



**THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN (AUTONOMOUS),
Sivakasi**

(Affiliated to Madurai Kamaraj University, Reaccredited with "A" Grade by NAAC,
College with Potential for Excellence by UGC & Mentor Institution under UGC PARAMARSH)

NAAC SSR Cycle IV (2015-2020)

**1.1. CURRICULUM DESIGN AND
DEVELOPMENT**

**1.1.1. CURRICULUM DEVELOPMENT AND
IMPLEMENTATION**

SYLLABUS

**THE STANDARD FIREWORKS RAJARATNAM
COLLEGE FOR WOMEN (AUTONOMOUS)**

(Reaccredited with 'A' Grade by HAAC and
College with Potential for Excellence by UGC)
SIVAKASI-626 123.

Affiliated to Madurai Kamaraj University, Madurai.



Programme Scheme, Scheme of Examination and Syllabi

(With effect from June 2014)

DEPARTMENT OF INFORMATION TECHNOLOGY

UG PROGRAMME

Curriculum Design & Development Cell

Chairman
CHAIRMAN OF
THE BOARD

Principals
CDDC

Principals
ACADEMIC
AFFAIRS

H.P. Reddy
COE

**THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN,
SIVAKASI – 626 123.**

(Reaccredited with **A** Grade *STATUS* by NAAC and College with
Potential for Excellence by UGC)

**DEPARTMENT OF INFORMATION TECHNOLOGY
B.SC DEGREE PROGRAMME IN INFORMATION TECHNOLOGY**

RULES AND REGULATIONS, PROGRAMME SCHEME AND SCHEME OF EXAMINATION GOVERNING THE
B.Sc. DEGREE PROGRAMME IN INFORMATION TECHNOLOGY

(For those admitted in June 2014 and later)

I. Programme Objectives:

The objectives of the programme are

1. To provide a clear understanding of the basic concepts and principles of Information Technology.
2. To equip the students community with updated knowledge and skills in the field of Information Technology.
3. To develop sound practical skills to solve problems those arise from computer systems and applications.
4. To motivate the students to pursue higher studies in Information Technology.
5. To train the students with the technical knowledge required for an IT professional

II. Eligibility condition for Admission:

Candidate should have passed the Higher Secondary Examination conducted by the Board of Higher Secondary Education, Government of Tamilnadu or any examinations accepted by the syndicate as equivalent thereto with

- Mathematics and
- At least one of the following subjects Physics, Chemistry, Commerce and Computer Science

III. Duration of the Programme:

The duration of the programme is three academic years. Each academic year consist of two semesters. The duration of a semester is 90 working days.

IV. Attendance:

The Rules regarding the attendance for regular classes for the candidates to appear for the end semester examination are framed as given below

- a) Each student must put in a minimum attendance of 67 days (75% of 90 days per semester) so as to become eligible to appear for the end semester examination.

Shortage of Attendance:

- b) Those students with an attendance of 66 days and less but 59 days and above (65%) can be permitted to appear for the end semester examinations provided they get the Condonation Certificate from the Principal stating the proper reasons for their absence on payment of penalty as per Madurai Kamaraj University to the College Office within 5 days after the last working day.
- c) In case of attendance with 58 days and less but 45 days and above (50%), the students cannot appear for the end semester examinations of that semester but can appear for those courses in the next semester examinations by obtaining special permission from the Principal providing necessary documents supporting the reasons for absence on payment of penalty as per Madurai Kamaraj University.
- d) Students with an attendance of 44 days and less should repeat the whole semester

Attendance for Part V

A Student of the first or second year undergraduate class should put in a minimum attendance of 75% for each semester (Total No. of hours as fixed by the concerned Officers / Staff in-charge) in anyone of the Co-Curricular activities namely N.C.C./ N.S.S./ Physical Education/ Youth Red Cross to be eligible to get the degree.

In case of shortage of attendance the student has to complete the required attendance before the completion of the U.G Programme. If she fails to do so the student can appear for the end semester examination; but she is ineligible to get the degree.

V. Evaluation Procedure:

Evaluation of each theory course will be 25% Continuous Internal Assessment (CIA) and 75% End Semester Examination. Evaluation of each Practical Course will be 40% Continuous Internal Assessment (CIA) and 60% End Semester Examination. Project will be 100% End Semester Examination Evaluation. A mark statement will be issued to every student at the end of every semester.

VI. Passing Minimum:

For a pass in each course, a student should secure a minimum of 35% marks in the end semester examination and a minimum of 40% marks in aggregate (i.e., CIA and end semester examination marks put together).

VII. Eligibility condition for getting the Degree:

A candidate undergoing the B.Sc degree programme in Information Technology will be eligible for the award of B.Sc degree in Information Technology; if she completes entire programme and passes all the examinations prescribed for the programme.

VIII. Classification of Successful Candidates:

The successful candidates will be classified as per the details given in the table below:

| CGPA | GRADE | Classification of Final Result |
|----------------|-------|--------------------------------|
| 9.500 – 10.000 | O+ | First Class |
| 9.000 – 9.499 | O | |
| 8.500 – 8.999 | D++ | |
| 8.000 – 8.499 | D+ | |
| 7.500 – 7.999 | D | |
| 7.000 – 7.499 | A++ | |
| 6.500 – 6.999 | A+ | |
| 6.000 – 6.499 | A | |
| 5.500 – 5.999 | B+ | Second Class |
| 5.000 – 5.499 | B | |
| 4.500 – 4.999 | C | Third Class |
| 4.000 – 4.499 | | |
| 0.000 – 3.999 | U | Re-appear |

IX. Awards of Ranks :

Candidates who qualify themselves for the respective degree programme passing all the examinations in the first attempt and secured first class are eligible for ranking.

$$\text{Cumulative Grade Point Average [CGPA]} = \frac{\sum_i C_i G_i}{\sum_i C_i}$$

$$\text{CGPA} = \frac{\text{Sum of the multiplication of grade points by the respective credits of the course cleared in the entire programme}}{\text{Sum of the credits of all the courses cleared in the programme}}$$

Where,

C_i = Credits earned for course i in any semester.

G_i = Grade point obtained for course i in any semester.

\sum_i = Summation of all courses cleared in a semester in the case of GPA and all courses cleared in all semesters in the case of CGPA.

X. Other Provisions:

1. Those who are absent for the exam should be marked AA on the Mark sheet.
2. If there is a chance of malpractice on a student she should be sent out from the Examination hall and given chance only during the following semester.
3. The courses she has already appeared during that semester will not be considered.
4. A student can appear for any number of arrear courses.
5. Repeat Examinations will be conducted for the final semester paper within a month after the publication of final semester results.
6. Revaluation is permitted.

XI. Transitory Provisions:

Students from other institutions shall be considered if they have already written and passed all the Courses covered till the previous semester. If any of the Courses have not been cleared, they have to appear for those subjects along with the current semester subjects also. Equivalence of completed courses and courses to be completed should be decided by the Chairman of the Board of Studies.

Those students who have discontinued in the middle of the programme may be admitted in the respective semester if they want to rejoin and complete the programme; provided they had not got their transfer certificate.

The Standard Fireworks Rajaratnam College for Women, Sivakasi.

B.Sc. Information Technology
Allotment of Credits and Hours
 (For those joined in June 2014 and later)

| Subject | | Semester | | | | | | Total No. of Credits |
|--|-----------|------------|-----------|-----------|-------------|-----------|-------------|----------------------|
| | | I | II | III | IV | V | VI | |
| Language Courses | | | | | | | | |
| Part I - Tamil | | 6(3) | 6(3) | 6(3) | 6(3) | - | - | 24 |
| Part II - English Language Course | | 6(3) | 6(3) | 6(3) | 6(3) | - | - | |
| Part III - Core and Allied Courses | | | | | | | | |
| Major | Theory | Course I | 3(3) | 4(4) | 4(4) | 4(4) | 4(4) | 5(5) |
| | | Course II | 3(3) | - | - | - | 5(5) | 5(5) |
| | | Course III | - | - | - | - | 5(5) | 4(4) |
| | | Course IV | - | - | - | - | - | 5(5) |
| | Practical | Lab I | 4(2) | 5(3) | 6(4) | 4(3) | 6(4) | - |
| | | Lab II | - | - | - | - | 5(4) | - |
| | | Project | - | - | - | - | - | 6(4) |
| Allied | Theory | 3(3) | 5(5) | 3(3) | 6(5) | - | - | |
| | Practical | 3(2) | - | 3(2) | - | - | - | |
| Total | | 13 | 12 | 13 | 12 | 22 | 23 | 95 |
| Part IV – Non - Major / Value Added Courses | | | | | | | | |
| Peace Education | | 2(2) | - | - | - | - | - | 20 |
| Environment Studies | | - | 2(2) | - | - | - | - | |
| i) NME - I | | - | - | 2(2) | - | - | - | |
| ii) NME- II | | - | - | - | 2(2) | - | - | |
| 1. Computer Literacy | | - | 2(2) | - | - | - | - | |
| 2. Soft Skill Enhancement | | - | - | - | 2(2) | - | - | |
| 3. Career Guidance and Subject Viva | | - | - | - | - | 2(2) | - | |
| 4. Women Studies | | - | - | - | - | 2(2) | - | |
| 5. Self Employment / Job Oriented Courses - Theory | | - | - | - | - | - | 2(2) | |
| 6. Self Employment / Job Oriented Courses - Practical/ Field work/ Project | | - | - | - | - | - | 2(2) | |
| Library and Information Science | | - | - | - | - | 1(*) | 1(*) | |
| Total | | 2 | 4 | 2 | 4 | 4 | 4 | |
| Part V – Extension Activities–Physical Education & Social Awareness Programme | | | | | | | | |
| NSS/NCC/Physical Education/Extension Activities/Youth Red Cross/Social Service League/ Red Ribbon Club | | 1(*) | 1(1) | - | - | - | - | 1 |
| Total Credits | | | | | | | 140 | |

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI

B.SC. INFORMATION TECHNOLOGY
(For those joined in June 2014 and later)

| Sem | Course Code | Title of the paper | Teaching Hours Per week | Credits | Duration of Exam (hrs) | Marks Allotted | | |
|------------------|-------------|--------------------------------------|-------------------------|---------|------------------------|----------------|----------|-------|
| | | | | | | Internal | External | Total |
| I | 14UIT11 | Programming in C | 3 | 3 | 3 | 25 | 75 | 100 |
| | 14UIT12 | Mathematical Foundations | 3 | 3 | 3 | 25 | 75 | 100 |
| | 14UIT1A | Computer System Architecture | 3 | 3 | 3 | 25 | 75 | 100 |
| | 14UIT1L | Programming in C Lab | 4 | 2 | 3 | 40 | 60 | 100 |
| | 14UIT1AL | PC Software Lab | 3 | 2 | 3 | 40 | 60 | 100 |
| II | 14UIT21 | Object Oriented Programming with C++ | 4 | 4 | 3 | 25 | 75 | 100 |
| | 14UIT2A | Resource Management Techniques | 5 | 5 | 3 | 25 | 75 | 100 |
| | 14UIT2L | Programming in C++ Lab | 5 | 3 | 3 | 40 | 60 | 100 |
| III | 14UIT31 | RDBMS | 4 | 4 | 3 | 25 | 75 | 100 |
| | 14UIT3A | Data Structures | 3 | 3 | 3 | 25 | 75 | 100 |
| | 14UIT3L | RDBMS Lab | 6 | 4 | 3 | 40 | 60 | 100 |
| | 14UIT3AL | Unix & Shell Programming Lab | 3 | 2 | 3 | 40 | 60 | 100 |
| IV | 14UIT41 | Web Designing | 4 | 4 | 3 | 25 | 75 | 100 |
| | 14UIT4A | Operating System | 6 | 5 | 3 | 25 | 75 | 100 |
| | 14UIT4L | Web Designing Lab | 4 | 3 | 3 | 40 | 60 | 100 |
| V | 14UIT51 | Java Programming | 4 | 4 | 3 | 25 | 75 | 100 |
| | 14UIT5EA | Elective – I | 5 | 5 | 3 | 25 | 75 | 100 |
| | 14UIT5EB | Elective – II | 5 | 5 | 3 | 25 | 75 | 100 |
| | 14UIT5L1 | Java Programming Lab | 6 | 4 | 3 | 40 | 60 | 100 |
| | 14UIT5L2 | Web Technology Lab | 5 | 4 | 3 | 40 | 60 | 100 |
| VI | 14UIT61 | Multimedia | 5 | 5 | 3 | 25 | 75 | 100 |
| | 14UIT62 | Computer Networks | 5 | 5 | 3 | 25 | 75 | 100 |
| | 14UIT63 | Open Source & Cloud Computing | 4 | 4 | 3 | 25 | 75 | 100 |
| | 14UIT6EC | Elective – III | 5 | 5 | 3 | 25 | 75 | 100 |
| | 14UIT6P | Major Project | 6 | 4 | 3 | - | 100 | 100 |
| Electives | | | | | | | | |
| V | 14UIT5E1 | Web Technology | 5 | 5 | 3 | 25 | 75 | 100 |
| | 14UIT5E2 | Cyber Security | 5 | 5 | 3 | 25 | 75 | 100 |
| | 14UIT5E3 | Mobile Computing | 5 | 5 | 3 | 25 | 75 | 100 |
| | 14UIT5E4 | System Software | 5 | 5 | 3 | 25 | 75 | 100 |

| Sem | Course Code | Title of the paper | Teaching Hours Per week | Credits | Duration of Exam (hrs) | Marks Allotted | | |
|---|-------------|----------------------------------|-------------------------|---------|------------------------|----------------|----------|-------|
| | | | | | | Internal | External | Total |
| VI | 14UIT6E1 | Computer Graphics | 5 | 5 | 3 | 25 | 75 | 100 |
| | 14UIT6E2 | Introduction to Embedded Systems | 5 | 5 | 3 | 25 | 75 | 100 |
| Non Major Electives | | | | | | | | |
| III | 14UIT3N | Introduction to IT | 2 | 2 | 3 | 25 | 75 | 100 |
| IV | 14UIT4N | Internet & HTML | 2 | 2 | 3 | 25 | 75 | 100 |
| Self Employment / Job Oriented Courses | | | | | | | | |
| VI | 14UJO65 | Call Center Management | 2 | 2 | 3 | 25 | 75 | 100 |
| | 14UJO65L | Call Center Management Lab | 2 | 2 | 3 | 40 | 60 | 100 |
| Add on Courses | | | | | | | | |
| - | 14UITEC1 | Web Building | 2 | 2 | 3 | 25 | 75 | 100 |
| - | 14UITEC2 | Software Engineering | 2 | 2 | 3 | 25 | 75 | 100 |

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER I
PART III – MAJOR
14UIT11 - PROGRAMMING IN C
(For those admitted in June 2014 and later)

Contact hours per week : 03
Total number of hours per semester : 45
No. of Credits : 03

Objectives:

1. To learn about the basics of C programming.
2. To understand the concept of pointers.
3. To improve the programming skills using C.
4. To gain knowledge about File Handling in C.

Unit I (9 hrs)

Elements of C Language: C Language- Features/Characteristic of C - C Compilers – Character Set of C – Syntax of a Programming Language – Identifiers – Reserved Words(Keywords) – Concept of Data Types – Qualifiers – Type Specifiers – Constants: Integer Constants, Floating Point Constants, Double Precision Floating Constants, Character Constants, String Constants – Escape Sequences – Symbolic constants – Variable or Objects: Declarations of Scalar Data Types, Initialization – Comments – Statement Termination – C Tokens – Separators – C Program Structure.

C Operators and Expressions: Types of Operators – Arithmetic Operators: Binary Arithmetic Operators, Unary Arithmetic Operators – Relational and Equality Operators – Logical Operators – Bitwise Operators: Bitwise Logical Operators, Shift Operators, One’s Complement Operators – Assignment Operators – Type Conversion: Implicit Type conversion, Explicit Type Conversion.

Unit II (9 hrs)

Simple Input/Output Facilities: I/O Header File – I/O functions: Character Oriented I/O Functions, Formatted I/O Functions- Additional Features of Formatted I/O Functions: scanf(), printf().

Control Flow Constructions: Types of Control Constructs – if-else Construct: Nested if – else - if-else Construct – Conditional Expression – while Construct – do-while Construct – for Construct: Comma Expression – Nested Loops – break Statement – continue Statement – switch-case Construct.

Unit III (9 hrs)

Arrays: Declaration of Arrays: Declaration of One-Dimensional Arrays - Declaration of Two-Dimensional Arrays - Declaration of Three-Dimensional Arrays – Features of Arrays – Reading and Writing of Arrays – Initialisation of Arrays – Reading and Writing of Character Arrays.

Functions: Types of functions – Function Definition – Function Declaration – Function Call – Recursive Calls() – Features of main() – Call by Value – Storage Classes and Functions – Library Functions or Built-in Functions: String Manipulation Functions, Character Oriented Functions, Mathematical Functions.

Unit IV

(9 hrs)

Pointers: Data Representation in Memory – Pointer – Declaration of Pointers Variables – Pointer Operators and Pointer Expressions – Execution of Declaration Statements – Initialization of Pointer Variable: Static Memory Allocation, Dynamic Memory Allocation – Incrementation and Decrementation of Pointers - Use of Pointers in Arrays: Pointers and One-Dimensional Arrays – Command Line Arguments – Advantages of Pointers.

Unit V

(9 hrs)

Structure and Union: Structure Declaration – Initialisation of Structure Variables – Accessing the Members of a Structure – Structure Operations – Nested Structure – Arrays of Structure – Pointer to Structure – Self Referential Structure – Union. **Files:** File – Stream – Opening of File – Closing of File – Reading and Writing Using Text Streams – File Processing.

Text Book:

1. S Thamari Selvi and R Murugesan (2005), “C for all”, Anuradha Agencies Publisher, Kumbakonam, Revised First Edition.

| | | | |
|-----------------|-------------|-------------------------------|--|
| Unit I | Chapter: 1 | (1.1-1.19) | (Pages: 1 - 23), |
| | Chapter: 2 | (2.1-2.7) | (Pages: 27-47) |
| Unit II | Chapter: 3 | (3.1-3.3) | (Pages: 53 - 69), |
| | Chapter: 4 | (4.3-4.13) | (Pages: 85-126) |
| Unit III | Chapter: 6 | (6.1-6.4) | (Pages: 169-185), |
| | Chapter: 7 | (7.1-7.8) | (Pages: 224-238) |
| Unit IV | Chapter: 8 | (8.1- 8.7, 8.8.1, 8.13, 8.17) | (Pages: 281 - 296,301 - 305,340 - 343,355 - 356) |
| Unit V | Chapter: 9 | (9.1-9.8, 9.10) | (Pages: 362 -379, 382, 383), |
| | Chapter: 10 | (10.1-10.6) | (Pages: 452 - 461) |

Reference Books:

1. Byron Gottfried (2001), “Theory and problems of Programming with C”, Second Edition.
2. Yashavant P Kanetkar (2011), “Let Us C”, BPB Publications, New Delhi, 11th Edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER I
PART III – MAJOR
14UIT12 – MATHEMATICAL FOUNDATIONS
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 03 |
| Total number of hours per Semester | 45 |
| No. of Credits | 03 |

Objectives:

1. To recognize the basic concepts of Graph Theory.
2. To have an idea about the Logic concepts.
3. To learn the concepts of Functions and Recurrence relations.
4. To know about the various types of matrices and their applications.

Unit I **(9 hrs)**

Mathematical Logic: Introduction – Logical connectives and Truth tables – Converse, Inverse and Contra positive statements – Tautology – Laws of Logic – Tautological Implications – Normal forms.

Unit II **(9 hrs)**

Elementary Set theory: Set theory – Properties of sets – Venn Diagrams – Cartesian product. **Relations** – Operations on relations – Properties of relations – Functions.

Unit III **(9 hrs)**

Combinatorics: Counting – Permutations – Combinations – Binomial and Multinomial theorems – Principle of Inclusion and Exclusion.

Recurrence Relations: Linear recurrence relations with constant coefficients - Homogeneous recurrence relation only.

Unit IV **(9 hrs)**

Graph Theory: – Graphs – Planar graph – Complete graph – Adjacency and Incidence matrices – Distance between two vertices – Labelled and Unlabelled graphs – Euler’s formula.

Unit V **(9 hrs)**

Matrices (Problems only): Types of Matrices – Inverse of a matrix – Rank of the matrix – Simultaneous Linear Equations – Characteristic Equation and Cayley Hamilton Theorem – Eigen values and Eigen vectors.

Text Books:

1. Shahnaz Bathul (2010), “Mathematical Foundations of Computer Science”, PHI Learning Private limited, New Delhi.

Unit I Chapter: 1 (1.1 – 1.4) (Pages: **1 – 44**)

Unit II Chapter: 3 (3.1 – 3.5) (Pages: **85 – 120**)

Unit III Chapter: 5 (5.1 – 5.5) (Pages: **173 – 192**),
Chapter: 6 (6.6.1) (Pages: **200 – 201, 203 - 208**)

Unit IV Chapter: 7 (7.1 – 7.7) (Pages **258 – 278**)

2. Arumugam S and Isaac A T (2012), “Modern Algebra”, Scitech Publications (India) Pvt.Ltd, Chennai.

Unit V Chapter 7 (7.2, 7.3, 7.5 – 7.8) (Pages: **7.6 – 7.14, 7.19 – 7.39**)

Reference Books:

1. Venkatraman M K, Sridharan N and Chandrasekaran N (2011), “Discrete Mathematics”, The National Publishing Company, Chennai, First edition.
2. Tremblay J P and Manohar R (2011), “Discrete Mathematical Structures with Applications to Computer Science”, Tata McGraw Hill Publishing Company, New Delhi.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER I
PART III – ALLIED
14UIT1A - COMPUTER SYSTEM ARCHITECTURE
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 03 |
| Total number of hours per semester : | 45 |
| No. of Credits | 03 |

Objectives:

1. To provide the basic knowledge of electronics.
2. To create understanding of various components used in computer systems.
3. To understand the concepts of Machine Architecture.
4. To gain knowledge about the concepts of Memory.

Unit I **(9 hrs)**

Number Systems and Codes: Binary number system, Binary - to - Decimal Conversion, Decimal - to - Binary Conversion , Octal Numbers, Hexadecimal Numbers - ASCII Code - Excess 3 code - Gray Code. **Arithmetic Circuits:** 2's Complement representation. **Digital Logic:** The Basic Gates - Universal logic gates - AND-OR-Invert Gates – Positive and Negative Logic.

Unit II **(9 hrs)**

Arithmetic circuits: Arithmetic Building blocks - The Adder-Subtractor **Flip-Flop:** RS Flip Flops - Gated Flip Flops – Edge Triggered JK Flip Flops – JK Master Slave Flip Flops. **Registers:** Types of Registers - Serial In Serial Out - Serial In Parallel Out

Unit III **(9 hrs)**

Basic Structure of Computers: Computer Types - Functional Units - Basic Operational Concepts - Bus Structures. **Machine Instructions And Programs:** Numbers, Arithmetic Operations and Characters- Number Representation – Addition of Positive Numbers – Addition and Subtraction of Signed Numbers – Overflow in Integer Arithmetic- Characters – Memory Location and Addresses – Byte addressability – Big endian and Little endian Assignments – Word Alignment – Accessing Numbers , Characters and Character Strings - Memory Operations - Instructions and Instruction Sequencing – Register Transfer Notation – Assembly Language Notation – Basic Instruction Types – instruction Execution and Straight_ Line Sequencing –Branching – Condition Codes – Generating Memory Addresses.

Unit IV**(9 hrs)**

The Memory System: Semiconductor RAM Memories: Internal organization of Memory Chips, Static Memory, Asynchronous DRAMS, Synchronous DRAMS, Structure of larger Memories – Read Only Memories: ROM, PROM, EPROM, EEPROM, Flash Memory – Speed, Size and Cost – Cache Memories: Mapping Functions, Replacement algorithms.

Unit V**(9 hrs)**

Basic Processing Unit: Some Fundamental Concepts: Register Transfers, Performing an Arithmetic or Logic operation, Fetching a Word from Memory , Storing a Word in Memory - Execution of Complete Instruction – Hardwired Control – A Complete Processor – Microprogrammed Control: Microinstructions, Microprogram sequencing, Wide- Branch Addressing, Microinstructions with Next – Address Field, Prefetching Microinstructions.

Text Books:

1. Albert Paul Malvino, Donald P Leach and Goutam Saha (2012), “Digital Principles and Applications”, TMH Publications, Seventh Edition, Fourth reprint.

| | | |
|---------------|------------------------|-----------------------------|
| Unit I | Chapter: 5 (5.1 – 5.8) | (Pages: 171 - 194), |
| | Chapter: 6 (6.5) | (Pages: 216 - 220), |
| | Chapter: 2 (2.1 – 2.4) | (Pages: 40 - 61) |

| | | |
|----------------|---------------------------------|---|
| Unit II | Chapter: 6 (6.7, 6.8) | (Pages: 226 - 231), |
| | Chapter: 8 (8.1, 8.2, 8.5, 8.8) | (Pages: 271 - 279, 283 - 285, 288 - 289), |
| | Chapter: 9 (9.1 – 9.3) | (Pages: 309 – 316) |

2. Carl Hamacher, Zvonko Vranesic, Safwat Zaky (2011), “Computer Organization”, Tata Mc Graw – Hill, New Delhi, 5th Edition.

| | | |
|-----------------|---------------------------------------|---------------------------------|
| Unit III | Chapter: 1 (1.1 – 1.4), 2 (2.1 – 2.4) | (Pages: 2 - 10, 27- 48) |
|-----------------|---------------------------------------|---------------------------------|

| | | |
|----------------|---|---------------------------------------|
| Unit IV | Chapter: 5 (5.2.1-5.2.5, 5.3, 5.4, 5.5, 5.5.1, 5.5.2) | (Pages: 295 - 307, 309 - 328) |
|----------------|---|---------------------------------------|

| | | |
|---------------|-----------------------|----------------------------|
| Unit V | Chapter: 7 (7.1 -7.5) | (Pages: 411 - 443) |
|---------------|-----------------------|----------------------------|

Reference Books:

1. Puri V K (2003), “Digital Electronics Circuits & Systems”, TMH Publications.
2. Thomas C Bartee (1999), “Digital Computer Fundamentals”, TMH Publications, Sixth Edition.
3. Morris Mano (2010), “Computer System Architecture”, Prentice Hall India, 3rd Edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER I
PART III – MAJOR
14UIT1L - PROGRAMMING IN C LAB
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 04 |
| Total number of hours per semester : | 60 |
| No. of Credits | 02 |

Objectives:

1. To learn the basic programming aspects in C.
2. To implement programs involving Looping statements.
3. To develop programs involving arrays and structures.
4. To construct programs using pointers.

List of Programs

1. Performing basic Arithmetic Operations.
2. Performing Number Checking using if-else statement.
3. Generating Fibonacci Series using for loop.
4. Computing Factorial of given number using for loop.
5. Performing Armstrong Number Checking.
6. Checking whether the given number is Palindrome or not.
7. Preparing Student Mark List using if-else statement.
8. Displaying the Triangle for the given number.
9. Converting the Decimal to Binary number and Binary to Decimal number.
10. Performing Anagrams checking using array.
11. Sorting the Strings using String function.
12. Calculating Sum of Digits using Recursion.
13. Implementing Matrix Addition using Two-Dimensional array.
14. Implementing Matrix Multiplication using Two-Dimensional array.
15. Implementing String Manipulation using String Functions.
16. Processing electricity bill using structure.
17. Swapping two values using pointers.
18. To read and display a line of text from a data file using command line arguments.
19. Counting number of characters in the file.
20. Performing basic File Operations.

Reference Books:

1. Yashavant P Kanetkar (2011), “Let Us C”, BPB Publications, New Delhi, 11th Edition.
2. S Thamari Selvi and R Murugesan (2005), “C for all”, Anuradha Agencies Publisher, Kumbakonam, Revised First Edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER I
PART III – MAJOR
14UIT1AL - PC SOFTWARE LAB
(For those admitted in June 2014 and later)

Contact hours per week **03**
Total number of hours per semester : **45**
No. of Credits **02**

Objectives:

1. To learn the basics of MS Office.
2. To understand the basic concepts of MS Word.
3. To get practiced with Worksheet using MS Excel.
4. To create presentations using MS Power Point.

List of Programs

MS – WORD

1. Bio – Data
2. Time Table
3. Flow Chart
4. Letter Pad
5. Mail Merge
6. Calendar

MS – EXCEL

7. Sorting of Personal Information – Ascending and Descending order
8. Student Mark list – using Formula & Function
9. Employee Payroll
10. Use of Statistical functions
11. Cricket Score Analysis – Line Chart
12. Population Analysis – Column Chart
13. Newspaper Analysis – Pie Chart
14. Student Details or Employee Details using Auto filter & Advanced Filter
15. Factorial of a Number using Macros

MS – POWERPOINT

16. College Profile
17. Quiz Preparation
18. Guest Lecture Invitation.
19. Personal Details

Reference Book:

1. Davinder Singh Minhas (2010), “Dynamic Memory Computer Course Step by Step Guide”, Fusion Books.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER II
PART III – MAJOR
14UIT21 – OBJECT ORIENTED PROGRAMMING WITH C++
(For those admitted in June 2014 and later)

| | | |
|---|----------|-----------|
| Contact hours per week | : | 04 |
| Total number of hours per semester | : | 60 |
| Number of Credits | : | 04 |

Objectives:

1. To learn the principles of object oriented programming concepts.
2. To impart the techniques in developing C++ programs.
3. To understand the different methods of organizing large amounts of data.
4. To efficiently implement the Templates and Exception Handling.

Unit I **(12 hrs)**

Principles of object oriented programming: A look at Procedure Oriented Programming - Object Oriented Programming Paradigm - Basic Concepts of Object Oriented Programming - Benefits of OOP – Object Oriented Languages - Applications of OOP.

Beginning with C++: What is C++? - Applications of C++ - A simple C++ program – More C++ Statements – An example with class - Structure of C++ program. **Tokens, Expressions and Control Structures:** Introduction-Tokens - Keywords – Identifiers and Constants – Basic Data Types – User Defined Data Types-Storage Classes-Derived Data Types-Symbolic constants – Type Compatibility – Declaration of Variables - Operators - Manipulators – Type Cast Operators - Expressions and their types.

Unit II **(12 hrs)**

Functions in C++: The main function - Function prototyping - Call by reference - Return by reference - Inline functions - Default arguments – const arguments - Function overloading - Friend functions and Virtual Functions.

Classes and Objects: Introduction - C Structures Revised- Specifying a Class- Defining Member Functions- A C++ Program with Class- Making an outside function Inline- Nesting of Member Functions- Private Member Function- Arrays within a class- Memory Allocation for Objects- Static Data Members- Static Member Functions- Array of Objects- Objects as Function Arguments- Friendly Functions- Returning objects.

Unit III **(12 hrs)**

Constructors and Destructors: Introduction – Constructors -Parameterized constructors –Multiple Constructors in a Class- Constructors with Default Arguments-Dynamic Initialization of Objects – Copy constructors - Dynamic constructors - Constructing two dimensional arrays - Destructors

Operator Overloading and Type Conversions: Introduction- Defining Operator Overloading- Overloading Unary Operators- Overloading Binary Operators- Overloading Binary Operator using friends- Manipulation of Strings using Operators- Rules for Overloading Operators- Type Conversions.

Inheritance: Defining derived classes – Single inheritance - Multilevel inheritance - Multiple inheritance - Hierarchical inheritance - Hybrid inheritance.

Unit IV (12 hrs)

Templates: Introduction – Class Templates – Class Templates with Multiple Parameters – Function Templates - Function Templates with Multiple Parameters – Overloading of Template Functions – Member Function Templates – Nontype Template Arguments.

Unit V (12 hrs)

Exception Handling: Introduction – Basics of Exception of Handling – Exception Handling Mechanism – throwing Mechanism – Catching Mechanism – Rethrowing an Exception – Specifying Exceptions – Exceptions in Constructors and Destructors – Exceptions in Operator Overloaded Functions.

Text Book:

1. Balagurusamy E (2013), “Object Oriented Programming with C++”, Tata McGraw Hill Education Private Limited, New Delhi, 6th edition.

| | | |
|-----------------|--|---|
| Unit I | Chapter: 1 (1.3 - 1.8) Chapter: 2 (2.1 - 2.6) Chapter: 3 (3.1-3.14, 3.18-3.20) | (Pages: 4 - 15), (Pages: 16 - 26), (Pages: 29 - 69) |
| Unit II | Chapter: 4 (4.1-4.11) Chapter: 5 (5.1 – 5.16) | (Pages: 69 – 82), (Pages: 88-120) |
| Unit III | Chapters: 6, 7, 8 (8.1 - 8.8) (Pages: 129 - 147, 152 -174, 179-202) | |
| Unit IV | Chapters: 12 (12.1 - 12.8) | (Pages: 319 - 335) |
| Unit V | Chapters: 13 (13.1 - 13.9) | (Pages: 340 -356) |

Reference Books:

1. Herbert Schildt (2009), “C++ - The Complete Reference”, Tata McGraw Hill Education, New Delhi, 5th Edition.
2. Bjarne Stroustrup (2010), “C++ - Programming Language”, Pearson Education, 3rd Edition.
3. Ellis Horowitz, Sartaj Sahani (2008), “Fundamentals of Data Structures”, Galgotia Publications, New Delhi, 3rd Edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER II
PART III – ALLIED
14UIT2A – RESOURCE MANAGEMENT TECHNIQUES
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 05 |
| Total number of hours per Semester | 75 |
| No. of Credits | 05 |

Objectives:

1. To know the applications of Operation Research in various fields.
2. To apply the Operation Research Techniques such as Assignment problem, Transportation problem for the efficient use of resources.
3. To determine the critical path using Operations Research Techniques.
4. To determine the optimal allocation of resources.

Unit I **(15 hrs)**

Operations Research: Introduction –Scope of OR –Role of OR in Business and management - Role of O.R. in Engineering – Classification of Models - Characteristics of good model - Principles of Modelling – General methods for solving O.R. models - Main phases of OR –Limitations.

Linear programming Formulation and Graphical method: Introduction – Requirements for employing L.P.P. technique – Mathematical formulation of L.P.P – Basic assumptions - Graphical method of the solution of a L.P.P.

Unit II **(15 hrs)**

General Linear Programming Problems – simplex methods: General Linear Programming Problem – Canonical and Standard forms of L.P.P. – The Simplex method – The Simplex Algorithm – Artificial variables techniques –The Big-M method only.

Unit III **(15 hrs)**

Assignment Problem: Introduction - Mathematical Formulation of an assignment problem – Assignment Algorithm or Hungarian method – Unbalanced Assignment Models – Maximization case in Assignment problems – Restrictions in Assignments – Travelling Salesman Problem.

Unit IV **(15 hrs)**

Transportation Model: Introduction – Mathematical formulation of a Transportation Problem – Methods for finding Initial Basic feasible solution – Transportation Algorithm or MODI method – Degeneracy in Transportation Problems – Unbalanced Transportation Problems – Maximization case in Transportation Problems.

Unit V**(15 hrs)**

Scheduling by PERT and CPM: Introduction – Basic Technologies –Rules for constructing a project network - Network computations – Floats – Programme Evaluation Review Technique – PERT Procedure – Basic differences between PERT and CPM - Cost considerations in PERT and CPM .

Text book:

1. Sundaresan V, Ganapathy Subramanian K S and Ganesan K (2013), “Resource Management techniques (Operations Research)”, A.R Publications, Chennai, Seventh Edition.

| | | |
|-----------------|--------------------------------------|--|
| Unit I | Chapter: 1 Chapter: 2 (2.1 – 2.5) | (Pages: 1.1 – 1.8), (Pages: 2.1 – 2.28) |
| Unit II | Chapter: 3 (3.1 – 3.2.1) | (Pages: 3.1 – 3.42) |
| Unit III | Chapter: 8 | (Pages: 8.1 – 8.39) |
| Unit IV | Chapter: 7 | (Pages: 7.1 – 7.53) |
| Unit V | Chapter: 15 (15.1 – 15.8) | (Pages: 15.1 – 15.56) |

Reference book:

1. Sharma S D (2009), “Operations Research”, Kedarnath Ramnath & Co., Meerut, Eleventh Revised edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER II
PART III – MAJOR
14UIT2L – PROGRAMMING IN C++ LAB
(For those admitted in June 2014 and later)

| | | |
|---|----------|-----------|
| Contact hours per week | : | 05 |
| Total number of hours per semester | : | 75 |
| Number of Credits | : | 03 |

Objectives:

1. To impart problem solving skills using C++.
2. To implement overloading and inheritance concepts.
3. To construct code to perform stack and queue operations.
4. To implement sorting and searching techniques using C++.

List of Programs

1. Simple Programs using control structures.
2. Programs using functions and function overloading.
3. Programs using structures.
4. Programs using classes and objects.
5. Programs using constructors.
6. Programs to illustrate operator overloading.
7. Programs using friend functions.
8. Programs using Inheritance
 - a. Single inheritance
 - b. Multiple inheritance and
 - c. Hierarchical inheritance
9. Implementation of stack using arrays
10. Implementation of queue using arrays.
11. Program to perform Bubble Sort using Templates.
12. Program for Browsing Centre Bill using Hybrid Inheritance
13. Program to implement Unary Operator Overloading with exception Handling.

Reference Books:

1. Herbert Schildt (2009), “C++ - The Complete Reference”, Tata McGraw Hill Education, New Delhi, 5th Edition.
2. Bjarne Stroustrup(2010), “C++ - Programming Language”, Pearson Education, 3rd Edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY

B.Sc I.T

SEMESTER III

PART III – MAJOR

14UIT31- RDBMS

(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 04 |
| Total number of hours per semester | 60 |
| Number of Credits | 04 |

Objectives:

1. To understand the basic concepts behind Database Management System.
2. To know about the Relational Model and Entity - Relational Model.
3. To provide knowledge about SQL.
4. To learn the basics of PL/SQL.

Unit I

(12 hrs)

Introduction to Database Management Systems (DBMS): Information – Data and Data Management – File based data Management – Database Systems – Database Management Systems (DBMS) – Functions of DBMS – Components of a DBMS. **Database Architecture and Design:** ANSI/SPARC Architecture – Physical and logical data independence – Database Languages. **Data Models:** Conceptual, Physical and Logical Database Models – Hierarchical Model – Network Model – Relational Model – E-R Model – Object –oriented Model.

Unit II

(12 hrs)

Entity-Relationship (E-R) Modeling: E-R Model – Components of an E-R Model – E-R Diagram Conventions – Relationships. **Enhanced Entity-Relationship (EER) Model:** Superclass and subclass Entity Types – Attributes Inheritance – Specialization – Generalization – Categorization. **Relational Database Management Systems (RDBMS):** RDBMS Terminology – The Relational Data Structure. **Relational Algebra:** Relational Algebraic Operations – Aggregate Functions – Update Operations.

Unit III

(12 hrs)

Data Normalization: Pitfalls in Relational Database Design – Decomposition – Functional Dependencies – Decomposition - Normalization – Keys – Relationships – multivalued attributes – First Normal Form – Second Normal form – Third Normal Form – Boyce-Codd Normal Form – fourth Normal Form – Fifth Normal form – lossless-Key Normal form – Domain–Key Normal Form.

Unit IV

(12 hrs)

Oracle Tables: Data Definition Language (DDL): Creating an Oracle Table – Displaying Table information – Altering an Existing Table – Dropping a Table –

Renaming a Table – Truncating a Table. **Working with Tables: Data Management and Retrieval** : Adding a new Row/Record-Updating Existing Rows/Records-Deleting Existing Rows/Records- Retrieving data from a Table – Arithmetic Operations – Restricting data with a WHERE Clause. **Working with Tables: Functions and Grouping**: Built-In Functions – Grouping Data.

Unit V

(12 hrs)

PL/SQL: A Programming Language: Fundamentals of PL/SQL – PL/SQL Block Structure – Data Types. **More on PL/SQL: Control Structures and Embedded SQL**: Control Structures. **PL/SQL Cursors and Exceptions**: Cursors - Implicit Cursors – Explicit Cursors – Explicit Cursor attributes. **PL/SQL Named Blocks: Procedure, Function, Package and Trigger**: Procedures – Functions- Packages – Triggers.

Text Books:

1. Alexis Leon and Mathews Leon (2010), “Fundamentals of Database Management Systems”, McGraw–Hill Education (India) Pvt. Ltd, Second Reprint.

| | | |
|---------------|---------------------------------|----------------------------------|
| Unit I | Chapter: 1 (1.1 – 1.4, 1.7-1.9) | (Pages: 1 – 8, 10 – 16), |
| | Chapter: 2 (2.4 – 2.6) | (Pages: 30 – 36), |
| | Chapter: 3 (3.2, 3.4 – 3.8) | (Pages: 44 – 55) |

| | | |
|----------------|---------------------------|----------------------------|
| Unit II | Chapter: 4 (4.2 – 4.5) | (Pages: 62 – 73), |
| | Chapter: 5 (5.2 – 5.6) | (Pages: 85 – 94), |
| | Chapter: 6 (6.2, 6.3) | (Pages: 98 – 100), |
| | Chapter: 10 (10.2 – 10.4) | (Pages: 156 – 167) |

| | | |
|-----------------|-------------------------|----------------------------|
| Unit III | Chapter: 9 (9.2 – 9.16) | (Pages: 125 – 149) |
|-----------------|-------------------------|----------------------------|

2. Nilesh Shah (2009), “DataBase Systems Using Oracle A Simplified Guide to SQL and PL/SQL”, Pearson Prentice Hall, Second Edition.

| | | |
|----------------|------------|-----------------------------|
| Unit IV | Chapter: 4 | (Pages : 76 – 90), |
| | Chapter: 5 | (Pages : 98 – 122), |
| | Chapter: 6 | (Pages : 132 – 153) |

| | | |
|---------------|-------------|------------------------------|
| Unit V | Chapter: 10 | (Pages : 227 – 233), |
| | Chapter: 11 | (Pages : 245 – 259), |
| | Chapter: 12 | (Pages : 268 – 274), |
| | Chapter: 14 | (Pages : 314 – 334) |

Reference Books:

1. Scott Urman (2004), “ORACLE 9i – PL/SQL Programming”, Tata McGraw Hill Publishing.
2. Rajesh Narang (2011), “Database Management Systems”, PHI Learning Private limited, Second Edition.

Unit V

(9 hrs)

Sorting: Basic Terminologies - Sorting Techniques - Sorting by Insertion: Straight Insertion Sort - Sorting by Selection: Straight Selection Sort - Sorting By exchange: Bubble Sort.

Searching: Basic Terminologies-Linear Search Techniques: Linear Search with Array - Binary Search.

Text Book:

1. Debasis Samanta (2013), "Classic Data Structures", 2nd Edition, PHI Learning Private Limited, Delhi.

| | | |
|-----------------|---|---|
| Unit I | Chapter: 1 (1.1-1.4) Chapter: 2 (2.1 -2.3) | (Pages 1 - 9), (Pages 12 - 22) |
| Unit II | Chapter: 3 (3.1 -3.4, 3.6, 3.6.1) | (Pages 36 – 60, 63 - 67) |
| Unit III | Chapter: 4 (4.1- 4.4, 4.5, 4.5.1, 4.5.3) Chapter: 5 (5.1 -5.3) | (Pages 105 - 121, 125 – 128), (Pages 153-160) |
| Unit IV | Chapter: 7 (7.1- 7.2, 7.4 - 7.4.3) Chapter: 8 (8.1-8.3) | (Pages 214-222, 230-247), (Pages 416-431) |
| Unit V | Chapter: 10 (10.1, 10.2, 10.3, 10.3.1, 10.4, 10.4.1, 10.5, 10.5.1), Chapter: 11 (11.1, 11.2, 11.2.1, 11.2.4) | (Pages 529-539, 554-557, 593-595), Pages (714-715, 722-725) |

Reference Books:

1. Aaron M. Tenenbaum, Yedidyah Langsam (2010), "Data Structures using C & C++", PHI Publications, 3rd Edition.
2. Mark Allen Weiss (2007), "Data Structures and Algorithm Analysis in C++", Pearson Education, Third Edition.

**THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY**

B.Sc I.T

SEMESTER III

PART III – MAJOR

14UIT3L - RDBMS LAB

(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 06 |
| Total number of hours per semester | 90 |
| Number of Credits | 04 |

Objectives:

1. To get practices with SQL Queries.
2. To develop PL/SQL Programs.
3. To create programs using Functions and Procedures.
4. To get working knowledge with Packages and Triggers.

List of Programs

SQL

1. Simple SQL Queries Using Sales Table.
2. SQL Queries for Nested-Join And Parallel Queries
3. SQL Queries using In build Functions

PL/SQL Program

4. Result Calculation.
5. To delete an employee in a particular department
6. To check Whether the Given number is a prime OR not
7. Create a table com33 with fields id, name, actual sales, target sales. Write a PL/SQL program to calculate the Commission using In-Built Exception
8. To calculate the Annual Income and display the tax using User Defined Exception
9. To find the number of employees and the Total Salary of IT department.
10. To Display the Top N salary records in the table.
11. To update particular employee when the id is given as the input using an Implicit Cursor. Updation is 5% of salary.
12. To Generate the Fibonacci series Using Function
13. To Calculate the Sum of Given number using Functions.
14. To display detail for a particular department using Procedure
15. To insert values into Table using Procedure.
16. To display product description and profit percentage using Packages
17. To create a Package to calculate Salary, Commission, Total Salary of all the employees.
18. To create a Trigger to prevent transaction on the employee table on Saturday and Sunday.
19. Trigger to Insert or Delete or Update from student's table to Result table.

Reference Books:

1. Ivan Bayross (2011), "SQL, PL/SQL The Programming Language of ORACLE", BPB Publications, 4th Revised Edition.
2. P S Deshpande (2010), "SQL & PL/SQL for Oracle 10g", Dreamtech Press.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER III
PART III – ALLIED
14UIT3AL - UNIX & SHELL PROGRAMMING LAB
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 03 |
| Total number of hours per semester | 45 |
| Number of Credits | 02 |

Objectives:

1. To understand the various features of UNIX.
2. To get hands on practice on commands in UNIX.
3. To perform the operations using Filters and System Functions.
4. To construct code to perform database programs using AWK.

List of Programs

UNIX COMMANDS

- 1) File operation
- 2) File manipulation
- 3) Directory manipulations
- 4) Sending and receiving mail
- 5) Merging and Sorting Files
- 6) Background Processing
- 7) Calendar Display
- 8) Display file contents using Head & Tail
- 9) Finding Files with all permissions
- 10) Granting and revoking permissions for User, Group and Others

AWK

- 11) Students Mark List
- 12) Electricity Bill Calculation
- 13) Library Management
- 14) Train Ticket Reservation
- 15) Implementing *Sort* Command

FILTERS

- 16) Extracting Login name & IP address
- 17) Counting Top ten words
- 18) Implementing *grep* command
- 19) *wc* implementation

SHELL PROGRAMMING

- 20) Number Generation
- 21) Program for Generating Multiplication Table
- 22) Finding Simple Interest

Self Study (Process)

- 23) Create Process
- 24) Create and remove the state of process
- 25) Changing the privileges of process
- 26) Viewing and changing the process

Reference Book:

1. Sumitabha Das (2001), “UNIX concepts and Applications”, Tata McGraw-Hill Publishing Company Limited, Second Edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER IV
PART III – MAJOR
14UIT41– WEB DESIGNING
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 04 |
| Total number of hours per semester : | 60 |
| No. of Credits | 04 |

Objectives:

1. To learn the basics of Markup Language.
2. To get exposed about tags in HTML and HTML5.
3. To study about functions in JavaScript.
4. To acquire skills in CSS, Web Development software and Web Hosting.

Unit I

(12 hrs)

What is a Markup Language? Understanding Hypertext – Understanding Markup Instructions – Understanding Markup Language. **What Goes into a Web Document:** Specifying Document Type – Overall Document Structure: HTML, Head, and Body – Style Definition – Block Elements: Markup for Paragraphs and Other Blocks of Content – Inline Elements: Markup for Characters – Special Characters (Entities) – Organizational Elements: Tables, Forms – Linking to Other Pages – Images – Comments – Scripts. **The Future of HTML: HTML 5:** More Publishing and Layout Features – Accessible Multimedia – Changes: Elements and Attributes: New elements, New attributes by element, New input types, New global attributes, Deprecated elements, Deprecated attributes.

Unit II

(12 hrs)

The HEAD Elements: Specifying the Document Title – Providing Information to Search Engines- Setting the Default Path – Script Sections – Style Sections – Specifying Profiles – Background Color and Background Images: Specifying the Document Background Color, Specifying the Document Background Image. **Text Structuring Essentials:** Formatting Paragraphs – Line Breaks – Divisions – Rules – Block Quotes- Preformatted Text.

Character Formatting Essentials: Methods of Text Controls: The < FONT> tag , Emphasis and other Tags, CSS Text control - Bold and Italic Text – Use of Emphasis Instead of Italics – Monospace (Typewriter) Fonts – Superscripts and Subscripts – Abbreviations – Marking Editorial Insertions and Deletions – Grouping Inline Elements with the Span Tag .

Lists: Understanding Lists – Ordered (Numbered) Lists – Unordered (Bulleted) Lists – Definition Lists – Nested Lists.

Unit III

(12 hrs)

Links: What's in a Link? – Linking to a Web Page – Absolute versus Relative Links – Link Targets – Link Titles – Keyboard Shortcuts and Tab Order: Keyboard Shortcuts, Tab Order – Creating an Anchor – Choosing Link Colors – Link Destination Details – The Link Tag.

Tables: Parts of an HTML Table – Table Width and Alignment – Cell Spacing and Padding- Borders and Rules : Table Borders, Table Rules – Rows – Cells – Table Captions – Row Groups : Header , Body and Footer – Background Colors – Spanning Columns and Rows – Grouping Columns.

Frames: Frames Overview – Framesets and Frame Documents: Creating a Frameset, Frame Margins, Borders and Scrollbars, Permitting or Prohibiting User Modifications – Targeting Links to frames – Nested Framesets- Inline Frames.

Unit IV

(12 hrs)

Forms: Understanding Forms – Inserting a Form: HTTP GET, HTTP POST, Additional <Form> Attributes – Field Labels – Text Input Boxes – Password Input Boxes - Radio Buttons – Checkboxes – List Boxes – Large Text Input – Hidden Fields – Buttons – Images- File Fields – Submit and Reset Buttons.

Scripts: Client-Side versus Server-Side Scripting: Client-side scripting, Server-side scripting – Setting the Default Scripting Language – Including a Script – Calling an External Script – Triggering Scripts with Events – Hiding Scripts from Older Browsers.

Web Development Software: Text-Oriented Editors: Simple text Editors, Smart text editors, HTML-specific editors – WYSIWYG HTML Editors: NetObjects Fusion, Dreamweaver, Firefox Add-ons – Other Tools: Graphics editors, Adobe Flash. **Publishing Your Site:** Introducing FTP – FTP Clients – Notable FTP Clients – Principles of Web Server File Organization.

Unit V

(12 hrs)

CSS Basics: The Purpose of Styles – Styles and HTML – CSS Levels 1, 2, and 3 – Defining Styles – Cascading Styles. **Style Definitions:** The Style Definition Format – Understanding Selectors: Matching elements by type, Matching using the universal selector, Matching elements by class, Matching elements by identifier, Matching elements by specific attributes, Matching child, descendant, and adjacent sibling elements – Understanding Style Inheritance.

CSS Values and Units: General Property Value Rules. **Padding, Margins, and Borders:** The CSS Box Formatting Model – Element Padding: Border width, Border style, Border color, Border property shortcuts, Border spacing - Element Margins – Dynamic Outlines. **Colors and Backgrounds:** Element Colors: Foreground colors, Background colors – Background Images: Repeating and Scrolling images, Positioning background images, The background shortcut property.

Text Book:

1. Steven M Schafer (2012), “HTML, XHTML, and CSS Bible”, Wiley India Pvt Ltd., New Delhi, 5th Edition.

Unit I Chapter: 1 (Pages: 3- 8),
Chapter: 3 (Pages: 17 – 39),
Chapter: 18 (Pages: 297 – 305)

Unit II Chapter: 4 (Pages: 41 – 48),
Chapter: 5 (Pages: 49 – 59),
Chapter: 6 (Pages: 61 – 70),
Chapter: 7 (Pages: 71 – 85)

Unit III Chapter: 8 (Pages: 87 – 100),
Chapter: 9 (Pages: 102 – 126),
Chapter: 10 (Pages: 143 – 158)

Unit IV Chapter: 11 (Pages: 159 - 174),
Chapter: 16 (Pages: 261 - 270),
Chapter: 19 (Pages: 309 - 319),
Chapter: 20 (Pages: 321 - 327)

Unit V Chapter: 25 (Pages: 397 – 404),
Chapter: 26 (Pages: 405 – 412),
Chapter: 27 (Pages: 421 - 423),
Chapter: 32 (Pages: 479 - 490),
Chapter: 33 (Pages: 491 - 502)

Reference Books:

1. Akansha Rastogi (2012), “Web Technology”, K.Nath & Co. Meerut, 1st Edition.
2. Thomas A. Powell (2010), “The Complete Reference HTML & CSS Covers HTML5”, McGrawHill, 5th Edition.
3. Ivan Bayross (2002), “Web Enabled Commercial Application Development using HTML, DHTML, JavaScript, Perl CGI”, BPB Publications, 2nd Edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER IV
PART III – ALLIED
14UIT4A - OPERATING SYSTEM
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 06 |
| Total number of hours per semester : | 90 |
| No. of Credits | 05 |

Objectives:

1. To gain knowledge about the concepts of an operating system.
2. To learn how to deal with processes.
3. To inculcate knowledge about how memory are managed.
4. To understand the concepts of file system management.

Unit I **(18 hrs)**

Introduction: What Operating Systems do – Operating System Structure - Operating System Operations – Process Management – Memory Management – Storage Management - **System Structures:** Operating System Services - System Calls – Types of System Calls.

Unit II **(18 hrs)**

Process-Concepts: Overview - Process Scheduling – Operations on Processes – Interprocess Communication - **Process Scheduling:** Basic Concepts - Scheduling Criteria – Scheduling Algorithms - Multiple Processor Scheduling.

Unit III **(18 hrs)**

Process Synchronization: Background - The Critical-Section Problem – Peterson’s Solution - Semaphores - Classical Problems of Synchronization - **Deadlocks:** Deadlock Characterization – Methods for handling Deadlocks - Deadlock Prevention – Deadlock Avoidance – Deadlock Detection - Recovery from Deadlock.

Unit IV **(18 hrs)**

Memory-Management Strategies: Background - Swapping – Contiguous Memory Allocation – Paging – Segmentation - **Virtual Memory Management:** Background - Demand Paging – Page Replacement.

Unit V

(18 hrs)

File System: File Concept – Access Methods – Directory and Disk Structure – Protection - **Implementing File-Systems:** Allocation Methods – Free Space Management. **Secondary-Storage Structure:** Overview of Mass-Storage Structure - Disk Structure – Disk Attachment - Disk Scheduling - **The Linux System:** Design Principles - **Windows XP:** Design Principles

Text Book:

1. Abraham Silberschatz, Peter Baer Galvin and Greg Gagne (2009), “Operating System Concepts”, Wiley India (P).Ltd., 8th Edition.

| | | |
|-----------------|---|--|
| Unit I | Chapters: 1 (1.1, 1.4 - 1.8) Chapters: 2 (2.1, 2.3, 2.4) | (Pages: 3 – 6, 18 – 29), (Pages: 49 – 52, 55 – 66) |
| Unit II | Chapters: 3 (3.1 - 3.4) Chapters: 5 (5.1 - 5.3, 5.5) | (Pages: 101 – 123), (Pages: 183 – 199, 200 – 206), |
| Unit III | Chapters: 6 (6.1- 6.3, 6.5, 6.6) Chapters: 7 (7.2 - 7.7) | (Pages: 225 – 231, 234 – 244), (Pages: 285 – 306) |
| Unit IV | Chapters: 8 (8.1 - 8.4, 8.6) Chapters: 9 (9.1, 9.2, 9.4) | (Pages: 315 – 337, 342 – 345), (Pages: 357 – 367, 369 – 381) |
| Unit V | Chapters: 10 (10.2, 10.6) Chapters:11 (11.1, 11.4, 11.5) Chapters: 12 (12.1 - 12.4) Chapters: 21 (21.2) Chapters: 22 (22.2) | (Pages: 430 – 433, 451 – 456), (Pages: 461 – 463, 471 – 482), (Pages: 505 – 516), (Pages: 806 – 808), (Pages: 849 – 851) |

Reference Book:

1. Milan Milankovic (2009), “Operating System Concepts and Design”, Tata McGraw Hill.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER IV
PART III – MAJOR
14UIT4L– WEB DESIGNING LAB
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 04 |
| Total number of hours per semester : | 60 |
| No. of Credits | 03 |

Objectives:

1. To design web pages using HTML tags.
2. To work with Forms and Frames in HTML.
3. To get knowledge about drawing shapes in HTML.
4. To improve the programming skills in JavaScript.

List of Programs

HTML

1. Program to create Time Table using <TABLE> Tag.
2. To draw different shapes using canvas tag in HTML5.
3. To Create a College Website using Formatting Characters, paragraph, Anchor and Marquee Tags.
4. Prepare your Resume using Lists and other formatting Tags.
5. Prepare a Registration Form using Forms.
6. Programs using Buttons, radio buttons, text boxes, password controls and check boxes.
7. Programs using Web pages for tourism using Frames.
8. Prepare your personal webpage and host it.

JavaScript

9. Programs using Number operations – Addition, Subtraction, Multiplication, Division.
10. Programs to generate Fibonacci series.
11. Programs to prepare Student Mark list using Arrays.
12. Program to implement Palindrome checking.
13. Programs using Style sheet.
14. Programs using Application Form Creation and Validation.

Reference Books:

1. Steven M Schafer (2012), “HTML, XHTML, and CSS Bible”, Wiley India Pvt Ltd., New Delhi, 5th Edition.
2. Chris Bates (2004), “Web Programming Building Internet Applications”, Wiley India Pvt., Ltd., New Delhi, 2nd Edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER V
PART III – MAJOR
14UIT51– JAVA PROGRAMMING
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 04 |
| Total number of hours per semester | 60 |
| No. of Credits | 04 |

Objectives:

1. To understand the concepts of object oriented programming.
2. To know about the JAVA programming language.
3. To experience with applet programming.
4. To learn the concept behind java Graphics.

Unit I **(12 hrs)**

Fundamentals of Object-Oriented Programming: Basic Concepts of Object-oriented Programming – Benefits of OOP – Applications of OOP

Java Evolution: Java History – Java Features – How Java Differs from C and C++ - Java and Internet – Java and World Wide Web – Java Environment

Overview of Java language : Introduction – Simple Java Program – More of Java – An Application with Two Classes – Java Program structure – Java Tokens – Java statements – Implementing a java Program – Java Virtual Machine – Command Line Arguments – Programming Style

Constants ,Variables and Data Types : Constants – Variables – Data Types – Declaration of Variables – Giving Values to variables – Scope of Variables – Symbolic Constants – Type Casting – Getting Values of Variables – Standard Default Values

Unit II **(12 hrs)**

Operators and Expressions : Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operators – Bitwise Operators – Special Operators – Arithmetic Expressions – Precedence of Arithmetic Operators – Operator Precedence and Associativity

Decision Making and Branching: Introduction – Decision making with if statement – Simple if statement – The if...Else Statement – Nesting of if...Else Statements – The Else if Ladder – The Switch Statement – The?: Operator

Decision Making and Looping: Introduction – The While Statement – The Do statement – The For Statement – Jumps in Loops – Labelled Loops

Unit III

(12 hrs)

Classes, Objects and Methods: Defining a Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing Class Members – Constructors – Methods Overloading – Static members – Nesting of Methods – Inheritance – Overriding Methods – Final Variables and Methods – Final Classes – Finalizer Methods – Abstract Methods and Classes

Arrays, Strings and Vectors: One-dimensional Arrays – Creating an array – Two-dimensional arrays – Strings – Vectors – Wrapper classes – Enumerated types

Interfaces: Multiple Inheritances: Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables

Unit IV

(12 hrs)

Packages: Putting Classes together: Java API Packages – Using System Packages – Naming Conventions – Creating Packages – Accessing a Package – Using a Package – Adding a Class to a Package

Multithreaded Programming : Introduction - Creating Threads – Extending the Thread Class- Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods – Thread Exceptions – Thread Priority – Synchronization – Implementing the ‘Runnable’ Interface – Inter thread Communication

Managing Errors and Exceptions: Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple Catch Statements – Using Finally Statement – Throwing Our Own Exceptions

Unit V

(12 hrs)

Applet Programming : How Applets differ from Applications – Preparing to Write Applets – Building Applet Code – Applet Life Cycle – Creating an Executable Applet – Designing a Web page – Applet Tag – Adding Applet to HTML File – Running the Applet – More about Applet Tag – Passing Parameters to Applets – Aligning the Display – Getting Input from the User – Event Handling

Graphics Programming: The Graphics Class – Lines and Rectangles – Circles and Ellipses – Drawing Arcs – Drawing Polygons – Line Graphs – Using Control loops in Applets – Drawing Bar charts – Introduction to AWT Package

Text Book:

1. E Balagurusamy (2010), “Programming with JAVA a primer”, Tata McGraw Hill, New Delhi, Fourth Edition.

| | | |
|----------------|-------------------------------------|----------------------------------|
| Unit I | Chapter: 1 (1.3 -1.5) | (Pages: 2 - 8), |
| | Chapter: 2 (2.1 - 2.5, 2.9) | (Pages: 10-17, 19 - 21), |
| | Chapter: 3 (3.1 - 3.7, 3.9 - 3.12) | (Pages: 23 – 34, 37-43), |
| | Chapter: 4 (4.1 - 4.11) | (Pages: 45 - 57) |
| Unit II | Chapter: 5 (5.1 - 5.10, 5.12, 5.14) | (Pages: 60 – 69,72-74), |
| | Chapter: 6 (6.1 - 6.8) | (Pages: 80 - 96), |
| | Chapter: 7 (7.1 - 7.6) | (Pages: 103-119) |

| | | |
|-----------------|--|---|
| Unit III | Chapter: 8 (8.1 - 8.16) Chapter: 9 (9.1 - 9.8) Chapter: 10 (10.1-10.5) | (Pages : 123-140), (Pages : 148 - 166), (Pages : 174 - 180) |
| Unit IV | Chapter: 11 (11.1-11.8) Chapter: 12 (12.1-2.11) Chapter: 13 (13.1-13.7) | (Pages: 184-193), (Pages: 198-216), (Pages: 220-230) |
| Unit V | Chapter: 14 (14.1 – 14.13, 14.16, 14.17) (Pages: 234-248, 250 - 256), Chapter: 15 (15.1 - 15.10) | (Pages: 260 - 274) |

Reference Books:

1. Herbert Schildt (2012), “The Complete Reference Java 2”, Tata McGraw Hill, New Delhi, 5th Edition.
2. Cay S.Horstmann and Gary Cornell (2004), “Core Java 2”, Pearson Education.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER V
PART III – MAJOR
14UIT5L1- JAVA PROGRAMMING LAB
(For those admitted in June 2014 and later)

| | |
|--|-----------|
| Contact hours per week | 06 |
| Total number of hours per semester : 90 | |
| No. of Credits | 04 |

Objectives:

1. To work with the simple applications in JAVA.
2. To practice with the concepts of JAVA applets.
3. To get exposure in the GUI components.
4. To develop programs with Event handling.

List of Programs

1. Calculating Area and Circumference of Circle with Constructor.
2. Checking and generating Fibonacci series using Console Applications.
3. Average mark calculation for student with Command Line Argument.
4. Binary number search in an unsorted array using Arrays and Inheritance.
5. Arithmetic test using Method Overriding.
6. Creating a Theme park bill preparation using Single Inheritance.
7. Preparing Hospital bill using Multilevel Inheritance.
8. String Manipulation.
9. nPr and nCr value calculation using User-Defined Package.
10. Students mark list calculation using Multiple Inheritance (Interfaces).
11. To print multiplication table using Multithreading.
12. Performing Arithmetic Operation using Thread Priority.
13. Arithmetic and ArrayIndexOutOfBoundsException using Built-in Exception.
14. Student mark list preparation by throwing Our Own Exception.
15. To display the Flash news using Applet.
16. To draw different shapes using Applet.
17. Mark sheet preparation using GUI Components and applet.
18. To display a set of buttons in various Layouts.
19. To display the Colors using Mouse Event.
20. To display the recently typed characters using Key Event.
21. Temperature Conversions using Window Event.

Reference Books:

1. R Rajaram (2008), "Projects on Graphics and Animation in JAVA", Scitech Publications (India) Pvt.Ltd.
2. C Xavier (2008), "Programming with Java 2", Scitech Publications (India) Pvt.Ltd.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER V
PART III – MAJOR
14UIT5L2 – WEB TECHNOLOGY LAB
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 05 |
| Total number of hours per semester : | 75 |
| No. of Credits | 04 |

Objectives:

1. To develop ability to design web pages using ASP.NET.
2. To work with Windows Forms in VB.NET.
3. To improve the designing skills using CSS and Master Page.
4. To get knowledge in Online Web Page development.

List of Programs

Windows Application (VB.NET)

1. Program to prepare the Students Mark list.
2. Program to implement the Calculator.
3. Program to create Employee Pay Bill.
4. Program to implement String Manipulation.
5. Program to perform Linear and Binary Search.

Web Application (C#.NET with ASP.NET)

6. Program to design the Banking Application.
7. Design an Online Shopping Cart
8. Design a simple online test web page.
9. Design an Online Library Management.
10. Design an Online Advertisement System
11. Design an Online Ticket Reservation
12. Program to implement the User Profile Form with Validation controls and display it in Grid view using Database.
13. Design a College Website using Master Page, Navigation Control and CSS.

Reference Books:

1. Kogent Learning Solutions (2013), “.NET 4.5 Programming (6 in 1) Black Book”, DreamTech Press, Delhi.
2. Steven Holzner (2011), “Visual Basic .NET Programming Black Book”, DreamTech Press, Delhi.
3. Balagurusamy E (2002), “Programming in C#”, Tata McGraw-Hill Publishing Company.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY

B.Sc I.T

SEMESTER VI

PART III – MAJOR

14UIT61– MULTIMEDIA

(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 05 |
| Total number of hours per semester | 75 |
| No. of Credits | 05 |

Objectives:

1. To understand the fundamentals of Multimedia.
2. To learn about the elements in text, Image & graphics.
3. To study about the elements of digital audio & video.
4. To impart the usage of multimedia in the internet.

Unit I **(15 hrs)**

Multimedia – An Overview: Introduction – Multimedia Presentation and Production – Characteristics of a Multimedia Presentation – Hardware and Software Requirements – Uses of Multimedia – Visual Display Systems.

Text: Introduction – Types of Text – Unicode Standard – Font – Insertion of Text – Text Compression – Text File Formats.

Unit II **(15 hrs)**

Image: Introduction – Image Data Presentation – Image Acquisition – Image File Formats - Image Processing Software.

Graphics: Introduction – Advantages of Graphics – Uses of Graphics – Components of Graphic System – 2D Coordinate Systems – 2D Transformations – 3D Graphics – 3D Transformations – Graphics File Formats.

Unit III **(15 hrs)**

Audio: Introduction – Acoustics - Sound Waves – Types and Properties of Sound – Digital Audio – Synthesizers – Musical Instrument Digital Interface (MIDI) – Audio File Formats.

Video: Introduction – Motion Video – Analog Video Camera – Analog Video Signal Representation – Digital Video – Video File Formats.

Unit IV **(15 hrs)**

Animation : Introduction – Historical Background – Uses of Animation – Traditional Animation – Principles of Animation - Computer Based Animation – Animation on the Web - 3D Animation – Animation File Formats – Animation Software .

Compression: Introduction – Basic Concepts of Compression – Lossless Compression Techniques – Lossy Compression Technique.

Unit V

(15 hrs)

Multimedia Documents: Introduction – Document and Document Architecture – Hypermedia Concepts – Hypermedia Design – Digital Copyrights.

Multimedia Application Development: Introduction – Software Life Cycle overview – ADDIE Model -Multimedia Production Steps – Authoring Software-Computer Games.

Text Book:

1. Ranjan Parekh (2013), “Principles of Multimedia 2e”, The Tata McGraw Hill Publications, 2nd Edition.

Unit I Chapter: 1 (1.1 -1.5, 1.10) (Pages: **1 -8, 17 -36**),
Chapter: 2 (2.1 – 2.7) (Pages: **39 – 53**)

Unit II Chapter: 3 (3.1 -3.3, 3.10, 3.11)
(Pages : **55 - 64 ,137 -153**),
Chapter: 4 (4.1 – 4.6, 4.24, 4.25, 4.29, 4.32)
(Pages: **155 -160, 200 – 211, 226**)

Unit III Chapter: 5 (5.1 - 5.4 ,5.7 -5.9, 5.14, 5.17)
(Pages:**248 – 258 ,267 – 276, 317 – 323**),
Chapter: 6 (6.1 – 6.4, 6.7, 6.7.1, 6.7.2 ,6.10)
(Pages : **340 -353, 358 – 364, 384 – 389**)

Unit IV Chapter: 7 (7.1 – 7.8 ,7.10, 7.11)
(Pages : **399 - 416, 422 -426**),
Chapter: 8 (8.1- 8.4) (Pages: **428 – 454**)

Unit V Chapter: 12 (12.1 ,12.2, 12.3, 12.3.1 -12.3.3, 12.3.6)
(Pages: **646-653, 656-663, 682- 687**),
Chapter: 13 (13.1 - 13.4 ,13.6, 13.7)
(Pages: **697 -699 ,711 -727**)

Reference Book:

1. Prabhat K Andleigh and Kiran Thakar (2008), “Multimedia System Design”, PHI.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER VI
PART III – MAJOR
14UIT62– COMPUTER NETWORKS
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 05 |
| Total number of hours per semester | 75 |
| No. of Credits | 05 |

Objectives:

1. To understand the basic concepts of network models and standardizations.
2. To be clear with the concepts of Physical Layer and Data Link Layer.
3. To gain knowledge about Network Layer and Transport Layer.
4. To know about the functions of Application Layer.

Unit I **(15 hrs)**

Introduction: Network Hardware: Local Area Network, Metropolitan Area Network, Wide Area Network, Home Network, Internetworks. **Network Software:** Protocol Hierarchies, Design Issues for the Layers, Connection – Oriented and Connectionless Services, The relationship of Services to Protocols – **Reference Models:** The OSI Reference Model, The TCP / IP Reference Model.

Unit II **(15 hrs)**

The Physical Layer: Guided transmission Media: Magnetic Media, Twisted pair, Coaxial Cable, Fiber optics – **Wireless Transmission:** The Electromagnetic Spectrum, Radio Transmission, Microwave Transmission, Infrared and Millimeter Waves – Lightwave Transmission.

The Data Link Layer: Data Link Layer Design Issues: Services provided to the Network Layer, Framing, Error Control, Flow Control – Error Detection and Correction – Elementary Data link protocols: An Unrestricted Simplex Protocol, A Simplex Stop and Wait protocol, A Simplex Protocol for a Noisy Channel.

Unit III **(15 hrs)**

The Network Layer: Network Layer Design Issues: Store and Forward packet Switching, Services provided to the Transport Layer, Implementation of Connectionless Service, Implementation of Connection - Oriented Service – **Routing Algorithms:** The Optimality Principle, The Shortest Path Routing, Flooding, Distance Vector Routing, Hierarchical Routing, Broadcast Routing, Multicast Routing - **Congestion Control Algorithms:** General principles of Congestion Control, Congestion prevention policies.

Unit IV**(15 hrs)**

The Transport Layer: The Transport Service : Services Provided to the Upper Layers, Transport Service Primitives, Berkeley Sockets – Elements of Transport Protocols: Addressing, Connection Establishment, Connection Release, Flow Control and Buffering, Multiplexing, Crash Recovery – The Internet Transport Protocols: TCP – Introduction to TCP, The TCP service model, The TCP protocol, The TCP segment header, TCP Connection establishment, TCP connection release, Modeling TCP management, TCP transmission policy, TCP Congestion control .

Unit V**(15 hrs)**

The Application Layer: The Domain Name system (DNS): The DNS name space, Resource records, Name servers – Electronic Mail: Architecture and services, The user agent, Message Formats, Message Transfers, Final Delivery.

The Network Security: Cryptography: Introduction to Cryptography, Substitution Ciphers, Transposition Ciphers, One time Pads, Two fundamental Cryptographic principles- Symmetric Key Algorithms: The Data Encryption standard (DES) – Public Key Algorithms – RSA.

Text Book:

1. Andrew S Tanenbaum (2007), “Computer Networks”, Pearson Publications, New Delhi, 4th Edition.

| | | |
|-----------------|--|---|
| Unit I | Chapter: 1 (1.2 – 1.4.2) | (Pages: 14 - 44) |
| Unit II | Chapter: 2 (2.2, 2.3) Chapter: 3 (3.1 – 3.3) | (Pages: 90 -109), (Pages: 183 -211) |
| Unit III | Chapter: 5 (5.1 – 5.3.2) | (Pages: 343 -389) |
| Unit IV | Chapter: 6 (6.1, 6.2, 6.5.1- 6.5.9) | (Pages: 481-512, 532-549) |
| Unit V | Chapter: 7 (7.1, 7.2) Chapter: 8 (8.1, 8.2.1, 8.2.2, 8.3.1) | (Pages: 579 -611), (Pages: 724 -745, 752 -754) |

Reference Book:

1. Stallings W (2006), “Data and Computer Communications”, Prentice Hall of India, Seventh Edition.

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DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER VI
PART III - MAJOR
14UIT63 – OPEN SOURCE & CLOUD COMPUTING
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 04 |
| Total number of hours per semester | 60 |
| Number of Credits | 04 |

Objectives:

1. To learn about fundamental concepts of PHP.
2. To connect MYSQL via PHP and access data.
3. To gain knowledge about Cloud Computing technology and its applications.
4. To get familiar with some Web Services.

Unit I **(12 hrs)**

Using Variables, Statements and Operators: Embedding PHP in HTML – Writing Statements and Comments - Storing Values in Variables – Understanding Simple Data types –Using operators to Manipulate and Compare Variables.

Using Conditional Statements and Loops: Adding Decision Making Capabilities with conditional statements – Merging Forms and Their Result Pages with conditional statements – Repeating Action with Loops.

Using Arrays and Custom functions: Using Arrays to Group Related Values – Creating User Defined Functions.

Unit II **(12 hrs)**

Using Files, Sessions, Cookies and External Programs: Reading and Writing Files – Managing Sessions and Using Session Variables – Storing Data in Cookies – Executing External Programs.

Working with Databases and Tables: Creating Databases – Creating Tables – Altering Tables –Backing Up and Restoring Databases and Tables – Dropping Databases and Tables – Viewing Database, Table and Field Information.

Using PHP with MySQL: Querying a MySQL Database with PHP: Using MySQL and PHP Together - Managing Database Connections - Performing Queries - Processing Result Sets - Handling Errors - Using Ancillary Functions.

Unit III **(12 hrs)**

Cloud Computing Architecture: Introduction – Cloud Reference Model: Architecture – Infrastructure/Hardware as a Service – Platform as a Service – Software as a Service – Types of Clouds: Public Clouds – Private Clouds - Hybrid Clouds – Community Clouds.

Virtualization: Introduction – Characteristics of Virtualized Environments – Taxonomy of Virtualization Techniques - Execution Virtualization.

Unit IV

(12 hrs)

Cloud Platforms in Industry: Amazon Web Services: Compute Services – Storage Services – Communication Services Additional Services – Google AppEngine: Architecture and Core Concepts – Application Life-Cycle – Cost Model – Observations – Microsoft Azure: Azure Core Concepts – SQL Azure – Windows Azure Platform Appliance – Observations.

Unit V

(12 hrs)

Cloud Applications: Scientific Applications: Healthcare: ECG Analysis in the Cloud – Biology: Protein Structure Prediction – Biology: Gene Expression Data Analysis for Cancer Diagnosis – Geoscience: Satellite Image Processing – Business and Consumer Applications: CRM and ERP – Productivity – Social Networking – Media Applications – Multiplayer Online Gaming.

Text Books:

1. Vikram Vaswani (2005), “PHP And MYSQL”, Tata McGraw Hill Publishing Company Limited, New Delhi.

| | | |
|---------------|------------|---------------------------|
| Unit I | Chapter: 3 | (Pages: 59 - 76), |
| | Chapter: 4 | (Pages: 79 - 93), |
| | Chapter: 5 | (Pages: 95 - 113) |

| | | |
|----------------|-------------|-----------------------------|
| Unit II | Chapter: 6 | (Pages: 115 - 131), |
| | Chapter: 9 | (Pages: 161 - 180), |
| | Chapter: 13 | (Pages: 239 - 257) |

2. Rajkumar Buyya, Christian Vecchiola, S. Thamarai Selvi (2013), “Mastering Cloud Computing”, McGraw Hill Education(India) Private Limited, New Delhi.

| | | |
|-----------------|--------------------------|------------------------------|
| Unit III | Chapter: 4 (4.1 – 4.3) | (Pages: 4.1 – 4.19), |
| | Chapter: 3 (3.1 – 3.3.1) | (Pages: 3.1 - 3.16) |

| | | |
|----------------|------------|-----------------------------|
| Unit IV | Chapter: 9 | (Pages: 9.1 – 9.31) |
|----------------|------------|-----------------------------|

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|---------------|-------------|-------------------------------|
| Unit V | Chapter: 10 | (Pages: 10.1 – 10.16) |
|---------------|-------------|-------------------------------|

Reference Books:

1. W. Jason Gilmore (2010), “Beginning PHP and MySQL: From Novice to Professional”, Apress, IV Edition, United States of America.
2. Suehring, S., Converse, T., and Park, J.(2009), “PHP 6 and MYSQL 6 Bible”, First Edition, Wiley Publishing, New Delhi.

3. Steven Holzner (2008), "The Complete Reference PHP", Tata McGraw Hill Publishing Company Limited, New Delhi.
4. Robin Nixon, "Learning PHP, MySQL & JavaScript", Shroff Publishers & Distributors Pvt. Ltd., New Delhi.
5. Borko Furht (2003), "Handbook of Cloud Computing", Springer Publications.
6. "Cloud_Computing_Primer" (2009), Sun Microsystem.
7. Anothony T Velte, Toby J Velte, Robert Elsenpeter, Cloud Computing: A Practical Approach, MGH, 2010.
8. Gautam Shroff, Enterprise Cloud Computing, Cambridge, 2010.
9. Ronald Krutz and Russell Dean Vines, Cloud Security, 1st Edition, Wiley, 2010.
10. David Chappell (2009), "Introducing the Windows Azure Platform: An Early Look at Windows Azure, SQL Azure, and .Net Services", Sponsored By Microsoft Corporation.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER VI
PART III – MAJOR
14UIT6P - MAJOR PROJECT
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 06 |
| Total number of hours per semester | 90 |
| Number of Credits | 04 |

Objectives:

1. To develop the ability to apply the theoretical knowledge to the practical tools/ techniques.
2. To have thorough understanding of the systems development life cycle (SDLC).
3. To decide various data structures for implementation.
4. To know the scheduling, coding, testing and to evaluate systems documentation and generate various reports.

Rules governing Project Report

1. During the sixth semester, the students have to undertake a group project by selecting a problem of their choice pertaining to the course. Each group shall contain a maximum of **two** students.
2. The Project work report should be submitted on or before the date specified by the Head of the department in the sixth semester.
3. Each group should submit two copies of their project report for evaluation.
4. The Project report shall carry a total of 100 marks. The project report will be valued in the End Semester examination alone for 100 marks based on viva voce and presentation conducted by the Guide and External Examiner.
5. The project report shall be evaluated separately by the guide and the external examiner. The Viva-voce examination shall be conducted jointly by the guide and external examiner.
6. For a pass in the project, each student should secure a minimum of 40% of marks.
7. If a student fails to get a minimum pass mark, she may be permitted to resubmit her project report once again within the period of six months after the publication of results.

If a student fails to submit the project report within the stipulated time the candidate can submit the same on the date announced by the Controller of Examinations on payment of fine prescribed by the Principal

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER V
CORE ELECTIVE
14UIT5E1– WEB TECHNOLOGY
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 05 |
| Total number of hours per semester : | 75 |
| No. of Credits | 05 |

Objectives:

1. To learn about the basics of .NET Framework and VB.NET.
2. To understand the elements of C# 5.0.
3. To get knowledge in creating Website using various controls, Master Page and Database.
4. To get proficient in Web Development and Web Deployment.

Unit I **(15 hrs)**

Getting Started With .NET Framework 4.5: Evolution of .NET – Benefits of .NET Framework – Architecture of .NET Framework 4.5: Components of the .NET Framework 4.5.

Essential Visual Basic .NET: Putting Visual Basic to Work – Building VB.NET Applications – The Visual Basic Integrated Development Environment.

Unit II **(15 hrs)**

Introducing C# 5.0 in VS 2012 : Need of C# - C# Pre-processor Directives – Creating a simple C# 5.0 Console Applications – Identifiers and Keywords – Data Types, Variables, and Constants : Value Types, Reference Types, Pointer Types , Type Conversions, Boxing and UnBoxing, Variables, Constants – Expressions and Operators : Operator Precedence, Using the ?? (Null coalescing) Operator, Using the :: (Scope Resolution) Operator, Using the is and as Operators.

ASP.NET 4.5 Essentials: Describing the ASP.NET Technologies: MVC Framework, ADO.NET Entity Framework, ADO.NET Data Services Framework, The Silverlight Technology, Dynamic Data Framework, ASP.NET Web API – Describing the ASP.NET Life Cycle: Life Cycle of an ASP.NET Application on IIS 7.5, Life Cycle of an ASP.NET Web Page – Creating a sample ASP.NET 4.5 Web Application – Creating a Sample ASP.NET Web Site.

Unit III **(15 hrs)**

Application Structure And State: Structure of an Application: The Application Domain, The Application Lifetime, The Application Directory Structure – The Global.asax Application File – Using States: Application State, Session State, View State – HTTP Handler – Generic Handlers – Postback and Cross-Page Posting.

Web Forms: Standard Controls: The Control Class – The WebControl Class – Using CSS in Web Applications – The Label Control – The Button Control – The TextBox Control – The FileUpload Control – The Image Control – The ImageButton Control – The ListBox Control – The DropDownList Control – The BulletedList Control – The HyperLink Control – The LinkButton Control – The CheckBox Control – The RadioButton Control – The Table Control.

Unit IV

(15 hrs)

Navigation Controls: TreeView , Menu and SiteMapPath: The TreeView Control : Adding Nodes to a TreeView Control Dynamically , Adding Nodes to a TreeView Control using the DataSource property, Adding Nodes to a TreeView Control at Design time – Creating the TreeView control – Generating TreeView from a Database – The Menu Control : Menu Display Properties , Menu Style – Creating Static Menu – Creating Dynamic Menu – The SiteMapPath Control : Data retrieval using the SiteMapPath Control, SiteMapPath behaviors , SiteMapPath Style , SiteMapPath templates – Creating SiteMapPath.

Validation Controls: The Base Validator Class – The RequiredFieldValidator Control – The RangeValidator Control.

Inside Master Pages and Themes: Understanding the Need for Master Pages and Themes – Understanding Master Pages: Simple Master Page, Nested Master Page – Creating Master Pages: Creating Simple Master Pages, Creating Nested Master Pages – Configuring Master Pages: Modifying Content on a Master Page from a Content Page – Loading Master Pages Dynamically.

Unit V

(15 hrs)

Data Access With ADO.NET: Understanding Databases – Understanding SQL : The SELECT Statement, The WHERE Clause, The LIKE Clause, The Distinct Clause, The Logical Operations, The ORDER BY Clause, The GROUP BY Clause, The DELETE Statement, The UPDATE Statement, Joining Tables, The DROP Statement – Understanding ADO. NET: Architecture of ADO.NET – Typed Vs. Untyped Datasets – DataReader: ADO.NET Entity Framework – Creating Connection Strings: Syntax for Connection Strings – Creating a Connection to a Database: SQL Server Database, OLEDB Database, ODBC Data Source.

Working With Login Controls: The Membership Service – The Login Control – The LoginView Control – The LoginStatus Control – The LoginName Control – The PasswordRecovery Control.

Deploying Windows and Web Applications: Deploying Windows Application Using InstallShield Setup and Deployment Project: Creating an Installer File, Deploying an Application on the Target Computer – Deploying Web Applications and Web Sites: Using the One-Click Publish Feature, Transforming the Web.config File, Deploying an SQL Server Database, Using the Copy Web Site Tool.

Text Books:

1. Kogent Learning Solutions (2013), “.NET 4.5 Programming (6 in 1) Black Book”, DreamTech Press, Delhi.

Unit I Chapter: 1 (Pages: **1 - 17**)

Unit II Chapter: 3 (Pages: **91 – 129**),
Chapter: 18 (Pages: **729 - 743**)

Unit III Chapter: 20 (Pages: **771 – 780**),
Chapter: 21 (Pages: **791 – 807, 813 – 819, 822 – 844**)

Unit IV Chapter: 22 (Pages: **857 – 887**),
Chapter: 23 (Pages: **891 – 896**),
Chapter: 26 (Pages : **1025 – 1039, 1043**)

Unit V Chapter: 12 (Pages: **497 – 502, 504 – 531**),
Chapter: 29 (Pages: **1101 - 1109**),
Chapter: 34 (Pages: **1337 – 1347, 1355 – 1360**)

2. Steven Holzner (2011), “Visual Basic .NET Programming Black Book”, DreamTech Press, Delhi.

Unit I Chapter: 1 (Pages: **2 – 14, 25 - 48**)

Reference Books:

1. Balagurusamy E (2002), “Programming in C#”, Tata McGraw-Hill Publishing Company.
2. Kogent Solutions Inc. (2008), “ASP.NET 2.0 with .NET 3.0 Framework in Simple Steps”, Dreamtech Publication.
3. Stephen Walther (2006), “ASP.NET 2.0 unleashed”, Pearson Education Publication.

**THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY**

B.Sc I.T

SEMESTER V

CORE ELECTIVE

14UIT5E2 – CYBER SECURITY

(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 05 |
| Total number of hours per semester | 75 |
| Number of Credits | 05 |

Objectives:

1. To enhance the security needs common to all organizations.
2. To define the points of weakness in an infrastructure that intruders target.
3. To impart common attacks used for unauthorized intrusions.
4. To discuss about concepts of malicious code, including virus, Trojan horse, and worms.

Unit I

(15 hrs)

Introduction to Cybercrime: Introduction – Cybercrime: Definition and Origins of the World – Cybercrime and Information Security – Who are Cybercriminals? – Classifications of Cybercrimes: E- Mail Spoofing, Spamming, Cyberdefamation, Internet Time Theft, Salami Attack, Data Diddling, Forgery, Web Jacking, Newsgroup Spam/Crimes Emanating from Usenet Newsgroup, Industrial Spying/ Industrial Espionage, Hacking, Online Frauds, Pornographic Offenses, Software Privacy, Computer Sabotage, E-Mail Bombing/ Mail Bombs, Usenet Newsgroup as the Source of Cybercrimes, Computer Network Intrusions, Password Sniffing, Credit Card Frauds, Identity Theft – Cybercrime: The Legal Perspectives – Cybercrime: An Indian Perspective.

Unit II

(15 hrs)

Cyber offenses: How Criminals Plan Them: Introduction: Categories of Cybercrime – How Criminals Plan the Attacks: Reconnaissance, Passive attacks, Active Attacks, Scanning and Scrutinizing Gathered Information – Attack (Gaining and Maintaining the System Access) – Social Engineering: Classification of Social Engineering – Cyberstalking – Types of Stalkers, Cases Reported on Cyberstalking, How Stalking Works, Read –Life Incident of Cyberstalking – Cybercafe and Cybercrimes – Botnets: The Fuel for Cybercrime: Botnet – Attack Vector – Cloud Computing: Why Cloud Computing, Types of Services, Cybercrime and Cloud Computing.

Unit III

(15 hrs)

Cybercrime: Mobile and Wireless Devices: Introduction – Proliferation of Mobile and Wireless Devices – Trends in Mobility – Credit Card Frauds in Mobile and Wireless Computing Era: Types and Techniques of Credit Card Frauds – Security Challenges Posed by Mobile Devices – Registry Settings for Mobile Devices.

Tools and Methods Used in Cybercrime: Introduction – Proxy Servers and Anonymizers – Phishing: How Phishing Works – Password Cracking: Online Attacks, Offline Attacks, Strong, Weak and Random Passwords – Keyloggers and Spywares: Software Keyloggers, Hardware Keyloggers, AntiKeyloggers, Spywares – Virus and Worms: Types of Viruses.

Unit IV

(15 hrs)

Cybercrime and Cyber security: The Legal Perspective – Introduction – Cybercrime and the Legal Landscape around the World: A Broad View on Cybercrime Law Scenario in the Asia-Pacific Region, Online Safety and Cybercrime Laws: Detailed Perspective on the Current Asia-Pacific Scenario, Anti-Spam Laws in Canada, Cybercrime and Federal Laws in the US, The EU Legal Framework for Information Privacy to Prevent Cybercrime, Cybercrime Legislation in the African Region – Cybercrime and Punishment – Cyberlaw, Technology and Students : Indian Scenario.

Unit V

(15 hrs)

Understanding Computer Forensics: Introduction – Historical Background of Cyberforensics – Digital Forensics Science – The Need for Computer Forensics – Cyberforensics and Digital Evidence: The Rules of Evidence – Forensics Analysis of E-Mail: RFC822 – Digital Forensics Life Cycle: Digital Forensics Process, The Phases in Computer Forensics/Digital Forensics, Precautions to be Taken when Collecting Electronic Evidence – Choice of Custody Concept.

Text Book:

1. Nina Godbole, Sunit Belapure (2011), “Cyber Security (with CD): Understanding Cyber Crimes, Computer Forensics and Legal Perspectives”, Wiley India.

| | | |
|-----------------|--|---|
| Unit I | Chapter: 1 (1.1 - 1.7) | (Pages: 1-32) |
| Unit II | Chapter: 2 (2.1- 2.8) | (Pages: 45-79) |
| Unit III | Chapter: 3 (3.1 - 3.6) Chapter: 4 (4.1 - 4.6) | (Pages: 81-92), (Pages: 125-146) |
| Unit IV | Chapter: 6 (6.1-6.2, 6.9-6.10) | (Pages: 227-253, 305-309) |
| Unit V | Chapter: 7 (7.1-7.8) | (Pages: 317-356) |

Reference Books:

1. Charles. P. Pfleeger, Shari Lawrence Pfleeger and Deven N.Shah (2007), “Security in Computing”, Prentice Hall, 4th Edition.
2. Paul Campbel, Ben Calvert and Steven Bosweel (2004), “Security + In Depth”, Vijay Niwle Imprints Pvt Ltd.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY

B.Sc I.T

SEMESTER V

CORE ELECTIVE

14UIT5E3 – MOBILE COMPUTING

(For those admitted in June 2014 and later)

| | |
|------------------------------------|----|
| Contact hours per week | 05 |
| Total number of hours per semester | 75 |
| No. of Credits | 05 |

Objectives:

1. To imbibe the basic concepts of Mobile Environment.
2. To develop interest in the field of Mobile Computing and Wireless Services.
3. To know the importance of Android.
4. To comprehend the importance concepts of iPhone.

Unit I (15 hrs)

Introduction: Mobile Computing – Developing Mobile Computing applications – Security in Mobile Computing - **Mobile Computing Architecture:** Architecture for Mobile Computing – Three-tier Architecture – Mobile Computing through internet - **Mobile Computing through Telephony:** Mobile Computing through Telephone.

Unit II (15 hrs)

Emerging Technologies: Introduction – Bluetooth - Wireless Broadband (WiMAX) – Mobile IP - **Wireless Application Protocol:** Introduction – WAP: WAP Application Environment, User Agent – MMS.

Unit III (15 hrs)

Introducing the Android Software Development Platform: Understanding Java SE and the Dalvik Virtual Machine - Leveraging Android XML - Using Your Android Application Resources - Launching Your Application - **Screen Layout Design: Views and Layouts** - Android View Hierarchies - Defining Screen Layouts: Using XML.

Unit IV (15 hrs)

UI Design: Buttons, Menus, and Dialogs - Using Common UI Elements - Using Menus in Android - Adding Dialogs.

Unit V (15 hrs)

The iPhone SDK – The SDK – The iPhone Frameworks – iPhone Limitations - **Deploying to an iPhone** – Installing Applications on an iPhone – Deploying and Distributing Your Application - **UIApplication and UIApplicationDelegate** – UIApplication and UIApplicationDelegate - **UIView and UIViewController** – The

UIView Class and The UIViewController Class - **Controls – Part One** - Buttons, UISwitch, UISlider, and UITextField.

Text Books:

1. Asoke K Talukder and Roopa R Yavagal (2005), “Mobile Computing – Technology, Applications and Service Creation”, Tata McGraw-Hill Publishing Company Ltd., New Delhi.

Unit I Chapter: 1 (1.3, 1.8, 1.9) (Pages: **7 – 11, 21 - 23**),
Chapter: 2 (2.4, 2.5, 2.7) (Pages: **37 – 49, 68**),
Chapter: 3 (3.3) (Pages: **78 – 84**)

Unit II Chapter: 4 (4.1 - 4.2, 4.4, 4.5)
(Pages: **99 – 105, 109 – 113, 114 - 123**),
Chapter: 8 (8.1, 8.2 (8.2.1, 8.2.2), 8.3)
(Pages: **225 – 230, 241 – 250**)

2. Wallace Jackson (2012), “Android Apps for Absolute Beginners”, Apress.

Unit III Chapter: 4 (Pages: **41 - 65**),
Chapter: 6 (Pages: **89 – 112**)

Unit IV Chapter: 7 (Pages : **115 – 144**)

3. James A. Brannan (2010), “iPhone SDK Programming, A Beginner’s Guide”, McGraw-Hill.

Unit V Chapter: 1 (Pages: **4, 6 - 9**),
Chapter: 5 (Pages: **79 – 83, 104 - 107**),
Chapter: 6 (Pages: **118 – 122**),
Chapter: 7 (Pages: **126 – 128**),
Chapter: 12 (Pages: **271 – 278, 282 – 289**)

Reference Books:

1. Jochen H Schiller (2003), “Mobile communications”, Pearson Education Inc., Second Edition.
2. Kaveh Pahlavan, Prasanth Krishnamurthy (2002), “Principles of Wireless Networks – A Unified Approach”, Prentice Hall, India.
3. T. Mikkonen, “Programming Mobile Devices: An Introduction for Practitioners”, Wiley, 2007.
4. S. Hashimi, S. Komatineni, D. MacLean, “Pro Android 2”, Apress 2010.
5. D. Mark and J. LaMarche, “Beginning iPhone 3 Development: Exploring the iPhone SDK”, Apress, 2009.
6. Anthony Rizk, “Beginning BlackBerry Development”, First Edition, Apress, New York, 2009.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER V
CORE ELECTIVE
14UIT5E4- SYSTEM SOFTWARE
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 05 |
| Total number of hours per semester | 75 |
| No. of Credits | 05 |

Objectives:

1. To learn fundamental software concepts using various machine architectures.
2. To study about the features of system software.
3. To study the design and implementation of system software.
4. To get an idea about the entire creation, compilation and execution of programs.

Unit I **(15 hrs)**

Background: Introduction - System Software and Machine Architecture. **The Simplified Instructional Computer (SIC):** SIC Machine Architecture - SIC/XE Machine Architecture - Programming Examples. **Traditional (CISC) Machines:** VAX Architecture - Pentium Pro Architecture. **RISC Machines:** Ultra SPARC Architecture - PowerPC Architecture - Cray T3E Architecture.

Unit II **(15 hrs)**

Assemblers: Basic Assembler Functions: A Simple SIC Assembler - Algorithm and Data Structures. **Machine-Dependent Assembler Features:** Instruction Formats and addressing modes-Program Relocation. **Machine-Independent Assembler Features:** Literals – Symbol - Defining Statements-Expressions - Program Blocks-Control Sections and Program Linking. **Assembler Design Options:** One-Pass, Multi-Pass Assemblers.

Unit III **(15 hrs)**

Loaders and Linkers: Basic Loader Functions: Design of an Absolute Loader - A Simple Bootstrap Loader. **Machine-Dependent Loader Features:** Relocation - Program Linking - Algorithm and Data Structures for a Linking Loader. **Machine-Independent Loader Features:** Automatic Library Search - Loader Options. **Loader Design Options:** Linkage Editors - Dynamic Linking-Bootstrap Loaders.

Unit IV

(15 hrs)

Macro processors: Basic Macro Processor Functions: Macro Definition and Expansion - Algorithm and Data Structures. **Machine Independent Macro Processor Features:** Concatenation of Macro Parameters - Generation of Unique Labels - Conditional Macro Expansion - Keyword Macro Parameters. **Macro Processor Design Options:** Recursive Macro Expansion – General - Purpose Macro Processor - Macro Processing within language Translators.

Unit V

(15 hrs)

Compilers: Basic Compiler Functions: Grammars-Lexical Analysis - Syntactic Analysis - Code Generation. **Compiler Design Options:** Division into Passes – Interpreters - P-code Compilers - Compiler-Compilers. **Other System Software: Text Editors:** Overview of the Editing Process - User Interface - Editor Structure. **Interactive Debugging Systems:** Debugging Functions and Capabilities - Relationship with other parts of the System - User interface Criteria.

Text Book:

1. Leland L Beck and Manjula D (2011), “System Software an Introduction to Systems Programming”, Pearson Education, Third Edition.

| | | |
|-----------------|------------------------|-------------------------------|
| Unit I | Chapter: 1 | (Pages: 1 - 42) |
| Unit II | Chapter: 2 (2.1 - 2.4) | (Pages: 45 - 108) |
| Unit III | Chapter: 3 (3.1 – 3.4) | (Pages: 129 – 166) |
| Unit IV | Chapter: 4 (4.1 – 4.3) | (Pages: 181 - 213) |
| Unit V | Chapter: 5 (5 .1, 5.4) | (Pages: 233 - 266, 296 - 302) |
| | Chapter: 7 (7.2, 7.3) | (Pages: 405 - 420) |

Reference Book:

1. Leland L Beck (2001), “System software - An Introduction to Systems Programming”, Pearson Education, 3rd Edition.

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DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER VI
CORE ELECTIVE
14UIT6E1 – COMPUTER GRAPHICS
(For those admitted in June 2014 and later)

| | |
|---|-------------|
| Contact hours per week | : 05 |
| Total number of hours per semester | : 75 |
| Number of Credits | : 05 |

Objectives:

1. To impart various Graphic Applications.
2. To learn about algorithms for Output Primitives.
3. To gain knowledge about various type of Transformations.
4. To understand the concepts of Clipping Algorithms.

Unit I **(15 hrs)**

Application of Computer Graphics – CAD- Presentation Graphics- Computer Art- Entertainment- Education and Training- Visualization- Image Processing- GUI. **Overview of Graphical Systems:** *Video Display Devices* – Refresh CRT- Raster Scan Displays- Random Scan Displays- Color CRT Monitors- DVST- Flat Panel Displays- 3D Viewing Devices- Stereoscopic and Virtual Reality Systems. Raster scan system – Random scan system - Graphics Monitors and Workstations - Input devices – Hard copy devices – Graphics Software.

Unit II **(15 hrs)**

Output Primitives: Points and Lines – *Line Drawing Algorithms*- DDA, Bresenham's and Parallel Line Drawing algorithm-Loading the Frame Buffer-Line Function, *Circle Generating Algorithms* – Properties of Circle- Midpoint Circle Algorithm- *Ellipse Generating Algorithms* –Properties of Ellipse- Midpoint Ellipse Algorithm- *Other curves* – Conic Section- Polynomial and Spline Curves-Parallel Curve Algorithm- Curve Functions- *Pixel Addressing and Object Geometry* -Screen Grid Coordinates- Maintaining Geometric Properties of Displayed Objects– *Filled Area Primitives* – Scan –Line Polygon Fill Algorithm-Inside-Outside Tests– Scan Line Fill of Curved Boundary Areas- Boundary Fill Algorithm- Flood Fill Algorithm- Fill Area Functions-Cell Array – Character Generation

Unit III **(15 hrs)**

Attributes of Output Primitives: *Line Attributes*- Line Type- Line Width- Pen and Brush Options- Line Color- *Curve Attributes* – Color and Gray Scale Levels- Color Tables- Grayscale- *Area Fill Attributes* – Fill Styles- Pattern Fill- Soft Fill- *Character Attributes* – Text Attributes- Marker Attributes- *Bundled Attributes* – Line, Area Fill, Text, Marker Attributes- *Inquiry Functions* – *Anti aliasing* - Super Sampling Straight Line Segments- Pixel Weighting Masks- Area Sampling Straight

Line Segments- Filtering Techniques- Pixel Phasing- Compensating for Line Intensity Differences- Anti aliasing Area Boundaries

Unit IV

(15 hrs)

Two Dimensional Geometric Transformations: *Basic Transformations*- Translation – Rotation – Scaling – *Matrix Representations and Homogeneous Coordinates* – *Composite Transformations* – Translation- Rotations- Scaling- General Pivot Point Rotation- General Fixed Point Scaling- General Scaling Directions- Concatenation Properties-General Composite Transformations and Computational Efficiency- *Other Transformations*- Reflection - Shear.

Unit V

(15 hrs)

Two Dimensional Viewing: The Viewing Pipeline – Viewing Coordinate Reference Frame – Window-To-Viewport Coordinate Transformation – Two Dimensional Viewing Functions – Clipping Operations – Point Clipping – *Line Clipping* – Cohen Sutherland Line Clipping Algorithms, Liang Barsky Line Clipping Algorithms, NLN Line Clipping Algorithm– Line Clipping Using non Rectangular Clip Windows- Splitting Concave Polygons- *Polygon Clipping* –Sutherland Hodgeman Polygon Clipping- Weiler Atherton Polygon Clipping- Other Polygon Clipping Algorithms- Curve Clipping - Text Clipping – Exterior Clipping.

Text Book:

1. Donald Hearn and Pauline Baker M (2011), “Computer Graphics”, Doring Kindersley India Private Ltd, New Delhi, Second Edition.

| | | |
|-----------------|------------------------|----------------------------|
| Unit I | Chapters: 1, 2 | (Pages: 22 – 102) |
| Unit II | Chapter: 3 | (Pages: 103 - 160) |
| Unit III | Chapter: 4 | (Pages: 163 – 202) |
| Unit IV | Chapter: 5 (5.1 – 5.4) | (Pages: 203 – 225) |
| Unit V | Chapter: 6 | (Pages: 236 – 265) |

Reference Book:

1. Foley (2006), “Computer Graphics: Principles & Practices in C”, Pearson Education, 2nd Edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
B.Sc I.T
SEMESTER VI
CORE ELECTIVE
14UIT6E2 – INTRODUCTION TO EMBEDDED SYSTEMS
(For those admitted in June 2014 and later)

| | | |
|---|----------|-----------|
| Contact hours per week | : | 05 |
| Total number of hours per semester | : | 75 |
| Number of Credits | : | 05 |

Objectives:

1. To get knowledge about Microprocessors.
2. To understand the basics of Microcontroller.
3. To study about the memory and peripherals of Embedded Systems.
4. To know the applications of embedded system.

Unit I **(15 hrs)**

Fundamentals of Microprocessors: Introduction - Internal Architecture: Execution Unit - Bus Interface Unit - Address Bus - Data Bus - Control Lines - *Inside* the EU: ALU - General Registers - Pointers and Index Registers - Inside the BIU: Bus control - Instruction Queue - Address Control - Memory: RAM and ROM - Memory Maps.

Introduction to Programming: Introduction - Assembly Language Programming: Instruction Format - Addressing Modes – Assembly Directives - 8086/8088 Instruction Set: Data - Transfer Instructions - Arithmetic Instructions - Logical Instructions - Program-Control Instructions.

Unit II **(15 hrs)**

Introduction to Microcontrollers: Introduction - Microcontrollers and Microprocessors - History of Microcontrollers and Microprocessors - Embedded versus External memory devices - 8-bit and 16-bit Microcontrollers - CISC and RISC Processors - Harvard and Von Neumann Architectures - Commercial Microcontroller Devices.

8051 Microcontrollers: Introduction-MCS-51 Architecture-Registers in MCS-51

8051 Pin Description, Connections, I/O Ports and Memory Organization: 8051 Pin Description-8051 Connections-8051 Parallel I/O Ports-Memory Organization.

Unit III **(15 hrs)**

What is an Embedded System: Inside the embedded system: Processor – Memory – Peripherals – Software - Algorithms. **Memory System:** Memory technologies – SRAM - EPROM and OTP – Flash – EEPROM - Memory Organisation - Parity - Error detecting and correcting memory - Access times – Packages - DRAM interfaces - Big and little endian - Dual port and shared memory.

Basic peripherals: Parallel ports - Timer/counters - DMA controllers – A Generic DMA Controller - DMA controller Models - Channels and control Blocks - Sharing bus band width - DMA Implementation.

Unit IV

(15 hrs)

Interrupts and Exceptions: What is an interrupt - Interrupt source - Recognising an interrupt - The interrupt mechanism - Fast Interrupts - Interrupt Controllers - Instruction restart and continuation - Interrupt Latency.

Real-Time Operating Systems: What are operating systems - Operating System internals - Multitasking Operating Systems- What is a real-time operating system -Scheduler algorithms-Priority inversion-Tasks, Threads and Processes-Exceptions-Memory Model-Memory Management address translation.

Unit V

(15 hrs)

Applications of Embedded Systems: Application Market segments: Consumer electronics - Control systems and industrial automation - Biomedical systems - Field instrumentation - Handheld computers - Data Communications - Networked information appliances – Telecommunications - Wireless Communication – The Unity in Diversity.

Developing for Embedded Systems: Embedded System Development Process-Determine the requirement - Design the system architecture - Choose the operating system - Choose the Processor - Choose the development platform - Coding issues -Verify the software on the host system -Verify the software on the embedded system.

Text books:

1. Stuart M.Asser, Vincent J. Stigliano and Richard F. Bahrenburg (1996), “Micro Computer Servicing, Practical Systems and Troubleshooting”, Merrill Publishing Company.

Unit I Chapter: 3 (3.0 – 3.7) (Pages: **98 – 118**),
Chapter: 4 (4.0 – 4.3) (Pages: **130 - 149**)

2. Ajay V Deshmukh (2006), “Microcontrollers Theory and Applications”, Tata McGraw-Hill Publishing Company Limited.

Unit II Chapter: 1 (Pages: **3 – 13**),
Chapter: 2 (Pages: **15 – 24**),
Chapter: 3 (Pages: **26 – 34**)

3. Steve Heath (2003), “Embedded Systems Design”, Newnes Publishing Company, Second Edition.

Unit III Chapter: 1 (Pages: **8 – 10**),
Chapter: 3 (Pages: **74 – 88, 121 -123**),
Chapter: 4 (Pages: **131 – 134,163 - 174**)

Unit IV Chapter: 6 (Pages: **189 - 196, 203 - 209**),
Chapter: 7 (Pages: **212 - 244**)

4. Prasad K V K K, Vikas Gupta, Avnish Dass, Ankur Verma (2003),
“Programming for Embedded System”, Dreamtech Software Team.

Unit V Chapter: 2 (Pages: **11 - 33**),
Chapter: 4 (Pages: **73 – 83**)

Reference Books:

1. Sriram V Iyer and Pankaj Gupta (2010), “Embedded Realtime Systems Programming”, Tata McGraw-Hill Publishing Company Limited.
2. Raj Kamal (2004), “Embedded Systems, Architecture, Programming and Design”, Tata McGraw-Hill Publishing Company Limited.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
SEMESTER III
PART IV – NON MAJOR ELECTIVE I
14UIT3N – INTRODUCTION TO IT
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 02 |
| Total number of hours per semester | 30 |
| No. of Credits | 02 |

Objectives:

1. To gain knowledge in the fundamental concepts of Computers.
2. To know the parts of Computers in detail.
3. To be familiar with communication and networking.
4. To learn how Computers are useful in various fields.

Unit I **(6 hrs)**

Introduction to Computers: Characteristics of Computers. **Classification of Digital Computer Systems:** Microcomputers – Minicomputers – Mainframes – Supercomputers – Network Computers. **Anatomy of a Digital Computer:** Parts of a Computer.

Unit II **(6 hrs)**

The Number System: Decimal Number System – Binary Number System – Octal Number System – Hexadecimal Number System. **Central Processing Unit and Memory:** Central Processing Unit – Memory – Random Access Memory (RAM) – Read Only Memory (ROM) - Registers.

Unit III **(6 hrs)**

Input Devices: Keyboard – Mouse – Trackball – Game Controllers – Scanners – Barcode Reader – Card Reader. **Output Devices:** Introduction – Printer.

Unit IV **(6 hrs)**

Introduction to Computer Software: Computer Software – Classification of Software – Operating Systems. **Introduction to Telecommunications:** Introduction – Modems. **Computer Networks:** Introduction – Types of Networks. **Internet and World Wide Web:** Introduction – Internet Access – Internet Addressing – World Wide Web (WWW). **Overview of Electronic Mail:** How E-Mail Works – E-Mail Names and Addresses – Mailing Basics.

Unit V

(6 hrs)

Computers in Business and Industry: Office Automation – Office Automation Systems. **Computers at Home:** Business Applications at Home. **Computers in Entertainment, Science, Medicine and Engineering:** Computers in Entertainment – Computers in Medicine – Computers in Science – Computers in Engineering.

Text Books:

1. Alexis Leon, Mathews Leon (1999), “Fundamentals of Information Technology”, Leon Vikas, Second Edition.

| | | |
|-----------------|-------------|--------------------------------|
| Unit I | Chapter: 1 | (Pages: 1 – 4), |
| | Chapter: 3 | (Pages: 20 – 27), |
| | Chapter: 4 | (Pages: 30 – 34) |
| Unit II | Chapter: 6 | (Pages: 62 – 64, 71 – 74), |
| | Chapter: 7 | (Pages: 77 – 82, 85 – 86) |
| Unit III | Chapter: 9 | (Pages: 111 – 121), |
| | Chapter: 10 | (Pages: 132, 138 – 142) |
| Unit IV | Chapter: 11 | (Pages: 149 – 152), |
| | Chapter: 20 | (Pages: 277, 284 – 285), |
| | Chapter: 21 | (Pages: 288, 294 – 296), |
| | Chapter: 24 | (Pages: 319 – 323, 330 – 333), |
| | Chapter: 25 | (Pages: 342 – 348) |
| Unit V | Chapter: 45 | (Pages: 514 – 517), |
| | Chapter: 46 | (Page: 525), |
| | Chapter: 48 | (Pages: 535 – 543) |

Reference Books:

1. Ashok Arora and Shefali Bansal (2002), “Information Technology For ‘O’ Level”, First Edition.
2. Brien J O (1997), “Introduction to Information Systems”, Mc Graw Hill International Edition, VIII edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
SEMESTER IV
PART IV – NON MAJOR ELECTIVE II
14UIT4N - INTERNET & HTML
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 02 |
| Total number of hours per semester | 30 |
| No. of Credits | 02 |

Objectives:

1. To introduce fundamental concepts of Internet.
2. To gain knowledge on the concepts of E-mail.
3. To inculcate the knowledge of creating website.
4. To introduce the features of HTML

Unit I **(6 hrs)**

Internet – An Introduction: Introduction – What’s special about the Internet? – Internet Access/Dial-up Connection – Internet Service’s Features.

The World Wide Web: Introduction – Web Page – Net Surfing.

Internet / Web Browsing: Introduction – Microsoft Internet Explorer – Viewers – Favorites – Netscape Navigator – Lynx.

Unit II **(6 hrs)**

Internet Addressing: What is Internet Addressing – IP Address – Domain Name – Electronic Mail – Uniform Resource Locator.

Internet Protocols: Introduction – Transmission Control Protocol / Internet Protocol – File Transfer Protocol – Hyper Text Transfer Protocol – Telnet – Gopher – WAIS.

Unit III **(6 hrs)**

Beyond Surfing-Searching the Web: Introduction- Web Index – Web Search Engine – Web Meta-Searcher.

Electronic Mail: Introduction – Email Messages – Pine – Finding an Email Address – Mailing Lists – Smiley – Email Ethics – Email advantages and Disadvantages – Some useful Email Services.

Unit IV **(6 hrs)**

Basics of HTML: Introduction – Overview of web browsers – Hypertext – Hyper Text Markup Language – Basic Components of HTML.

URL, Protocols and Ports: Linking to other HTML documents – Linking Inside the same documents.

Lists in HTML: Introduction – Lists in Html – Ordered Lists – Using ordered Lists – Using Netscape Extensions – Unordered Lists – Directory Lists – Definition Lists – Combining List types.

Unit V

(6 hrs)

Graphics and Web Page: Introduction – Graphics and Web Pages – Image Formats and Browsers – Graphics and HTML Documents – Image and Hyperlink anchors – Image Maps.

HTML Tables and Forms: Introduction – HTML Tables – Aligning Table Elements – Row and Column spanning – Netscape Table Enhancements – Frames in HTML – Frameset container.

Text Books:

1. Alexis Leon and Mathews Leon (1998), “Internet For Every one”, Leon Techworld Publications.

Unit I Chapters: 1, 3, 4 (Pages: **1 - 7, 23 - 29, 31 - 42**)

Unit II Chapters: 5, 6 (Pages: **45 - 51, 53 - 63**)

Unit III Chapters: 7, 8 (Pages: **67 - 74, 107 - 132**)

2. Krishnan N (2001), “Computer Fundamentals and Windows with Internet Technology”, Scitech Publications Pvt. Ltd.

Unit IV Chapters: 16, 17, 19 (Pages: **165 – 180, 202 - 204, 214 - 229**)

Unit V Chapters: 20, 21,22 (Pages : **233 – 243, 246 - 264**)

Reference Book:

1. Douglas E Comer (2002), “The Internet”, Pearson Education Asia, Third edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
SEMESTER VI
14UJO65 - JOB ORIENTED COURSE
(For those admitted in June 2014 and later)

Contact hours per week : 02
Total number of hours per semester : 30
Number of Credits : 02

Objectives:

1. To know about functions of Call center.
2. To learn about the software.
3. To acquire knowledge on customer service over Telephone.
4. To know about the Training.

Unit I (6 hrs)

Introduction to Call Center Industry: What is Call Center? - The Historical Necessity - History - The Key Operational Practices - Essential Technologies - Options for delivering Customer Service - Call Centers in India - How Large is the Call Center Industry in India - The Need for Call Centers in India - Future of Call Centers in India - Insourcing and Outsourcing. **Classification, Functioning, Working Environment:** Introduction-Classification - Distributed Call Centers – Agent - Call Center Functionality, Working Environment – Account - Shift schedule - Functioning of a Call center

Unit II (6 hrs)

Internet Skills: Personality development - Interview Etiquette - Internet Skills - Entire web/ mail based operations - Business Process Outsourcing - Customer service - Ideas to Market.

Unit III (6 hrs)

Technologies used in eCRM: Technologies – ACD - Interactive Voice Response System - Computer Telephony Integration - Customer Relationship Management Software- Predictive Dialing - Switching and Routing. **Selling over the Telephone:** Introduction - What is Selling - Telemarketing and Teleselling - Three Steps in Teleselling - Skills of Teleseller - Golden Rules to develop a smooth relationship with Customer - Good Teleseller.

Unit IV (6 hrs)

Customer Service: Delivery Customer Service Over Telephone – Introduction - Advantages of a Telephonic communication over Other Means - Disadvantages Of Telephonic Conversation - Tips on Using Telephone Successfully - Understanding the Customer - Identifying Customers - Identifying The Methods to

Address the perceived Problem - Steps in Offering a solution - How to get and Stay Motivated.

Unit V

(6 hrs)

Handling Complaints and Tricky situations-Introduction - What is complaint? - Why it occurs - How to Handle - Checks and Requirement - Handling Tricky Situations - Six-Point Method to Handle Challenging Customers - **The Agent: Eligibility, Recruitment, Training** - How to get into a Call center? - The Recruitment Process - Sample Test-Group discussion - Direct Interview - Telephonic Interview - Solutions to Sample Tests.

Text Book:

1. Vikas Gupta (2003), “Call Center Training Course Kit”, DreamTech Press, New Delhi, First Edition.

Unit I Chapters:1, 2 (Pages: **12 – 23, 28 – 43**)

Unit II *Study Material will be provided.*

Unit III Chapter: 11 (Pages: **190 – 203**)
Chapter: 12 (Pages: **207 - 214**)

Unit IV Chapter 13 (Pages: **223 - 232**)

Unit V Chapter 14 (Pages: **242 - 251**)
Chapter 15 (Pages: **256 - 277**)

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
SEMESTER VI
JOB ORIENTED COURSE
14UJO65L - LAB
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 02 |
| Total number of hours per semester | 30 |
| Number of Credits | 02 |

Objectives:

1. To practice with facing the interview.
2. To learn about the Customer Care.
3. To practice with the Business English.
4. To gain knowledge about Conversational calls.

List of Programs

1. Group Discussion
2. Topic Round
3. Conversational Practice
4. Business English
5. Mock Interview
6. Accent Training
7. Voice and Vocal Training

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
ADD ON COURSE I
14UITEC1 – WEB BUILDING
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 02 |
| Total number of hours per semester | 30 |
| Number of Credits | 02 |

Objectives:

1. To understand the basic concepts of PHP.
2. To learn about the concepts of JavaScript.
3. To understand the elements of jQuery.
4. To gain the ability to design a Website.

Unit I **(6 hrs)**

Introduction to PHP : The Structure of PHP : Using Comments, Basic Syntax, Understanding Variables, Operators, Variable Assignment, Multiple – Line Commands, Variable Typing, Constants, The difference between the echo and print Commands, Functions – Variable Scope .

Unit II **(6 hrs)**

PHP Functions and Objects: PHP Function: Defining a Function, Returning a Value, Returning an Array, Passing by Reference, Returning Global Variables, Recap of Variable Scope – Including and Requiring Files: The include Statement, Using Include once, Using Require and require_ once.

PHP Arrays: Basic Access: Numerically Indexed Array, Associative Arrays, Assignment using the array Keyword – The foreach...as Loop – Multidimensional Arrays – Using Array Functions : is _ array(), count(), sort(), shuffle(), explode().

Unit III **(6 hrs)**

Introduction to MySQL: Accessing MySQL via the Command Line: Starting the Command_Line Interface, Using the Command_Line Interface, MYSQL Commands – Data Types.

Accessing MYSQL Using PHP: Querying a MYSQL Database with PHP: The Process, Creating a Login File, Connecting to MYSQL – A Practical Example: The \$_POST Array, Deleting a Record, Displaying the Form, Querying the Database, Running the Program.

Unit IV **(6 hrs)**

Getting Started: What jQuery does – Why jQuery Works Well – Our First jQuery – powered web page: Downloading jQuery – Setting up jQuery in HTML Document – Adding out jQuery Code: finding the Poem Text – Injecting the new class – Executing the Code – The Finished Code – Plain JavaScript vs. jQuery.

Selecting Elements: The Document Object Model – The \$() Function – CSS Selectors: Styling list-item levels, Attribute selectors, Styling links.

Unit V

(6 hrs)

Styling and Animating: Inline CSS modification - Basic hide and show - Effects and speed: Speeding in Fading in and fading out, Sliding up and sliding down, Compound effects - Creating custom animations: Building effects by hand, Animating multiple properties at once, Positioning with CSS - Simultaneous versus queued effects: Working with a single set of elements, Bypassing the queue, Manual queueing.

Text Books:

1. Robin Nixon (2011), “Learning PHP, MYSQL & JavaScript”, O’Reilly Media Publications, Sebastopol, First Edition.

Unit I Chapter: 3 (Pages: **33 - 57**)

Unit II Chapter: 5 (Pages: **89 - 97**),
Chapter: 6 (Pages: **115 - 125**)

Unit III Chapter: 8 (Pages: **158 - 177**),
Chapter: 10 (Pages: **225 - 237**)

2. Jonathan Chaffer and Karl Swedberg (2011), “Learning jQuery”, Packet Publishing, Mumbai, Third Edition.

Unit IV Chapter: 1 (Pages: **1 - 20**),
Chapter: 2 (Pages: **25 - 33**)

Unit V Chapter: 4 (Pages: **85 - 106**)

Reference Books:

1. Steven Holzner (2010), “Software engineering A Practitioner’s Approach”, McGraw Hill Publications, Sixth Edition.
2. Bear Bibeault, Yehuda Katz (2010), “jQuery in Action”, Manning Publications Company, First Edition.

THE STANDARD FIREWORKS RAJARATNAM COLLEGE FOR WOMEN, SIVAKASI.
DEPARTMENT OF INFORMATION TECHNOLOGY
ADD ON COURSE II
14UITEC2 – SOFTWARE ENGINEERING
(For those admitted in June 2014 and later)

| | |
|---|-----------|
| Contact hours per week | 02 |
| Total number of hours per semester | 30 |
| Number of Credits | 02 |

Objectives:

1. To understand the characteristics of a project
2. To know about the different stages of a project
3. To learn various guide lines for designing a software
4. To understand the testing and its tools.

Unit I

(6 hrs)

Introduction to Software Engineering: Some Definitions – Some Size Factors: Total Effort Devoted to Software, Distribution of Effort, Project Size Categories, How Programmers Spend their Time – Quality and Productivity Factors.

Unit II

(6 hrs)

Planning a Software Project: Planning the Development Process: The phased Life-Cycle Model, Milestones, Documents, and Reviews, The Cost Model, The Prototype Life-Cycle Model, Successive Versions – Planning an Organizational Structure: Project Structure, Programming Team Structure, and Management by Objectives.

Unit III

(6 hrs)

Software Cost Estimation: Software Cost Factors: Programmer Ability, Product Complexity, Product Size, Available Time, Requires Level Reliability, Level of Technology – Software Cost Estimation Techniques: Expert Judgment, Delphi Cost Estimation, Work Breakdown Structures, Algorithmic Cost Models.

Unit IV

(6 hrs)

Software Requirements Definition: The Software Requirements Specification - Formal Specification Techniques: Relational Notations - State-Oriented Notations.

Software Design: Modules and Modularization Criteria: Coupling and Cohesion, Other Modularization Criteria – Design Notations: Data Flow Diagrams, Structure Charts, HIPO Diagrams, Procedure Templates, Pseudocode – Structured Flowcharts – Structured English – Decision Tables.

Unit V

(6 hrs)

Verification and Validation Techniques: Walkthroughs and Inspections: Walkthroughs, Inspections - Unit Testing - System Testing: Integration Testing, Acceptance Testing.

Case Study: Getting Started with Selenium IDE - Important preliminary points - What is Selenium IDE - Time for action-installing Selenium IDE - Selenium IDE - Important note: Rules for automation - Time for action – recording your first test with Selenium IDE.

Text Books:

1. Richard E Fairly (2013), “Software Engineering concepts”, Tata McGraw Hill Publications.

| | | |
|-----------------|---|--|
| Unit I | Chapter: 1 (1.1 – 1.3) | (Pages: 1- 22) |
| Unit II | Chapter: 2 (2.3 – 2.4) | (Pages: 37- 60) |
| Unit III | Chapter: 3 (3.1 – 3.2) | (Pages: 65-79) |
| Unit IV | Chapter: 4 (4.1– 4.2) Chapter: 5 (5.2– 5.3) | (Pages: 88-112), (Pages: 147-161) |
| Unit V | Chapter: 8 (8.2, 8.5.1, 8.6) (Pages: 272- 275, 283-288, 293-297) | |

2. David Burns (2012), “Selenium 2 Testing Tools Beginner's Guide”, Packet Publishing, Mumbai.

| | | |
|---------------|------------|------------------------|
| Unit V | Chapter: 1 | (Pages: 7- 15) |
|---------------|------------|------------------------|

Reference Book:

1. Roger S Pressman (2010), “Software engineering A Practitioner’s Approach”, McGraw Hill Publications, Sixth Edition

The Standard Fireworks Rajaratnam College for Women, Sivakasi
Department of Information Technology
B.Sc I.T

End Semester Examination - Question Paper Pattern

(For those admitted in June 2014 and later)

Time : 3 Hours

Marks : 75

| | Nature of choice | No. of questions | Marks | Total |
|--|-------------------------|--|--------------|--------------|
| Section – A [Choose the Best Answer: 5, Say True or False : 5] | No choice | 10 Questions (Two from each Unit) | 10 * 1 | 10 |
| Section– B | Internal Choice | 5 Questions (One from each Unit) | 5 * 7 | 35 |
| Section – C | Open choice | 3 out of 5 questions (One from each unit) | 3 * 10 | 30 |
| Total | | | | 75 |