 | 2 Hrs |
| XII | Operating | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |

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|---|---|---|---|---|---|---|---|
| | System II (UNIX) | | | | | | |
| | Total | 20 8 | 18 + 6 = **24** | 360 | 160 80 | 600 | -- |

## THIRD SEMESTER

| Paper No | Title | Weekly Th Pr | Credit Th Pr | Marks Theory | Marks Sessional or practical S Pr | Total Marks | Duration Theory Exam |
|---|---|---|---|---|---|---|---|
| XIII | E-Business Essentials | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| XIV | Business Law I | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| XV | Principles of Management | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| XVI | OOPS using C++ | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |
| XVII | Data Structure & Algorithm | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| XVIII | DBMS | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |
| | Total | 20 8 | 20 + 4 = **24** | 360 | 160 80 | 600 | -- |

## FOURTH SEMESTER

| Paper No | Title | Weekly Th Pr | Credit Th Pr | Marks Theory | Marks Sessional or practical S Pr | Total Marks | Duration Theory Exam |
|---|---|---|---|---|---|---|---|
| XIX | Cost Accountancy | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| XX | Business law II | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| XXI | Entrepreneur-ship | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| XXII | Java Programming | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |
| XXIII | MIS & DSS | 4 | 4 | 60 | 40 | 100 | 2 Hrs |
| XXIV | Networking & | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Web Design | | | | | | |
| | Total | 20 8 | 20 + 4 = **24** | 360 | 160 80 | 600 | -- |

## FIFTH SEMESTER

| Paper No | Title | Weekly Th Pr | Credit Th Pr | Marks Theory | Marks Sessional or practical S Pr | Total Marks | Duration Theory Exam |
|---|---|---|---|---|---|---|---|
| XXV | Management Accounting | 4 - | 4 - | 60 | 40 - | 100 | 2 Hrs |
| XXVI | Organisational Behaviour | 4 - | 4 - | 60 | 40 - | 100 | 2 Hrs |
| XXVII | Business Elective I | 4 - | 4 - | 60 | 40 - | 100 | 2 Hrs |
| XXVIII | RDBMS using ORACLE | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |
| XXIX | V B | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |
| XXX | I T Elective I | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |
| | Total | 20 12 | 18 + 6 = **24** | 360 | 120 120 | 600 | -- |

## SIXTH SEMESTER

| Paper No | Title | Weekly Th Pr | Credit Th Pr | Marks Theory | Marks Sessional or Practical S Pr | Total Marks | Duration Theory Exam |
|---|---|---|---|---|---|---|---|
| XXXI | Business Law III | 4 - | 4 - | 60 | 40 - | 100 | 2 Hrs |
| XXXII | Business Elective II | 4 - | 4 - | 60 | 40 - | 100 | 2 Hrs |
| XXXIII | Elements of Commercial Portals | 4 - | 4 - | 60 | 40 - | 100 | 2 Hrs |
| XXXIV | System Programming | 4 - | 4 - | 60 | 40 - | 100 | 2 Hrs |
| XXXV | I T Elective II | 2 4 | 2 2 | 60 | - 40 | 100 | 2 Hrs |
| XXXVI | Project | - 8 | - 4 | - | - 100 | 100 | 2 Hrs |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total | 18 12 | 18 + 6 = **24** | 300 | 160 140 | 600 | -- |

**IT Elective I**

1
2
3

**IT Elective II**

1
2
3

**Business Elective I**

1
2
3

**Business Elective II**

1
2
3

**Total Credits for BCA**

**No. of Semesters = 6**

**Credits at each Semester = 24**

**Total Credits = 24 x 6 = 144**

R ._1337 **Admission to a Semester:-**

To be eligible for admission to a semester, a student must have satisfactorily completed 75% papers of previous semesters. However, for admission to second fourth and sixth semester appearance at theory exam at preceding semester is sufficient.( Appearance means submission of examination fees and forms to the university).

R ._1338 **Re-admission to a semester**

a) If a student fails to complete his project work before the closure of the semester to which it belongs, he will have to take fresh admission to the course and pay Rs. 1000/- for the project.
b) If a student fails in one or more subjects and desires to repeat course by taking regular admission, in such cases he will be charged Rs. 500/- per theory course and per sessional work per semester.

R ._1339 **Marks of theory papers.**

Each paper shall carry 60 marks for written comprehensive test and 40 marks shall be reserved for sessional or practical.

R ._1340 **Internal Assessment.**

The internal assessment of the candidates, at the end of each semester, shall be made on the basis of the following:-

2 Test 10 marks each
2 Assignments 5 marks each
Seminar / Group Discussion 10 marks

R _1341 **EXAMINATION.**

The B.C.A. examination will be held at the end of each semester. The viva at Sixth semester shall be held after theory exams.

R _1342 A student who has secured minimum 40% marks in each paper, but fails to secure minimum of 50% marks in aggregate for one or more semesters may choose to reappear for one or more papers to secure 50% of aggregate marks in that/those semesters.

**"R-1343** To be eligible for promotion to second year (third semester) of the BCA course, a student must successfully clear at least 9 out of 12 papers offered during the first year (first and second semesters) of the programme. For promotion to fifth semester, a student must have successfully cleared 16 out of 24 papers, offered upto fourth semester, and must clear all the papers of first and second semesters.

For promotion to second, fourth and sixth semester, the appearance at the respective preceding semester is compulsory. Clearing first, third and fifth is not essential for promotion to next semester."

R _1344 **STANDARD OF PASSING AND AWARD OF DIVISION**

A) In order to pass the examination of Bachelor of Computer Application a candidate must secure at least 40% of marks in each theory paper, and each sessional and project work and 50% in aggregate in all semesters marks.

B) A student who fails to secure at least 40% marks in one or more papers will be declared to have failed in that/those papers and such students will have to reappear for such paper/papers and secure minimum passing marks.

R _1345 To pass a semester a student must have secured at least 40% marks in each paper and each sessional & project work. The sessional marks allotted to the students by the Institute shall be scaled down in relation to the theory marks obtained by the student in the respective subject. A variation of ± 10% is permitted.
The university shall appoint external examiner for the assessment of the project work. The project shall be assessed by external examiner on the basis of the following criteria:-

1. Report Preparation 50 Marks
2. Presentation 25 Marks
3. Viva Voce 25 Marks

Both internal guide and external examiner will assess the candidate separately and will submit the marks lists separately to the university. The average of both shall be taken as the marks obtained by the student in project. The scaling down shall not be applicable to project marks.

R _1346 The sessional & project work will be assigned by a guiding qualified teacher

R _1347 A student who secures at least 40% marks in each individual theory papers Sessional & project work and secures 50% or more marks but less than 60% marks in aggregate of all semesters will be declared to have passed in the second class. There will be no pass class.

R _1348 A student who secures at least 40% marks in each theory paper and sessional and project work and 60% or more in aggregate of all semesters will be declared to have passed in First Class.

R _1349 Medium of instruction will be English.

R _1350 The following shall be the syllabus for the examination.

**Paper I- ACCOUNTANCY - I**

| | |
|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

1. Double Entry Accounting System Introduction and concept & Advantages, Accounting Cycle, Types of Account, Journalising Rules, Subsidiary Books, Ledger, Trial Balance
2. Trading ,Profit and Loss Account and Balance Sheet ( Simple exercise on Sole Trader, Final Account expected )
3. Partnership Account:
   Introduction, Preparation of Partnership Final Accounts.
4. Depreciation
   Introduction, meaning and definition, methods of Depreciation
   1. Fixed Installment Method 2. Reducing Balance Method

## Books:


1. Shukla & Greval " Advanced Accounts " S. Chand & Co.
2. Batliboy " Advanced Accounting " , Standard Accounting Publication.
3. Khan & Jain " Financial Management " Tats Mc Graw Hill.
4. S.C Kuchal " Financial Management "

**PAPER II - INDUSTRIAL ECONOMICS**

| | |
|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

1 Definition and scope of Business/Industrial Economics - Micro, Macro - Economics - Significance of Economics. Role in Business/Industrial decisions Economic Systems.

2 Indifference Curve Analysis, Properties of Indifference Curves, Consumer equilibrium, Income effect, Price effect and Substitution effect.

3 Production - Meaning - Laws of Returns.

4 Economic Development:-
Concept, of Economic Development, Indicators of Economic Development, Factors promoting Economic Development, Obstacles in the Economic Development of under developed countries, Features of under developed economy with reference to India.

## Books:


1. Business Economics by Prof. V.G. Mankar
2. Industrial Organisation and Engg. Economics by T.R. Banga, S.C. Sharma
3. Business and Managerial Economic by Sampat Mukherjee
4. Financial Institutions and Economic Growth in India. by Goyal, O.P.
5. Modern Economic Theory by K K Dewett

**PAPER III - BUSINESS STATISTICS**

| | |
|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

1. Introduction, Origin & Growth of Statistics, Definitions, Functions, Scopes and Limitations.

2. Organising Statistical Survey, Planning the Survey, Scope of Survey Techniques of data collection.

3. Sampling and sample designs.
4. Classification and Tabulation of Data.
5. Measures of Central Value - Mean, Median and Mode,
6. Measures of Dispersion - Range, Quartile Deviation, Mean Deviation, Standard Deviation.
7. Correlation Analysis:
   Introduction: Utility of the study of correlation, Correlation and causation
   Types of correlation - Positive and Negative Correlation
   Karl Pearson's Coefficient of Correlation.

## Books:-


1. Seymour Lipschutz Probablity - Schaum Outline series. Mc Graw Hill.
2. M.C. Shukla and S.S. Gulshan - Statistic S. Chand & Co. New Delhi.
3. V. Seetharaman - A Text book of Statistics - M. Nandana South Bros.
4. Gupta and Kapoor Fundamental of Statistics.
5. D.N. Elhance Statistical Methods

**PAPER IV - OFFICE AUTOMATION TOOLS**

| | |
|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

**Familiarizing with different devices and facilities of computer system.**

## Study of MS-Word , Excel & Power Point:

1. Features and tools of MS-Office, Word, Excel, Power Point.
2. **Word:** Creating word documents, menu, office assistant working with files , editing text, saving, printing , undo, redo, spelling, formatting, ruler, selecting, cutting, copying, numbering, bullets, page, orientation, margins, tables in a document, formatting text in table, addition deletion of rows columns, record handling, sorting, label, & envelop, using forms, Recycle bin. Protection of documents, mail merge.
3. **Excel:** Excel Sheet creation, entering data, layout and formatting of sheet preview & print, working with range, rows, columns, total, sorting using formatting toolbars, format cells, cell content moving & coping grouped & ungrouped worksheet alignment of text, border colors, page setup, chart, types of chart merging sizing printing chart objects, formatting charts, formula palette , functions & uses - Analysing data with excel.
4. **Power Point:** Creating a presentation, modifying visual elements, adding objects, applying transition, animation and linking, preparing layouts, presenting a slide show.

## Books:-


| | | | |
|---|---|---|---|
| 1. | Courter Marquis | - | Office - 2000 |
| 2. | Courter Marquis | - | Office - 97 |
| 3. | Mansfield | - | MS- Office |
| 4. | Swell | - | MS- Office - 97 |
| 5. | Syber Publication | - | Office- 2000 Complete |
| | Ulrich, L. | - | Sams Teach Your self 2000. |

**PAPER V – COMMUNICATION SKILLS**

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|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

1. Meaning, Nature, Scope, Importance, Functions and Limitations of Communication.
2. Elements of Communications - Principles of Communication, Barriers to effective communication.
3. **Communication Skills:**

   a) **Oral Communication:**

   Effective speaking - Principles of effective oral communication, speech preparation - guidelines for effective speech. listening skills - telephonic and group communication -Board and union Meetings - Interviews, their types, techniques and styles.

   b) **Written Communication:**

   Meaning and objective of written communication - Medias of written communication - Features of written communication -

   Preparation, analysis and interpretation of reports. Business letter writing - Application, references, Preparation of Tenders and Quotations - Drafting of sales circular letters.
4. Use of electric equipments in Business Communication - A hands on experiments on Telex, Fax, Pager, Cellular Phone, Computer and Internet.

## Books:-


1. Handbook Business Correspondence - Frailey
2. Technical & Professional Communication - Hickini.
3. Communication Dynamics Dr. Mrs. V.S. Mishra
4. Business Communication Richard Huseman.
5. Business Communication Bhende, Pradhan & Others.
6. Communication C. S. Rayndu
7. Business Communication Ray & Ray
8. Communication in I T Age Dhiraj Sharma

**PAPER VI – OPERATING SYSTEM- I**

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|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

1. Operating System concept, Its necessity, functions
2. Memory Management ; Device Management; Job Scheduling, I/O Management, Resource Management, Types of Operating System.
3. DISK OPERATING SYSTEM ( DOS)

   System Prompt, Default Device, File Directory, Display of files, Directory-handling, copying, deleting files,

4.. Windows

   Exploring Windows, Settings, Control Panel, Add Remove Hardware, Printers, Date Time Regional Settings, Games, File Handling activities, Recycle Bin etc.

5.. Study of Internal & External Commands of MS-DOS

   DIR (With Options) DATE, TIME, CLS, COPY CON, EDIT, COPY, DELETE, REN, FORMAT, FIND, RESTORE, PROMPT, PATH, MORE, TYPE, VER, VOL, CHKDSK, DISKCOMP, TREE, SYS, MEM, XCOPY, Wild Card Characters, Configuring Dos and Batch Files, CONFIG.SYS, BREAK ON/OFF, BUFFER, FILES, SHELL, SET, ECHO, PAUSE, CALL, IF, GOTO, END.

## Books:-


- MS-DOS By Peter Norton
- Dos the Complete reference By Jasma.
- Operating Systems By Madnick
- Mastering Windows .
- Pc Software Taxali

**Semester II**

**PAPER VII – ACCOUNTANCY II**

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|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

1. Goodwill of Partnership Firm

   Meaning, Need, factors affecting Goodwill, Methods of valuing Goodwill, - Average Profit Method, Super Profit Method

2. Accounts of Non Trading Concern – Preparation of Receipts and Payment Accounts, Income and Expenditure Account and Balance Sheet

3. Company Final Accounts

   (Treatment of Provisions, Treatment of Dividends, Interim & Final Dividend on shares, Income Tax on Dividends, Payment of Dividends, Unclaimed Dividends, Treatment of Preliminary Expenses, Capital Profit, Income Tax Provision, Advance Payment, Payment of Tax, TDS, -- Simple exercises expected).

4. Single Entry System

   Concept- Ascertainment of Profit from records of single entry method

## Books:-


1. Shukla & Greval " Advanced Accounts " S. Chand & Co.
2. Batliboy " Advance Accounting " , Standard Accounting Publication.
3. Khan & Jain " Financial Management " Tats Mc Graw Hill.
4. S.C Kuchal " Financial Management "

**PAPER VIII – INDUSTRIAL ORGANISATION**

| | |
|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

1 Concept of Industrialization:
What is Industrialisation, its determinates Problems of Industrialisation social Responsibility of Business.

2 Scale of Operation and Size of Business Units (with special reference to India). Economics of scales, Meaning of large Medium and small size business- relative advantages and disadvantages)

3 Concept of concentration of power: combinations, Process of Integration vertical Horizontal Lateral and Diagonal and service integration types: Pools, Trusts Carte. Holding Companies, Syndicates Mergers and Amalgamation Multi-directorship Interlocking, Restructuring and Rationalisation.

4 Industrial Policy Resolutions of 1991 & WTO.

5 Corporate structure of business and essentials of Corporate Governance

## Books :


1 Industrial Organisation & Engg. Economics by T.R. Banga, S.C. Sharma
2 Management & Organisation by C.B. Gupta
3 Industrial Administration & Management by Batty . J.
4 Control Practices in Indian Industries by Dave, Mahendra & Marthy, Guruprasad.
5. Principles of Industrial Organisation by Kimball, K.S. and Kimball D.S.

**PAPER IX – MATHEMATICS**

| | |
|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

1. Logarithms, Rules for multiplication division and exponentiation
2. Permutations, Combinations, and Binomial Theorem.
3. Determinate - different methods of calculating determinants.
4. Matrix - representation - Addition, Subtraction, Multiplication and division. Inverse, Transpose, Adjoint - Cofactor - Singular Arrays - Vectors.

Books:-

**PAPER X - PROGRAMMING IN C**

| | |
|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

1. Introduction and importance of C language
2. Constants, variables and data types:-
   Character set - tokens-constant-keywords and identifiers - variables- data types- declaration and assignment of variables- defining symbolic constants.
3. Operators and Expressions:
   Arithmetic, Relational and Logical Operators Assignment, increment and decrement of operators - conditional bitwise and special operators - arithmetic expression and its evaluation - hierarchy of arithmetic operations - evaluations, precedence and associatively - mathematical functions.
4. Decision-Making and branching:
   If statement Switch statement - GOTO statement - The ? : Operators.
5. Decision - Making and Looping:
   WHILE DO, and FOR statements.
6. Arrays:
   One-dimensional - Two - dimensional and Multi-dimensional arrays.
7. Handling of Character Set:
   Declaration & Initialization of string variables - reading from and writing to screen -Arithmetic operations - String handling functions.
8. Structures and Unions:
   Definitions initialization and assigning values to members arrays of structures and arrays within structures structure with in structure- unions - size of structures.
9. Pointers:
   Declaration and initialisation of pointers - pointer expression - pointer and arrays - pointer and character strings pointers and functions - pointers and structures pointer on pointers.
10. File Maintenance in "C" :
    Defining, Opening and closing a file - Input/Output operations on a file- random access to file - command line arguments.
11. User Defined Functions:
    Form of "C" functions- calling a function - nesting of functions - recursion - functions with arrays.

## Books:


1. Programming in "C" E Balgurusamy Tata Cm Graw-Hill
2. The "C" Programming Language :Briain W. Kenigham & Dennis Ritchie
3. The Spirit of "C"- Henrry Mulish, Herbert L. Cooper.
4. Mastering "C" - Crain Bolon.

**PAPER XI - PRINCIPLES OF MANAGEMENT**

| | |
|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

I. Definition, Nature & Scope of Management, Importance, Management as an Art, Science and Profession, Different approaches to Management.

II. Evolution of Management thought contribution of Taylor, Fayol, Follet, Drucker.

III. Management Process, Planning, organizing, staffing, Direction, Controlling, coordination, leadership.

IV. Functional Management, Human Resource Management, Marketing Management, Financial Management, Materials Management.

## Books:

1) Organisation & Management by Agarwal R D

2) Management Practice by Varnashi Murthy

3) Principles of Management by Tripathi & Reddy

**PAPER – XII OPERATING SYSTEM II**

| | |
|---|---|
| **Theory** | **60** |
| **Sessional** | **40** |
| **Credits** | **4** |

1. The Operating System
2. Structure of Unix
3. Working with Unix
4. VI Editor
5. Shell Programming
6. Special Utilities
7. System Administration
8. Program Development Aids
9. Hello "C" Shell
10. Unix Internals

Practicals on Unix.

Familiarizing with Unix environment, Execution of different commands of Unix, Shell Programming, files in Unix-

## Books:

1. Unix in Easy Steps by Mohammed Azam
2. Unix by Kernigham