BHARATHIAR UNIVERSITY :: COIMBATORE – 641 046
REGULATIONS FOR BACHELOR OF COMPUTER APPLICATIONS DEGREE COURSE
with Semester System
(with effect from 2007-2008)

1. **Eligibility for Admission to the Course**
   Candidate for admission to the first year of the BACHELOR OF COMPUTER APPLICATIONS (BCA) degree course shall be required to have passed the higher secondary examination conducted by the Govt. of Tamil Nadu with any one of the following subjects: Mathematics / Computer Science / Statistics / Business mathematics or other examinations accepted as equivalent there to by the Syndicate, subject to such other conditions as may be prescribed there for.

2. **Duration of the Course**
   The course shall extend over a period of three years comprising of six semesters with two semesters in one academic year. There shall not be less than 90 working days for each semester. Examination shall be conducted at the end of every semester for the respective subjects.

3. **Course of Study**
   The course of study for the BCA degree course shall consist of the following
   a) **Part - I**
      Tamil or any one of the following modern/classical languages i.e. Telugu, Kannada, Malayalam, Hindi, Sanskrit, French, German, Arabic & Urdu. It shall be offered for the first two semesters with one examination at the end of each semester.
   b) **Part – II : English**
      The subject shall be offered during the first two semesters with one examination at the end of each semester. During third semester the subject communication skills will be offered as one of the core subject.
   c) **Foundation Course**
      The Foundation course shall comprise of two stages as follows:
      Foundation Course A : General Awareness (I & II semesters)
      Foundation Course B : Environmental Studies (III & IV semesters)
      
      The syllabus and scheme of examination for the foundation course A, General awareness shall be apportioned as follows.
      From the printed material supplied by the University - 75%
      Current affairs & who is who? - 25%
      The current affairs cover current developments in all aspects of general knowledge which are not covered in the printed material on this subject issued by the University.
      The Foundation course B shall comprise of only one paper which shall have Environmental Studies.
   d) **Part – III**
      **Group A : Core subject –** As prescribed in the scheme of examination.
      Examination will be conducted in the core subjects at the end of every semester
      **Group B: allied subjects -**2 subjects-4 papers
      Examination shall be conducted in the allied subjects at the end of first four semesters.
      **Group C: application oriented subjects: 2 subjects – 4 papers**
      The application-oriented subjects shall be offered during the last two semesters of study viz., V and VI semesters. Examination shall be conducted in the subjects at the end of V & VI semesters.
**Group D:** field work/institutional training

Every student shall be required to undergo field work/institutional training, related to the application-oriented subject for a period of not less than 2 weeks, conveniently arranged during the course of 3rd year. The principal of the college and the head of the department shall issue a certificate to the effect that the student had satisfactorily undergone the field work/institutional training for the prescribed period.

**Diploma Programme:**

All the UG programmes shall offer compulsory diploma subjects and it shall be offered in four papers spread over each paper at the end of III, IV, V, & VI semesters.

e) **Co-Curricular activities: NSS/NCC/Physical education**

Every student shall participate compulsorily for period of not less than two years (4 semesters) in any one of the above programmes.

The above activities shall be conducted outside the regular working hours of the college. The principal shall furnish a certificate regarding the student’s performance in the respective field and shall grade the student in the five point scale as follows

- A-Exemplary
- B-very good
- C-good
- D-fair
- E-Satisfactory

This grading shall be incorporated in the mark sheet to be issued at the end of the appropriate semester (4th or 5th or 6th semester).

(Handicapped students who are unable to participate in any of the above activities shall be required to take a test in the theoretical aspects of any one of the above 3 field and be graded and certified accordingly).

4. **Requirement to appear for the examinations**

   a) A candidate will be permitted to appear for the university examinations for any semester if

      i) He/she secures not less than 75% of attendance in the number of working days during the semester.

      ii) He/she earns a progress certificate from the head of the institution, of having satisfactory completed the course of study prescribed in the subjects as required by these regulations, and

      iii) His/her conduct has been satisfactory.

      Provided that it shall be open to the syndicate, or any authority delegated with such powers by the syndicate, to grant exemption to a candidate who has failed to earn 75% of the attendance prescribed, for valid reasons, subject to usual conditions.

   b) A candidate who has secured less than 65% but 55% and above attendance in any semester has to compensate the shortage in attendance in the subsequent semester besides, earning the required percentage of attendance in that semester and appear for both semester papers together at the end of the latter semester.

   c) A candidate who has secured less than 55% of attendance in any semester will not be permitted to appear for the regular examinations and to continue the study in the subsequent semester. He/she has to rejoin the semester in which the attendance is less than 55%

   d) A candidate who has secured less than 65% of attendance in the final semester has to compensate his/her attendance shortage in a manner as decided by the concerned head of the department after rejoining the same course.
5. **Restrictions to appear for the examinations**

   a) Any candidate having arrear paper(s) shall have the option to appear in any arrear paper along with the regular semester papers.

   b) “Candidates who fail in any of the papers in Part I, II & III of UG degree examinations shall complete the paper concerned within 5 years from the date of admission to the said course, and should they fail to do so, they shall take the examination in the texts/revised syllabus prescribed for the immediate next batch of candidates. If there is no change in the texts/syllabus they shall appear for the examination in that paper with the syllabus in vogue until there is a change in the texts or syllabus. In the event of removal of that paper consequent to change of regulation and/or curriculum after 5 year period, the candidates shall have to take up an equivalent paper in the revised syllabus as suggested by the chairman and fulfill the requirements as per regulation/curriculum for the award of the degree.

6. **Medium of Instruction and examinations**

   The medium of instruction and examinations for the papers of Part I and II shall be the language concerned. For part III subjects other than modern languages, the medium of instruction shall be either Tamil or English and the medium of examinations is in English/Tamil irrespective of the medium of instructions. For modern languages, the medium of instruction and examination will be in the languages concerned.

7. **Submission of Record Note Books for practical examinations**

   Candidates appearing for practical examinations should submit bonafide Record Note Books prescribed for practical examinations, otherwise the candidates will not be permitted to appear for the practical examinations. However, in genuine cases where the students, who could not submit the record note books, they may be permitted to appear for the practical examinations, provided the concerned Head of the department from the institution of the candidate certified that the candidate has performed the experiments prescribed for the course. For such candidates who do not submit Record Books, zero (0) marks will be awarded for record note books.

8. **Passing Minimum**

   a) A candidate who secures not less than 40% of the total marks in any subject including the Diploma and Foundation courses (theory or Practical) in the University examination shall be declared to have passed the examination in the subject (theory or Practical).

   b) A candidate who passes the examination in all the subjects of Part I, II and III (including the Diploma and Foundation courses) shall be declared to have passed, the whole examination.

9. **Improvement of Marks in the subjects already passed**

   Candidates desirous of improving the marks awarded in a passed subject in their first attempt shall reappear once within a period of subsequent two semesters. The improved marks shall be considered for classification but not for ranking. When there is no improvement, there shall not be any change in the original marks already awarded.

10. **Classification of Successful candidates**

    a) A candidate who passes all the Part III examinations in the First attempt within a period of three years securing 75% and above in the aggregate of Part III marks shall be declared to have passed B.A/ B.Sc./B.Com./B.B.M. degree examination in **First Class with Distinctions**.

    b) i) A candidate who passes all the examinations in Part I or Part II or Part III or Diploma securing not less than 60 per cent of total marks for concerned part shall be declared to have passed that part in **First Class**.
(ii) A candidate who passed all the examinations in Part I or Part II or Part III or Diploma securing not less than 50 per cent but below 60 per cent of total marks for concerned part shall be declared to have passed that part in Second Class.

(iii) All other successful candidates shall be declared to have passed the Part I or Part II or Part III or Diploma examination in Third Class.

11. Conferment of the Degree
   No candidate shall be eligible for conferment of the Degree unless he/she,
   i. has undergone the prescribed course of study for a period of not less than six semesters in an institution approved by/affiliated to the University or has been exempted from in the manner prescribed and has passed the examinations as have been prescribed therefor.
   ii. Has satisfactory participates in either NSS or NCC or Physical Education as evidenced by a certificate issued by the Principal of the institution.
   iii. Has successfully completed the prescribed Field Work/ Institutional Training as evidenced by certificate issued by the Principal of the College.

12. Ranking
   A candidate who qualifies for the UG degree course passing all the examinations in the first attempt, within the minimum period prescribed for the course of study from the date of admission to the course and secures I or II class shall be eligible for ranking and such ranking will be confined to 10% of the total number of candidates qualified in that particular branch of study, subject to a maximum of 10 ranks.
   The improved marks will not be taken into consideration for ranking.

13. Additional Degree
   Any candidate who wishes to obtain an additional UG degree not involving any practical shall be permitted to do so and such candidate shall join a college in the III year of the course and he/she will be permitted to appear for par III alone by granting exemption form appearing Part I, Part II and common allied subjects (if any), already passed by the candidate. And a candidate desirous to obtain an additional UG degree involving practical shall be permitted to do so and such candidate shall join a college in the II year of the course and he/she be permitted to appear for Part III alone by granting exemption form appearing for Part I, Part II and the common allied subjects. If any, already passed. Such candidates should obtain exemption from the university by paying a fee of Rs.500/-.

14. Evening College
   The above regulations shall be applicable for candidates undergoing the respective courses in Evening Colleges also.

15. Syllabus
   The syllabus for various subjects shall be clearly demarcated into five viable units in each paper/subject.

16. Revision of Regulations and Curriculum
   The above Regulation and Scheme of Examinations will be in vogue without any change for a minimum period of three years from the date of approval of the Regulations. The University may revise/amend/change the Regulations and Scheme of Examinations, if found necessary.

17. Transitory Provision
   Candidates who have undergone the Course of Study prior to the Academic Year 2007-2008 will be permitted to take the Examinations under those Regulations for a period of four years i.e. up to and inclusive of the Examination of April 2012 thereafter they will be permitted to take the Examination only under the Regulations in force at that time.
<table>
<thead>
<tr>
<th>SEMESTER</th>
<th>PAPER</th>
<th>SUBJECTS</th>
<th>Lecture Hours / Week</th>
<th>Duration of Exam.</th>
<th>Max. Marks</th>
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## BACHELOR OF COMPUTER APPLICATIONS (B C A) & DIPLOMA in MULTIMEDIA AND ANIMATION

### SCHEME EXAMINATION FOR THE ACADEMIC YEAR 2007-2008 & onwards

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<th>SEMESTER</th>
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</table>
Subject Description: This subject deals the programming concepts using COBOL language.

Goal: To learn about COBOL programming language.

Objective: On successful completion of this subject the students should have skills for writing programs for business applications and file handling concepts.

- - - - -


TEXT BOOK:
1. COBOL PROGRAMMING, M.K. ROY & D.GHOSH DASTIDAR, 2nd ed, TMH.

REFERENCE BOOKS:
1. COBOL programming – V. Rajaraman, PHI Pub.
2. Introduction To Cobol Programming – Dr. R. Krishnamoorthy, JJ Publications.
Subject Description: This subject deals with fundamentals of digital computers, Microprocessors and System architecture.

Goal: To learn about Computer Fundamentals and its Architecture.

Objective: On successful completion of this subject the students should have Knowledge on digital circuits, Microprocessor architecture, and Interfacing of various components.


TEXT BOOKS:
1. DIGITAL ELECTRONICS CIRCUITS AND SYSTEMS - V.K. Puri, TMH.
2. COMPUTER SYSTEM ARCHITECTURE - M. Morris Mano, PHI.

REFERENCE BOOKS:
1. Digital principles and applications, Albert Paul Malvino, Donald P Leach, TMH, 1996.
2. COMPUTER ARCHITECTURE, Carter, Schaum’s outline series, TMH.
PRACTICAL LIST

1. Write a COBOL Program to find the sum of individual digits of a 10-digit number until a single digit is produced.

2. Write a COBOL Program to accept the inputs Student Name, Marks for 5 subjects and declare the result as PASS, if the student gets minimum of 10 marks in each subject, otherwise declare as FAIL.

3. Write a COBOL Program to accept the given date (DDMMYY) and display the result in the following specified format: 030498 as 3rd APR 1998.

4. Write a COBOL Program to display the given three digit number into words using OCCURS clause. (Example: 342 as THREE HUNDRED AND FORTY TWO).

5. Write a COBOL Program to create a student data file STUDENT.DAT, using the following fields: ROLL-NO, NAME, AGE, YEAR-IN-COLLEGE, SEX, MARKS for 5 subjects.

6. Write a COBOL Program to create the following two files, using the student data file STUDENT.DAT (created by Program 5):
   FILE-1.DAT: List of male students who are studying third year
   FILE-2.DAT: List of female students who are studying first year
   (Use MOVE CORRESPONDING option).

7. Write a COBOL Program to sort the student data file STUDENT.DAT (created by Program 5) in the ascending order of the fields SEX, YEAR-IN-COLLEGE and ROLL-NO (use SORT verb) into SORT.DAT file.

8. Write a COBOL Program to create an Indexed Sequential File EMPLOYEE.DAT for the Employees of an Organization using the fields: ROLL-NO, NAME, DOB, SEX, BASIC-PAY and DESIGNATION.

9. Write a COBOL Program to update the BASIC-PAY of each employee in the employee data file EMPLOYEE.DAT (created by Program 8) by incrementing 25% of BASIC-PAY.

10. Write a COBOL Program to find the number of male employees whose BASIC-PAY > 4000 and number of female employees whose BASIC-PAY < 3000 using the employee data file EMPLOYEE.DAT (created by Program 8).

11. Write a COBOL Program to create an Inventory data file INVENT.DAT by using the following fields: ITEM-CODE, DESCRIPTION, OPEN-STOCK, PURCHASES, SALES, SAFETY-LEVEL and CLOSE-STOCK.

12. Write a COBOL Program to prepare Re-Order Level Statement by using the inventory data file INVENT.DAT (created by Program 11), if the CLOSE-STOCK is less than SAFETY-LEVEL.
Subject Description: This subject deals various numerical methods and statistical applications for computer science.

Goal: To learn about the computer based numerical and statistical methods.

Objective: On successful completion of this subject the students should have:
- Understanding various concepts of numerical analysis.
- Learning various applications statistical methods for Computer Science.


UNIT-V: Correlation – Karl Pearson’s Coefficient of Correlation – Rank correlation regression – Regression Equations- Difference between correlation & Regression

TEXT BOOKS:

REFERENCE BOOKS:
1. COMPUTER ORIENTED NUMERICAL METHODS – V. Rajaraman, PHI Pub.
2. NUMERICAL METHODS – E. Balagurusamy Tata McGraw Hill.
Subject Description:
This subject deals with the methods of data structures using C programming language.

Goal:
To learn about C programming language using data structure concepts.

Objective:
On successful completion of this subject the students should have writing programming ability on data structures dealing with Stacks, Queues, List, Searching and Sorting algorithms etc.,

UNIT–I:

UNIT–II:

UNIT–III:
Structure and Union: Features of structure, Declaration and initialization of structure, Structure within structure, Array of structure, Pointer to structure, Bit fields, Enumerated data types, Union. Files: Streams and file types, Steps for file operation, File I/O, Structures read and write, other file functions, Command line arguments, I/O redirection.

UNIT–IV:

UNIT-V:
Searching and Sorting – Searching: Linear, Binary. Sorting – Insertion, Selection, Bubble, Quick, Tree, Heap.

TEXT BOOK:

REFERENCE BOOKS:
3. DATA STRUCTURES USING C – Aaron M Tanenbaum, Yedidyeh langsam, Moshe J Augenstein, PHI.
PRACTICAL LIST

1. Write a C Program to create two **ARRAYS** of integers. Sort and store the elements of both in the third array.

2. Write a C Program to experiment the operation of **STACK** using array implementation.

3. Create a Menu-Driven program to implement **QUEUE** to perform the following using pointers:
   1. **Insertion**
   2. **Deletion**
   3. **Modification**
   4. **List**

4. Write a C Program to create **LINKED LIST** representation of employee records and do the following operations using pointers:
   1. To add a new record
   2. To delete an existing record
   3. To print the information about an employee
   4. To find the number of employees in the structure.

5. Write a C Program to count the total nodes of the **LINKED LIST**.

6. Write a C Program to insert an element at the end of the **LINKED LIST**.

7. Write a C Program to insert an element beginning of the **DOUBLY LINKED LIST**.

8. Write a C Program to display a **HASH TABLE**, which is to be prepared by using the Mid-Square method.

9. Write a C Program to demonstrate **BINARY SEARCH**.

10. Write a C Program to insert nodes into a Binary tree and to traverse in pre-order.

11. Write a C Program to arrange a set of numbers in ascending order using **QUICK-SORT**.

12. Write a C Program to arrange a set of numbers in descending order using **EXCHANGE-SORT**.
Subject Description: This subject deals various optimization techniques for linear programming, Transportation, Assignment Problems, Game theory, PERT and CPM.

Goal: To learn about the managerial concepts like decision making, optimization, etc.

Objective: On successful completion of this subject the students should have:
- Understanding various mathematical applications in industries.
- Decision making for real time environment.


UNIT-II: Transportation and assignment problem - Integer Programming Branch and Round Techniques - Assignment and Traveling Salesman Problem.

UNIT-III: Game Theory - Concept of Pure and Mixed Strategies – Solving 2 x 2 matrix with and without saddle point - n x 2 - 2 x m games, Replacement models - Elementary replacement models - present value - rate of return - depreciation - Individual replacement – Group replacement.

UNIT-IV: (Derivations not included) Queuing Theory - definition of waiting line model -Queue discipline - traffic intensity - poison arrival – Birth death process - Problem from single server: finite and infinite population model – Problems from multi server: finite and infinite population model.


TEXT BOOKS

REFERENCE BOOKS
2. PROBLEMS IN OPERATIONS RESEARCH – P.K. Gupta, D.S. Hira, S. Chand Pub
Subject Description: This subject deals with Object–oriented programming concepts like Abstraction, Encapsulation, Inheritance and Polymorphism.

Goal: Knowledge on Object–oriented concept and programming with C++.

Objective: To inculcate knowledge on Object-oriented programming concepts using C++.


UNIT-II: Classes and Objects: Declaring Objects – Defining Member Functions – Static Member variables and functions – array of objects –friend functions – Overloading member functions – Bit fields and classes – Constructor and destructor with static members.


TEXT BOOK:

REFERENCE BOOKS:
1. OBJECT-ORIENTED PROGRAMMING WITH C++, E.Balagurusamy, 1998, TMH.
2. C++ PROGRAMMING Black Book, Steven Holzner, Wiley Student edition, Wiley India.
**CORE-6**  

**OPERATING SYSTEMS**

**Subject Description:** This subject deals Operating Systems concepts and Information, Process and Memory Managements. Also it deals with advanced topics like Distributed processing, Remote Procedure call and Clusters.

**Goal:** Knowledge on Operating system and how it controls the information and hardware.

**Objective:** To inculcate knowledge on OS concepts and functioning of modern OS.

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**UNIT-II: OS-Functions and Structure:** Different Services of Operating System – Operating System Structure – Booting. **Information Management:** The File System - Device Driver.


**TEXTBOOKS:**
   *(UNIT-I: 2.1-2.8 UNIT-V: 14.1-14.7)*
2. OPERATING SYSTEMS – Achyut Godbole, 2nd edition, TMH.  
   *(UNIT II: 3.2, 3.7, 3.9, 4.2, 4.3 UNIT-III: 5.2-5.6, 5.9 UNIT-IV: 8.1-8.9)*

**REFERENCE BOOKS:**
1. OPERATING SYSTEMS Concepts and Design – Milan Milankovic, 2nd edition, TMH.
2. MODERN OPERATING SYSTEMS – Andrew S. Tanenbaum, 2nd edition, PHI.
PRACTICAL LIST

1. Write a C++ Program to create a class to implement the Data Structure STACK. Write a constructor to initialize the TOP of the STACK. Write a member function PUSH() to insert an element and member function POP() to delete an element check for overflow and underflow conditions.

2. Write a C++ Program to create a class ARITHMETIC which consists of a FLOAT and an INTEGER variable. Write a Member function ADD(), SUB(), MUL(), DIV() to perform addition, subtraction, multiplication, division respectively. Write a member function to get and display values.

3. Write a C++ Program to read an integer number and find the sum of all the digits until it reduces to a single digit using constructors, destructors and inline member functions.

4. Write a C++ Program to create a class FLOAT that contains one float data member. Overload all the four Arithmetic operators so that they operate on the object FLOAT.

5. Write a C++ Program to create a class STRING. Write a Member Function to initialize, get and display stings. Overload the Operator “+” to Concatenate two Strings, “==” to Compare two strings.

6. Write a C++ Program to create class, which consists of EMPLOYEE Detail like E_Number, E_Name, Department, Basic, Salary, and Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade.

7. Write a C++ Program to create a class SHAPE which consists of two VIRTUAL FUNCTIONS Calculate_Area() and Calculate_Perimeter() to calculate area and perimeter of various figures. Derive three classes SQUARE, RECTANGLE, TRIANGLE from class Shape and Calculate Area and Perimeter of each class separately and display the result.

8. Write a C++ Program to create two classes each class consists of two private variables, a integer and a float variable. Write member functions to get and display them. Write a FRIEND Function common to both classes, which takes the object of above two classes as arguments and the integer and float values of both objects separately and display the result.

9. Write a C++ Program using Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.

10. Write a C++ Program to check whether the given string is a palindrome or not using Pointers.

11. Write a C++ Program to create a File and to display the contents of that file with line numbers.

12. Write a C++ Program to merge two files into a single file.
Credit Hours: 4

Goal: To enable the students to learn principles and concepts of Accountancy.

Objective: On successful completion of this course, the student should have understood
- Concepts and conventions of Accounting.
- Basic Accounting framework

UNIT –I

UNIT – II
Final accounts of a sole trader with adjustments – Errors and rectification

UNIT – III
Bill of exchange- Accommodation bills – Average due date – Account current.

UNIT – IV
Accounting for consignments and Joint ventures

UNIT – V
Bank Reconciliation statement – Receipts and Payments and income and expenditure account and Balance sheet – Accounts of professionals.

Note: Distribution of Marks between problems and theory shall be 80% and 20%.

BOOKS FOR REFERENCE
2. T.S.Grewal – Introduction to Accountancy- S.Chand & Company Ltd.,
Subject Description: This Subject deals Multimedia Applications.

Goal: To learn about Multiple media and their technologies.

Objective: To inculcate knowledge on Media, Text, Image, Audio, Video, Animation etc.


TEXTBOOKS:

REFERENCE BOOKS:
1. MULTIMEDIA: Making it Work – Tay Vaughan, 7th edition, TMH.
Subject Description: This subject deals Visual Basic Programming concepts.

Goal: Knowledge on Visual Programming and how to develop a Project using Visual Basic.

Objective: To inculcate knowledge on Programming and Project Development using Visual Basic.


TEXTBOOK:
1. VISUAL BASIC – Byron S. Gottfried, Schaum’s Outline series, TMH.
   (UNIT-I: Chapters 1, 2 & 3  UNIT II: Chapter 4  UNIT-III: Chapter 5 & 6
   UNIT-IV: Chapters 7 & 8  UNIT V: Chapter 9)

REFERENCE BOOK:
1. The Complete reference VISUAL BASIC – Noel Jerke, TMH.
**Subject Description:** This subject deals with RDBMS concepts using Oracle SQL and PL/SQL.

**Goal:** Knowledge on RDBMS-Oracle Programming techniques.

**Objective:** To inculcate knowledge on RDBMS concepts and Programming with Oracle.

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**UNIT-III: Working with Table: Data Management and Retrieval:** DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. **Functions and Grouping:** Built-in functions –Grouping Data. **Multiple Tables: Joins and Set operations:** Join – Set operations.


**TEXTBOOKS:**
1. DATABASE SYSTEMS USING ORACLE – Nilesh Shah, 2nd edition, PHI.  
   (UNIT-I: Chapters 1 & 2  UNIT-II: Chapters 3 & 4  UNIT-III: Chapters 5 & 6  UNIT-IV: Chapters 10 & 11  UNIT-V: Chapters 12, 13 & 14)

**REFERENCE BOOKS:**
1. DATABASE MANAGEMENT SYSTEMS – Arun Majumdar, Primitoy Bhattacharya, TMH.  
2. DATABASE MANAGEMENT SYSTEMS – Gerald V. Post, 3rd edition, TMH.
**PRACTICAL LIST**

**VISUAL BASIC**

1. Write a simple VB program to accept a number as input and convert them into
   a. Binary  
   b. Octal  
   c. Hexa-decimal

2. Write a simple VB program to add the items to list box with user input and move the selected
   item to combo box one by one.

3. Write a simple VB program to develop a calculator with basic operation.

4. Design an form using common dialog control to display the font, save and open dialog box
   without using the action control property.

5. Write a simple program to prepare a Questionnaire.

6. Write a VB Program to develop a menu driven program
   Add a MDI window in the form and arrange them in the cascading/horizontal style using menus
   (Create a menu to add form, arrange) (Menu Item 1).
   Also change the form color using the menu in another menu item (Menu Item 2).

**ORACLE**

Data Definition Basics

7. Create the following table (PK - Primary Key, FK – Foreign Key) cat_head, route_head,
   place_head, route_detail, ticket_detail, ticket_header with the mapping given below:

   cat_head    route_head
   (cat_code PK)  (cat_code FK)
   route_head    route_detail
   (route_id PK)   (route_id FK)
   ticket_head   ticket_detail
   (tick_no PK)  (tick_no FK)
   place_head    route_detail
   (place_id PK)  (place_id FK)

   (i) Alter the table ticket_header to add a check constraint on ticket_no to accept values
       between 1 and 500
   (ii) Alter table route_header to add a column with data type as long.

Data Manipulation Basics

8. (a) Insert values to above tables
    (b) Display only those routes that originate in madras and terminate at cochin
    (c) Display only distinct category code from the table route_header in descending manner.
    (d) Update the table route_header to set the distance between madras and coimbatore as 500

Queries

9. A. Select rows from ticket_details such that ticket number greater than any ticket_number in
    Ticket_header.
B. Select rows from route_header such that the route_id are greater than all route_id in
route_detail
   Where place id is “100”.
C. Create view tick from ticket_header with Ticket_no, Origin, Destination, route_id

Report
10. Generate a report from the table ticket_detail for the particular ticket_no

PL/SQL
11.
   a. Write a PL/SQL block to update the bus_station to be “ERODE” where place_id is ’01’ or
      ’05’ [place_header]
   b. Write a PL/SQL block to satisfy the following condition by accepting the route_id as user
      input. If the distance is less than 500 than update the fare to be 200
   c. Write a Database trigger before insert for each row on the table route_detail not allowing
      transaction on Saturday / Sunday
   d. Write a Database trigger before delete for each row not allowing deletion and give the
      appropriate message on the table route_details

PROJECT
12. Develop a Simple Project for Student Database Management System using VB as front end and
    ORACLE as back end.

REFERENCE BOOKS:
1. VISUAL BASIC – Byron S.Gottfried, Schaum’s Outline Series, 2002, TMH.
2. DATABASE SYSTEMS USING ORACLE – Nilesh Shah, 2nd edition, PHI.
Subject Description: This subject deals with various management approaches of Information Systems.

Goal: Knowledge on how to manage Information like an experienced manager.

Objective: To inculcate knowledge on managing different information systems.


TEXTBOOKS:

REFERENCE BOOKS:
2. MANAGEMENT INFORMATION SYSTEMS for the Information Age – Haag, Cummings, McCubbrey, 4th edition, TMH.
3. MANAGEMENT INFORMATION SYSTEMS a Concise Study – S.A. Kelkar, 2005, PHI.
1. Create Sun Flower using Photoshop.
2. Create Water Drops using Photoshop.
3. Animate Plane Flying the Clouds using Photoshop.
5. Create Mouse using Photoshop.
6. Create See thru text using Photoshop.
7. Create Military Clothe using Photoshop.

**REFERENCE BOOKS:**
1. **PHOTOSHOP CS2 BIBLE** – Deke McClelland & Laurie Ulrich Fuller, Wiley India.
Subject Description: This subject deals with Software Engineering concepts like Analysis, Design, Implementation, Testing and Maintenance.

Goal: Knowledge on how to do a software project with in-depth analysis.

Objective: To inculcate knowledge on Software engineering concepts in turn gives a roadmap to design a new software project.


TEXTBOOK:
1. SOFTWARE ENGINEERING CONCEPTS – Richard Fairley, 1997, TMH.
2. SOFTWARE QUALITY ENGINEERING – Jeff Tian, Student edition, 2006, Wiley India.

REFERENCE BOOKS:
1. SOFTWARE ENGINEERING FOR INTERNET APPLICATIONS – Eve Anderson, Philip Greenspun, Andrew Grumet, 2006, PHI.
2. SOFTWARE ENGINEERING PROJECT MANAGEMENT – 2nd Edition, Wiley India.
B.C.A. (Regular) | SEMESTER-V | Effective from 2007-08 onwards
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CORE-10 | JAVA PROGRAMMING | 

**Subject Description:** This subject deals with Java Programming concepts.

**Goal:** Enable to create wide range of Applications and Applets using Java.

**Objective:** To inculcate knowledge on Java Programming concepts.

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**UNIT-II:** Constants, Variables, Data Types - Operators and Expressions – Decision Making and Branching: if, if ..else, nested if, switch, ?: operator - Decision Making and Looping: while, do, for – Jumps in Loops - Labeled Loops – Classes, Objects and Methods.

**UNIT-III:** Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes together – Multithreaded Programming.

**UNIT-IV:** Managing Errors and Exceptions – Applet Programming – Graphics Programming.


**TEXTBOOK:**
1. PROGRAMMING WITH JAVA – A PRIMER - E. Balagurusamy, 3rd Edition, TMH.

**REFERENCE BOOKS:**
1. THE COMPLETE REFERENCE JAVA 2 - Patrick Naughton & Hebert Schildt, 3rd ed, TMH
2. PROGRAMMING WITH JAVA – John R. Hubbard, 2nd Edition, TMH.
3. JAVA and Object-Oriented Programming Paradigm – Debasish Jana, 2005, PHI.
Subject Description: This subject deals different Network concepts like Layers, Wireless Concepts, Transmission and Security.

Goal: Knowledge on Computer Networks and technologies like broadband and Bluetooth.

Objective: To inculcate knowledge on Networking concepts and technologies like wireless, broadband and Bluetooth.


TEXTBOOKS:
1. COMPUTER NETWORKS – Andrew S. Tanenbaum, 4th edition, PHI. (UNIT-I:1.2-1.4 UNIT-II:2.2-2.4 UNIT-III:4.2-4.6 UNIT-IV:5.2,5.3,6.2,6.5 UNIT-V:7.1,7.2,8.1-8.4)

REFERENCE BOOKS:
1. DATA COMMUNICATION AND NETWORKS – Achyut Godbole, 2007, TMH.
2. COMPUTER NETWORKS Protocols, Standards, and Interfaces – Uyless Black, 2nd ed, PHI.
Subject Description: This subject deals with Graphics Concepts and methodologies.

Goal: Mathematical Knowledge on Graphics and Technical background.

Objective: To inculcate knowledge on Graphics with various concepts.


TEXTBOOKS:

REFERENCE BOOKS:
CORE LAB-5

JAVA PROGRAMMING

PRACTICAL LIST

1. Write a Java Applications to extract a portion of a character string and print the extracted string.

2. Write a Java Program to implement the concept of multiple inheritance using Interfaces.

3. Write a Java Program to create an Exception called payout-of-bounds and throw the exception.

4. Write a Java Program to implement the concept of multithreading with the use of any three multiplication tables and assign three different priorities to them.

5. Write a Java Program to draw several shapes in the created windows.

6. Write a Java Program to create a frame with four text fields as name, street, city and pin code with suitable tables. Also add a button called “my details”, When the button is clicked its corresponding values are to be appeared in the text fields.

7. Write a Java Program to demonstrate the Multiple Selection List-box.

8. Write a Java Program to create a frame with three text fields for name, age and qualification and a text field for multiple lines for address.

9. Write a Java Program to create Menu Bars and pull down menus.

10. Write a Java Program to create frames which respond to the mouse clicks. For each events with mouse such as mouse up, mouse down, etc., the corresponding message to be displayed.

11. Write a Java Program to draw circle, square, ellipse and rectangle at the mouse click positions.

12. Write a Java Program which open an existing file and append text to that file.

REFERENCE BOOKS:
2. PROGRAMMING IN JAVA 5.0 – James P Cohoon & Jack Davidson, TMH.
**Subject Description:** This Subject deals with the Animation Techniques.

**Goal:** To learn about Animation.

**Objective:** On Successful Completion of this subject the students should have:
- 2D & 3D Animation, Script Animation, Motion Caption, Audio & Video Format etc.


**TEXT BOOK:**
1. MAYA 6.0 BIBLE - Joestadaro, Donkim.
2. 3DS MAX BIBLE - Kelly Ldot, Murtock.

**REFERENCE BOOK:**
1. MAYA 8.0 THE COMPLETE REFERENCE - Tom Meade, Shinsaku Arima, TMH.

**ADDITIONAL REFERENCE BOOKS**
2. Animators Guide to 2D Computer Animation, Avgeranis George
B.C.A. (Regular)  | SEMESTER-VI  | Effective from 2007-08 onwards
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CORE-12 | SOFTWARE TESTING | 

Subject Description: This subject deals software testing concepts like unit-wise testing, integration testing and acceptance testing.

Goal: Knowledge on software testing and how to test the software at various levels.

Objective: To inculcate knowledge on Software testing concepts.


TEXTBOOKS:
   (UNIT-I: 2.1-2.5, 3.1-3.4  UNIT-II: 4.1-4.4, 5.1-5.5  UNIT III: 6.1-6.7  
   UNIT IV: 7.1-7.6, 8.1-8.5  UNIT-V: 15.1-15.6, 17.4-17.7)

REFERENCE BOOKS:
1. EFFECTIVE METHODS OF SOFTWARE TESTING—William E.Perry, 3rd ed, Wiley India.
2. SOFTWARE TESTING – Renu Rajani, Pradeep Oak, 2007, TMH.
Subject Description: This subject deals with concepts of Client / Server computing. Also it deals with various components of Client / Server Applications.

Goal: Knowledge on Client / Server Concepts and various components of client / server Applications.

Objective: To inculcate knowledge on Client / Server concepts.


TEXTBOOKS:
1. CLIENT/SERVER COMPUTING – Patrick Smith, Steve Guenferich , 2nd edition, PHI. (Chapters 1-8 & 10)
**B.C.A. (Regular)  |  SEMESTER-VI  | Effective from 2007-08 onwards**

CORE-14 | WEB TECHNOLOGY

**Subject Description:** This subject deals TCP/IP, FTP, WWW and Web technologies like ASP, JVM, DCOM, XML and WAP.

**Goal:** Knowledge on various Web technologies.

**Objective:** To inculcate knowledge web technological concepts and functioning internet.

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**TEXTBOOKS:**

**REFERENCE BOOKS:**
1. INTERNET AND WEB TECHNOLOGIES – Rajkamal, TMH.
2. WEB APPLICATIONS Concepts and Real world Design – Craig D. Knuckles, David S.Yuen.
Subject Description: This subject deals with E-commerce concepts like E-Commerce, M-Commerce, E-Security and E-payment.

Goal: Knowledge on E-commerce and Real World and Cyberspace problem awareness.

Objective: To inculcate knowledge on E-Commerce concepts in the present IT world.


TEXTBOOK:
1. ELECTRONIC COMMERCE from Vision to Fulfillment – Elias M. Awad, 3rd edition, PHI. (Chapters: 1, 6, 11, 13 &15)

REFERENCE BOOKS:
2. INTRODUCTION TO E-COMMERCE – Jeffrey F. Rayport, Bernard J. Jaworski, TMH.
PRACTICAL LIST

1. Develop a HTML document which displays your name as `<h1>` heading and displays any four of your friends. Each of your friend’s names must appear as hot text. When you click your friend’s name, it must open another HTML document, which tells about your friend.

2. Write names of several countries in a paragraph and store it as an HTML document, `world.html`. Each country name must be a hot text. When you click India (for example), it must open `india.html` and it should provide a brief introduction about India.

3. Design a HTML document describing you. Assign a suitable background design and background color and a text color.

4. Develop a HTML document to print the following:
   
   *Who can use the solar heaters?*
   
   *Anybody with a regular hot water demand.*
   
   - In houses for domestic purposes (cooking, bathing and washing).
   - For engineering / chemical industries, dairies and textile/leather process plants, to preheat boiler feed water.
   - For hostels, hospitals, guest houses and industrial canteens.
   - For food-processing plants and for process applications.

5. Write a HTML document to print the following:
   
   *The family has the following facilities:*
   
   1. *Own House*
      
      - Living area 2400 square feet
      - Separate bungalow
      - Car shed
   
   2. *Car*
      
      - Maruti Esteem
      - Registration Number TN 38 A 9650
      - 1996 Model
   
   3. *Farm*
      
      - 35 acres Coconut Groves
      - 10 acres Mango Groves

6. Write a HTML document to print your class Time Table.

7. Develop a Complete Web Page using Frames and Framesets which gives the Information about a Hospital using HTML.
8. Write a HTML document to print your Bio-Data in the following format:

<table>
<thead>
<tr>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religion</td>
</tr>
<tr>
<td>Community</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street</td>
</tr>
<tr>
<td>Town</td>
</tr>
<tr>
<td>District</td>
</tr>
<tr>
<td>State</td>
</tr>
<tr>
<td>PIN Code</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
</tr>
<tr>
<td>Residence</td>
</tr>
<tr>
<td>Mobile</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Educational Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

9. Develop complete set of web pages to describe your skills in various areas using HTML.

10. Develop a website to publish your family and the details of each member using HTML.

11. Develop a HTML document to display a Registration Form for an inter-collegiate function.

12. Develop a HTML document to design Alumni Registration form of your college.

REFERENCE BOOK:
<table>
<thead>
<tr>
<th>B.C.A. (Regular)</th>
<th>SEMESTER-VI</th>
<th>Effective from 2007-08 onwards</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIPLOMA-4</td>
<td>ANIMATION LAB - FLASH</td>
<td></td>
</tr>
</tbody>
</table>

### PRACTICAL LIST

1. Create Shapes and Drawings in Flash.
2. Change a Shape to Another Shape. (Shape Animation)
3. Create a Man to walk with the help of Key Frame Animation.
4. Draw a Bird with Flash tools and make it fly with key Frame Animation.
5. Change the Colors of an object with the help of Animation.
6. Animate a Ball with the help of Guide line Animation.(Path Animation)
7. Create a Shining Stores with the help of Movie Clip.
8. Create Buttons & Link with other Frames.
9. Create an Album with the help of Buttons.
10. Create a 3D Rotation of a Box with the Help of Shape Animation.
11. Create Morphing between two images in Flash.
12. Create a Simple game with the help of Action Script.

### REFERENCE BOOKS:

2. **Flash 8 – Ethan Waterall & Norbert Herber**, dreamtech.