BHARATHIAR UNIVERSITY :: COIMBATORE – 641 046

REGULATIONS FOR B.Sc. INFORMATION TECHNOLOGY DEGREE COURSE with Semester System
(Effective from the academic year 2007-2008)

1. **Eligibility for Admission to the Course**
   Candidate for admission to the first year of the B.Sc. Information Technology 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 B.Sc. Information Technology 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 satisfactorily 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 form 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.
## B.HARATHIAR UNIVERSITY, COIMBATORE-46

B.Sc.[Information Technology] WITH COMPULSORY DIPLOMA IN WEB TECHNOLOGY

### SCHEME OF EXAMINATION FOR THE ACADEMIC YEAR 2007-08

<table>
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<tr>
<th>Semester</th>
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Course: B.Sc(IT)  
Effective from: 2007-2008 and Onwards  
Semester: I  
Subject: ALLIED 1: MATHEMATICAL FOUNDATIONS FOR COMPUTER SCIENCE

Subject Description:
This subject deals with mathematical concepts like matrices, numerical analysis and statistical methods for computer science and applications.

Goal:
To learn about the mathematical structures for computer applications.

Objective:
On successful completion of this subject the students should have:
- Understanding the concepts of mathematics
- Learning applications of statistical and numerical methods for computer science

Unit I

Unit II

Unit III

Unit IV
Relations – Binary Relations – Set operation on relations-Types of Relations – Partial order relation – Equivalence relation – Composition of relations – Functions – Types of functions – Invertible functions – Composition of functions.

Unit V

Text Book:
Reference Books:


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<th>B.Sc( IT )</th>
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<td>Subject</td>
<td>CORE 1 : DATA STRUCTURES AND C PROGRAMMING</td>
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Subject Description:
This subject deals with the methods of data structures using C programming language.

Goal:
To learn about C programming language using data structural 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:
Operators and Expressions – Formatted and Unformatted I/O functions – Decision statements – Loop control statements.

UNIT – II:
Arrays – String and its standard functions.
Pointers – Functions – Preprocessor directives: #define, #include, #ifndef, Predefined macros.

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:
Single linked list, Linked list with and without header, Insertion, Deletion, Double linked list – Queues: Various positions of queue, Representation

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

TEXT BOOK:

REFERENCE BOOK:
3. Data structure using C – Aaron M Tanenbaum, Yedidyeh langsam, Moshe J Augenstei, PHI Pub
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<td>Semester</td>
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<tr>
<td>Subject</td>
<td>CORE 2 : COMPUTER ORGANISATION AND ARCHITECTURE</td>
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**Subject Description:**
This subject deals with fundamentals of digital computers and system architecture.

**Goal:**
To learn about computer fundamentals and its organization.

**Objective:**
On successful completion of this subject the students should have:
- Knowledge on digital circuits
- Interfacing of various components

**Unit I**
Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3, Gray Code.


**Unit II**
Combinational Logic Circuits: Boolean algebra – Karnaugh map – Canonical form 1 – Construction and properties – Implicants – Don’t care combinations - Product of sum, Sum of products, simplifications.

**Unit III**
CENTRAL PROCESSING UNIT: General Register Organization - Control word – Examples of Micro operations - Stack organization - Instruction formats - Addressing modes - Data Transfer and manipulation program control.

**Unit IV**
Unit V


Text Books:
2. Computer System Architecture, M. MORRIS MANO, PHI.

Reference Books:
1. ISRD group – Tata McGrawHill.

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<td>Semester</td>
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<td>Subject</td>
<td>Core Lab – 1: C PROGRAMMING USING DATA STRUCTURES</td>
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1. Write a C program to create two array list of integers. Sort and store the elements of both of them in the third list.
2. Write a C program to experiment the operation of STACK using array implementation.
3. Write a C program to create menu drive program to implement QUEUE to perform the following:
   (i) Insertion
   (ii) Deletion
   (iii) Modification
   (iv) Listing of elements using pointers
4. Write a C program to create LINKED LIST representation of employee records and do the following operations using pointers:
   a. To add a new record
   b. To delete an existing record
   c. To print the information about an employee
   d. 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 at the beginning of the Double linked list.
8. Write a C program to display the 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 transverse 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.

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<td>Semester</td>
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<tr>
<td>Subject</td>
<td>Allied 2: Computer Oriented Numerical &amp; Statistical Methods</td>
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**Subject Description:**
This subject deals with 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 I**

Unit II

Unit III

Unit IV
Measures of central tendency – Mean, Median and mode – Relation between mean, median and mode. Dispersion – Range – Mean deviation & standard deviation.

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

Text Book:

Reference Book:
3. Fundamental of Mathematical statistics S C Gupta, V. K. Kapoor Sultan Chand and Sons

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<td>II</td>
</tr>
<tr>
<td>Subject</td>
<td>CORE 3 :OBJECT ORIENTED PROGRAMMING WITH C++</td>
</tr>
</tbody>
</table>

Subject Description:
This subject deals with the programming concepts of Object Oriented Programming using C++.

Goal:
To learn about Object Oriented Programming concepts.
Objective:
On successful completion of this subject the students should have:
- Writing programming ability on OOPS concepts like Encapsulation, Data abstraction, Inheritance, Polymorphism and Exception handling etc.,

UNIT – I
Introduction to C++ - Key Concepts of OOP – Advantages – OO Languages – I/O in C++

UNIT – II
Class and Objects: Declaring objects – Defining member functions – Static member variables and functions – Array of objects – Friend functions – Overloading member functions – Bit fields and Class – Constructor and Destructors – Characteristics – Calling constructor and Destructors – Constructor and Destructor with static member.

UNIT – III
Operator Overloading: Overloading unary, Binary operators – Overloading friend functions – Type conversion - Inheritance: Types of inheritance: Single, Multilevel, Multiple, Hierarchical, Hybrid and Multi path inheritance – Virtual Base classes – Abstract Classes.

UNIT – IV
Pointers: Declaration – Pointer to class, object – THIS pointer – Pointer to derived classes and base classes – Arrays – Characteristics – Arrays of classes – Memory models – New and delete operators – Dynamic objects – Binding, Polymorphisms and Virtual functions.

UNIT – V

TEXT BOOKS

REFERENCE BOOKS
BHARATHIARI UNIVERSITY, COIMBATORE -46

<table>
<thead>
<tr>
<th>Course</th>
<th>B.Sc(IT)</th>
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<tr>
<td>Effective from</td>
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<td>Semester</td>
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<tr>
<td>Subject</td>
<td>Core Lab – 2: OBJECT ORIENTED PROGRAMMING WITH C++</td>
</tr>
</tbody>
</table>

1. Create a class to implement the data structure STACK. Write a constructor to initialize the TOP of the stack to 0. Write a member function POP() to delete an element. Check for overflow and underflow conditions.

2. Create a class ARITH which consists of a FLOAT and an integer Variable. Write member functions ADD( ), SUB( ), MUL( ), DIV( ), MOD( ) to perform addition, multiplication, division and modulus respectively. Write member functions to get and display values.

3. Create a class MAT has a 2-d matrix and R&C represents the rows and columns of the matrix. Overload the operators +, -, * to add subtract and multiply two matrices. Write member functions to get and display MAT object values.

4. Create a class STRING. Write member function to initialize, get and display strings. Overload the operator + to concatenate two strings, = = to compare two strings and a member function to find the length of the string.

5. Create a class which consists of EMPLOYEE detail like eno, ename, dept, basic-salary, grade. Write member functions to get and display them. Derive a class PAY from the above class and write a member function to calculate da, hra, pf depending on the grade and Display the Payslip in a neat format using console I/O.

6. Create a class SHAPE which consist of two VIRTUAL FUNCTIONS Cal_Area( ) and Cal_PERI to calculate AREA and PERIMETER of various figures. Derive three classes SQUARE, RECTANGLE and TRIANGLE from the class SHAPE and calculate AREA and PERIMETER of each class separately and Display the result.
7. Create two classes which consists of two private variables, one float and one integer variables in each class. Write member functions to get and display them. Write FRIEND function common to arguments and the integer and float values of both the objects separately and display the result.

8. Write a user defined function USERFUN() which has the formatting commands like setw(), showpoint(), showpos(), precision(). Write a program which prints an multiplication table and uses USERFUN() for formatting.

9. Write a program to perform Insertion, Deletion and Updation using files.

10. Write a program which takes a file as argument and copies in to another file with line numbers using Command Line Arguments.
### BHARATHIAR UNIVERSITY, COIMBATORE -46

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<tr>
<th>Course</th>
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<tr>
<td>Semester</td>
<td>III</td>
</tr>
<tr>
<td>Subject</td>
<td>Allied 3: MICROPROCESSOR AND ALP</td>
</tr>
</tbody>
</table>

### UNIT I

Intel 8086 – Pin Description of Intel 8086 – Operating modes of 8086 – Register organization of 8086 – BIU and EU – Interrupts – 8086 based computer system – Addressing Modes of 8086

### UNIT II
8086 Instruction Set – Instruction Groups – Addressing Mode Byte – Segment Register Selection – Segment Override – 8086 Instructions Assembly Language Programs for 8086: Largest Number, Smallest Number in a Data Array – Numbers in Ascending and Descending order – Block Move or Relocation – Block Move using REP instruction – Sum of a series – Multibyte Addition

### UNIT III

### UNIT IV

### UNIT V
MOTOROLA 68000, MOTOROLA 68020, MOTOROLA 68030, MOTOROLA 68040
Interfacing of A/D Converter and Applications: Introduction – Interfacing of ADC 0808 or ADC 0809 to Intel 8086 – Bipolar to Unipolar Converter – Sample and Hold Circuit, LF 398 – Microprocessor-based Measurement and Control of Physical Quantities

### Text Book(s)

### Ref. Book(s)
BHARATHIAR UNIVERSITY, COIMBATORE -46

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>Semester</td>
<td>III</td>
</tr>
<tr>
<td>Subject</td>
<td>CORE-5: SYSTEM SOFTWARE &amp; OPERATING SYSTEM</td>
</tr>
</tbody>
</table>

**UNIT I**

**UNIT II**
Macroprocessor: Basic macroprocessor functions - Machine independent macroprocessor features - concatenation of macro parameter macro processor design options-recursive macro expansion - general purpose macro processor - macro processing within language translators. Text Editors: Overview of editing process - user interface - editor structure.

**UNIT III**

**UNIT IV**

**UNIT V**

**Text Book(s)**

**Ref. Book(s)**
### Course: B.Sc. (Information Technology) (Regular)

<table>
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<tbody>
<tr>
<td>B.Sc. (Information Technology)</td>
<td>2007-2008 and Onwards</td>
<td>III</td>
<td>Core 6: JAVA PROGRAMMING</td>
</tr>
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#### UNIT I

#### UNIT II

#### UNIT III

#### UNIT IV

#### UNIT V

### Text Book(s)

### Ref. Book(s)
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<tr>
<td>Semester</td>
<td>III</td>
</tr>
<tr>
<td>Subject</td>
<td>Diploma 1: INTRODUCTION TO WEB DESIGN AND APPLICATIONS</td>
</tr>
</tbody>
</table>

**UNIT I** Fundamentals of Electronic Mail: Introduction - Email: Advantages and Disadvantages - Userids, Passwords and Email addresses - Message Components - Message Composition - Mailer Features - Email Inner Workings - Email Management - MIME Types. Browsing and Publishing: Introduction - Browser bare bones - Coast-to-Coast surfing - Hyper Text Markup Languages - Web page installation - Web page set up - HTML formatting and hyper link creation


**UNIT III** Searching the world wide web: introduction - directories, search engines and metasearch engines - search fundamentals - search strategies - how does a search engine works. Telnet and FTP: introduction - telnet and remote login - File transfer - Computer Viruses


**UNIT V** News groups, Mailing Lists, Chat rooms and MUDs: introduction - news groups and mailing lists history - mailing list fundamentals - newsgroups and mailing lists availability - chat-rooms - MUDs. Electronic Publishing: introduction - electronic publishing advantages and disadvantages - copy right issues - project Gutenberg and on-line books - electronic journals, magazines and newspapers - miscellaneous publishing issues.

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<td>III</td>
</tr>
<tr>
<td>Subject</td>
<td>Core Lab 3: JAVA LAB</td>
</tr>
</tbody>
</table>

1. Program to generate a Pascal Triangle  
2. Program for roots of a Quadratic Equation  
3. Program for merging two sorted arrays  
4. Program for counting letter frequencies in a given string  
5. Program for Multithreading  
6. Program for preparing mark list using inheritance  
7. Program for Multiple inheritance  
8. Program for creating your own package  
9. Program that counts the number of lines, words and characters in a given text file  
10. Program that right-justifies a text file  
11. Program that display a digital clock using applet  
12. Program that generates a human face using applet  
13. Create an applet containing three buttons labeled red, green and blue. Depending on the button pressed, the background color of the applet should change  
14. Create an applet that accepts two numbers in two textfields. Add a button labeled “equals” which when pressed should add the two numbers and display the result in the third text field
BHARATHIAR UNIVERSITY, COIMBATORE -46

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<td>Subject</td>
<td>Allied 4: EMBEDDED SYSTEMS</td>
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<tbody>
<tr>
<td>UNIT V</td>
<td>Inter-process communication and synchronization of processes, tasks and threads: Multiple processor – Problem of sharing data by multiple tasks and routines – Inter process communication. Real time operating systems: Operating system services – I/O subsystem – Network operating systems – Real time and embedded operating systems – Interrupt routine in RTOS environment – RTOS task scheduling – Performance metric in scheduling</td>
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<td>Semester</td>
<td>IV</td>
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<tr>
<td>Subject</td>
<td>Core 7: PRINCIPLES OF DATA COMMUNICATIONS AND NETWORKS</td>
</tr>
</tbody>
</table>

## UNIT I
Introduction to Data Communications and Networking – Information Encoding – Analog and Digital Transmission Methods – Modes of Data Transmission and Multiplexing – Transmission Errors: Detection and Correction

## UNIT II

## UNIT III
Local Area Networks (LAN), Metropolitan Area Networks (MAN) and Wide Area Networks (WAN) – Integrated Services Digital Network (ISDN) – X.25 Protocol – Frame Relay – Asynchronous Transfer Mode (ATM)

## UNIT IV
Internetworking Concepts, Devices, Internet Basics, History and Architecture – Ways of Accessing the Internet – An Introduction to TCP / IP, IP, ARP, RARP, ICMP

## UNIT V

## Text Book(s)

## Ref. Book(s)

### BHARATHIAR UNIVERSITY, COIMBATORE -46

<table>
<thead>
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<td>IV</td>
</tr>
<tr>
<td>Subject</td>
<td>Core 8: CLIENT / SERVER COMPUTING</td>
</tr>
</tbody>
</table>

#### UNIT I
Client – Server computing – What is Client / Server? – File servers, Database servers, Transaction servers, Groupware servers, Object servers, Web servers – FAT servers or client / server – Client / Server building blocks

#### UNIT II
Client / Servers and operating systems – The Anatomy of a server program – Needs of Client / Server from an OS – server scalability – Client anatomy – Client and server OS trends – Client OS and Server OS. NOS: Creating the single system image – Remote Procedure Calls (RPC) – Messaging and Queueing: The MOM Middleware

#### UNIT III

#### UNIT IV

#### UNIT V

#### Text Book(s)
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<tr>
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<tr>
<td><strong>Semester</strong></td>
<td>IV</td>
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<tr>
<td><strong>Subject</strong></td>
<td>Core Lab 4: Network Lab</td>
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<tr>
<td></td>
<td>Write a program to Detect Errors using Vertical Redundancy Check (VRC).</td>
</tr>
<tr>
<td></td>
<td>Write a program to Detect Errors using Longitudinal Redundancy Check (LRC).</td>
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<tr>
<td></td>
<td>Write a program to Detect Errors using Cyclic Redundancy Check (CRC).</td>
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<tr>
<td></td>
<td>Write a Socket program to implement Asynchronous Communication.</td>
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<tr>
<td></td>
<td>Write a Socket program to implement Isochronous Communication.</td>
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<tr>
<td></td>
<td>Write a program to implement Stop &amp; Wait Protocol.</td>
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<tr>
<td></td>
<td>Write a program to implement Sliding Window Protocol.</td>
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<tr>
<td></td>
<td>Write a Socket Program to Perform file transfer from Server to the Client.</td>
</tr>
<tr>
<td></td>
<td>Write a program to implement the Shortest Path Routing using Dijkstra algorithm.</td>
</tr>
<tr>
<td></td>
<td>Write a Program to implement Remote Procedure call under Client / Server Environment</td>
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</tr>
<tr>
<td>Subject</td>
<td>Diploma Lab 2 : HTML, XML, Java Scripts</td>
</tr>
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Students are required to write code snippets, which covers the following objectives:

<table>
<thead>
<tr>
<th></th>
<th>Design Simple Web Pages using standard HTML tags like, HEAD, TITLE, BODY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Design HTML web pages, which make use of INPUT, META, SCRIPT, FORM, APPLET, BGSOUND, MAP</td>
</tr>
<tr>
<td>3</td>
<td>Working with various attributes of standard HTML elements</td>
</tr>
<tr>
<td>4</td>
<td>Using Java Script's Window and document objects and their properties and various methods like alert (), eval (), parseInt () etc. methods to give the dynamic functionality to HTML web pages</td>
</tr>
<tr>
<td>5</td>
<td>Writing Java Script snippet which make use of Java Script's inbuilt as well as user defined objects like navigator, Date Array, Event, Number etc.</td>
</tr>
<tr>
<td>6</td>
<td>Write code which does the form validation in various INPUT elements like TextFiled, Text Area, Password, Selection list etc.</td>
</tr>
<tr>
<td>7</td>
<td>Writing XML web Documents which make use of XML Declaration, Element Declaration, Attribute Declaration</td>
</tr>
<tr>
<td>8</td>
<td>Usage of Internal DTD, External DTD, Entity Declaration.</td>
</tr>
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## Course Details

<table>
<thead>
<tr>
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<td>V</td>
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<tr>
<td>Subject</td>
<td>CORE-9: RELATIONAL DATABASE MANAGEMENT SYSTEM AND ORACLE</td>
</tr>
</tbody>
</table>

### UNIT I
**Database Concepts: A Relational approach:**
- Database – Relationships – DBMS
- Relational Data Model – Integrity Rules – Theoretical Relational Languages.

**Database Design: Data Modeling and Normalization:**

### UNIT II
**Oracle9i: Overview:**

### 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.

### UNIT IV
**A Programming Language:**

**Control Structures and Embedded SQL:**
- Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation – Transaction Control statements. **PL/SQL Cursors and Exceptions:**

### UNIT V
**PL/SQL:**
- UNIT-V: PL/SQL Composite Data Types: Records – Tables – Varrays. **Named Blocks:**

### Text Book(s)
- DATABASE SYSTEMS USING ORACLE – Nilesh Shah, 2nd edition, PHI.

### Ref. Book(s)
- 1. DATABASE MANAGEMENT SYSTEMS – Arun Majumdar & Pritimoy Bhattacharya, 2007, TMH.
- 2. DATABASE MANAGEMENT SYSTEMS – Gerald V. Post, 3rd edition, TMH.
## Course

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<tr>
<td>Subject</td>
<td>Core 10: VISUAL PROGRAMMING</td>
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</table>

## UNIT I

**Visual Basic: Getting started** – Visual Basic environment: Tool bars – The Tool box and Custom controls and components – using file menu, edit menu, view menu, project menu, format menu, debug menu, adding menu and window menu – customizing a form and writing simple programs

## UNIT II

**Building the user interface:** the tool box – creating controls – properties setting – First steps in programming: Code window – Visual Basic’s editing tools – Statements in VB – Data types – Working with variables – Input boxes and Message boxes – displaying information

## UNIT III

**Controlling program flow** – Built-in functions – User defined functions and procedures – Control arrays – List and Combo boxes – the Flex grid control

## UNIT IV

**Finishing the interface:** Frames – Option buttons – Check boxes – Scroll bars – Timers – Common Dialog boxes – The Microsoft windows common controls 6.0 – Menus – MDI forms

## UNIT V

**Communicating with other window applications** – Database development with Visual Basic (DAO, RDO) – Building ActiveX controls

## Ref. Book(s)

### UNIT I

### UNIT II

### UNIT III

### UNIT IV

### UNIT V

### Text Book(s)

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<table>
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<td>Subject</td>
<td>AOS 1 : MULTIMEDIA SYSTEMS</td>
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**UNIT I**

**UNIT II**

**UNIT III**

**UNIT IV**
Networking System : Layers, Protocols and Services, Networks, Metropolitan Area Networks, WAN, Multimedia Communication System

**UNIT V**

**Text Book(s)**
Ralf Steinmetz & Klara Nahrstedt – ‘‘Multimedia Computing, Communication & Applications ‘‘Pearson Education.
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<tr>
<td>Subject</td>
<td>Diploma 3 : WEB TECHNOLOGY AND APPLICATIONS</td>
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</table>

#### UNIT I
**Networking protocols and OSI model**
- Protocols in computer communications - the OSI models – OSI layer functions.
- **Internet working concepts, devices, basics, history and architecture**
  - Internet working concepts, devices, basics, history and architecture

#### UNIT II
**TCP/IP Part I**

#### UNIT III
**TCP/IP Part II**

#### UNIT IV
**TCP/IP Part III**
- (DNS, E-mail, FTP, TFTP) – domain name system (DNS) – Electronic mail (E-mail) – File Transfer Protocol (FTP) – Trivial File Transfer Protocol (TFTP).

#### UNIT V
**TCP/IP Part IV**

#### UNIT IV
**Introduction to web technology**

#### UNIT V
**Dynamic Web pages**
- The need for dynamic web pages – the magic of dynamic web pages – an overview of dynamic web page technologies – an overview of dynamic HTML (DHTML) – common gateway interface (GCI) – Microsoft’s Active Server Pages (ASP) – Basics of ASP technologies ASP example – modern trends in ASP.

#### UNIT V
**Active web pages**
- Active web pages is a better solution java applets – Why are active web pages powerful ? when not to use active web pages – lifecycle of Java applets – Active X controls – Java beans .

#### Extensible Markup Languages( XML)
- Standard generalised Markup language (SGML) - Basics of XML – XML parsers – the need for Standard

#### Text Book(s)
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<table>
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<tr>
<td>Subject</td>
<td>CORE LAB 5: VISUAL BASIC &amp; ORACLE PROGRAMMING</td>
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### Visual Basic

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<tbody>
<tr>
<td>1</td>
<td>Write a simple VB program to accept a number as input and convert them into</td>
</tr>
<tr>
<td></td>
<td>a. Binary</td>
</tr>
<tr>
<td></td>
<td>b. Octal</td>
</tr>
<tr>
<td></td>
<td>c. Hexa-decimal</td>
</tr>
<tr>
<td>2</td>
<td>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.</td>
</tr>
<tr>
<td>3</td>
<td>Write a simple VB program to develop a calculator with basic operation.</td>
</tr>
<tr>
<td>4</td>
<td>Design an form using common dialog control to display the font, save and open dialog box without using the action control property.</td>
</tr>
<tr>
<td>5</td>
<td>Write a simple program to prepare a Questionnaire.</td>
</tr>
<tr>
<td>6</td>
<td>2. 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).</td>
</tr>
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### Oracle

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<tr>
<td>7</td>
<td>Create the following table (PK - Primary Key, FK – Foreign Key) cat_head, route_head, place_head, route_detail, ticket_detail, ticket_head with the mapping given below:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>cat_head (cat_code PK)</td>
</tr>
<tr>
<td></td>
<td>route_head (route_id PK)</td>
</tr>
<tr>
<td></td>
<td>ticket_head (tick_no PK)</td>
</tr>
<tr>
<td></td>
<td>place_head (place_id PK)</td>
</tr>
<tr>
<td></td>
<td>route_head (cat_code FK)</td>
</tr>
<tr>
<td></td>
<td>route_detail (route_id FK)</td>
</tr>
<tr>
<td></td>
<td>ticket_detail (tick_no FK)</td>
</tr>
<tr>
<td></td>
<td>route_detail (place_id FK)</td>
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</tbody>
</table>
(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.

| 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. 
   | Update the table route_header to set the distance between Madras and Coimbatore as 500 |

| 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 |

| 10 | Generate a report from the table ticket_detail for the particular ticket_no |

| 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 |

| 12 | Develop a Simple Project for Student Database Management System using VB as front end and ORACLE as back end. |
## Course Details

B. Sc. (Information Technology) (Regular)

<table>
<thead>
<tr>
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<tbody>
<tr>
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<tr>
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</tr>
<tr>
<td>Subject</td>
<td>Core 12: NETWORK SECURITY &amp; ADMINISTRATION</td>
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</tbody>
</table>

### UNIT I


### UNIT II


### UNIT III


### UNIT IV


### UNIT V


### Text Book(s)

## Course Details

**COURSE**  
B.Sc. (Information Technology) (Regular)

**Effective From**  
2007-08 Onwards

**Semester**  
VI

**Subject**  
Core 13: Mobile Computing

### UNIT I

### UNIT II
MOBILE COMPUTING THROUGH TELEPHONY: Evaluation of telephony – Multiple access procedures – Mobile computing through telephone – IVR Application – Voice XML – TAPI

### UNIT III

### UNIT IV

### UNIT V
CDMA and 3G: Spread spectrum technology – Is 95 – CDMA vs GSM – Wireless Data – Third generation networks – Applications on 3G  

### Text Book(s)
MOBILE COMPUTING, Asoke K Talukder, Roopa R Yavagal, TMH, 2005
## BHARATHIAR UNIVERSITY, COIMBATORE -46

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<thead>
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</table>

### UNIT I

### UNIT II

### UNIT III

### UNIT IV

### UNIT V

### Text Book(s)

### Ref. Book(s)
1. EFFECTIVE METHODS OF SOFTWARE TESTING--William E.Perry, 3rd ed, Wiley India.
2. SOFTWARE TESTING – Renu Rajani, Pradeep Oak, 2007, TMH
# BHARATHIAR UNIVERSITY, COIMBATORE -46

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<td>AOS 2: DATA MINING</td>
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## UNIT I

## UNIT II
Data Warehouse – Need – Designing Decision Support Systems – Integration with Data Mining – Client / Server and Data Warehousing – Multiprocessing Machine – Cost Justification

## UNIT III

## UNIT IV

## UNIT V

## Text Book(s)
- Pieter Adrians, Dolf Zantinge, “Data Mining”, Addison Wesley, 1998
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<tr>
<td>Subject</td>
<td>DIPLOMA Lab : ASP</td>
</tr>
</tbody>
</table>

1. Design a personal web page using ASP.

2. Design a data entry form in ASP.

3. Write a Program in ASP to get data using a form, validate the data and returns the same data for correction if any using the same form.

4. Write a program in ASP to display the Session properties.

5. Write a program in ASP that makes use of Ad Rotator component.

6. Write a program in ASP that makes use of Browser Capabilities component.

7. Write a program in ASP that makes use of Content Rotator component.

8. Write a program in ASP that makes use of page counter component.

9. Write a program in ASP to get the data of students using forms and stores them in database.

10. Write a program in ASP to perform record navigation using a form.
BHARATHIAR UNIVERSITY, COIMBATORE -46

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<tr>
<td>Subject</td>
<td>Core Lab 6 : TESTING TOOLS</td>
</tr>
</tbody>
</table>

1. Perform the Win Runner Testing Tool and Analyze the suitable problem and results.

2. Perform the Quick Test Professional Testing Tool and Analyze the suitable problem and results.

3. Perform the Test Director Testing Tool and Analyze the suitable problem and results.

4. Perform the Load Runner Testing Tool and Analyze the suitable problem and results.

5. Perform the Silk Test Testing Tool and Analyze the suitable problem and results.