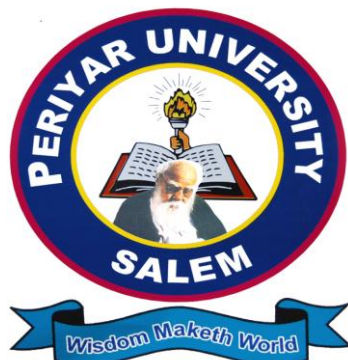


**PERIYAR UNIVERSITY  
PERIYAR PALKALAI NAGAR  
SALEM – 636 011**



**DEGREE OF BACHELOR OF  
SCIENCE  
CHOICE BASED CREDIT SYSTEM**

**SYLLABUS FOR - B.Sc. INFORMATION SCIENCE**

**FOR THE STUDENTS ADMITTED FROM THE  
ACADEMIC YEAR 2012 – 2013 ONWARDS**

# **PERIYAR UNIVERSITY, SALEM – 636 011**

## **REGULATIONS FOR B.Sc., (INFORMATION SCIENCE) DEGREE**

### **COURSE with Semester System**

(Effective from the academic year 2012-2013)

## **REGULATIONS**

### **1. ELIGIBILITY FOR ADMISSION**

A candidate who has passed in Higher Secondary Examination with Mathematics or Business Mathematics or Computer Science or Statistics (Academic stream or Vocational stream) as one of the subject under Higher Secondary Board of Examination, Tamilnadu 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 **Bachelor of Information Science degree examination** of this university after a course of study of three academic years.

### **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 shall comprise instruction in the following subjects according to the syllabus and books prescribed from time to time. The syllabus for various subjects shall be clearly demarcated into five viable units in each paper/subject. Part -I, Part-II, Part – III and Part – IV subjects are as prescribed in the scheme of examination.

#### **4. EXAMINATIONS**

The theory examination shall be three hours duration to each paper at the end of each semester. The candidate failing in any subject(s) will be permitted to appear for each failed subject(s) in the subsequent examination. The practical examinations for UG course should be conducted at the end of the even semester.

##### **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.

#### **5. Revision of Regulations and Curriculum**

The University may revise /amend/ change the Regulations and Scheme of Examinations, if found necessary.

##### **6(a). Passing Minimum – Theory**

The candidate shall be declared to have passed the examination if the candidate secure not less than 40 marks out of 100 (**CIA – 10 marks out of 25 and EA – 30 marks out of 75**) in the University examination in each theory paper.

##### **6(b). Passing Minimum – Practical**

The candidate shall be declared to have passed the examination if the candidate secure not less than 40 marks put together out of 100 (**CIA – 16 marks out of 40 and EA – 24 marks out of 60**) in the University examination in each practical paper.

## 7. Question Paper Pattern for B.Sc.(CS) /B.Sc.(IS) /BCA Courses

### 7.1(a). *THEORY - Question Paper Pattern [EA] (Total Marks: 75)*

#### **PART – A (10 x 2 = 20 Marks)**

(Answer ALL questions), (Two questions from each unit)

#### **PART – B (5 x 5 = 25 Marks)**

(Answer ALL questions) & (One question from each unit with Internal Choice)

#### **PART – C (3 x 10 = 30 Marks)**

(Answer ANY THREE questions) & (Open Choice – 3 out of 5 questions)

### 7.1(b). *THEORY - Internal Marks Distribution[CIA] (Total Marks: 25)*

Attendance	:5 Marks
Assignment	:5 Marks
Internal Examinations	:15 Marks

### 7.2(a). *PRACTICAL – Marks Distribution & Question paper Pattern*

**(Max. Marks: 100)**

**[External [EA]: 60 Marks & Internal [CIA]: 40 Marks]**

#### *PRACTICAL - External Marks Distribution (Total Marks: 60)*

For each practical question the marks should be awarded as follows

##### **(External):**

- |                                                 |       |
|-------------------------------------------------|-------|
| i) Algorithm / Flowchart                        | -20%  |
| ii) Writing the program in the main answer book | -30%  |
| iii) 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)

### 7.2 (b) *PRACTICAL - Internal Marks Distribution (Total Marks: 40)*

- Record : 15 Marks
- Internal Practical examinations : 25 Marks

## **PRACTICAL Question Paper Pattern**

⇒ **Practical Exam must be conducted at end every Semester**

⇒ **Practical - I to Practical –VI has same Pattern**

⇒ Student may select any two question out of four questions.

### **8. Commencement of this Regulation**

These regulations shall take effect from the academic year 2012-13, i.e, for students who are to be admitted to the first year of the course during the academic year 2012-13 and thereafter.

## **PERIYAR UNIVERSITY, SALEM-636011**

### **B.Sc., INFORMATION SCIENCE**

#### **Scheme of Examinations from the Academic Year 2012-2013**

##### Credit Distribution as per the University Norms.

SEMESTER	I	II	III	IV	V	VI	Total Credits
PART - I	3	3	3	3	-	-	12
PART - II	3	3	3	3	-	-	12
ALLIED	4	6	4	6	-	-	20
MAJOR	4	4	8	4	12	8	40
PRATICAL	4	4	4	4	4	4	24
ELECTIVE	-	-	-	-	5	10	15
SBEC	-	2	-	2	4	4	12
NMEC	-	-	2	2	-	-	4
EVS	-	2	-	-	-	-	2
VALUE EDU	2	-	-	-	-	-	2
Extn. Activity	-	-	-	-	-	1	1
<b>Cumulative Total Credits</b>	<b>20</b>	<b>24</b>	<b>24</b>	<b>24</b>	<b>25</b>	<b>27</b>	<b>144</b>

**PERIYAR UNIVERSITY, SALEM -636 011.**

**B.Sc., Information Science**

Scheme of Examinations from the Academic Year 2012-13

**SEMESTER – I**

Sem	Part	Sub Code	Subject	Hrs.		Credit	Marks		
				Lect.	Lab		CIA	EA	Total
I	I		Tamil - I	6	-	3	25	75	100
	II		English – I	6	-	3	25	75	100
	III		Digital Computer Fundamentals and GUI Applications	6	-	4	25	75	100
			Practical - I (MS Office)	-	4	4	40	60	100
			Allied I : Paper - I	6	-	4	25	75	100
		Value Education	2	-	2	25	75	100	
			<b>Total</b>	<b>26</b>	<b>4</b>	<b>20</b>	<b>165</b>	<b>435</b>	<b>600</b>

**SEMESTER – II**

Sem	Part	Sub Code	Subject	Hrs.		Credit	Marks		
				Lect.	Lab		CIA	EA	Total
II	I		Tamil - II	6	-	3	25	75	100
	II		English – II	6	-	3	25	75	100
	III		Programming in C	4	-	4	25	75	100
			Practical – II(Programming in C)		3	4	40	60	100
			Allied I : Paper - II	4	-	3	25	75	100
			Allied I : Paper - III	4	-	3	25	75	100
		<b>SBEC – I (Basics of Internet)</b>	1	1	2	25	75	100	
		Env. Studies	1	-	2	25	75	100	
			<b>Total</b>	<b>26</b>	<b>4</b>	<b>24</b>	<b>215</b>	<b>585</b>	<b>800</b>

### SEMESTER – III

Sem	Part	Sub Code	Subject	Hrs.		Credit	Marks		
				Lect.	Lab		CIA	EA	Total
III	I		Tamil - III	6	-	3	25	75	100
	II		English – III	6	-	3	25	75	100
	III		Programming in C++	4	-	4	25	75	100
			Data Structures and Algorithms	4		4	25	75	100
			Practical - III (Data Structures using C++)	-	2	4	40	60	100
			Allied II: Paper – I	4	-	4	25	75	100
		Allied II: Practical Lab - I	-	2	-				
	IV		Tamil/ Advanced Tamil (OR) Non –Major elective – I NMEC –I	2	-	2	25	75	100
			<b>Total</b>	<b>26</b>	<b>4</b>	<b>24</b>	<b>190</b>	<b>510</b>	<b>700</b>

### SEMESTER – IV

Sem	Part	Sub Code	Subject	Hrs.		Credit	Marks		
				Lect.	Lab		CIA	EA	Total
IV	I		Tamil - IV	6	-	3	25	75	100
	II		English – IV	6	-	3	25	75	100
	III		Programming in Java	4	-	4	25	75	100
			Practical - IV (Java)	-	3	4	40	60	100
			Allied II : Paper - II	5	-	4	25	75	100
			Allied II: Practical. Lab - I	-	2	2	40	60	100
	IV		<b>SBEC – II : DTP Packages</b>	1	1	2	25	75	100
			Tamil/ Advanced Tamil (OR) Non –Major elective – II NMEC – II	2	-	2	25	75	100
			<b>Total</b>	<b>24</b>	<b>6</b>	<b>24</b>	<b>230</b>	<b>570</b>	<b>800</b>

### SEMESTER – V

Sem	Part	Sub Code	Subject	Hrs.		Credit	Marks		
				Lect.	Lab		CIA	EA	Total
V	III		Visual Programming	5	-	4	25	75	100
			Operating Systems	5	-	4	25	75	100
			Computer Networks	5	-	4	25	75	100
			Elective – I	6	-	5	25	75	100
			Practical - V (VB)	-	5	4	40	60	100
	IV		<b>SBEC – III : Multimedia Package</b>	1	1	2	25	75	100
			<b>SBEC - IV : Soft Skills</b>	2	-	2	25	75	100
			<b>Total</b>	<b>24</b>	<b>6</b>	<b>25</b>	<b>190</b>	<b>510</b>	<b>700</b>

### SEMESTER – VI

Sem	Part	Sub Code	Subject	Hrs.		Credit	Marks		
				Lect.	Lab		CIA	EA	Total
VI	III		Data Mining and Ware housing	5	-	4	25	75	100
			PHP Scripting Language	5	-	4	25	75	100
			Elective – II	6	-	5	25	75	100
			Elective – III	6	-	5	25	75	100
			Practical - VI (PHP)	-	4	4	40	60	100
		IV		<b>SBEC - V : HTML and Web Design</b>	1	1	2	25	75
			<b>SBEC-VI : Web Programming (Java script and VB script)</b>	1	1	2	25	75	100
	V		Extension Activity	-	-	1			
			<b>Total</b>	<b>24</b>	<b>6</b>	<b>27</b>	<b>190</b>	<b>510</b>	<b>700</b>



## ELECTIVE SUBJECTS

### Elective – I

Sem.	Part	Subject Code	Subject
V	III		Computer Organization and Architecture
			Management Information Systems
			Client/Server Technology

### Elective – II

Sem.	Part	Subject Code	Subject
VI	III		Compiler Design
			E-Commerce
			Software Project Management

### Elective – III

Sem.	Part	Subject Code	Subject
VI	III		Relational Database Management Systems
			Multimedia Systems
			Mobile Computing

### SBEC – Skill Based Elective Courses\*

Part	Sem.	Sub. Code	Subject	Hrs.		Credit	Marks		
				Lect.	Lab		CIA	EA	Total
IV	II		SBEC – 1 : Basics of Internet	1	1	2	25	75	100
	IV		SBEC – II : DTP Packages	1	1	2	25	75	100
	V		SBEC – III : Multimedia Package	1	1	2	25	75	100
	V		SBEC - IV : Soft Skills	2	-	2	25	75	100
	VI		SBEC - V : HTML and Web Design	1	1	2	25	75	100
	VI		SBEC-VI : Web Programming (Java script and VB script)	1	1	2	25	75	100

\* Only theory Examinations

**Non Major Elective Course – (NMEC)**  
**Extra Disciplinary Subjects offered by the**  
**Department of Computer Science / Applications / Information Science**

The department can offer any one of the subjects to the other major subject students in each semester.

Part	Sem.	Sub. Code	Subject	Lect. Hrs	Credit	Marks		
						CIA	EA	Total
IV	III		NMEC I: Fundamentals of Information Technology	2	2	25	75	100
			NMEC I: Basics of Computers and Office Automation	2	2	25	75	100
	IV		NMEC II: Introduction to Object Oriented Programming Language C++	2	2	25	75	100
			NMEC II: HTML and Web Design	2	2	25	75	100

## ALLIED PAPERS

### I - YEAR (Allied – I: First Option)

Part	Semester	Subject	Hrs.		Credit	Marks		
			Lect.	Lab		CIA	EA	Total
III	I	Allied I : Paper – I: Algebra and Fourier series	6	-	4	25	75	100
	II	Allied I : Paper – II: Differential Equations and Laplace Transforms	4	-	3	25	75	100
	III	Allied I : Paper – III : Practical	4	-	3	40	60	100

### I -YEAR (Allied – I: Second Option)

Sem	Part	Semester	Subject	Hrs.		Credit	Marks		
				Lect.	Lab		CIA	EA	Total
I	III	I	Allied I : Paper – I: Discrete Mathematics	6	-	4	25	75	100
II		II	Allied I : Paper – II: Numerical Methods	4	-	3	25	75	100
II		II	Allied I : Paper – III : Graph Theory	4	-	3	25	75	100

### I - Year / II-Year (Allied – I / II: Statistics - Third Option)

Part	Semester	Subject	Hrs.		Credit	Marks		
			Lect.	Lab		CIA	EA	Total
III	I / III	Allied I : Paper – I: <b>Allied Statistics –I</b>	6	-	4	25	75	100
	II / IV	Allied I : Paper – II: <b>Allied Statistics –II</b>	4	-	3	25	75	100
	II / IV	Allied I : Paper – III : <b>Allied Statistics –III</b>	4	-	3	40	60	100

### II - YEAR (Allied – II: COMMERCE - FIRST Option)

Part	SEMESTER	Subject	Hrs.		Credit	Marks		
			Lect.	Lab		CIA	EA	Total
III	III	Allied II : Paper – I: Principles of Accounting	6	-	4	25	75	100
	IV	Allied II : Paper – II: Cost and Management Accounting	5	-	4	25	75	100
	III & IV	Allied II : Practical Lab -1: Allied Commerce Practical	2	-	2	40	60	100

### II - YEAR (Allied – II: ELECTRONICS - SECOND Option)

Part	SEMESTER	Subject	Hrs.		Credit	Marks		
			Lect.	Lab		CIA	EA	Total
III	III	Allied II : Paper – I: Applied Electronics-I	6	-	4	25	75	100
	IV	Allied II : Paper – II: Applied Electronics-II	5	-	4	25	75	100
	III & IV	Allied II : Practical Lab -1: Allied Electronics Lab –I	2	-	2	40	60	100

### II - YEAR (Allied – II: PHYSICS - Third Option)

Part	SEMESTER	Subject	Hrs.		Credit	Marks		
			Lect.	Lab		CIA	EA	Total
III	III	Allied II : Paper – I: Allied Physics – I	6	-	4	25	75	100
	IV	Allied II : Paper – II: Allied physics – II	5	-	4	25	75	100
	III & IV	Allied II : Practical Lab -1 Allied Physics Practical	2	-	2	40	60	100

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>DIGITAL COMPUTER FUNDAMENTALS AND GUI APPLICATIONS</b>	<b>B.Sc., Information Science</b>
<b>I Semester</b>		<b>Core: Theory</b>
		<b>Credit: 4</b>

**UNIT – I**

Introduction: Application of Computer - Different types of Computer systems - Basic components of Digital Computer System - Programming Languages; Number Systems. Boolean Algebra and Gate Networks: Fundamentals concepts of Boolean Algebra – Logical Multiplication AND Gates, OR Gates, and Inverters – Evaluation of logical Expressions – Basic Law of Boolean Algebra – Simplification of expressions – De Morgan’s theorems – Basic Duality of Boolean Algebra - Derivation of a Boolean Expression.

**UNIT - II**

Interconnecting Gates – Sum of products (SOP) and Products of sums (POS) – Derivation of products of sums expressions – Derivation of three Input variable expression – NAND gates and NOR gates - The Map method for simplifying expressions – Sub cube and covering – product of sums expressions – Don’t cares.

**UNIT– III**

Introduction to Microsoft Office – MS Word - Creating and Editing documents - Menus, Command, Tool bars and Icons – Formatting documents – Creating tables – Mail merge – Macros.

**UNIT– IV**

MS - Excel: Spread sheet overviews – Worksheet application, Working with excel, Menus, Tool bars, Icons – Creating worksheet – Editing and Formatting – Excel formulas and functions – Creating a chart – Sorting and Auto filter.

## **UNIT - V**

MS Power Point: Introduction to Power Point – Menus – Tool bars- Text and Formats – Animations Art and Sound – Making and presentation template. Ms Access: Introduction to data base – Creating table – Editing a tables – Inserting and Deleting data – Sorting the data base, Processing Queries

## **BOOKS FOR STUDY:**

1. Digital Computer Fundamentals”. Thomas C.Bartee, 6<sup>th</sup> Edition T.M.H Publisher, New Delhi, **1991.(Unit I & II)**
2. Sanjay Saxena, MS Office 2000 for everyone, Vikas Publishing House Pvt., Ltd.,

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>MS OFFICE LAB</b>	<b>B.Sc., Information Science</b>
<b>I Semester</b>		<b>Core: Practical -I</b>
		<b>Credit: 4</b>

**I. MS – WORD**

1. a. Starting MS-WORD, Creating, Saving, Printing (with options) Closing and Exiting.  
b. Study of Word-Menu / Toolbars
2. a. Create a document, Save it and edit the document as follows:
  - i) Find and Replace options
  - ii) Cut, Copy and Paste options
  - iii) Undo and Redo optionsb. Format the document
  - i) Using Bold, Underline and Italic.
  - ii) Change Character size using the font dialog box.
  - iii) Formatting paragraph: Center, Left aligns & Right aligns
  - iv) Changing paragraph and line spacing Using Bullets and Numbering in paragraphs
  - v) Creating Hanging paragraphs
3. Using tab settings enhancing the documents (Header, Footer, Page setup, Border, Opening and Closing Toolbars, Print Preview).
4. Creating Tables in a documents, Selecting
5. Drawing flow chart using drawing toolbar, inserting picture and setting frames
6. Mail Merge in word (Creating main document, data source, inserting merge fields and viewing merge data, viewing and printing merged letter, using main merge to print envelope creating mailing labels)

## II. MS – EXCEL

1. a. Create a work sheet, moving / copying / inserting / deleting rows and Columns. (Usage of cut, paste commands, copying a single cell, copying a range of data, filling up a cell. Undo command, Inserting a row, column Deleting rows and columns.)
  - b. Formatting work sheets
    1. Bold style
    2. Italic style
    3. Font size changing
    4. Formatting numbers (Auto fill, Selection command, currency format, Currency syllabus)
    5. Specifying percentage (%) scientific notations
    6. Drawing border around cells
    7. Printing a work sheet (Print preview, Margin setting, Header, Footer)
2. a. Data base concept: Data base, Record field and field name – creating and sorting a data base and maintaining a data base (date form)
  - b. Using auto filter, advanced filter
  - c. Creating subtotals and grand totals – Using database functions
3. Creating charts
  1. Using chart wizard (five steps)
  2. Changing the chart type (Pie, Bar, Line)
  3. Inserting titles for the Axes x, y
  4. Changing colors
  5. Printing charts
4. a. Using date, time and math functions
  1. Entering current date
  2. Using date arithmetic (adding and subtracting dates)
  3. Date functions (day, month, year)
  4. Using time functions (hour, minutes, second)



b. Math functions

1. SUM, COUNT, AVERAGE
2. MAX, MIN
3. STDEV, VAR
4. ABS, EXP, INT
5. LOG 10 AND LOG
6. MOD, ROUND, SORT
7. Using auto sum

5. c. Logical and financial functions

1. Logical (IF / AND / OR / NOT)
2. Financial (PMT, FV, NPER, RATE)
1. Creating and running a macro
2. Assigning button to a defined Macro
3. Editing a Macro

**III MS – POWER POINT**

1. Creating a presentation using auto content wizard
2. Different views in power point presentation
3. Setting animation effects / grouping / ungrouping / cropping power/  
point objects
4. Printing a presentation / Importing – Exporting files
5. Creating an organization chart in Power Point

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>PROGRAMMING IN C</b>	<b>B.Sc., Information Science</b>
<b>II Semester</b>		<b>Core: Theory</b>
		<b>Credit: 4</b>

**Unit – I**

Overview of C: History of C – Importance of C – Basic structure of C programs. Constants, variables and data types: Character set – C Tokens – Keywords and identifiers – Constants – Variables – Declaration of storage classes – Assigning values to variables- Defining symbolic constants. Operators and expression – Evaluation of expressions – Precedence of arithmetic operators – Type conversions in expressions – Operator precedence and associativity – Mathematical functions. Managing input and output operations: Reading and writing a character – Formatted input and output.

**Unit – II**

Decision making and branching: Simple IF, IF-ELSE, Nesting of IF-ELSE, ELSE-IF ladder, Switch statements – GOTO statements. Decision making and looping: WHILE statement – DO statement – FOR statement – Jumps in loops. Arrays: Definition & Declaration – One dimensional – Two dimensional – Multi dimensional arrays - Dynamic arrays.

### **Unit – III**

Character arrays and strings: Introduction – Declaring and initializing string variables – Reading strings from terminal – Writing strings to screen – String handling functions – Table of strings. User – Defined functions: Introduction – Need for user – Defined function – A Multi- function program – Elements of user – Defined function – Definition of functions – Return values and their types – Function calls – Function declaration – All category of functions – Nesting of functions – Recursion – Passing arrays to functions – Passing strings to function.

### **Unit – IV**

Structures and Unions: Introduction – Defining a structure – Declaring structure variables – Accessing structure members – Structure initialization – Copying and comparing structure variables – Arrays of structures – Arrays within structures – Structures within structures – Structures and functions – Unions – Size of structures – Bit fields.

Pointers: Introduction – Understanding pointers – Accessing the address of a variable – Initializing of pointer variables. Chain of pointers – Pointer expressions – Pointers and arrays – Pointers and character strings – Arrays of pointers – Pointers as function arguments – Functions returning pointers – Pointers to functions – Pointer and structures.

### **Unit – V**

File Management: Introduction – Defining and opening a file – Closing a file – Input/Output operation on files – Error handling during I/O operations – Random access files – Command line arguments. The Preprocessor: Introduction – Macro substitution – File inclusion – Compiler control directives.

### **BOOK FOR STUDY:**

Programming in ANSI C, E. Balgurusamy Tata McGraw Hall, New Delhi, 5<sup>th</sup> Edition.

### **BOOKS FOR REFERENCE**

1. “C: The complete Reference “, Herbert Schildt, Mc Graw Hill, New Delhi, 4<sup>th</sup> Edition
2. PROGRAMMING IN C, B.L.JUNEJA, Cengage Learning India

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>C PROGRAMMING LAB</b>	<b>B.Sc., Information Science</b>
<b>II Semester</b>		<b>Core: Practical -II</b>
		<b>Credit: 4</b>

**C PROGRAMMING LIST**

1. Write a program to find the largest number and smaller number by using if statement
2. Write a program to convert the decimal to binary conversion by using while statement.
3. Write a program to count the positive, negative & zero numbers.
4. Write a program to check whether a given number is a prime or not.
5. Write a program to display the Fibonacci series.
6. Write a program to concatenate two strings without using string library function.
7. Write a program to count the number of vowels, consonants, and digits in a line of Text.
8. Write a program to reverse a String.
9. Write a program to design the calculator functions as (i) Addition (ii) Subtraction & (iii) Multiplication function.
10. Write a program to find the factorial of a number using recursion.
11. Write a program for ascending order of given N Numbers.
12. Write a program to separate odd and even numbers using file.

## PERIYAR UNIVERSITY, SALEM – 636 011

<b>2012-13 Onwards</b>	<b>PROGRAMMING IN C++</b>	<b>B.Sc., Information Science</b>
<b>III Semester</b>		<b>Core: Theory</b>
		<b>Credit: 4</b>

### **Unit – I:**

Object-Oriented Programming: Principles – Benefits of OOP – Application of OOP – Tokens, Expression and Control Structures: Tokens – Keywords – Identifiers and Constants – Data types – Constants – Variables – Operators – Manipulators – Expressions – Control Structure.

### **Unit – II:**

Functions – Prototyping – Call by Reference – Return by Reference – Inline Functions – Default Arguments – const Arguments – Function Overloading – Friend and Virtual Functions, Classes and Objects – Class – Member Functions – Arrays with in 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 Members, Constructors and Destructors.

### **Unit – III**

Operator Overloading and Type Conversions, Inheritance: Extending Classes – Derived Classes – Single Inheritance – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes, Pointers, Virtual Functions and Polymorphism: Pointers – Pointers to Objects –this Pointer – Pointers to Derived Classes – Virtual Functions – Pure Virtual Functions

#### **Unit – IV:**

Managing I/O Operations: C++ Streams – C++ Stream Classes – Unformatted I/O and Formatted I/O Operations – Managing Output with Manipulators, Working with Files: Classes for File Stream Operations – Opening and Closing a File – Detecting end-of-file – File Pointers and Their Manipulators – Sequential I/O Operations – Updating a File – Error Handling during File Operations – Command Line Arguments

#### **Unit – V:**

Templates: Class Templates – Class Templates with Multiple Parameters – Function Templates – Function Templates with Multiple Parameters – Overloading of Template Functions – Member Function Templates – Non-Type Template Arguments, Exception Handling: Basics - Exception Handling Mechanism – Throwing Mechanism – Catching Mechanism – Rethrowing an Exception – Specifying Exceptions

#### **BOOKS FOR STUDY:**

1. “Object Oriented Programming with C++”, 5th Edition, E.Balagurusamy, Tate McGraw Hill Pub. Ltd., New Delhi.
2. “Programming in C++”, M. T. Somashekara, Prentice Hall of India Private Limited, New Delhi, 2008

#### **BOOKS FOR REFERENCE:**

1. “Programming with C++” John Hubbard, Mc Graw Hill, New Delhi, 3<sup>Th</sup> Edition
2. A Structured Approach Using C++, 2<sup>nd</sup> e, Behrouz A.Forouzan, Cengage Learning

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>DATA STRUCTURES AND ALGORITHMS</b>	<b>B.Sc., Information Science</b>
<b>III Semester</b>		<b>Core: Theory</b>
		<b>Credit: 4</b>

**UNIT -I**

**Algorithms (Analysis and design):** Problem solving – Procedure – Top-Down and Bottom-up approaches to algorithm design – Use of algorithms in problem solving: Developing an algorithm – Characteristics of algorithmic language - Design of algorithms – Implementation of algorithm – Verification of algorithm – Efficiency analysis of algorithms: Space, Time complexity, and Frequency count – Simple algorithms; **Data Representation:** Abstract data type (ADT) – **Fundamental and derived data types:** Declaration – Representation – Primitive data structures – Recursion.

**UNIT- II**

**Arrays:** Definition – One dimensional array – Memory allocation, Operations, Application. Multidimensional Arrays: Two dimensional Arrays – Sparse matrices – Three dimensional and n-dimensional Arrays – Pointer Arrays; **Stacks:** Introduction – Definition – Representation of stacks – Operations on stacks – **Applications of stack:** Evaluation of Arithmetic Expression- Implementation of Recursion- Factorial Calculation

**UNIT -III**

**Queues:** Introduction – Definition – Representation of Queues – using Arrays, Linked list; **Various Queue structures:** Circular Queue – De-queue – Priority Queue – Applications of Queues  
**Linked List:** Definition; **Single Linked List:** Representation, Operations; **Circular Linked List; Double Linked List:** Operations; **Circular Double Linked List:** Operations.

#### **UNIT- IV**

**Trees:** Concepts – Representation of Binary tree – Operations on Binary Tree – Types of Binary Trees; **Graphs:** Introduction – Graph terminologies – Representation of Graphs – Operations on Graphs – Application of Graph Structures.

#### **UNIT- V**

**Searching and Sorting:** Searching – Sequential and Binary Search – Indexed Search – Hashing Schemes; **Sorting:** Selection sort – Bubble sort – Quick sort – Merge sort – Radix sort –Heap sort

#### **BOOKS FOR STUDY:**

1. “Classic Data Structures”, D. Samanta, PHI Learning , New Delhi 2011
2. “Data Structure made simple”, Sathish Jain, Shashi Singh, BPB Publications, New Delhi 2006

#### **BOOK FOR REFERENCE**

1. Magnifying Data Structures, Aprita Gopal , First Edition , PHI Learning, New Delhi
2. Data Structures in C, Horowitz, Sahni, Anderson-Freed, Universities Press



**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>PRACTICAL - III (DATA STRUCTURE USING C++)</b>	<b>B.Sc., Information Science</b>
<b>III Semester</b>		<b>Core: Practical-III</b>
		<b>Credit: 4</b>

**C++ PROGRAMMING LIST:**

1. Implement Push and Pop Operations of a Stack using Array
2. Implement Add and Delete Operations on Queue using Pointer
3. Write a Program to Convert an Infix Expression to Postfix Expression using Arrays.
4. Write a Program to Add Two Polynomials using Pointers.
5. Perform Tree Traversals for a Binary Tree using Recursion.
6. Write a program to perform Binary Search.
7. Sort the given list of numbers using Heap Sort.
8. Sort the given list of numbers using Quick Sort

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>PROGRAMMING IN JAVA</b>	<b>B.Sc., Information Science</b>
<b>IV Semester</b>		<b>Core: Theory</b>
		<b>Credit: 4</b>

**UNIT – I**

**An overview of Java:** Object oriented programming – Java features – Java environment - Data types, variables and arrays. Operators- Expressions - Control Statements: Branching statements – Iteration statements – Jump statements – Sample java program.

**UNIT – II**

Classes – Objects – Methods – Constructors – The this keyword – finalize () method – Overloading methods – Returning objects – Recursion – Static – Final – Nested inner classes – Command line arguments – Inheritance.

**UNIT – III**

**Packages and Interfaces:** Packages – Access protection – Importing packages – Interfaces – Exception handling: Fundamentals – Exception types – Try and catch – Multiple catch – Nested try – throw – throws – finally – Build in exception.

## **UNIT – IV**

**Multithread programming:** Thread model –Life cycle of thread – Creating thread – Multiple threads – Thread priorities – Synchronization – Inter thread Communication – Suspending, Resuming and Stopping threads – I/O Applets, and other topics.

## **UNIT – V**

**The Applet Class:** Basics – Building applet code – Applet life cycle – Creating an executable applet – Designing a web page – Running the applet – Getting input from the user – Graphics programming: The graphic class – Lines and rectangles – Circles and ellipses – Using control loops in applets – Drawing bar charts.

## **BOOKS FOR STUDY:**

1. “The Complete Reference” Java2, 3<sup>rd</sup> Edition, Patrick Naughton, Herbert Schildt, Tata McGraw Hill Pub. Ltd., New Delhi.
2. Programming with Java, 3<sup>rd</sup> Edition, E. Balagurusamy, Tata McGraw Hill Pub. Ltd., New Delhi.

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>PRACTICAL - IV (JAVA)</b>	<b>B.Sc., Information Science</b>
<b>IV Semester</b>		<b>Core: Practical-IV</b>
		<b>Credit: 4</b>

**JAVA LIST OF PROGRAMMS**

1. Write a Program to create an account in a Bank and Deposit Rs.20,000 with a minimum Balance of Rs.500. Use switch case statement for Deposit, Withdrawal and for Balance enquiry.
2. Write a program to find the area of the square, rectangle and triangle using the method of overloading.
3. Write a program to display the book title, price and author name using the method of overriding.
4. Implement of the concept of multiple inheritances to develop pay slip and design a package
5. Write a program to illustrate the use of multithreads.
6. Create a try block that is likely to generate three types of exception and then incorporate necessary catch blocks to catch and handle them appropriately
7. Write a program to copy characters from one file to another file.
8. Develop a java applet, which shows your name and address within a window frame.

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>VISUAL PROGRAMMING</b>	<b>B.Sc., Information Science</b>
<b>V Semester</b>		<b>Core: Theory</b>
		<b>Credit: 4</b>

**UNIT – I**

Welcome to Visual Basic – Creating an Application – IDE Forms and Controls – Variables in Visual Basic.

**UNIT – II**

Writing Code in Visual Basic – Working with File – Menus.

**UNIT – III**

Multiple Document Interface Applications – Debugging Tips – The Common Dialog Control.

**UNIT – IV**

Introduction to Database – Working with the Data Control – Data Access Objects.

**UNIT – V**

ActiveX Data Objects – Crystal and Data Report – Active X.

**BOOK FOR STUDY:**

Programming with Visual Basic 6.0, Mohammed Azam, Vikas Publishing House Pvt. Ltd., Chennai.

## PERIYAR UNIVERSITY, SALEM – 636 011

2012-13 Onwards	OPERATING SYSTEMS	B.Sc., Information Science
V Semester		Core: Theory
		Credit: 4

### UNIT – I

Introduction - OS goals and functions – History of operating system- Different kinds of operating system- Computer hardware review – Operation system concept- System calls- Operating system structure.

### UNIT – II

**Processes and Threads:** Processes – threads – thread model and usage – inter process communication; **Deadlocks:** Resources- introduction to deadlocks – deadlock detection and recovery – deadlocks avoidance – deadlock prevention.

### UNIT – III

**Memory management:** Basis memory management – virtual memory – page replacement algorithms; **Input/Output:** principles of I/O hardware - principles of I/O software.

### UNIT – IV

**Files systems:** Files – directories - files systems implementation; **Multiple processor system:** multiprocessors – multi computers - distributed systems.

### UNIT – V

LINUX: An introduction to Linux- Getting started in Linux-Managing Linux Files and Folders.

### BOOKS FOR STUDY:

1. “Modern Operating Systems”, Second Edition, Andrew S. Tanenbaum, PHI private Limited, New Delhi, 2008
2. “Linux Learning the Essentials”,K.L.James, PHI.

**BOOK FOR REFERENCE:**

“Operating Systems – Internals & Design Principles” William Stallings. Prentice – Hall of India P.Ltd, New Delhi – 110001. 5th Edition.

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>COMPUTER NETWORKS</b>	<b>B.Sc., Information Science</b>
<b>V Semester</b>		<b>Core: Theory</b>
		<b>Credit: 4</b>

**UNIT – I**

**Introduction:** Uses of Computer Networks - Network Hardware – LAN, MAN and WAN- Network Software - Reference Models- Example Networks.

**UNIT – II**

**Physical Layer:** The Theoretical Basis For Data Communication - Guided Transmission media - Wireless Transmission - Communication Satellites- Public Switched Telephone Network- The Mobile Telephone System

**UNIT – III**

**Data Link Layer:** Data Link Layer Design Issues - Error Detection and Correction – Elementary data link protocols - Sliding Window Protocols – Example Data Link Protocols.

**UNIT – IV**

**Network Layer:** Network Layer Design Issues- Routing Algorithms-Congestion Control Algorithms- Quality of Service –Internetworking.

**Transport Layer:** Transport Services – Elements of transport protocols – Performance issues.

**UNIT – V**

**Application layers:** Domain name system – Electric mail – The World Wide Web.

**Network security:** Cryptography- Symmetric-Key algorithms- Public-Key algorithms – Digital signature.



**BOOK FOR STUDY:**

“Computer Networks” Andrew S.Tanenbaum , David J.Wetherall, Fifth edition,  
Pearson Education , 2011

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>Practical - V (VB)</b>	<b>B.Sc., Information Science</b>
<b>V Semester</b>		<b>Core: Practical-V</b>
		<b>Credit: 4</b>

**Visual programming Lab List**

1. Develop a VB Project to Insert a Record in MS-ACCESS database using ADO.
2. Develop a VB Project to modify a record in MS-ACCESS database using ADO.
3. Construction of an Arithmetic Calculator (Simple)
4. Personal Information System (Using Tables)
5. Railways Reservation System (Using Tables)
6. Library Information System (Using Tables).

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	Data Mining and Ware housing	<b>B.Sc Information Science</b>
<b>VI Semester</b>		<b>Core: Theory</b>
		<b>Credit: 4</b>

**UNIT – I**

**Introduction:** Data mining application – data mining techniques – data mining case studies- the future of data mining – data mining software - **Association rules mining:** **Introduction-** basics- task and a naïve algorithm- apriori algorithm – improve the efficient of the apriori algorithm – mining frequent pattern without candidate generation (FP-growth) – performance evaluation of algorithms.

**UNIT – II**

**Classification :** Introduction – decision tree – over fitting and pruning - DT rules-- naïve bayes method- estimation predictive accuracy of classification methods - other evaluation criteria for classification method – classification software

**UNIT – III**

**Cluster analysis:** cluster analysis – types of data – computing distances-types of cluster analysis methods - partitioned methods – hierarchical methods – density based methods – dealing with large databases – quality and validity of cluster analysis methods - cluster analysis software.

**UNIT – IV**

**Web data mining:** Introduction- web terminology and characteristics- locality and hierarchy in the web- web content mining-web usage mining- web structure mining – web mining software - **Search engines:** Search engines functionality- search engines architecture – ranking of web pages.

## **UNIT – V**

**Data warehousing:** Introduction – Operational data sources- data warehousing - Data warehousing design – Guidelines for data warehousing implementation - Data warehousing metadata - **Online analytical processing (OLAP):** Introduction – OLAP characteristics of OLAP system – Multidimensional view and data cube - Data cube implementation - Data cube operations OLAP implementation guidelines

### **BOOK FOR STUDY:**

“Introduction to Data mining with case studies”, G.K. Gupta, PHI Private limited, New Delhi, 2008. 2<sup>nd</sup> Edition, PHI , 2011

### **BOOK FOR REFERENCE**

Data Mining Techniques, Arun K Pujari , University Press

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>PHP SCRIPTING LANGUAGE</b>	<b>B.Sc., Information Science</b>
<b>VI Semester</b>		<b>Core: Theory</b>
		<b>Credit: 4</b>

**UNIT – I**

Introducing PHP – Basic development Concepts – Creating first PHP Scripts – Using Variable and Operators – Storing Data in variable – Understanding Data types – Setting and Checking variables Data types – Using Constants – Manipulating Variables with Operators.

**UNIT – II**

Controlling Program Flow: Writing Simple Conditional Statements - Writing More Complex Conditional Statements – Repeating Action with Loops – Working with String and Numeric Functions.

**UNIT – III**

Working with Arrays: Storing Data in Arrays – Processing Arrays with Loops and Iterations – Using Arrays with Forms - Working with Array Functions – Working with Dates and Times.

**UNIT – IV**

Using Functions and Classes: Creating User-Defined Functions - Creating Classes – Using Advanced OOP Concepts. Working with Files and Directories: Reading Files-Writing Files-Processing Directories.

**UNIT – V**

Working with Database and SQL : Introducing Database and SQL- Using MySQL-Adding and modifying Data-Handling Errors – Using SQLite Extension and PDO Extension. Introduction XML—Simple XML and DOM Extension.

**BOOK FOR STUDY**

“PHP A Beginner’s Guide “, VIKRAM VASWANI, Tata McGraw-Hill

**BOOKS FOR REFERENCE**

1. The PHP Complete Reference – Steven Holzner – Tata McGraw-Hill Edition.
2. Spring into PHP5 – Steven Holzer, Tata McCraw Hill Edition

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>Practical – VI PHP Scripting Language</b>	<b>B.Sc., Information Science</b>
<b>VI Semester</b>		<b>Core: Practical-VI</b>
		<b>Credit: 4</b>

**PHP LAB**

1. Write a program using controls and functions
2. Develop a program and check message passing mechanism between pages.
3. Design a program using String function and Arrays.
4. Develop a program using parsing functions (use Tokenizing)
5. Write a program and check Regular Expression, HTML functions, Hashing functions.
6. Develop a program and check File System functions, Network functions, Date and time functions.
7. Design a program using session
8. Develop a program using cookie and session

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>COMPUTER ORGANIZATION AND ARCHITECTURE</b>	<b>B.Sc., Information Science</b>
<b>V Semester</b>		<b>Elective – I: Theory</b>
<b>Elective – I</b>		<b>Credit: 5</b>

**Unit – I:**

Digital Logic Circuits: Digital Computers-Logic Gates-Boolean Algebra-Map Simplification-Combinational Circuits-Flip-Flops-Sequential Circuits-Integrated Circuits-Memory Unit-Data Types-Complements.

**Unit – II:**

Basic Computer and Organization Design: Instruction Codes- Registers-Instructions-Timing and Control-Instruction Cycle-Memory Reference Instructions-Input Output and Interrupt.

**Unit III:**

Programming the Basic Computer: Machine Language-Assembly Language-The Assembler-Program Loops-Programming Arithmetic And Logic Operations-Subroutines-Control Memory-Address Sequencing.

**Unit-IV:**

Central Processing Unit: Stack Organization-Instruction Format-Addressing Modes-Data Transfer and Manipulation-Program Control-Reduce Instruction Set Computer (RISC).

**Unit-V:**

Pipelining and Vector Processing: Parallel Processing-Pipelining-Arithmetic Pipeline-Instruction Pipeline-RISC Pipeline-Vector Processing-Array Processors.

**BOOK FOR STUDY:**

“COMPUTER SYSTEM ARCHITECTURE”, M. Morris Mano, Prentice Hall of India Private Limited, New Delhi, 1998. 3<sup>rd</sup> Edition.



**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>MANAGEMENT INFORMATION SYSTEMS</b>	<b>B.Sc. Information Science</b>
<b>V Semester</b>		<b>Elective – I: Theory</b>
<b>Elective – I</b>		<b>Credit: 5</b>

**UNIT – I**

MIS Concept – Definition – Role of Management – Impact – MIS and the user – Role and Importance of Management – Process of Management: Planning – Organizing – Staffing – Coordinating and Directing – Controlling.

**UNIT – II**

Strategic management of business and planning – Decision making: Concepts – methods, tools and procedures – Organizational Decision making – Information.

**UNIT – III**

Development of MIS: Ascertaining, Determining the information requirement – Development and Implementation of the MIS – Organization for Development of the MIS – Information Technology.

**UNIT – IV**

Application of MIS in manufacturing sector – Decision support system – Enterprise Management System.

**UNIT – V**

Object-oriented Technology (OOT) – Client Server Architecture – Business process Re-engineering (BPR)

**BOOK FOR STUDY:**

“Management Information System” – W.S. Jawadekar, TMH.

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>Client / Server Technology</b>	<b>B.Sc., Information Science</b>
<b>V Semester</b>		<b>Elective – I: Theory</b>
<b>Elective – I</b>		<b>Credit: 5</b>

**UNIT-I:**

Client/Server Computing – Advantages of Client / Server Computing – Technology Revolution – Connectivity – Ways to improve Performance – How to reduce network Traffic

**UNIT-II:**

**Components of Client/Server Applications – The Client:** Role of a Client – Client Services – Request for Service. **Components of Client/Server Applications – The Server:** The Role of a Server – Server Functionality in Detail – The Network Operating System – What are the Available Platforms – The Server Operating system.

**UNIT-III:**

**Components of Client/Server Applications – Connectivity:** Open System Interconnect – Communications Interface Technology – Interprocess communication – WAN Technologies.

**UNIT-IV:**

**Components of Client/Server Applications–Software:** Factors Driving demand for application software development – Rising Technology Staff costs – Need to improve Technology – Need for Common Interface across Platforms – Client/Server System Development Methodology. **Components of Client/Server Applications–Hardware:** Hardware/Network Acquisition – PC-Level Processing Units – Macintosh, notebooks, Pen – UNIX Workstation – x-terminals – Disk, Tape, Optical Disks, NIC and UPS.

**UNIT-V:**

**Components of Client/Server applications–Service and Support:** System Administration. **The Future of Client/Server Computing:** Enabling Technologies – Transformational Systems.

**BOOK FOR STUDY:**

**CLIENT/SERVER COMPUTING – Patrick Smith, Steve Guengerich , 2nd edition,  
PHI (Chapters 1-8 & 10)**

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>Elective – II :</b> <b>COMPILER DESIGN</b>	<b>B.Sc., Information Science</b>
<b>VI Semester</b>		<b>Elective – II: Theory</b>
<b>Elective – II</b>		<b>Credit: 5</b>

**UNIT – I**

**Introduction to Compilers:** Compilers and Translator – Need of Translator – The structure of a Compiler – Lexical analysis – Syntax analysis – Intermediate code generation – optimization – code generation – Compiler – writing tools. **Finite automata and lexical Analysis:** The role of the lexical analysis – A simple approach to the design of lexical analyzers- Regular expressions to finite automata – Minimizing the number of states of a DFA.

**UNIT – II**

**The Syntactic specification of programming languages:** context free grammars – derivations and parse trees – capabilities of context free grammars. **Basic parsing techniques:** Parsers – shift – reduce parsing – operator – precedence parsing – top down parsing – predictive parsers.

**UNIT – III**

**Syntax – directed translation:** syntax – directed translation schemes – implementation of syntax – directed translators – intermediate code – postfix notation – parse trees and syntax trees – 3 address code – quadruples and triples – translation of assignment statements – Boolean expressions – statements that alter the flow of control. **Symbol tables:** the contents of a symbol table – data structures for symbol table – representing scope information.

**UNIT – IV**

**Run time storage administration:** Implementation of a simple stack allocation scheme – implementation of block-structured languages – storage allocation in block structured languages. **Error deduction and recovery:** errors – lexical phase errors – syntactic phase errors – semantic errors.

## **UNIT – V**

**Introduction of code optimization:** The principle sources of optimization – loop optimization – the DAG representation of basic blocks – value numbers and algebraic laws – Global data flow analysis. **Code generation:** Object programs – problems in code generation – a machine model – a simple code generator – register allocation and assignment – code generation from DAG's – peephole optimization.

### **Book for Study**

“**Principles of Compiler Design**” by Alfred V.Aho, Jeffrey D.Ullman , Narosa Pub. House.

## PERIYAR UNIVERSITY, SALEM – 636 011

<b>2012-13 Onwards</b>	<b>Elective – II</b> <b>E-COMMERCE</b>	<b>B.Sc Information Science</b>
<b>VI Semester</b>		<b>Elective II: Theory</b>
<b>Elective – II</b>		<b>Credit: 5</b>

### UNIT I

**History of E-commerce and Indian Business Context :** E-Commerce –Emergence of the Internet – Emergence of the WWW – Advantages of E-Commerce – Transition to E-Commerce in India – The Internet and India – E-transition Challenges for Indian Corporates.

**Business Models for E-commerce:** Business Model – E-business Models Based on the Relationship of Transaction Parties - E-business Models Based on the Relationship of Transaction Types.

### UNIT II

**Enabling Technologies of the World Wide Web:** World Wide Web – Internet Client-Server Applications – Networks and Internets – Software Agents – Internet Standards and Specifications – ISP. **e-Marketing :** Traditional Marketing – Identifying Web Presence Goals – Online Marketing – E-advertising – E-branding.

### UNIT III

**e-Security :** Information system Security – Security on the Internet – E-business Risk Management Issues – Information Security Environment in India.

**Legal and Ethical Issues :** Cyberstalking – Privacy is at Risk in the Internet Age – Phishing – Application Fraud – Skimming – Copyright – Internet Gambling – Threats to Children.

### UNIT IV

**e-Payment Systems:** Main Concerns in Internet Banking – Digital Payment Requirements – Digital Token-based e-payment Systems – Classification of New Payment Systems – Properties of Electronic Cash – Cheque Payment Systems on the Internet – Risk and e-Payment Systems – Designing e-payment Systems – Digital Signature – Online Financial Services in India - Online Stock Trading.

## **UNIT V**

**Information systems for Mobile Commerce:** What is Mobile Commerce? – Wireless Applications – Cellular Network – Wireless Spectrum – Technologies for Mobile Commerce – Wireless Technologies – Different Generations in Wireless Communication – Security Issues Pertaining to Cellular Technology. **Portals for E-Business:** Portals – Human Resource Management – Various HRIS Modules.

### **BOOK FOR STUDY**

E-Commerce - An Indian Perspective, P.T.Joseph, S.J., Fourth Edition, PHI 2012.

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>Elective – II</b>	<b>B.Sc., Information Science</b>
<b>VI Semester</b>	<b>Software Project</b>	<b>Elective – II: Theory</b>
<b>Elective – II</b>	<b>Management</b>	<b>Credit: 5</b>

**UNIT - I**

Introduction to software project management – Project evaluation and Programme Management – An overview of Project Planning.

**UNIT - II**

Selection of an appropriate project approach – Software effort estimation – Activity planning

**UNIT - III**

Risk management - Resource allocation.

**UNIT - IV**

Monitoring and control - Managing contracts.

**UNIT - V**

Managing people in Software Environments – Working in Teams - Software quality.

**BOOK FOR STUDY:**

“Software Project Management – Special Indian Edition” by Bob Hughes, Mike Cotterell, Rajib Mall Tata McGraw Hill 5<sup>th</sup> Edition, 2011.



**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>Elective – III</b> Relational Database Management Systems	<b>B.Sc., Information Science</b>
<b>VI Semester</b>		<b>Elective – III: Theory</b>
<b>Elective – III</b>		<b>Credit: 5</b>

**UNIT – I**

**Introduction:** Database System Applications – DBMS Vs. File System - View of Data – Data Model - Database Languages – Database users and Administrators - Transaction Management – Database System Structure – Application Architecture; **Data Models:** Basic Concepts – Constraint- Keys- ER Diagram – Weak Entity – Extended ER Features - Design of an ER Schema – UML; **Relational Model:** Structure of Relational Databases – Relational Algebra – Views.

**UNIT – II**

**SQL:** Background – Basic Structure – Set Operation – Aggregate Function – Null Values – Nested Sub Queries – Views – Modification of the Database – Data Definition Language – Embedded SQL – Dynamic SQL.

**UNIT-III**

**Advance SQL :** Integrity and Security: Domain – Constraint – Referential Integrity – assertions – Triggers – Security and Authorization – Authorization in SQL – Encryption and Authentication.

**UNIT – IV**

**Relational Database Design:** First Normal Form - Pitfalls in Relational Database Design – Functional Dependencies (Second Normal Form) – Boyce-Codd Normal Form - Third Normal Form – Fourth Normal Form – Overall Database Design Process.

## **UNIT-V**

**Object Oriented Databases:** Need for Complex Data Types – Object Oriented Data Model – Object Oriented Language; **Object Relational Database:** Nested Relations – Complex Type – Query with Complex Type – Object Oriented Vs. Object Relational.

### **BOOK FOR STUDY:**

“Database System Concepts”, Abraham Silberschatz, Henry F.Korth, S.Sudarshan, TMH 4th Edition.

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>2012-13 Onwards</b>	<b>Elective – III</b>	<b>B.Sc., Information Science</b>
<b>VI Semester</b>	MULTIMEDIA	<b>Elective – III : Theory</b>
<b>Elective – III</b>	SYSTEMS	<b>Credit: 5</b>

**UNIT I**

Multimedia Definition – Use Of Multimedia – Delivering Multimedia – Text: About Fonts and Faces – Using Text in Multimedia – Computers and Text – Font Editing and Design Tools – Hypermedia and Hypertext.

**UNIT II**

Images: Plan Approach – Organize Tools – Configure Computer Workspace – Making Still Images – Color – Image File Formats. Sound: The Power of Sound – Digital Audio – Midi Audio – Midi vs. Digital Audio – Multimedia System Sounds – Audio File Formats – Vaughan’s Law of Multimedia Minimums – Adding Sound to Multimedia Project.

**UNIT III**

Animation: The Power of Motion – Principles of Animation – Animation by Computer – Making Animations that Work. Video: Using Video – Working with Video and Displays – Digital Video Containers – Obtaining Video Clips – Shooting and Editing Video.

**UNIT IV**

Making Multimedia: The Stage of Multimedia Project – The Intangible Needs – The Hardware Needs – The Software Needs – An Authoring Systems Needs. Multimedia Production Team.

**UNIT V**

Planning and Costing: The Process of Making Multimedia – Scheduling – Estimating – RFPs and Bid Proposals. Designing and Producing – Content and Talent: Acquiring Content – Ownership of Content Created for Project – Acquiring Talent

**BOOK FOR STUDY:**

“Multimedia: Making It Work” - Tay Vaughan( Eight Edition)

**BOOK FOR REFERENCE:**

Ralf Steinmetz & Klara Nahrstedt – “Multimedia Computing, Communication & Applications “ Pearson Education

PERIYAR UNIVERSITY, SALEM – 636 011

2012-13 Onwards	Elective – III Mobile Computing	B.Sc., Information Science
VI Semester		Elective – III : Theory
Elective – III		Credit: 5

**UNIT – I**

**Introduction:** Applications – A Simplified Reference Mode. **Wireless Transmission:** Cellular System. **Medium Access Control :** Motivation for a Specialized MAC : Hidden and exposed terminals – Near and far terminals – SDMA – FDMA – TDMA : Fixed TDM – Classical Aloha – Slotted Aloha – Carrier Sense Multiple Access – Demand assigned Multiple Access – PRMA Packet Reservation Multiple Access – Reservation TDMA – Multiple Access With Collision Avoidance – Polling – Inhibit Sense Multiple Access. CDMA: Spread Aloha multiple access.

**UNIT – II**

**Telecommunication Systems:** GSM: Mobile Services – System Architecture – Radio Interface – Protocols - Localization And Calling – Handover – Security – New Data Services. DECT: System Architecture – Protocol Architecture - TETRA.

**Unit – III**

UMTS and IMT 2000: UMTS Releases and Standardization – UMTS System Architecture - UMTS Radio Interface – UTRAN – Core Network – Handover. **Satellite System:** History – Applications – Basics: GEO – LEO – MEO . Routing – Localization – Handover.

**Broadcast Systems:** Overview – Cyclical Repetition Of Data – Digital Audio Broadcasting – Digital Video Broadcasting – Convergence of Broadcasting and Mobile Communication.

**UNIT – IV**

**Wireless LAN:** Infra Red Vs Radio Transmission – Infrastructure and Ad-Hoc Network – IEEE 802.11: System Architecture – Protocol Architecture – Physical Layer – Medium Access Control Layer – MAC Management – HIPERLAN: HIPERLAN1 -WATM – BRAN – HiperLAN2. Bluetooth: User scenarios – Architecture – Radio layer – Base band layer – Link manager protocol.

## **UNIT – V**

**Mobile Network Layer:** Mobile IP – Dynamic Host Configuration Protocol – Mobile Ad-Hoc Networks. **Mobile Transport Layer:** Traditional TCP-Classical TCP Improvement-TCP Over 2.5/3G Wireless Networks – Performance Enhancing Proxies.

## **BOOK FOR STUDY**

“**Mobile Communications**”, Jochen Schiller ,Pearson Education.,Second Edition.

**PERIYAR UNIVERSITY, SALEM – 636 011**

**SBEC – I : Basics on Internet**

<b>SBEC – I : Basics on Internet</b>	
Course	Common for B.Sc(CS) , B.Sc(IS) & BCA
Effective from	2012 -2013 and Onwards
Semester	II
SBEC	<b>SKILL BASED ELECTIVE COURSE – I</b>

**Unit I**

What is Internet ? The Internet's underlying Architecture

**Unit II**

Connecting to the Internet – Communicating on the Internet

**Unit III**

How the World Wide Web works. Common Internet tools

**Unit IV**

Multimedia on the Internet – Intranet and shopping on the Internet

**Unit V**

Safeguarding the Internet

**BOOK FOR STUDY**

How the Internet works – Techmedia – Preston Gralla Millennium Edition, fourth Edition

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>SBEC – II : DTP Packages</b>	
Course	Only for B .Sc(IS)
Effective from	2012 -2013 and Onwards
Semester	IV
SBEC	<b>SKILL BASED ELECTIVE COURSE – II</b>

**UNIT – I**

**INTRODUCTION:** Choosing the printing house - Hardware Requirement for DTP - General Design Considerations - Text Organization – Design Common Media Publication.

**UNIT – II**

**PAGEMAKER:** Getting Started with PageMaker – Working in PageMaker – The PageMaker window – Working with text – Multiple Text Block. **Editing Text:** Making Changing in the Publication – Searching by Format – Replacing the Text **Formatting Text:** Changing the Font Size – Making the text bold – Removing Boldface from the text – Underlining the text – Aligning the text.

**UNIT – III**

**Master pages:** Adding Text to the Publication – Element on master pages – Creating a new Publication – Working with Columns. **Managing and Printing a publication:** Page Orientation – Page Numbering – Page Size – Dimension – Table of Contents – Managing Books – Printing a Publication.

**UNIT – IV**

**PHOTOSHOP-** Starting Photoshop CS2 - Photoshop Program Window **Working with Images:** Editing Images – Color Modes

**UNIT – V**

**Making Selections:** Moving a Portion of Images – Editing Selections – Filling a Selection - Transforming Selections **Painting Tools:** Drawing Tools –Retouching Tools.

**BOOK FOR STUDY**

“COMDEX-DTP Course Kit” Vikas Gupta, Dreamtech Publishers- New Delhi, 2008.



**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>SBEC - III: Multimedia Package</b>	
Course	Only for B .Sc(IS)
Effective from	2012 -2013 and Onwards
Semester	V
SBEC	<b>SKILL BASED ELECTIVE COURSE – III</b>

**UNIT – I**

Introducing Flash: How Flash works – Uses of Flash – Obtaining Flash – Installing Flash – The Flash Environment- Getting Started: The Timeline – The Stage – Tools and toolbars –

**UNIT – II**

The Menu bar – Properties Inspector – Panels – Viewing options – Quick Start templates – Accessibility Creating Objects: Stage and overlay objects – Tools panel. Editing Objects : Grouping objects – Free Transform tool – Reshaping objects – Aligning objects

**UNIT – III**

Pixel snapping – Stacking order – Cut aways – Paste in place. Color and Text: Standard Color palette – Adding solid colors – Adding gradients – Fill Transform tool – More color options – Selecting colors – Adding, Formatting and Manipulating text.

**UNIT – IV**

Symbols and Instances: Definitions – The Library – Converting objects to symbols – Creating a new symbol – Symbol Editing Mode – Editing symbols – Editing Instances. Sound and Video: Using sound – Importing sound – Editing sounds, Adding video – Manipulating video.

**UNIT – V**

Frames and Layers: Working with frames – Adding frames – Deleting and copying frames – Frame properties – Working with layers – Inserting layers – Deleting and copying layers –Animation: Elements of animation – Scenes – Frame-by-frame animation – Motion tweening – Motion guides – Shape tweening – Animating text – Distribute text to layers – Movie clips.

**BOOK FOR STUDY:**

“FLASH MX in easy steps” - NICK VANDOME, Dreamtech, New Delhi.

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>SBEC – IV : SOFT SKILLS</b>	
Course	Common for B.Sc(CS), B .Sc(IS) & BCA
Effective from	2012 -2013 and Onwards
Semester	V
SBEC	<b>SKILL BASED ELECTIVE COURSE - IV</b>

**UNIT I**

**Nature of technical communication:** Stages of communication – Channels of communication – Nature of technical communication – Importance and need for technical communication – Technical communication skills.

**UNIT II**

**The Listening process:** Types of listening – Listening with a purpose – Barriers to listening – The speech process – Conversion and oral skills – Body language.

**UNIT III**

**Job interviews:** Pre – interview preparation techniques – Interview questions – Answering strategies – Frequently asked interview questions – Projecting a positive image – Alternative interview formats.

**UNIT IV**

**Group Discussion:** Nature of group discussion – Characteristics of successful group discussions – Selection group discussion – Group discussion strategies – Techniques for individual contribution – Group interaction strategies.

**UNIT V**

**Presentation Skills:** Planning the presentation – Preparing the presentation – Organizing your presentation – Rehearsing the presentation – Improving delivery

**BOOK FOR STUDY**

Effective Technical Communication , M. Ashraf Rizvi, Tata McGraw – Hill Publishing Company Limited , New Delhi.

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>SBEC - V : HTML and Web Design</b>	
Course	Only for B .Sc(IS)
Effective from	2012 -2013 and Onwards
Semester	VI
SBEC	<b>SKILL BASED ELECTIVE COURSE - V</b>

**UNIT – I**

Intermediate HTML: Introduction – unordered list – nested and ordered list – Basic HTML Tables – Intermediate HTML table and Formatting – basic HTML Forms and Formatting –

**UNIT – II**

More Complex HTML Forms – Frameset Element – Nested Frameset. Style Sheets and Graphics: Introduction to Style sheets – Formatting Text by Using Style Sheets – Formatting Paragraphs by Using Style Sheets

**UNIT – III**

Graphics: Selecting a Graphics Format – Preparing Graphics for Web Use – Inserting Graphics – Arranging Elements on the Page – Controlling Image Size and Padding –

**UNIT – IV**

Hyperlinking from Graphics – Utilizing Thumbnail Graphics – Including Alternate Text for Graphics.

Navigation: Creating Navigational Aids – Creating Tables – Formatting Tables Layouts: Creating Division-Based Layouts

**UNIT – V**

Creating User Forms – Using Frames for Layout – Incorporating Audio and VideoDynamic HTML: Introduction

**BOOK FOR STUDY**

Microsoft Step by Step – HTML and XH,   Faithe Wempen, Prentice Hall of India Private Limited, New Delhi, 2006

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>SBEC - VI : Web Programming (Java script and VB script)</b>	
Course	Only for B .Sc(IS)
Effective from	2012 -2013 and Onwards
Semester	VI
SBEC	<b>SKILLED BASED ELECTIVE COURSE – VI</b>

**UNIT – I**

Java script: Introduction to Scripting: Introduction – memory concepts – arithmetic – decision-making – java script Internet & www resources. Java script Arrays: Passing arrays to functions – Multi Subscripted array.

**UNIT – II**

Java Script Control Structures – Selection Structure: If – If Else, Repetition Structure: While – For – Do While – Logical operators.

**UNIT – III**

Java Script Functions: Introduction – program modules in java script programmer defined functions – Function Definition: Duration of identifiers – scope rules – recursion – java script global functions

**UNIT – IV**

Java Script Objects: Introduction – Thinking about objects – Math, Strings, Date, Boolean and Number Objects.

**UNIT – V**

VB Script: Introduction- Operators – Data Type and Control Structures – VB Script Functions – Array – String Manipulation – Classes and Objects – Operator Precedence Chart- The MsgBox functions – input boxes – controlling the flow of code -Simple Program

**BOOK FOR STUDY**

**Web Technology – A Developer’s Perspective**, N.P. Gopalan, J. Akilandeswari ,  
Prentice Hall of India Private Limited, New Delhi,, New Delhi.

**PERIYAR UNIVERSITY, SALEM – 636 011**

<b>NMEC - I : Fundamentals of Information Technology</b>	
Course	<b>Offered to other department Students</b>
Effective from	2012 -2013 and Onwards
Semester	III
NMEC	Non Major Elective Course

**UNIT - I**

Introduction to Information Technology: Information Technology – Understanding the Digital Domain – Representing Numbers and text in Binary- binary codes

**UNIT - II**

Fundamentals of Computers: Computer Hardware – Software – system software- application software- Translators- Computer languages-MLL-HLL-ALL

**UNIT - III**

Transmission of Information: Fundamentals of Communications – Fiber Optics – Wireless Communications -ISDN

**UNIT - IV**

Computer Networking: Goals – Topologies - Local Area Networks – Wide Area Networks – Communication Protocols-

**UNIT - V**

Internet: Internet Architecture -- Types-Network Security-Internet applications- Internet address- domain name- E-mail

**BOOK FOR STUDY:**

Introduction to Information Technology, Pelin Aksoy, Laura DeNardis, Cengage Learning India Private Limited, First Indian Reprint 2008.

## **PERIYAR UNIVERSITY, SALEM – 636 011**

<b>NMEC-I : Basics of Computers and Office Automation</b>	
<b>Course</b>	<b>Offered to other department Students</b>
<b>Effective from</b>	2012 -2013 and Onwards
<b>Semester</b>	III
<b>NMEC</b>	Non Major Elective Course

### **UNIT – I**

Introduction to Computers – Five Generations of Modern Computers – Classification of Digital Computer Systems – Anatomy of a Digital Computer – Memory Units – Input and Output Devices – Auxiliary Storage Devices.

### **UNIT – II**

Getting Started: Starting a Program – Identifying Common Screen Elements – Choosing Commands – Finding Common Ways to Work – Getting Help with Office

### **UNIT – III**

MS-WORD: Learning Word Basics – Formatting a Word Document – Working with Longer Document.

### **UNIT – IV**

MS-EXCEL: Creating a Simple Spreadsheet – Editing a Spreadsheet – Working with Functions and Formula – Formatting Worksheets – Completing Your Spreadsheet – Creating Charts

### **UNIT – V**

MS-POWERPOINT: Creating and Viewing Presentations – Editing a Presentation – Working with Presentation Special Effects

### **BOOK FOR STUDY**

1. Introduction to Computers – Alex Leon, Mathew Leon (UNIT – I)
2. Microsoft Office XP – fast & easy (UNIT II, III, IV & V)  
Author: DIANE KOERS  
Publisher: Prentice Hall of India Private Limited, New Delhi, 2001

## PERIYAR UNIVERSITY, SALEM – 636 011

<b>NMEC-II : Introduction to Object Oriented Programming Language C++</b>	
Course	<b>Offered to other department Students</b>
Effective from	2012 -2013 and Onwards
Semester	IV
NMEC	Non Major Elective Course

### **Unit – I**

**Overview of C++ Language:** Object Oriented Concepts – Characteristics- Advantages- Keywords and Identifiers-Constants-Variables-Data types- Operators and Expressions

### **Unit – II**

Program structure –Conditional Statements: If Statement – Switch statement – Goto Statement. Looping Statements: while Loop-For Loop Do-While Loop-Jumps in Loops – Break – Continue statements

### **Unit – III**

**Functions:** Advantages of Functions-Classification of Functions-Inline Functions-Function Overloading –Reference Variables – Storage Classes -Arrays: Definition of an Arrays-Arrays and Functions- Simple programs

### **Unit – IV**

**Classes and Objects-** Passing Objects as arguments – Returning an object from functions – Arrays of objects – Members of classes – Static member data – Static member functions - Simple programs

### **Unit – V**

**Constructors and Destructors-**Types of Constructors-Destructor and its Characteristics, Inheritance- Simple programs Types of **Inheritance** –Simple programs

### **BOOK FOR STUDY**

“Programming in C++”, M. T. Somashekara, Prentice Hall of India Private Limited, New Delhi, 2008

## PERIYAR UNIVERSITY, SALEM – 636 011

<b>NMEC-II : HTML and Web Design</b>	
Course	<b>Offered to other department Students</b>
Effective from	2012 -2013 and Onwards
Semester	IV
NMEC	Non Major Elective Course

### **UNIT – I**

World Wide Web: Introduction the web defined – web browser details – web writing styles – web presentation outline, design ,and management – registering web pages. Searching the World Wide Web: introduction – directories, search engines and meta search engines – search fundamentals – search strategies – how does a search engine works. Telnet and FTP : introduction – telnet and remote login – File transfer – Computer Viruses .

### **UNIT – II**

HTML Basics: Understanding HTML – Setting Up the Document Structure – Formatting Text by Using Tags – Using Lists and Backgrounds – Creating Hyperlinks and Anchors  
Style Sheets and Graphics: Introduction to Style sheets

### **UNIT – III**

Graphics: Selecting a Graphics Format – Preparing Graphics for Web Use – Inserting Graphics – Arranging Elements on the Page – Controlling Image Size and Padding

### **UNIT – IV**

Hyper linking from Graphics – Utilizing Thumbnail Graphics – Including Alternate Text for Graphics- Navigation: Creating Navigational Aids – Creating Tables – Formatting Tables

### **UNIT – V**

Layouts: Creating Division-Based Layouts – Creating User Forms – Using Frames for Layout – Incorporating Audio and Video

### **BOOK FOR STUDY**

1. Microsoft Step by Step – HTML and XH, Faithe Wempen, Prentice Hall of India Private Limited, New Delhi, 2006

### **REFERENCE BOOK**

1. C.Xavier , “ World Wide Web Design with HTML”, TMH 2007