PERIYAR UNIVERSITY
SALEM – 636 011

PERIYAR INSTITUTE OF DISTANCE EDUCATION (PRIDE)

B.Sc. COMPUTER SCIENCE

REGULATIONS AND SYLLABUS

(Effective from the academic year 2008 – 2009 and thereafter)
PERIYAR UNIVERSITY, SALEM-11.

PERIYAR INSTITUTE OF DISTANCE EDUCATION
( PRIDE )
REGULATIONS

1. CONDITION FOR ADMISSION:

A Candidate who has passed Higher Secondary Examination with Mathematics or Business mathematics or Computer Science or statistics (Academic stream or Vocational stream) as one of the subjects under Higher Secondary Board Of Examination, TamilNadu or as per norms set by the Government of TamilNadu or an Examination accepted as Equivalent thereto by the Syndicate subject to such conditions as may be prescribed thereto are permitted to appear and qualify for the B.Sc., Computer Science degree examination of this university after a course of study of three academic years.

2. DURATION OF THE COURSE:

The course for the degree of Bachelor of Computer Science shall consist of three academic years.

3. COURSE OF STUDY:

The course of study shall comprise instruction in the following subjects according to the syllabus and books prescribed form time to time.
<table>
<thead>
<tr>
<th>S. No</th>
<th>Paper Code</th>
<th>Subject</th>
<th>Marks</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
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<td>Language-I</td>
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<td>2.</td>
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<td>English-I</td>
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<tr>
<td>4.</td>
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<tr>
<td>5.</td>
<td>P07UMAA03</td>
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<td>6.</td>
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**II YEAR**

<table>
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<td>4.</td>
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<td>Object Oriented Programming with C++</td>
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<tr>
<td>5.</td>
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<td>Allied-II Management Accounting</td>
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### III-YEAR

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<tr>
<td>1.</td>
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<td>Database Management System</td>
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<tr>
<td>2.</td>
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<td>Operating System</td>
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<tr>
<td>3.</td>
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<td>Programming Language VISUAL BASIC</td>
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<tr>
<td>4.</td>
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<td>Internet and Programming Language JAVA</td>
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<td>Practical-III Programming in VISUAL BASIC and RDBMS</td>
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#### 2.(a). Allied Papers:

### I –Year

<table>
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### II - Year

<table>
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<tbody>
<tr>
<td>1.</td>
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<td>Allied – II Management Accounting</td>
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</table>
4. Examinations:
The theory and practical examination shall be three hours duration to each paper at the end of year. The Candidate failing in any subject(s) will be permitted to appear for each failed subject(s) in the subsequent examination.

5. Scheme of Examinations:
The scheme of Examinations for different years shall be as follows:

<table>
<thead>
<tr>
<th>Sl.No.</th>
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<th>Duration</th>
<th>Marks</th>
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<tr>
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<td>7.</td>
<td>Language–II</td>
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<td>Object oriented Programming With C++</td>
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<td>Management accounting</td>
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<td>12.</td>
<td>Practical- II Programming in C++ Using OOPs</td>
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<td>16.</td>
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<td>17.</td>
<td>Practical- III Programming in Visual Basic and RDBMS JAVA</td>
<td>3</td>
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<td>18.</td>
<td>Practical–IV Programming in JAVA</td>
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</table>

Total Marks 1800
Question Paper Pattern for all UG Courses:

Question Paper Pattern for Theory:

Time: 3 Hours                        Max.Marks - 100

Part A: 10 x 2 = 20
(Answer all questions)
(Two questions from each unit)

Part B: 5 x 4 = 20
(Answer all questions)
(One question from each unit with internal choice)

Part C: 5 x 12 = 60
(Answer all questions)
(One question from each unit with internal choice)

Question Paper pattern for practical

Time: 3 Hours                        Max. Marks - 100
Record: 20 Marks
Practical: 80 marks

For Each practical Question the marks should be awarded as follows:

i) Flowchart                      - 20%
ii) Writing the program in the main answer book - 30%
iii) List, test and debug the program - 30%
iv) Printing the correct output    - 20%

(Marks may be proportionately reduced for the errors committed in each of the above)

Practical-I:

One Question from C Using Data Structure (either or type)

Practical-II:

One Question from C++ Using OOPs (either or type)
7. Passing Minimum :

The candidate shall be declared to have passed the examination if the candidate secure not less than 40 marks out of 100 marks in the University examination in each theory and practical papers.

For Practical papers, the record note book taken together is required to pass the practical examination (Record: 20 Marks and Practical : 80 Marks). There is no passing minimum for the record note book. However submission of a record note book is a must.

8. Classification Of Successful Candidates:

Candidates who secure not less than 60% of the aggregate marks in the whole examination shall be declared to have passed the examination in First Class.

All other successful candidates shall be declared to have passed in the Second Class.

Candidates who obtain 75% of the marks in the aggregate shall be deemed to have passed the examination in First Class with Distinction provided they pass all the examinations prescribed for the course at the first appearance.

Candidates who pass all the examinations prescribed for the course in the first instance and within a period three academic years from the year of admission to the course only are eligible for University Ranking.

9. Maximum Duration for the completion of the UG Programme:

The maximum duration for completion of the UG Programme shall not exceed three years.
10. Commencement of this Regulation:

These regulations shall take effect from the academic year 2007-08, i.e., for students who are to be admitted to the first year of the course during the academic year 2007-08 and thereafter.

11. Transitory Provision:

Candidates who were admitted to the UG course of study before 2007-2008 shall be permitted to appear for the examinations under those regulations for a period of three years i.e., up to and inclusive of the examination of April/May 2010. Thereafter, they will be permitted to appear for the examination only under the regulations then in force.
PERIYAR UNIVERSITY, SALEM – 636 011.

(PRIDE)

<table>
<thead>
<tr>
<th>Course</th>
<th>B.Sc., Computer Science</th>
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</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>Year</td>
<td>1</td>
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<tr>
<td>Subject</td>
<td>Digital Computer Fundamentals</td>
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</table>

UNIT – I:


UNIT – II:

UNIT - III:
Anatomy of a Digital computer: Functions and Components of a Computer-
Central Processing Unit-Control Unit-Arithmetic Logic Unit-Memory -
Registers-Addresses-How the CPU and Memory Work. Memory units: 
Introduction- RAM - ROM - PROM - EPROM - EEPROM - Flash memory.
Input Devices–Output Devices Auxiliary storage Devices: Introduction-

UNIT – IV:
Combinational logic adders, substractors , decoders, encoders, 

UNIT – V:
Computer design – System configuration – Computer instructions – 
Design of computer registers – Design of control – Computer console.

TEXT BOOK:
1. “Fundamentals of Computer Science and Communication Engineering”.
   Alexis Leon , Mathew’s Leon, ( Unit I , & III )
3. “Microprocessor Architecture programming and Application 
   with the 8085”, Ramesh Gaonkar, ( Unit III & V ).
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<td>Subject</td>
<td>Programming Language ‘C’ and Data Structure</td>
</tr>
</tbody>
</table>

UNIT – I:


UNIT – II:


UNIT – III:

input/output – error handling during I/O operations – Random access to files – command line arguments.

**UNIT – IV:**

Data structures : Definition – Categories of data structures - Arrays: Array operations – Merging of two arrays - Two dimensional arrays. Stacks : Definition - Operations on stack - Representation of a stack as an array - Representation of a stack as an Linked list - Evaluation of expression : Infix to Prefix conversion – Infix to Postfix conversion. Queues : Definition - Operations on Queue - Representation of Queue as an array - Representation of Queue as an linked list – Circular Queues. Linked list : Definition - Operations on linked list – Circular list - Doubly linked list - Operations on doubly linked list - Polynomial addition.

**UNIT – V:**


**TEXTBOOK:**

1) “Programming in ANSI C”
   E.Balgurusamy
2) “Data Structures through C”
   Yashavant Kanethar
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<td>I</td>
</tr>
<tr>
<td>Subject</td>
<td>Allied-I Allied Mathematics</td>
</tr>
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</table>

**UNIT – I:**


**UNIT – II:**


**UNIT - III:**

Integration by parts – \( \int_0^{\pi/2} \sin^n x \, dx \), \( \int_0^{\pi/2} \cos^n x \, dx \), \( \int_0^{\pi/4} \tan^n x \, dx \), \( \int_0^a x^n e^{ax} \, dx \), \( \int_0^a e^{-x} x^n \, dx \) – Definite integrals – properties – reduction formulae – problems. Second order differential equations with constant coefficients – particular integrals of the type \( e^{ax} V \) – where \( V \) is \( x \) or \( x^2 \) or \( \cos ax \) or \( \sin ax \).
UNIT – IV:

Definition – complete, + - singular and general integrals solutions of standard types f(p,q) = 0, f(x,p,q) = 0, f(y,p,q) = 0, f(z,p,q) = 0, f1(x,p) = f2(x,p) – clariant’s form – lagrange’s equation Pp + Qq = R-problems.

UNIT – V:


TEXT BOOK:

PERIYAR UNIVERSITY, SALEM -636 011.  
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<tr>
<td>Practical - I</td>
<td>Programming in ‘C’ using Data Structure</td>
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</table>

**List of Practical:**

1. Matrix Manipulation.

2. Implement Push Pop operation of a stack using
   a. Arrays
   b. Pointers

3. Implement Add, Delete operations of a Queue using
   a. Arrays
   b. Pointers

4. Write a program to convert Infix to Postfix expressions using Arrays.

5. Write a program to add two polynomials using pointers.

6. Write a program to create a Doubly Linked List and to insert or delete an element from Doubly Linked List.

7. Perform all Tree Traversals for a Binary Tree using Arrays and Recursive.

8. Implement Dijkstra’s algorithm to find the shortest path between given Source and Destination path of graph.
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<td>II</td>
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<tr>
<td>Subject</td>
<td>System Analysis And Design</td>
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UNIT-I:

Introduction to Information System Development: system Analysis and design - Business system concepts - Categories of Information systems - System development Strategies. Managing the application development portfolio: system projects are begun - Managing project review and selection - Preliminary investigation - Selecting the project development strategies.

UNIT-II:


UNIT-III:

UNIT-IV:


UNIT-V:


TEXTBOOK:

1) “Analysis and Design of Information Systems”
   James A. Senn
   TMH, New Delhi.
   2nd Edition.
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<tr>
<td>Subject</td>
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UNIT-I:


UNIT-II:

UNIT-III:

Classes And Objects : Introduction - Specifying A Class - Defining Member Functions - A C++ Program With Class - Making An Outside Function Inline - Nesting Of Member Functions - Private Member Functions - Arrays Within A Class - Memory Allocation For Objects - Static Data Members - Static Member Functions - Arrays Of Objects - Objects As Function Arguments - Friendly Functions - Returning Objects - Const Member Functions - Pointers To Member - Local Classes. Constructors And Destructors: Introduction-Constructors-Parameterized Constructors-Multiple Constructors In A Class-Constructors With Default Arguments-Dynamic Initialization Of Objects-Copy Constructor-Dynamic Constructors-Constructing Two-Dimensional Arrays-Const Objects-Destructors.

UNIT-IV:

UNIT-V:


TEXTBOOK:

1) “Object-Oriented Programming with C++”
   E.Balagurusamy
   TMH ,New Delhi.
   2nd Edition.
UNIT – I:


UNIT – II:


UNIT – III:


UNIT – IV:

Fund Flow Analysis – Concept of funds – Sources and uses of funds – Concept of Fund Flow Statement – Managerial uses of Fund Analysis Construction of fund flow Statement – Distinction of Cash from funds –

**UNIT – V :**


**TEXT BOOK:**

“Principles of management Accounting“
S.N. Maheshwari, Sultan & Sons, New Delhi.

“Management Accounting”
Dr.S.Ganesan & S.R.Kalavathi
Thirumalai Publication, Nagercoil.

**REFERNCE BOOK :**

Principles of management Accounting
Man Mohan and S.N. Goyal
Sahithya Bhanvnan, Agra.

Management Accounting
T.S.Reddy & Hari prased Reddy
Margham Publication, Chennai-17.

**NOTE:**

i) 70% of the question shall be problems oriented and 30% theory Oriented.

ii) This Paper has to be taught and examination papers to be valued only by Commerce Board.
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<td>Practical - II</td>
<td>Programming in C++ using OOPS</td>
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List of Practical:

1. Classes and Objects

2. Functions
   a. Inline functions
   b. Friend functions
   c. Functions with default argument
   d. Virtual functions

3. Constructors and Destructors
   a. Empty constructor
   b. Parameterized constructor
   c. Constructors with default arguments
   d. Copy constructors

4. Polymorphism
   a. Function overloading
   b. Operator overloading

5. Inheritance
   a. Single
   b. Multilevel
   c. Multiple
   d. Hierarchical
   e. Hybrid

6. Files

7. Templates
   a. Function templates
   b. Class templates
   c. Member function templates
UNIT I:
Overview of Database Systems: File System Versus a DBMS –
Advantages of a DBMS – Describing and storing data in a DBMS-Structure of a
DBMS – Introduction to Database Design: Introduction to ER Model –
Conceptual design with the ER model – The Relational Model: Introduction to
relational model-Integrity Constraints Over Relations – Introduction to Views –
Destroying / Altering tables and Views.

UNIT II:
Relational Algebra and Calculus. SQL: Queries, Constraints, Triggers:
The Form of a Basic SQL Queries – Union, Intersect and Except – Nested
Queries – Aggregate Operators – Null Values – Triggers and Active Databases.

UNIT III:
Schema Refinement and Normal Forms, Security and Authorization:
Introduction to Database Security – Access Control – Discretionary Access
Control – Mandatory Access Control – Security for Internet Applications,
Network Model, Hierarchical Model.

UNIT – IV:
Parallel and Distributed Databases : Introduction – Architectures for
parallel Data bases – Parallel Query Evaluation – Parrallelizing individual
operations- parallel Query optimization-Introduction to Distributed Databases- Distributed DBMS Architecture-Sorting data in a distributed DBMS- Distributed catalog management -Distributed Query processing-Updating distributed data- Distributed transactions- Distributed concurrency control- Distributed recovery. Object-Database systems: Motivating example - Structured data types - operations on structured data - Encapsulation and ADTs - Inheritance – Objects, OIDs and reference types – Database design for an ORDBMS – ORDBMS implementation challenges – OODBMS – Comparing RDBMS, OODBMS and ORDBMS.

UNIT – V:


TEXT BOOK:

1. “Database Management System”
   Ramakrishnan Gehrke
   MC Graw Hill Intution Edition
   3rd Edition. 
   (Unit I to Unit V)

2. Database System Concepts
   Abraham Silbuschatz, Hentry F.Korth and S.Sudharshan,
   MC Graw Hill.
   3rd Edition,
   (Unit III Last Two Topics Only)
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**UNIT-I:**


**UNIT-II:**


**UNIT-III:**

Memory Management: Requirements - Memory partitioning – Paging - Segmentation. Virtual memory: Hardware and control structures - Operating system software.

**UNIT-IV:**

UNIT-V:


TEXT BOOK:

   William stallings.
UNIT – I:


UNIT – II:


UNIT – III:

Menus: Objectives – Building the User Interface. The first step – All about Menus. MDI Applications: Why MDI Forms – Features of an MDI Form – Loading MDI Forms and Child Forms – The Active Form property.

UNIT – IV:

UNIT – V:

TEXT BOOK:
“Programming With Visual Basic 6.0”
- Mohammed Azam.
- Vikas Publishing House Pvt Ltd.
PERIYAR UNIVERSITY, SALEM – 636011
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<tr>
<td>Subject</td>
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UNIT – I:


UNIT – II:


UNIT – III:

UNIT – IV:


UNIT – V:

TEXT BOOKS:

Margaret Levine Young.
T.M.H, New Delhi.
(Unit-I)

“Programming with JAVA”
E. Balagurusamy.
T.M.H, New Delhi.
2nd Edition.
(Unit-II to V)
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<td>Year</td>
<td>III</td>
</tr>
<tr>
<td>Practical-III</td>
<td>Programming in VISUAL BASIC and RDBMS</td>
</tr>
</tbody>
</table>

**LIST OF PRACTICALS:**

**USING SQL QUERIES:**

1. Creating Tables and Writing Simple SQL Queries Using
   a. Comparison Operators.
   b. Logical Operators.
   c. Set Operators.
   d. Sorting and Grouping.

2. Using SQL Queries to Create Reports Using Column Format.

3. Write SQL Queries Using Built-in Functions.

4. Updating and Altering Tables Using SQL Queries.

**USING VISUAL BASIC:**

5. Construction of an Arithmetic Calculator (Simple).

6. Preparation of Students Mark Sheet.

7. Personal Information System (Using Tables).

8. Quiz Program System (Using Tables).

9. Railways Reservation System (Using Tables).


11. Library Information System (Using Tables).
PERIYAR UNIVERSITY, SALEM – 636 011.  
(PRIDE)

<table>
<thead>
<tr>
<th>Course</th>
<th>B.Sc., Computer Science</th>
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<tbody>
<tr>
<td>Effective From</td>
<td>2008–2009 and Onwards</td>
</tr>
<tr>
<td>Year</td>
<td>III</td>
</tr>
<tr>
<td>Practical-IV</td>
<td>Programming in JAVA</td>
</tr>
</tbody>
</table>

HTML PROGRAMMING USING TAGS:

2. Hyper Linked Web Page, `<^> < ^>`
3. Web Page with Image `<IMG SRC="">`
4. Web Page with Applet `<Applet>`
5. Web Page with Table `<TB>`

JAVA PROGRAMMING LIST:

6. Program to Create a Simple Applet and Application.
7. Using Java Classes and Objects.
11. Using Threads and Multithreads.