BACHELOR OF SCIENCE IN COMPUTER SCIENCE
REGULATIONS

ELIGIBILITY

A candidate who has passed in Higher Secondary Examination with any Academic stream or Vocational stream as one of the subject under Higher Secondary Board of Examination and as per the norms set by the Government of Tamil Nadu or an Examination accepted as equivalent thereto by the Academic Council subject to such conditions as may be prescribed thereto are permitted to appear and qualify for the B.Sc Computer Science of this College a course of study of three academic years.

OBJECTIVES OF THE COURSE

The Curriculum is designed to attain the following learning goals which students shall accomplish by the time of their graduation:

1. To provide adequate basic understanding about computer science and its application to the students.
2. To prepare students to exploit newly created opportunities in the field of computer science and its related field.
3. To give adequate exposure to the computing Environment in the field of Software development, Testing, Animation etc.
4. To inculcate training & practical approach by giving them internship training among the students in the field of computer science.
5. To create awareness of the global economy and training the players in the international business area.

SCHEME OF EXAMINATION

Subject Code	Subject	Hrs of Instruction	Exam Duration (Hrs)	Max Marks			Credit Points
				CA	CE	Total	
First Semester							
Part - I							
15UTL11T 15UHL11H 15UML11M 15UFL11F	Tamil-I/ Hindi-I/ Malayalam-I/ French-I	6	3	25	75	100	4
Part - II							
15UEG12E	English –I	6	3	25	75	100	4
Part - III							
15UCS13A	**Core I :** Computing fundamentals and C Programming	4	3	25	75	100	4
15UCS13B	**Core II:** Digital Fundamentals and Architecture	4	3	25	75	100	4
15UCS13P	**Lab I :** Programming in C	3	3	40	60	100	4
15UMA1AB	**Allied 1:** Mathematical structures for Computer Science	5	3	25	75	100	4
Part – IV							
15UFC1FA	Environmental Studies	2	3	—	50	50	2
Second Semester							
Part – I							
15UTL21T 15UHL21H 15UML21M 15UFL21F	Tamil-II/ Hindi-II/ Malayalam-II/ French-II	6	3	25	75	100	4
Part – II							
15UEG22E	English –II	6	3	25	75	100	4
Part – III							
15UCS23A	**Core III :** C++ programming	5	3	25	75	100	4

BoS Chairman/HoD
Department of Computer Science
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048

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Dr. NGP Arts and Science College
Dr. NGP - Kalapatti Road
Coimbatore - 641 048
Tamilnadu, India

15UCS23P	**Lab II :** Programming in C++	4	3	40	60	100	4
15UCS23Q	**Lab III :** Internet and Office Automation	2	3	20	30	50	2
15UMA2AB	**Allied II :** Discrete Mathematics	5	3	25	75	100	4
Part – IV							
15UFC2FA	Value Education: Human Rights	2	3	-	50	50	2
Third Semester							
Part – III							
15UCS33A	**Core IV:** Data Structures	6	3	25	75	100	4
15UCS33B	**Core V:** Java Programming	5	3	25	75	100	4
15UCS33P	**Lab IV:** Programming in Java	5	3	40	60	100	4
15UMA3AB	**Allied 3:** Computer Based Optimization Technique	6	3	25	75	100	4
Part – IV							
15UCS3SA	**Skill Based Subject 1:** Web Technology	4	3	20	55	75	3
15UFC3FA/ 15UFC3FB/ 15UFC3FC/ 15UFC3FD/ 15UFC3FE	Tamil / Advanced Tamil(OR) Yoga for Human Excellence/ Women's Rights/ Constitution of India	2	3	-	50	50	2
	NMEC: I	2	3	-	50	50	2

Fourth Semester							
Part – III							
15UCS43A	**Core VI:** System Software and Operating Systems	5	3	25	75	100	4
15UCS43B	**Core VII :** Visual Basic and RDBMS	6	3	25	75	100	4
15UCS43P	**Lab V:** Programming in RDBMS and VB	6	3	40	60	100	4
15UCS4AA	**Allied 4:** Cyber Law and Security	5	3	25	75	100	4
Part – IV							
15UCS4SP	**Skill Based Lab: I** Web Technology	4	3	30	45	75	3
	NMEC-II	2	3	-	50	50	2
15UFC4FA/ 15UFC4FB/ 15UFC4FC	**PART IV:** Tamil/ Advanced Tamil/(OR) General Awareness	2	3	-	50	50	2
Fifth Semester							
Part – III							
15UCS53A	**Core VIII:** Software Engineering	6	3	25	75	100	4
15UCS53B	**Core IX:** Dot Net Programming	6	3	25	75	100	4
15UCS53P	**Lab VI:** Programming in Dot Net	6	3	40	60	100	4
15UCS5EA/ 15UCS5EB/ 15UCS5EC	ELECTIVE -I	6	3	25	75	100	4
Part – IV							
15UCS5SA	**Skill Based Subject 2:** Software Testing	6	3	20	55	75	3

Sixth Semester							
Part – III							
15UCS63A	**Core X:** PHP and MYSQL	5	3	25	75	100	4
15UCS63P	**Lab VII:** PHP and MYSQL	5	3	40	60	100	4
15UCS63V	**Core XI:** Project Work	5	3	40	60	100	4
15UCS6EA 15UCS6EB 15UCS6EC	ELECTIVE- II	5	3	25	75	100	4
15UCS6ED 15UCS6EE 15UCS6EF	ELECTIVE- III	5	3	25	75	100	4
Part – IV							
15UCS6SP	**Skill Based Lab 2:** Software Testing	5	3	30	45	75	3
Part – V							
15UEX65A	Extension Activity	-	-	50	-	50	2
Grand Total						**3500**	**140**

ELECTIVE – I

(Student shall select any one of the following subject as Elective in fifth semester)

S. No	Subject Code	Name of the Subject
1.	15UCS5EA	E-Learning
2.	15UCS5EB	Computer Networks
3.	15UCS5EC	Unified Modeling Language

ELECTIVE - II

(Student shall select any one of the following subject as Elective in Sixth semester)

S. No	Subject Code	Name of the Subject
1.	15UCS6EA	Network Security and Cryptography
2.	15UCS6EB	Artificial Intelligence & Expert System
3.	15UCS6EC	Mobile Computing

ELECTIVE - III

(Student shall select any one of the following subject as Elective in Sixth)

S. No	Subject Code	Name of the Subject
1.	15UCS6ED	Data Mining
2.	15UCS6EE	Open Source Software
3.	15UCS6EF	Data Communication and Networks

NON MAJOR ELECTIVE COURSES

- The department offers the following two papers as Non Major Elective Courses for other than the Computer Studies related students.
- Student shall select any one of the following subject as Non Major Elective Courses during their III and IV semester

S. No	Semester	Course Code	Course Title
1.	III	15UED34L	NMEC-I : Internet and Office Automation
2.	IV	15UED44L	NMEC-II : Web Designing

FOR COURSE COMPLETION

A student has to complete the following subject:

- Language papers (Tamil/Malayalam/French/Hindi, English) in I and II semester.
- Environmental Studies and Human Rights in I and II semester respectively.
- Value Added Courses in III and IV semester respectively
- Allied papers in I, II, III and IV semesters.
- Skill based subject in III, IV,V and VI semesters
- One Non Major Elective Course in the III and IV Semester
- Extension activity in VI semester.
- Elective papers in the fifth and sixth semesters.
- An in-house project at the end of VI semester.

Total Credit Distribution

Subjects	Credits	Total		Credits	Cumulative Total
Part I: Tamil	4	02 x 100	200	08	16
Part II: English	4	02 x 100	200	08	
Part III:					
Core	4	11 x 100	1100	44	110
Core Practical	4	06 x 100	600	24	
Core Practical	1	01 x 50	50	02	
Allied Theory	4	04 x 100	400	16	
Elective	4	03 x 100	300	12	
Skill based subject theory	2	02 x 75	150	06	
Skill based subject practical's	2	02 x 75	150	06	
Part IV:					
Environmental Studies	2	01 x 50	50	02	**12**
General Awareness	2	01 x 50	50	02	
Value Education	2	02 x 50	100	04	
NMEC	2	02 X 50	100	04	
Part V:					
Extension Activity	1	01 X 50	50	02	02
Total			**3500**	**140**	**140**

15UTL11T	பகுதி -1: தமிழ் தாள்-I	முதல் பருவம்

Total Credits: 4
Hours Per Week: 6

(ஓர் ஆண்டு தமிழ் பயிலும் மாணவர்களுக்கு உரியது)

இக்காலஇலக்கியம்- நீதி இலக்கியம் - சிற்றிலக்கியம்

அலகு-1 இக்காலஇலக்கியம் (கவிதை,சிறுகதை,உரைநடை)

1. பாரதியார் – எங்கள் தாய்
2. பாரதிதாசன் – வாழ்வு
3. **மு.மேத்தா – மரங்கள்**
4. சிற்பி – சர்ப்பயாகம்
5. **சல்மா – விலகிப்போகும் வாழ்க்கை**
6. ஜெயகாந்தன் – இனிப்பும் கரிப்பும்
7. அம்பை – வல்லூறுகள்
8. **முனைவர் வ.சுப மாணிக்கம் – சங்க நெறிகள்**
9. **சோ.நா. கந்தசாமி - தமிழர் பண்பாடு - ஒரு விளக்கம்**

அலகு - 2 நீதி இலக்கியம்

1. நாலடியார் - அறிவுடைமை (அதிகாரம்-25)
2. **மூதுரை - 5 பாடல்கள் (பா.எண் : 6,16,17,23,26)**
3. பழமொழி நானூறு - முயற்சி(10 பாடல்கள்)
4. **நான்மணிக்கடிகை - 5 பாடல்கள் (பா.எண் :1,5,7,8,9)**
5. **திரிகடுகம் - 5 பாடல்கள் (பா.எண் :2,3,5,6,8)**

அலகு -3 சிற்றிலக்கியம்

1. தமிழ் விடுதூது – தூதுப் பொருள்கள்(101-112)
2. திருக்குற்றாலக் குறவஞ்சி – குறத்தி மலைவளம் கூறுதல் (6பாடல்கள்)
3. முக்கூடற் பள்ளு – பள்ளியர் ஏசல் (161-175)
4. கலிங்கத்துப்பரணி – இந்திர சாலம் (154-178)
5. அபிராமி அந்தாதி –10 பாடல்கள் பாடல் எண்: (2,4,6,11,20,26,63,69,71,82)

அலகு -4 இலக்கிய வரலாறு

1. தமிழ்க் கவிதையின் தோற்றமும் வளர்ச்சியும்
2. **தமிழ் சிறுகதையின் தோற்றமும் வளர்ச்சியும்**
3. **தமிழ் உரைநடையின் தோற்றமும் வளர்ச்சியும்**

அலகு - 5 இலக்கணம்

1. **வல்லினம் மிகும் ,மிகா இடங்கள்**
2. **பெயர் ,வினை,இடை , உரிச் சொற்களின் பொது இலக்கணம்**
3. பிறமொழிச்சொற்களைத் தமிழ்ச் சொற்களாக மாற்றுதல் (வடமொழி – தமிழ், ஆங்கிலம் – தமிழ்)
4. பயிற்சிக்குரியன (கவிதை ,சிறுகதை,கட்டுரை படைத்தல்)

பார்வை நூல்கள்:

1 தமிழ்த்துறை வெளியீடு

2 இலக்கிய வரலாறு – பேராசிரியர் முனைவர் பாக்யமேரி

15UHL11H	PART-I: HINDI-I	SEMESTER- I

Total Credits: 4

Hours Per Week: 6

Prose, Non-detailed Text, Grammar & Translation Books Prescribed:

1. PROSE : **Nuthan Gadya Sangrah**

Editor: Jayaprakash (Prescribed Lessons – only 4)

Lesson 1 - Razia

Lesson 2 – Makreal

Lesson3- Bahtha Pani Nirmala

Lesson 4 – Rashtrapitha Mahathma Gandhi

Publisher: Sumitra Prakashan Sumitravas,
16/4 Hastings Road,
Allahabad – 211 001.

2. NON DETAILED TEXT: Kahani Kunj.

Editor: Dr.V.P.Amithab. (Stories 1 -4 only)
Publisher : Govind Prakashan Sadhar Bagaar,
Mathura,
Uttar Pradesh – 281 001.

3. GRAMMAR : Shabdha Vichar (Sangya, Sarvanam, Karak, Visheshan) ONLY (Noun, Pronoun, Adjective, Case Endings) Theoretical & Applied.

REFERENCE BOOKS: Vyakaran Pradeep by Ramdev.
Publisher : Hindi Bhavan,
36,Tagore Town
Allahabad – 211 002. 4.

4. TRANSLATION: English- Hindi only. Anuvadh Abhyas – III (1-10 lessons

Only)

Publisher: Dakshin Bharath Hindi Prachar Sabha
Chennai -17.

6. **COMPREHENSION :** 1 Passage from ANUVADH ABHYAS – III (16- 30)
Dakshin bharath hindi prachar sabha
Chennai- 17.

15UML11M	PART-I: MALAYALAM-I	SEMESTER-I

Total Credits: 4
Hours Per Week: 6

Paper I Prose, Composition & Translation

This paper will have the following five units:

UNIT I &II - Novel

UNIT III & IV - Short story

UNIT V **-** Composition & Translation
- Expansion of ideas, General Essay and Translation of a simple passage from English about **100** words) to Malayalam

TEXT BOOKS:

1. Unit I &II - Naalukettu – M.T. Vasudevan Nair (D.C. Books, Kottayam, Kerala)
2. Unit III & IV - Manikkianum Mattu Prathana Kathakalum – Lalithampika Antharjanam (D.C.Books, Kottayam, Kerala)

REFERENCE BOOKS:

1. Kavitha Sahithya Charitram –Dr. M.Leelavathi (Kerala Sahithya Academy, Trichur)
2. Malayala Novel sahithya Charitram –K.M.Tharakan(N.B.S. Kottayam)
3. Malayala Nataka Sahithya Charitram-G.Sankarapillai(D.C.Books, Kottayam)
4. Cherukatha Innale Innu –M.Achuyuthan(D.C. Books, Kottayam)
5. Sahithya Charitram Prasthanangalilude-Dr. K.M. George,(Chief Editor) (D.C. Books, Kottayam)

15UFL11F	PART-I: FRENCH-I	SEMESTER- I

Total Credits: 4
Hours Per Week: 6

French Language for Under-graduate Degree Programmes

Compétence Culturelle	Compétence De communication	Compétence grammaticale
UNITÉ 1 – Ici, en France		
• Moi et les Autres • La France Express	• INTERACTION: s'identifier • RÉCEPTION ECRITE: Comprendre une annonce d'aeroport • RÉCEPTION ORALE: comprendre l'ecrit de la rue (Panneaux, plaques, rues...) • PRODUCTION ÉCRITE**:** écrire un SMS	• Le présent des verbes: Je suis, je reste,J'arrive • Le lieu: (je suis) à… (je suis) ici • L'infinitif
UNITÉ 2 – Ici, en classe		
• Moi et le francais • Le francais dane le monde	• INTERACTION: Se présenter • RÉCEPTION ORALE: Comprendre des consignes Orales • RÉCEPTION ÉCRITE: Comprendre une fiche D''inscription • PRODUCTION ÉCRITE: écrire un texte à 'impératif	• Tu/vous • Le present des Verbes en-er et de être:je, tu,vous • La forme Impérative (tu ,vous) Des verbes en-er
UNITÉ 3 - Samedi		
• Le fil du temps	• INTERACTION: S'informer • RÉCEPTION ORALE: Comprendre une annonce • RÉCEPTION ÉCRITE: Comprendre un article (titres et illustrations) • PRODUCTION ÉCRITE: écrire des slogans	• Les articles Défines:le,la,les • A,de+le,la,les: Au,aux,du,des,à l', de l' • Être(présent)I'heure • Ll faut+nom Ll faut+infinitive • Pharses

		verbe+complément, Complément+verbe
UNITÉ 4 - Dimanche		
• Les activités Culturelles des Français	• INTERACTION: Acheter,demander des Informations • RECEPTION ORALE: Comprendre les Titres du journal à la radio • RÉCEPTION ÉCRITE: Comprendre les Informations • PRODUCTION ÉCRITE: Inventer des noms de journaux	• Faire, present • Avior, present • Ll y a • Le présent des verbes en-er: Regarder • Combien? • Quand? • Complément de nom: Tremblement de terre, les noms de pays…. • Du,des,de la(reprise U2) • Les adjectifs possessifs: Mon,ta,son, Ma,ta,sa Mes,tes,ses
UNITÉ 5 – Dommage!		
• Un baby-boom en 2000 et 2001 • L'amour, toujours	• INTERACTION: exprimer la tristesse, la peur, conseiller,encourager • RÉCEPTION ORALE: Comprendre une émission De radio • RÉCEPTION ÉCRITE: Comprendre un sondage • PRODUCTION ÉCRITE: écrire des blogs	• Est-ce que • Le present des verbes pouvoir,Vouloir • Le conditionnel des Verbs pouvoir, Vouloir • Ne…pas

TEXT BOOK:

1. *Marcella Di Giura Jean-Claude Beacco,* **Alors I.** Goyal Publishers Pvt Ltd 86, University Block Jawahar Nagar (Kamla Nagar) New Delhi – 110007.

15UEG12E	PART-II: ENGLISH-I	SEMESTER-I

Total Credits: 4
Hours Per Week: 6

OBJECTIVES:

1. To develop the language competence of the students.
2. To be enriched with functional English.

CONTENTS

UNIT-I

PROSE

1. My Financial Career – Stephen Leacock
2. At School – Gandhi
3. Ecology – Barry Commoner

UNIT-II
SHORT STORIES

1. The Gateman's Gift – R.K. Narayan
2. The Open Window – H.H. Munro
3. The Face of Judas Iscariot – Bonnie Chamberlain

UNIT-III
ONE ACT PLAY

1. The Discovery – Herman Old

UNIT-IV
FUNCTIONAL GRAMMAR

1. Vocabulary Exercises
2. Synonyms, Compound Words, etc
3. Communication Skills – Tasks
4. Different types of sentences
5. The Structure of Sentences
6. Transformation of Sentences

UNIT-V
COMPOSITION TASKS

1. Greeting, Introducing, Requesting, Inviting
2. Congratulating, Thanking, Apologising, Advice
3. Suggestions, Opinions, Permissions.
4. Comprehension

TEXT BOOKS:

1. *Seshasayee. N*. 2001. **Honeycomb.** Anu Chitra Publications, Chennai.
2. *Syamala, V*. 2002. **Effective English Communication for You**. Emerald Publisher, Chennai.

REFERENCE BOOKS:

1. *Rajamanickam. A.* 2001**. Everyman's English Grammar.** Macmillan.
2. *Krishna Mohan and Meera Banerji*. 2005. **Developing Communication Skills.** Macmillan, Chennai.
3. *Wren, P.C. and H. Martin***.** 1998**. High School English Grammar and Composition.** Macmillan.

15UCS13A	CORE 1: COMPUTING FUNDAMENTALS AND C PROGRAMMING	SEMESTER – I

Total Credits: 4
Hours Per Week: 4

OBJECTIVES:

The subject aims to build the concepts regarding:

1. To gain experience about structured programming.
2. To help students to understand the implementation of C language.
3. To understand various features in C.

CONTENTS

UNIT – I

Fundamentals of Computers: Introduction – History of Computers- Generations of Computers- Classification of Computers-Basic Anatomy of a Computer System-Input Devices-Processor-Output Devices-Memory Management – Types of Software- Overview of Operating System-Programming Languages-Translator Programs-Problem Solving Techniques.

UNIT – II

Overview of C: Introduction - Character set - C tokens - keyword & Identifiers - Constants - Variables - Data types - Declaration of variables - Assigning values to variables - Defining Symbolic Constants - Arithmetic, Relational, Logical, Assignment, Conditional, Bitwise, Special, Increment and Decrement operators - Arithmetic Expressions - Evaluation of expression - precedence of arithmetic operators - Type conversion in expression – operator precedence & associativity - Mathematical functions - Reading & Writing a character - Formatted input and output.

UNIT – III

Decision Making and Branching: Introduction – If, If….Else, nesting of If …Else statements- Else If ladder – The Switch statement, The?: Operator – The Goto Statement. Decision Making and Looping : Introduction- The While statement- the do statement – the for statement- jumps in loops. Arrays – Character Arrays and Strings

UNIT – IV

User-Defined Functions: Introduction – Need and Elements of User-Defined Functions- Definition-Return Values and their types - Function Calls – Declarations – Category of Functions- Nesting of Functions - Recursion – Passing Arrays and Strings to Functions - The Scope, Visibility and Lifetime of Variables- Multi file Programs. Structures and Unions.

UNIT V

Pointers: Introduction-Understanding pointers-Accessing the address of a variable-Declaration and Initialization of pointer Variable – Accessing a variable through its pointer-Chain of pointers- Pointer Expressions – Pointer Increments and Scale factor- Pointers and Arrays- Pointers and Strings – Array of pointers – Pointers as Function Arguments- Functions returning pointers – Pointers to Functions – Pointers and Structures. File Management in C.

TEXT BOOK:

1. *Balagurusamy.E,* (SecondReprint) 2008**, "COMPUTING FUNDAMENTALS & C PROGRAMMING"**, Tata McGraw-Hill.

REFERENCE BOOKS:

1. *Ashok N Kamthane*, 2002, **Programming with ANSI and Turbo C**, Pearson Edition Publications.
2. *Henry Mullish & Huubert L.Cooper***,** 1996, **The Sprit of C,** Jaico Publications. House.

15UCS13B	CORE- II: DIGITAL FUNDAMENTALS AND ARCHITECTURE	SEMESTER - I

Total Credits: 4
Hours Per week: 4

OBJECTIVES:

The subject aims to build the concepts regarding:

1. To help the students grasp the fundamentals of design as a basic creative activity.
2. The basic building blocks that is the digital circuits has been discussed.
3. To perform conversion between one base to another base and to gain knowledge about number system.

CONTENTS

UNIT-I

Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3, Gray Code. Arithmetic Circuits: Half adder, Full adder, Parallel binary adder, BCD adder, Half subtractor, Full subtractor, Parallel binary subtractor - Digital Logic: the Basic Gates – NOR, NAND, XOR Gates.

UNIT-II

Combinational Logic Circuits: Boolean algebra – Karnaugh map – Canonical form 1 – Construction and properties – Implicates – Don't care combinations - Product of sum, Sum of products, simplifications. Sequential circuits: Flip-Flops: RS, D, JK, and T - Multiplexers – Demultiplexers – Decoder Encoder – shift registers-Counters.

UNIT-III

Input – Output Organization: Input – output interface – I/O Bus and Interface – I/O Bus Versus Memory Bus – Isolated Versus Memory – Mapped I/O – Example of I/O Interface. Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy- Chaining Priority, Parallel Priority Interrupt. Direct Memory Access: DMA

Controller, DMA Transfer. Input – Output Processor: CPU-IOP Communication.

UNIT-IV

Memory Organization: Memory Hierarchy – Main Memory- Associative memory: Hardware Organization, Match Logic, Read Operation, Write Operation. Cache Memory: Associative, Direct, Set-associative Mapping – Writing into Cache Initialization. Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory, Page Table, Page Replacement.

UNIT-V

CASE STUDY: Pin out diagram, Architecture, Organization and addressing modes of 80286-80386-80486-Introduction to microcontrollers.

TEXT BOOKS:

1. *Donald P Leach, Albert Paul Malvino and Goutam Saha,* , Special Indian Edition 2011,**DIGITAL PRINCIPLES AND APPLICATIONS**, Tata McGraw-Hill.
2. *M.Morris Mano,*, 1993,**COMPUTER SYSTEM ARCHITECTURE,** 3rd Edition, Pearson Education, Inc.
3. *RAMESH S.GOANKAR*, 2002,**MICROPROCESSORS AND ITS APPLICATIONS,** Prentice Hall.

REFERENCE BOOKS:

1. *V.K. Puri*, Thirteenth reprint 2006, **DIGITAL ELECTRONICS CIRCUITS AND SYSTEMS ,** Tata MaGraw-Hill.
2. *Schaum's outline series*, *Nicholas Carter*, Indian Special Edition 2006, **COMPUTER ARCHITECTURE,** Tata MCGraw-Hill.

15UCS13P	LAB I :PROGRAMMING LAB IN – C	SEMESTER - I

Total Credits: 4
Hours Per week: 3

OBJECTIVES:

1. To impart knowledge on C programming.
2. To gain experience about structured programming
3. To help students to understand the implementation of C language

CONTENTS

1. Program to find the sum, average, standard deviation for a given set of numbers.
2. Program to generate "n" prime numbers.
3. Program to generate Fibonacci series.
4. Program to illustrate magic square of order n where n > 3 and n is odd.
5. Program to sort the given set of numbers in ascending order.
6. Program to check whether the given string is a palindrome or not using pointers.
7. Program to count the number of Vowels in the given sentence.
8. Program to find the factorial of a given number using recursive function.
9. Program to print the student's Mark sheet assuming roll no, name, and marks in 5 subjects in a structure. Create an array of structures and print the mark sheet in the university pattern.
10. Program to illustrate pointers by adding two matrices and to return the resultant matrix to the calling function.

11. Program to receive two filenames as arguments and check whether the file contents are same or not. If same delete the second file.
12. Program which takes a file as command line argument and copy it to another file. At the end of the second file write the total i)no of chars ii) no. of words and iii) no. of lines.

15UMA1AB	ALLIED I – MATHEMATICAL STRUCTURES FOR COMPUTER SCIENCE	SEMESTER - I

Total Credits: 4
Hours Per week: 5

OBJECTIVES:

The subject aims to build the concepts regarding:

1. To learn about the mathematical structures for computer based applications.
2. To learn mathematical concepts like Matrices, Numerical analysis.
3. To learn applications of statistical and numerical methods for Computer Science

CONTENTS

UNIT – I

Matrices – Introduction –Determination –Inverse of a matrix –Rank of a Matrix –Eigen value Problems.

UNIT –II

System of Simultaneous Linear algebraic Equation –Gauss elimination, Gauss Jordon, Gauss Seidal methods. The solution of Numerical Algebraic & Transcendental equation – Bisection method –Newton – Rapson method –false position method.

UNIT –III

Numerical Differentiations –Newton's forward Difference - Backward Difference –Stirling formula Numerical Integration – Trapezoidal Rule & Simpson's rule Numerical solutions of ordering differential Equations – Taylor series & Runge kutta method.

UNIT –IV

Measures of central tendency –Mean Median and Mode –Relationship among mean median and mode. Measures of dispersion –Range, quartile deviation, mean deviation and Standard deviation

UNIT –V

Regression and Correlation –Types of relationship –Linear regression – Correlation Coefficient of correlation –Regression equation of variables – Discrete Probability distribution – Uniform, Binomial & poison Distribution.

TEXT BOOKS:

1. *M.K. Venkataraman*,**Engineering Mathematics** Volume II-NPC (Unit I)
2. *M.K. Venkataraman*, 2005, **Numerical Methods in science & Engineering** -–NPC , Revised Edition. (Unit II & III)
3. *M.K. Venkataraman,* **Business Statistics** Sultan Chand and Sons (Unit IV & V)

REFERENCE BOOKS:

1. *E. Balagurusamy,* **Numerical methods** –Tata MC Graw Hill.
2. *S C Gupta, V. K. Kapoor* , **Fundamental of Mathematical statistics**, Sultan Chand and Sons

15UTL21T	பகுதி – I: தமிழ் தாள் -II	இரண்டாம் பருவம்

Total Credits: 4
Hours Per Week: 6

2015-2016 ஆம் கல்வியாண்டு முதல் பயில்வோருக்குரிய பாடத்திட்டம்

(ஓர் ஆண்டு தமிழ் பயிலும் மாணவர்களுக்கு உரியது) முதல் ஆண்டு
சங்க இலக்கியம்- பக்தி இலக்கியம் – காப்பியம்

அலகு 1 சங்க இலக்கியம்

1. நற்றிணை – பாடல் எண் : 210 (நெய்தல்) 'நெடியமொழிதலும் கடிய ஊர்தலும்'
2. குறுந்தொகை –பாடல் 2 , 3 (குறிஞ்சி) 'கொங்குதேர் வாழ்க்கை', 'நிலத்தினும் பெரிதே'
3. கலித்தொகை – பாடல் 16 நெய்தல்கலி - 'ஆற்றுதல் என்பது'
4. புற நானூறு – பாடல் 184, 312 'உற்றுழி உதவியும்', 'ஈன்று புறந்தருதல்'
5. ஐங்குறுநூறு – மருதம் முதல் 5 பாடல்கள் (வேட்கைப் பத்து)

அலகு -2 காப்பியங்கள்

1.சிலப்பதிகாரம் – வழக்குரை காதை
2.மணிமேகலை – ஆதிரை பிச்சையிட்ட காதை
3.சீவக சிந்தாமணி- நாமகள் இலம்பகம்(நாட்டு வளம் முதல் 20 பாடல்கள்)
4.கம்பராமாயணம் – வாலிவதைப் படலம் (வாலி இராமனை வினவுதல். பாடல் எண்கள் (4121 முதல் 4136 வரை)

அலகு 3 பக்தி இலக்கியம்

1. தேவாரம் – திருஞானசம்பந்தர் (கோளறுபதிகம்)
2. திருப்பாவை –ஆண்டாள் (முதல் 15 பாடல்கள்)
3. தேம்பாவணி- காட்சிப்படலம் (முதல் 15 பாடல்கள்)
4.சீறாப்புராணம் –மானுக்குப் பிணை நின்ற படலம்

அலகு-4 இலக்கிய வரலாறு

1.முச்சங்க வரலாறு
2.சங்க இலக்கிய வரலாறு
3.பக்தி இலக்கியத்தின் தோற்றமும் வளர்ச்சியும்
4.காப்பியத்தின் தோற்றமும் வளர்ச்சியும்

அலகு -5 இலக்கணம்

1.எழுத்து, அசை, சீர், தளை, அடி, தொடை பொது இலக்கணம்

2.தொகை நிலைத் தொடர்கள்

பார்வை நூல்கள்:

1. தமிழ்த்துறை வெளியீடு
2. இலக்கிய வரலாறு – பேராசிரியர் முனைவர் பாக்யமேரி

15UHL21H	PART-I: HINDI-II	SEMESTER - II

Total Credits: 4
Hours Per Week: 6

(Modern Poetry, Novel, Translation & Letter Writing)

1. Modern Poetry: Shabari – By Naresh Mehtha

Publishers: Lokbharathi Prakashan I Floor,Duebari Building Mahathma Gandhi Marg,
Allahabad -1.

2. Novel: Seva Sadhan – By Prem Chand

Publisher:

3.Translation: Hindi – English Only, (anuvadh abyas – iii) lessons.1 – 10 only

Publisher: dakshin bharath hindi prachar sabha chennai – 600 017.

4. Letter Writing: (Leave letter, Job Application, Ordering books, Letter to Publisher, Personal letter)

15UML21M	PART-I: MALAYALAM-II	SEMESTER- II

Total Credits: 4
Hours Per Week: 6

PAPER II PROSE: NON-FICTION

This Paper will have the following five units:

UNIT I & II

Biography

UNIT III, IV & V

Travelogue

TEXT BOOKS:

1. Unit I & II *Changampuzha Krishna Pillai: Nakshatrangalude Snehabhajanam –M.K. Sanu* (D.C. Books, Kottayam)
2. Unit III, IV & V Kappirikalude Nattil – *S.K. Pottakkadu* (D.C. Books, Kottayam)

REFERENCE BOOKS:

1. Jeevacharitrasahithyam –K.M. George(N.B.S. Kottayam)
2. Jeevacharitrasahithyam malayalathil- Naduvattom Gopalakrishnan (Kerala Bhasha Institute, Trivandrum)
3. Athmakathasahithyam malayalathil – Vijayalam Jayakumar(N.B.S. Kottayam)
4. Sancharasahithyam. Malayalathil-Prof. Ramesh Chandran. V , (Kerala Bhasha Institute, Trivandrum)

15UFL21F	PART-I: FRENCH-II	SEMESTER- II

Total Credits: 4
Hours Per Week: 6

French Language for Under-graduate Degree Programmes

Compétence Culturelle	Compétence De communication	Compétence grammaticale
UNITÉ 6 – Super!		
• L'égalité homme/femme	• INTERACTION: Exprimer des sentiments, exprimer la joie, le plaisir, le bonheur • RÉCEPTION ORALE: Comprendre un jeu radiophonique • RÉCEPTION ÉCRITE: Comprendre des announces • PRODUCTION ÉCRITE: Écrire des cartes postales	• Les noms de professions masculine/feminine • Le verb finir et less Verbes du groupe en-ir • Le present de l'impératif • Savoir(present) • Le participle passé: Fini, aimé, arrive, dit,écrit • Quel(s), quelle(s)..: Interrogatif et Exclamatif • À + infinitive • Les articles: n,une,des
UNITÉ 7 – Quoi?		
• Le 20 siécle: Petits progrés Grand progrés	• INTERACTION: Decrire quelque chose, une personne • RECEPTION ORALE: Comprendre un message publicitaire • RÉCEPTION ÉCRITE: Comprendre un dépliant touristique • PRODUCTION ÉCRITE: Écrire des petites annonces	• On • Plus, moins • Le verbe aller: • Present, impératif • Aller + infinitife • Le pluriel en –x
UNITÉ 8 – Et aprés		
• Nouvelles du jour	• INTERACTION: Raconteur,situer un récit dans le temps • RÉCEPTION ORALE:	• L'imparfait:: quel-Ques forms pour introduire le récit:Il faisait, il y avait, il

	Comprendre une description • RÉCEPTION ÉCRITE: Comprendre un test • PRODUCTION ÉCRITE: écrire des cartes postales	Était • Un peu, beaucoup, trop,Assez • Trés • Le verbe venir: Présent, impératif • En Suisse, au Maroc, aux Etats-Unis
UNITÉ 9 – Mais oui!		
• La génération des 20-30 ans	• INTERACTION: Donner son opinion, Expliquer pourquoi • RÉCEPTION ORALE: Comprendre des informations à la radio • RÉCEPTION ÉCRITE: Comprendre un texte informatif • PRODUCTION ÉCRITE: éncrire un mél de protestation	• Répondre, prendre: Présent, impératif, part Passé • Parce que pourquoi • Tout/tous, toute/s Tous/toutes les… (répétition action)
UNITÉ 10 – Mais non!		
• De la ville à la campagne	• INTERACTION: Débat:: exprimer l'accord, exprimer le Désaccord • RECEPTION ORALE: Comprendre un message sur un répondeur téléphonique • RÉCEPTION ÉCRITE: Comprendre un témoignage • PRODUCTION ECRITE: Rediger des petites Announces immobilieres	• Le verbe devoir: Present et participe passé • Le verbe vivre, present • Aller + infinitive • Venir+ infinitive • Etre pour/contre

TEXT BOOK:

1. *Marcella Di Giura Jean-Claude Beacco,* **Alors I.** Goyal Publishers Pvt Ltd 86, University Block Jawahar Nagar (Kamla Nagar) New Delhi – 110007.

15UEG22E	PART- II: ENGLISH-II	SEMESTER II

Total Credits: 4
Hours Per Week: 6

OBJECTIVES:

1. To develop the language competence of the students.
2. To be enriched with functional English.

UNIT-I
PROSE

1. Words of Wisdom – Chetan Bhagat
2. Forgetting – Robert Lynd
3. My Early Days – Dr. Abdul Kalam

UNIT-II
SHORT STORIES

1. Am I Blue? – Alice Walker
2. Last Leaf – O Henry
3. Selfish Giant – Oscar Wilde

UNIT-III
ONE ACT PLAY

1. Soul Gone Home - Langston Hughes

UNIT-IV
FUNCTIONAL GRAMMAR

1. Lexical Skills and Question Forms
2. Idioms and Phrases – Subject-Verb Agreement
3. Spelling, Antonyms and Synonyms, Infinitives
4. Vocabulary, Report Writing
5. Plurals, Particles in Adjectives
6. Apostrophe, Archaic Words, Art of Persuasion
7. Syllables, Changing Adjectives to Nouns
8. Homonyms, Prepositions
9. Compound Words, Acronyms, Collective Nouns, Degrees of Comparison

UNIT-V

COMPOSITION TASKS

1. Letter Writing - Structure
2. Business Correspondence – Memos, reports, proposals
3. Resume & C.V.
4. Advertisements
5. Notices, Agenda, Minutes
6. Circulars
7. Essay Writing
8. Précis Writing
9. Dialogue Writing
10. Soft Skills, Business English

TEXT BOOKS:

1. *Board of Editors.* 2012. **Radiance – English for Communication**, Emerald Publishers.
2. *Syamala, V*. 2002. **Effective English Communication for You**. Emerald Publisher, Chennai.

REFERENCE BOOKS:

1. *Rajamanickam. A.* 2001**. Everyman's English Grammar.** Macmillan.
2. *Krishna Mohan and Meera Banerji*. 2005. **Developing Communication Skills.** Macmillan, New Delhi.
3. *Wren, P.C. and H. Martin***.** 1998**. High School English Grammar and Composition.** Macmillan.

15UCS23A	CORE III : C++ ROGRAMMING	SEMESTER - II

Total Credits: 4
Hours Per week:5

OBJECTIVES:

The subject aims to build the concepts regarding:

1. To inculcate knowledge on Object-oriented programming concepts using C++.
2. Introduce different techniques pertaining problem solving skills.
3. Arm the students with the necessary constructs of C++ programming.

CONTENTS

UNIT-I

Introduction to **C++ -** key concepts of Object-Oriented Programming – Advantages Object Oriented Languages – I/O in C++ - C++ Declarations. Control Structures: - Decision Making and Statements : If .. else ,jump, goto , break, continue, Switch case statements - Loops in C++ : For, While, Do - Functions in C++ - Inline functions – Function Overloading.

UNIT-II

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

UNIT-III

Operator Overloading: Overloading unary, binary operators – Overloading Friend functions – type conversion – Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal, Hybrid, Multi path inheritance – Virtual base Classes – Abstract Classes.

UNIT-IV

Pointers – Declaration – Pointer to Class , Object – this pointer – Pointers to derived classes and Base classes – Arrays – Characteristics – array of

classes – Memory models – new and delete operators – dynamic object – Binding , Polymorphism and Virtual Functions.

UNIT-V

Files – File stream classes – file modes – Sequential Read / Write operations – Binary and ASCII Files – Random Access Operation – Templates – Exception Handling - String – Declaring and Initializing string objects – String Attributes – Miscellaneous functions.

TEXT BOOKS:

1. *Ashok N Kamthane,* Seventh Impression 2009, **OBJECT-ORIENTED PROGRAMMING WITH ANSI AND TURBOC C++,** Pearson Education.

REFERENCE BOOKS:

1. *Balagurusamy.E,* **OBJECT-ORIENTED PROGRAMMING WITH C++,** Tata McGraw-Hill, Sixth Edition.
2. *Maria Litvin & Gray Litvin ,* 2002 .**C++ for you**, Vikas publication.
3. *John R Hubbard*, 2002,**Programming with C++,** 2nd Edition, TMH publication.

15UCS23P	LAB II : PROGRAMMING IN C++	SEMESTER - II

Total Credits: 4
Hours Per week: 4

OBJECTIVES:

1. To inculcate knowledge on Object-oriented programming concepts using C++.
2. Introduce different techniques pertaining problem solving skills
3. Arm the students with the necessary constructs of C++ programming.

CONTENTS

1. Program to create a class ARITHMETIC which consists of a FLOAT and an INTEGER variable. Write a Member function ADD (), SUB (), MUL (), DIV () to perform addition, subtraction, multiplication, division respectively. Write a member function to get and display values.
2. Program to create a class using virtual function.
3. Program to read an integer number and find the sum of all the digits until it reduces to a single digit using constructors, destructors and inline member functions.
4. Program to create a class FLOAT that contains one float data member. Overload all the four Arithmetic operators so that they operate on the object FLOAT.
5. Program to create a class STRING. Write a Member Function to initialize ,get and display stings. Overload the Operator —+‖ to Concatenate two Strings, —= =‖ to Compare two strings

6. Program to create class, which consists of EMPLOYEE Detail like E_Number, E_Name, Department, Basic, Salary, Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade using Multiple Inheritance.
7. Program to create a class SHAPE which consists of two VIRTUAL FUNCTIONS Calculate_Area() and Calculate_Perimeter() to calculate area and perimeter of various figures. Derive three classes SQUARE, RECTANGLE, TRIANGE from class Shape and Calculate Area and Perimeter of each class separately and display the result.
8. Program for Banking Information system using FRIEND FUNCTION
9. Program to implement Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.
10. Program to check whether the given string is a palindrome or not using Pointers.
11. Program to create a File and to display the contents of that file with line numbers.
12. Program to merge two files into a single file.

15UCS23Q	LAB III: INTERNET AND OFFICE AUTOMATION	SEMESTER - II

Total Credits: 2
Hours Per week: 2

OBJECTIVES:

1. To learn basic computer skills with Microsoft Word, Microsoft Excel, Microsoft PowerPoint and Microsoft Access.
2. To learn internet skills for searching.
3. To learn ICT based skill development.

CONTENTS

1. To create an email-id, compose and send a mail.
2. To send a mail with an attachment and download the attached document of a mail received.
3. To send a mail to a large number of recipients using cc and bcc options.
4. To search a thing using a search engine.
5. To open and read newspaper sites, TV programmes
6. Create a resume and format using MS WORD.
7. Create a class time table using MS WORD
8. Prepare mail merge for parent meeting using MS WORD
9. Prepare Student mark sheet **using MS EXCEL**
10. Create a chart for result analysis **using MS EXCEL**
11. Prepare a mark list for following conditions using data filter and data sort in

MSEXCEL

i. Prepare mark list in ascending order.
ii. Average is greater than or equal to 60.

iii. Average is between 50 and 60.

iv. d) Average is below 40

v. Design organizational chart for Arts and Science College using POWER POINT

vi. Create a power point presentation to advertise a product using Slide Transition and Custom animation

vii. Create a database to student's Mark sheet using MS Access

viii. Create a data base to employee pay roll using MS Access

15UMA2AB	ALLIED II – DISCRETE MATHEMATICS	SEMESTER - II

Total Credits: 4

Hours Per week: 5

OBJECTIVES:

On successful completion of this subject the students should have

1. Understanding the concepts of discrete mathematics
2. Learning applications of discrete structures in Computer Science.
3. Learning structures like set theory, mathematical logic , relations, graphs and trees.

CONTENTS

UNIT–I

Set theory-Introduction-Set & its Elements-Set Description-Types of sets-Venn-Euler diagrams-Set operations & Laws of set theory-Fundamental products-partitions of sets-minsets-Algebra of sets and Duality-Inclusion and Exclusion principle

UNIT–II

Mathematical logic – Introduction-prepositional calculus – Basic logical operations-Tautologies - Contradiction- Argument- Method o f proof-Predicate calculus.

UNIT III

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

UNIT–IV

Languages–Operations on languages –Regular Expressions and regular languages –Grammar –Types of grammars –Finite state machine –Finite – State automata

UNIT V

Graph Theory –Basic terminology – paths, cycle & Connectivity – Sub graphs – Types of graphs –Representation of graphs in computer memory -Trees –Properties of trees –Binary trees – traversing Binary trees – Computer Representation of general trees.

TEXT BOOKS:

1. *J.K. Sharma* , Second Edition –2005 , **Discrete Mathematics**, Macmillan India Ltd. (UNIT I TO V)

REFERENCE BOOKS:

1. *J. P Tremblay R Manohar* , **Discrete Mathematics Structures with Applications to computer science**, Mc Graw Hill International Edition.
2. *Dr M. K. Venketaramen, Dr N.Sridharan, N.Chandarasekaran* , **Discrete Mathematics**,The National publishing Company Chennai.

15UCS33A	CORE IV: DATA STRUCTURES	SEMESTER - III

Total Credits: 4
Hours Per week: 6

OBJECTIVES:

The subject aims to build the concepts regarding:

1. Understand fundamentals of data
2. This subject deals with basic techniques of algorithm analysis
3. Be familiar with advanced data structures such as balanced search trees, hash tables, priority queues and the disjoint set union/find data structure

CONTENTS

UNIT-I

Introduction: Introduction of Algorithms, Analyzing Algorithms. Arrays: Sparse Matrices - Representation of Arrays. Stacks and Queues. Fundamentals - Evaluation of Expression Infix to Postfix Conversion - Multiple Stacks and Queues

UNIT-II

Linked List: Singly Linked List - Linked Stacks and Queues - Polynomial Addition - More on Linked Lists - Sparse Matrices - Doubly Linked List and Dynamic - Storage Management - Garbage Collection and Compaction.

UNIT-III

Trees: Basic Terminology - Binary Trees - Binary Tree Representations - Binary Trees -Traversal - More on Binary Trees - Threaded Binary Trees - Binary Tree Representation of Trees - Council Binary Trees. Graphs: Terminology and Representations - Traversals, Connected Components and Spanning Trees Shortest Paths and Transitive Closure

UNIT-IV

External Sorting: Storage Devices -Sorting with Disks: K-Way Merging - Sorting with Tapes Symbol Tables: Static Tree Tables - Dynamic Tree Tables - Hash Tables: Hashing Functions - Overflow Handling.

UNIT-V

Internal Sorting: Insertion Sort - Quick Sort - 2 Way Merge Sort - Heap Sort - Shell Sort - Sorting on Several Keys. Files: Files, Queries and Sequential organizations - Index Techniques -File Organizations

TEXTBOOKS:

1. *Ellis Horowitz, Sartaj Shani***, Data and File Structures Galgotia Publication**.

REFERENCE BOOKS:

1. *Seymour lipschutz,G A V Pai,* **DATA STRUCTURES,** Schaum's Outlines, Mc- Graw Hill International Edition.
2. *Ellis Horowitz, Sartaj Shani, Sanguthevar Rajasekaran* **Computer Algorithms** Galgotia Publication.

15UCS33B	CORE V: JAVA PROGRAMMING	SEMESTER - III

Total Credits: 4
Hours Per week:5

OBJECTIVES:

The subject aims to build the concepts regarding:

1. Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
2. To be able to use the Java SDK environment to create, debug and run simple Java programs.
3. This subject deals with Java Programming concepts where it enables us to create wide range of Applications and Applets using Java.

CONTENTS

UNIT-I

Fundamentals of Object-Oriented Programming: Object-Oriented Paradigm – Basic Concepts of Object-Oriented Programming – Benefits of Object-Oriented Programming –Application of Object-Oriented Programming. Java Evolution: History – Features – How Java differs from C and C++ – Java and Internet – Java and www – Web Browsers. Overview of Java: simple Java program – Structure – Java Tokens – Statements – Java Virtual Machine.

UNIT-II

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

UNIT-III

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

UNIT-IV

Managing Errors and Exceptions – Applet Programming – Graphics Programming.

UNIT-V

Advanced java introduction – Servlets: Introduction- Servlet Interaction & Advanced Servlets Life cycle of Servlet- Java Servlet Development Kit. RMI: introduction -RMI Architecture**-**Designing RMI application-Executing RMI application. JavaServer Pages: Introduction**-** JSP Technologies**-**Understanding the Client-Server Model

TEXTBOOKS:

1. *Balagurusamy.E,* ,First reprint 2010,**PROGRAMMING WITH JAVA – A PRIMER,** Tata McGraw-Hill, Fourth Edition.

REFERENCE BOOKS:

1. *Patrick Naughton & Hebert Schildt***,** Fifth Edition 2002, **THE COMPLETE REFERENCE JAVA 2** , Tata McGraw-Hill,.
2. *Schaum's Outlines, John Rast Hunnard***,** 2004, **PROGRAMMING WITH JAVA,** Tata McGraw-Hill.

15UCS33P	LAB IV: PROGRAMMING IN JAVA	SEMESTER - III

Total Credits: 4
Hours Per week: 5

OBJECTIVES:

1. Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
2. To be able to use the Java SDK environment to create, debug and run simple Java programs.
3. This subject deals with Java Programming concepts where it enables us to create wide range of Applications and Applets using Java.

CONTENTS

1. Program to illustrate stack functions.
2. Program to implement the concept of multiple inheritance using Interfaces.
3. Program to create an Exception called payout-of-bounds and throw the exception.
4. Program to implement the concept of multithreading with the use of any three multiplication tables and assign three different priorities to them.
5. Program to draw several shapes in the created windows.
6. Program to create a frame with four text field's name, street, city and pin code with suitable tables. Also add a button called —my details, when the button is clicked its corresponding values are to be appeared in the text fields.
7. Program to demonstrate the Multiple Selection List-box.

8. Program to create a frame with three text fields for name, age and qualification and a text field for multiple line for address
9. Program to create Menu Bars and pull down menus.
10. Program to create frames which respond to the mouse clicks. For each Events with mouse such as mouse up, mouse down, etc., the corresponding message to be displayed.
11. Program to draw circle, square, ellipse and rectangle at the mouse click positions.
12. Program to open an existing file and append text to that file.

15UMA3AB	ALLIED III – COMPUTER BASED OPTIMIZATION TECHNIQUES	SEMESTER – III

Total Credits: 4
Hours Per week: 6

OBJECTIVES:

On successful completion of this subject the students should have,

1. Understanding various mathematical applications in industries.
2. Decision making for real time environment.
3. To learn various optimization techniques.

CONTENTS

UNIT-I

Linear Programming -Mathematical Model assumption of linear Programming –Graphical method -Principles of Simplex method, Big-M Method ,Duality, Dual simplex method.

UNIT-II

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

UNIT-III

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

UNIT-IV

(Derivations not included)

Queuing Theory -definition of waiting line model Queue discipline -traffic intensity - poison arrival –Birth death process -Problem from single server: finite and infinite population model –Problems from multi server: finite and infinite population model.

UNIT-V

PERT & CPM -Network representation -backward pass -Forward pass -computation -Pert Network -Probability factor –updating and Crashing.

TEXT BOOKS:

1. *Manmohan, P.K. Gupta, Kanthiswarup*, 1997,**OPERATIONS RESEARCH**, S. CHAND & SONS.

REFERENCE BOOKS:

1. *Hamdy A Taha*, , 7th edition, 2002, **OPERATIONS RESEARCH** , Pearson Education.
2. P.K. Gupta, D.S. Hira,S, **PROBLEMS IN OPERATIONS RESEARCH**, Chand Publications.

15UCS3SA	SKILL BASED SUBJECT – I : WEB TECHNOLOGY	SEMESTER - III

Total Credits: 3
Hours Per week: 4

OBJECTIVES:

1. To inculcate knowledge web technological concepts and functioning internet.
2. To build web applications using ASP and client side script technologies use with Microsoft's IIS.
3. To build XML applications with DTD and style sheets that span multiple domains

   Ranging from finance to vector graphics to genealogy for use with legacy browsers

CONTENTS

UNIT-I

TCP/IP: TCP/IP Basics – Why IP address – Logical Address - TCP/IP Example-The concept of IP address – Basics of TCP – Features of TCP – Relationship between TCP and IP – Ports and Sockets – Active Open and Passive Open - TCP Connections – What makes TCP reliable? – TCP Packet format - Persistent TCP connections – UDP – Differences between TCP and UDP.

UNIT-II

DNS – E-mail – FTP – TFTP – History of WWW – Basics of WWW and Browsing - Local information on the internet – HTML – Web Browser Architecture – Web Pages and Multimedia – Remote Login (TELNET).

UNIT-III

Introduction to Web Technology: Web pages – Tiers – Concept of a Tier – Comparison of Microsoft and Java Technologies – Web Pages – Static Web Pages – Plug-ins– Frames – Forms. Dynamic Web Pages: Need – Magic of Dynamic Web Pages – Overview of Dynamic Web Page Technologies – Overview of DHTML – Common Gateway Interface – ASP – ASP Technology – ASP Example – Modern Trends in ASP – Java and JVM – Java Servlets – Java Server Pages.

UNIT-IV

Active Web Pages: Active Web Pages in better solution – Java Applets – Why are Active Web Pages Powerful? – Lifecycle of Java Applets – ActiveX Controls – Java Beans. Middleware and Component-Based E-Commerce Architectures: CORBA – Java Remote Method Invocation – DCOM. EDI: Overview – Origins of EDI – Understanding of EDI – Data Exchange Standards – EDI Architecture – Significance of EDI – Financial EDI – EDI and internet.

UNIT-V

XML: SGML – Basics of XML – XML Parsers – Need for a standard. WAP: Limitations of Mobile devices – Emergence of WAP – WAP Architecture – WAP Stack – Concerns about WAP and its future – Alternatives to WAP.

TEXTBOOKS:

1. *Achyut S Godbole and Atul Kahate,*, Fifth Reprint 2006, **Web Technologies TCP/IP to Internet Applications Architectures,** Tata MaGraw-Hill.

   (UNIT-I: 3.1-3.5, 4.1-4.12UNIT-II: 5.1-5.4,6. 1-6.7 UNIT III:8.1-8.1,9.1- 9.13 UNIT IV: 10.1-10.7,15.1-15.3,16.1-16.8 UNIT-V: 17.1-17.4,18.1-18.6)

REFERENCE BOOKS:

1. *Rajkamal*, **Internet And Web Technologies,** Seventh Reprint 2007,Tata MaGraw-Hill.
2. *Behrouz A. Forouzan* , Twelfth Reprint 2008**TCP/IP PROTOCOL SUITE** , Third Edition, Tata MaGraw-Hill.

15UED34L	NMEC-I: INTERNET AND OFFICE AUTOMATION	SEMESTER - III

Total Credits: 2
Hours Per week: 2

OBJECTIVES:

To develop fundamental knowledge in computer and Microsoft Office packages.

1. To inculcate knowledge about internet.
2. To educate the students about the ICT based learning.
3. To gain knowledge about automation tools.

CONTENTS

UNIT- I

Internet and its history -Defining and describing the Internet-Brief history discussing the future of the Internet. Internet Resources: Email- Parts of email. Email software- Web-based email-Email address-IRC-Newsgroups, File transfer protocol-TELNET: Web browser-GOPHER, VERONICA-Mozilla Firefox

UNIT- II

Introduction to MS-Office - MS-Word: Starting word - Creating document - parts of word window - Keyboard operations - Do's and Don'ts Entering text - Changing the font type - font size- aligning the text - spell check – bullets - print preview - print the document - saving and opening the document - header and footer , Mail merge, Table – Macro.

UNIT- III

MS-Excel: Introduction - Selecting Cells - Entering text, Entering numbers - Entering formulas - Entering Dates - Fill series - Do's and Don'ts, Copying and pasting the formula - formatting cells - Currency notation - Auto fit – Inserting, rows and columns

UNIT- IV

Summation - Creating chart , Data sort - Data filters ,Functions: round(); sqrt(); average(); max(); min(); count(); sum(); today(); now(),Ms-Power point: Introduction - creating a new presentation - Opening a

presentation - Creating a new slide - Deleting a slide, Inserting clip art - Inserting pictures - Inserting text - Formatting text - Inserting graph, Organizational chart - Inserting table, Master slide - Slide Transition - Custom animation.

UNIT- V

MS-Access: Introduction - What is a database? - Parts of an access window, Creating a new database - Creating a database through table wizard - Creating new table - Rename columns - Saving the database, Relationship – Query - Forms and Reports

TEXT BOOKS:

1. *Margaret Levine Young,Doug Muder,Dave Kay,Kathy Warfel,Alison Barrows,* 1999, **Internet:The Complete Reference,** Millennium Edition, The McGraw-Hill Companies.

REFERENCE BOOKS:

1. *Alexis Leon, Mathews Leon*; 1999, **Introduction to computers**, Leon Tech World.
2. *Dr. Larry Long*; **Computer Fundamentals**.
3. Joseph W. Habraken; 2003, *Microsoft Office 2003 all-in-one*, Vikas Publishing House Pvt. Ltd.

15UCS43A	CORE-VI: SYSTEM SOFTWARE AND OPERATING SYSTEM	SEMESTER - IV

Total Credits: 4
Hours Per week: 5

OBJECTIVES:

The subject aims to build the concepts regarding:

1. The objective is to understand the various concepts of System programs and machine languages.
2. It emphasizes the need and the functionality of the operating system, to discuss the components and responsibilities of the operating system like storage management, process management and file system also discussed.
3. Perform user administration, access control, auditing, and reporting on various operating systems.

CONTENTS

UNIT- I

Introduction –System Software and machine architecture-Assemblers-Basic assembler functions - Machine dependent features-program relocation-Machine independent features – literals - symbol defining statements-expressions-program blocks-control sections and program linking - Assembler design options-one pass assemblers-multi pass assemblers. Loader and Linkers: Basic Loader Functions - Machine dependent loader features – relocation – program – linking -Machine independent loader features - Automatic Library search - Loader options - Loader design options – linkage editor - dynamic linking - Bootstrap loader.

UNIT- II

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

UNIT- III

Machine dependent compiler features – Intermediate form of the program-Machine dependent code optimization-machine independent compiler features-Compiler design options-division into passes-interpreters-p –code compilers-compiler-compilers.

UNIT- IV

Introduction: Definition of DOS – History of DOS –Definition Of Process – Process states - process states transition – Interrupt processing – interrupt classes – Storage Management Real Storage: Real storage management strategies – Contiguous versus Non-contiguous storage allocation – Single User Contiguous Storage allocation- Fixed partition multiprogramming –Variable partition multiprogramming. Virtual Storage: Virtual storage management strategies – Page replacement strategies – Working sets –Demand paging – page size.

UNIT- V

Processor Management Job and Processor Scheduling: Preemptive Vs Non-preemptive scheduling – Priorities – Deadline scheduling - Device and Information Management Disk Performance Optimization: Operation of moving head disk storage – Need for disk scheduling – Seek Optimization – File and Database Systems: File System – Functions – Organization – Allocating and freeing space – File descriptor –Access control matrix.

TEXT BOOKS:

1. *Leland –L-Beck,* Third Edition, 2003, **"System Software-An Introduction to Systems Programming",** Pearson Education Publishers.

2. *H. M Deitel* ,2003, **" Operating Systems "** , 2nd Edition, Pearson Education Publication.

REFERENCE BOOKS:

1. *Achyut s Godbole ,* 2002 **," Operating Systems" ,** TMH Publications.

3. *John J. Donovan,* 1991**, "Systems Programming" ,** TMH Publications.

4. *D.M. Dhamdhrer,* **"Systems Programming and Operating Systems ",** 2nd Revised Edition.

15UCS43B	CORE-VII: VISUAL BASIC AND RDBMS	SEMESTER - IV

Total Credits: 4
Hours Per week: 6

OBJECTIVES:

The subject aims to build the concepts regarding:

1. To inculcate Knowledge in Visual Programming and Relational Database Concepts.
2. Enables students to understand relational database concepts and transaction management concepts in database system.
3. Enables student to write PL/SQL programs that use: procedure, function, package, cursor and trigger.

CONTENTS

UNIT-I

Introducing Visual Basic: What is VB? – Event and Event Procedures – Object related concepts –VB program Development Process- Logical Program Organization -VB Program Components – VB environment – Opening, Saving, Running a VB Project –Visual Basic Fundamentals: constants – Variables – Data Types and Declarations – Operators and Expressions – Program Comments. Branching and Looping: Relational operators and Logical Expressions – Branching with If-Then, If-Then-Else blocks – Selection Select Case – Looping with For-Next, Do-Loop, While-Wend – Stop statement.

UNIT-II

Visual Basic control Fundamentals: Control tools – Control tool Categories – Working with Controls – Naming Forms and Controls – Assigning Property values to Forms and Controls – Executing commands – Displaying Output – Entering Input Data – Selecting Multiple Features, Exclusive Alternatives, Form from a List - Assigning Properties collectively – Generating Error Messages – Creating timed Events – Scroll Bars. Menus and Dialog Boxes: Building Drop-Down Menus – Accessing Menu from Keyboard – Menu Enhancements –

Submenus – Pop-Up Menus – Dialog Boxes – more about MsgBox Function – The Input Box function.

UNIT-III

Procedures: Modules and Procedures – Sub Procedures – Event Procedures – Function Procedures – Scope – Optional Arguments.

Arrays: Characteristics – Declarations –Processing – Passing Arrays to Procedures – Dynamic Arrays – Array-related Functions – Control Arrays – Looping with for Each-Next.

Data Files: Sequential Data Files – Random-Access Data files– Binary files.

UNIT-IV

Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules –Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams – De –normalization.
DDL: Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

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

UNIT –V

PL/SQL: A Programming Language: Block Structure –Data Types – Other Data Types – Declaration – Operators- Control Structures and Embedded SQL: Control Structures – Nested Blocks – SQ L in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF

clause – Cursor with Parameters – Cursor Variables – Named Blocks: Procedures – Functions – Packages –Triggers.

TEXT BOOKS:

1. *Byron S. Gottfried , Schaum's Outline series,* 2001,**"VISUAL BASIC**", TMH.
2. *Nilesh Shah,* 2nd edition, 2008. DATABA**SE SYSTEMS USING ORACLE,** PHI,

REFERENCE BOOKS:

1. *Eric A Smith, Valor Whisher, Hank Marquis,* 1998 **,"Visual Basic 6 Programming Bible",** Illustrated Edition, Wiley.
2. *Cornell,* **Visual Basic 6 from the Ground Up**, 1999,Tata Mcgraw Hill Company Ltd.
3. *Oracle Press,* Eleventh reprint 2007, **Oracle 9i: A Beginener's Guide,** Tata McGraw Hill.

15UCS43P	LAB V: PROGRAMMING IN VISUAL BASIC AND RDBMS	SEMESTER - IV

Total Credits: 4
Hours Per week: 6

OBJECTIVES:

1. To inculcate Knowledge in Visual Programming and Relational Database Concepts.
2. Enables students to understand relational database concepts and transaction management concepts in database system.
3. Enables student to write PL/SQL programs that use: procedure, function, package, cursor and trigger.

CONTENTS

VISUAL BASIC

1. Program to accept a number as input and convert them into Binary b. Octal c. Hexa-decimal
2. Program to add the items to list box with user input and move the selected item to combo box one by one.
3. Program to develop a calculator with basic operation.
4. Design a form using common dialog control to display the font, save and open dialog box without using the action control property.
5. Program to prepare a Questionnaire.
6. Program to develop a menu driven program
7. Develop a Simple Project for Student Database Management System using VB as front end and ORACLE as back end.

ORACLE

1. Creating a table for Employee details with Employee Number as primary key and following fields: Name, Designation, Gender, Age, Date of Joining and Salary. Insert at least ten rows and perform

various queries using any one Comparison, Logical, Set, Sorting and Grouping operators.

2. Creating tables for library management system which demonstrate the use of primary key and foreign key. Master table should have the following fields: Accno, Title, Author and Rate. Transaction table should have the following fields: User id, Accno, Date of Issue and Date of Return. Create a Report(Select verb) with fields Accno, Title, Date of Issue for the given Date of Return with column formats.
3. Construct a PL/SQL block to update the rate field by 20% more than the current rate in inventory table which has the following fields: Prono, ProName and Rate. After updating the table a new field (Alter) called for Number of item and place for values for the new field without using PL/SQL block.
4. Construct a PL/SQL block to split the student table into two tables based on result (One table for "Pass" and another for "Fail"). Use cursor for handling records of student table. Assume necessary fields and create a student details table.
5. Create a database trigger to implement on master and transaction tables which are based on inventory management system for checking data validity. Assume the necessary fields for both tables.
6. Construct a PL/SQL block to raise the following Exception in Bank Account Management table when deposit amount is zero.

15UCS4AA	ALLIED IV- CYBER LAW AND SECURITY	SEMESTER - IV

Total Credits: 4
Hours Per week: 5

OBJECTIVES:

1. An overview of Information Security and Assurance.
2. An exposure to the spectrum of security activities, methods, methodologies, and procedures
3. Emphasis on practical aspects of Information laws and security.

CONTENTS

UNIT-I

Overview of cyber law-Copy Right-Sources of risk-Infringement-Sources of risk-Criminal Liability-Privacy Act-Criminal Liability-Electronic contracts and digital signatures.

UNIT-II

Is there security problem in Computing? What does security mean? – Attacks- The meaning of Computer security-Computer Criminals-Methods of Defense- Hardware and software security.
Elementary Cryptography: Terminology & background- Substitution Ciphers-Transpositions- Making good Encryption Algorithms- DES.

UNIT-III

Program Security: Secure Programs- Non malicious Programs Errors-Viruses & other Malicious code- Targeted Malicious code- Controls against Program Threats.

UNIT-IV

Operating System: Protected objects & methods of Protections- Memory and Address protection - User Authentication. Designing trusted Operation operating system: What is trusted system?- Security policies-Models of security- Trusted OS design.

UNIT-V

Database Security: Introduction to Database, Security Requirements- Reliability & Integrity- Sensitive data- Inference- Multilevel Database- Proposal for Multilevel Security.

TEXT BOOKS:

1. *Jonathan Rosenoer*, 2nd edition,1996,"**Cyber Law-The Law of Internet**", Springer.
2. *Charles P. Pfleeger and Shari L. Pfleeger*, 3rd Edition,2003,"**Security in Computing**" Prentice-Hall.

REFERENCE BOOK:

1. *Dieter Gollmann* , 2nd Edition,2011, "**Computer Security**". John Wiley & Sons.

15UCS4SP	SKILL BASED LAB-1: WEB TECHNOLOGY	SEMESTER - IV

Total Credits: 3
Hours Per week:4

NOTE: Develop a project / case study using the above applicable concepts.

OBJECTIVES:

The subject aims to build the concepts regarding:

1. To learn and develop Web Applications.
2. To learn and development of ASP.NET Frameworks.
3. To learn and development of CMS.

CONTENTS

1. Creation of ASP.NET Web Page.
2. Creating and manipulation with Web Controls.
3. Create and manipulate with Rich Web Controls (Ad rotator).
4. Create and manipulate with Rich Web Controls (Calendar).
5. Create and manipulate with Rich Web Controls (Tree view).
6. Creation and manipulation of User Controls.
7. Connecting to database with Grid View control.
8. Database manipulation using Grid View control.
9. Displaying the data in Grid View control with sorting and paging.

15UED44L	NMEC- II: WEB DESIGNING	SEMESTER - IV

Total Credits: 2
Hours Per week: 2

OBJECTIVES:

To develop the functional skills to design simple web pages

1. Understand the importance of the web as a medium of communication.
2. Understand the principles of creating an effective web page, including an in-depth consideration of information architecture.
3. Become familiar with graphic design principles that relate to web design and learn how to implement these theories into practice.

CONTENTS

UNIT- I

INTERNET and WWW: Introduction-The internet defined-Internet history- The way internetworks, Internet basics: Basic concepts-Communicating on the internet-Internet domains-Internet server identities- A brief overview of TCP/IP and it's services-Transmission Control Protocol: WWW-FTP-Telnet, Mailer features: E-Mail inner working

UNIT- II

Introduction to Html: Introduction-HTML-Commonly used tags- Titles and Footers-Text Formatting: Paragraph breaks-Line breaks, Emphasizing material in a webpage: Heading styles-Drawing lines-Text styles- Other text effects: Centering-Spacing -Controlling Font size and color, Lists: Unordered lists-Ordered lists-Definition lists, Adding Graphics: Image tag-Using the border attribute-width and height attribute-Align attribute-Alt attribute

UNIT- III

Tables: Introduction-Using the width and border attribute-Using the cell padding attribute- Using the cell spacing attribute-Using the BGColor attribute-Using the col span and row span attributes, Linking Documents: Link tag-External document references-Internal document references-Hyper linking to a HTML file-Linking to a particular location in a separate document- Images as hyperlinks

UNIT- IV

Frames: Introduction-Frameset tag-Frame tag-targeting named frames, Java Script: Advantages-Writing JavaScript into html-Basic programming techniques- Typecasting-Creating variables-JavaScript array, Operators and Expressions: Arithmetic operators-Logical operators-String operators-Assignment operators- Conditional checking-Endless loops-Functions in JavaScript- User defined functions- Dialog boxes

UNIT- V

DHTML: Form object introduction-properties of form elements-Methods of form elements- Text element-password element, Button element-Submit element-Reset element-Checkbox element- Radio element-Text area element-Select and Option element, Cascading style sheets- Class-External style sheets

TEXT BOOKS:

1. *Greenlaw, Ellen Hepp*; Second edition,2005, **Inline /Online fundamentals of the Internet and the World Wide Web**, TATA McGraw Hill edition.
2. *Ivan Bayross*; Third revised edition,2003, **Web enabled commercial application development using HTML, DTHML, JavaScript, Perl CGI**, BPB Publication..

REFERENCE BOOKS:

1. *Achyut S Godbole and Atul Kahate*; 2nd Edition, 2010,**Web Technologies TCP/IP Architecture and Java Programming**, Tata McGraw Hills Education Private Limited, New Delhi.
2. Kogent Learning Solutions Inc., 2010, *NET 3.5 Programming Black Book*, Dreamtech Press.
3. *Ramesh Bangia*; ,2008, ***Web Technology (Including HTML, CSS, XML, ASP, JAVASCRIPT,* VBSCRIPT)**, Firewall Media Publication.
4. *Anne Boehm*; , 2008, **Murach's ASP.NET 3.5 Web Programming with VB**, Shroff Publishers and Distributers Pvt. Ltd.

15UCS53A	CORE-VIII: SOFTWARE ENGINEERING	SEMESTER - V

Total Credits: 4
Hours Per week: 6

OBJECTIVES:
The subject aims to build the concepts regarding:

1. This subject mainly concentrates on software engineering concepts along with some of the methodologies of Testing.
2. It highlights on the characteristics of software, software evolution, software models, the various phases in software design and user interface design, different types of software testing techniques.

CONTENTS

UNIT- I

Introduction to software engineering: Professional Software Development – Software engineering ethics. Software Processes: Software process models – process activities – coping with change – the rational unified process.

UNIT- II

Agile Software development: Agile methods – Plan driven and agile development – Extreme Programming – Agile project management – scaling agile methods. Requirements engineering: Functional and non functional requirement – The software requirements document – Requirements specification – Requirements engineering processes – Requirements elicitation and analysis – Requirements validation – Requirements management.

UNIT- III

System modeling: Context models – Interaction models – Structural models – Behavioral models – model driven engineering Architectural Design: Architectural design decisions – Architectural views – Architectural patterns – Application architecture

UNIT- IV

Design and Implementation: Object-oriented design using UML – Design patterns- Implementation issues – Open source development .Software Evolution: Evolution process – Program evolution dynamics – Software maintenance – Legacy system management.

UNIT- V

Dependability and Security Specification: Risk driven requirements specification – safety specification – Reliability specification – Security specification – Formal specification.

TEXT BOOK:

1. *Ian Sommerville*, 2011,Software Engineering ,Pearson Education, Ninth Edition.

REFERENCE BOOKS:

1. *Bharat Bhushan Agarwal, Sumit Prakash Tayal*, 2009, Software Engineering, Firewal Media,New Delhi.

2. *Roger S. Pressman*,Sixth Edition,2006, Software Engineering: A Practitioner's Approach, MCgraw Hill.

15UCS53B	CORE IX: DOT NET PROGRAMMING	SEMESTER - V

Total Credits: 4
Hours Per week: 6

OBJECTIVES:

1. To enable the students to acquire basic knowledge in Dot net Programming.
2. The Dot Net framework is one of the tools provided by the .net platform.
3. It provides an Environment for building, deploying and running web services and other applications like Console applications; Windows based applications, Web sites.

CONTENTS

UNIT–I

Understanding .NET: The .NET Strategy – Origin of .NET technology – The .NET Framework – Common Language Runtime - .NET Languages – Benefits of .NET approach. Building C# 2005 applications - Visual C# Integrated Development Environment.
Introducing C#: What is C#? – Why C#? - Evolution of C# - Characteristics of C# - Applications of C# - Namespaces-Comments-Literals, Variables and Data Types-Operators and Expressions.

UNIT–II

Decision Making and Branching – Decision Making and Looping - Arrays and Strings. **Structures and Enumerators:** Structures – Structs with methods – Structs vs classes – Enumerations – Enumerator Initialization – **Classes and Objects**: Defining a class, Adding Variables and Methods, access modifiers, creating objects, Accessing class members. Constructors - overloaded constructor-copy constructor-private constructor-destructors. Static members and Static constructors. Method declaration – The main method – invoking methods – method parameters – pass by value, reference – Output Parameters – Variable argument list - Properties and Indexers.

UNIT–III

Inheritance and Polymorphism: Types of inheritance - Defining a subclass – visibility control – defining subclass constructors – Overriding Methods – Overloading methods. **Interface**: Defining an Interface – extending and implementing an interface. **Operator Overloading**: Defining operator overloading – overloading unary operators – overloading binary operators.

UNIT–IV

Delegates and Events – **Managing Errors and Exceptions:** Types of errors – Exceptions – syntax of exception handling code – multiple catch statements - throwing own exceptions. **Web Forms in C#** - Buttons – Labels – Literals – File Upload - Place holders – Check box – Radio buttons – Tables – Panels – Images – Image Buttons – Image Maps – List boxes – Drop-down list – hyperlinks – link buttons – Tree view – Menu – Validation Controls – Validation Groups

UNIT–V

Window Forms and Web-based Application Development on .NET: Creating Window Forms – Customizing a Form – Creating and running a sample WinApp Windows Application – Overview of Design Patterns – Web-based application on .NET.

TEXT BOOKS:

1. *E. Balagurusamy*, Third Edition, 2002, **Programming in C# A Primer**, Tata McGraw Hill.

2. *Matt Telles and Kogent*, , 2007, **C# 2005 Programming**, Black Book. Dreamtech Press.

15UCS53P	LAB VI: PROGRAMMING IN DOT NET	SEMESTER - V

Total Credits: 4
Hours Per week: 6

OBJECTIVES:

The objective of the paper includes

1. To enable the students to acquire basic knowledge in Dot net Programming.
2. The .net framework is one of the tools provided by the .net platform.
3. It provides an Environment for building, deploying and running web services and other applications like Console applications; Windows based applications, Web sites.

CONTENTS

1. Program to display current data and time using delegates and events.

2. Create a C# .Net program to add a string to Combo box with value of Textbox when user clicks button control.

3. Program to display hierarchical representations of items with tree view control using Runtime coding.

4. Program to handle user defined Exceptions.

5. Program for Employee details to read and display the data using constructors and member functions.

6. Creating an application in C# .Net to demonstrate the following events:

   i. Click

   ii. Mouse Down

   iii. Key Down

   Iv. Form Load

7. Creating an application in C# .Net for File Menu with Menu items New, Open, Save, Print and Exit & Edit Menu with Menu items Cut, Copy, Paste, Find and Undo.

8. Creating an application in C# .Net for student information database and perform the following operations:

i. Addition ii. Deletion iii. Updation

9. Creating a login form to check the authentication of the user.

10. Design a simple calculator.

11. Design a notepad like application using menu editor.

12. Creating a web form to display the data in a data grid control (purchase database).

13. Validate the personal information using the validate controls.

14. Design a simple web site that makes use of Master Pages.

15UCS5SA	SKILL BASED SUBJECT–II SOFTWARE TESTING	SEMESTER - V

Total Credits: 3
Hours Per Week:6

OBJECTIVES:

1. To discuss the distinctions between validation tests and defect testing.
2. To describe the principles of system and component testing.
3. To describe strategies for generating system test cases.
4. To understand the essential characteristics of tool used for test automation.

CONTENTS

UNIT-I

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing – Challenges in White-Box Testing.

UNIT-II

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase f Testing – Scenario Testing – Defect Bash.

UNIT-III

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

UNIT-IV

Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing – When to do

Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

UNIT-V

Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

TEXTBOOKS:

1. *Srinivasan Desikan & Gopalswamy Ramesh*, 2006, **Software Testing Principles and Practices,** Pearson Education.

(UNIT-I: 2.1-2.5, 3.1-3.4 UNIT-II: 4.1-4.4, 5.1-5.5 UNIT III: 6 .1-6.7

(UNIT-IV: 7.1-7.6, 8.1-8.5 UNIT-V: 15.1-15.6, 17.4-17.7)

REFERENCE BOOKS:

1. *William E.Perry*, 2006, **Effective Methods of Software Testing,** Third Edition, Wiley Publishing, Inc.
2. *Renu Rajani, Pradeep Oak,* 2003, **Software Testing - Effective Methods, Tools and Techniques,** Tata McGraw-Hill.

15UCS63A	CORE X : PHP AND MYSQL	SEMESTER - VI

Total Credits: 4
Hours Per week: 5

OBJECTIVES:

1. This paper focus on open source tools like PHP, MySQL
2. Understand the basics of the Web Technology.
3. Learn all major concepts of PHP and MySQL that beginner developers need to master.
4. Round off your application development skills by understanding how to implement PHP on a website.

CONTENTS

UNIT-I

Introduction to PHP - history of PHP - web application platform – static Html – client side technologies – server side – scripting – installation of PHP – syntax – variables – comments – string – output statements – objects - constants.

UNIT-II

PHP – Functions: calling a function – defining a function – variable scope – function parameter – return values – Boolean expressions – logical operators – branching – looping – strings – strings in PHP – case functions – Arrays: creating – retrieving – multi-dimensional arrays.

UNIT-III

My sql: Introduction – sql language – role of my sql – features and benefits – basics of my sql and functions – my sql data types – Dml queries – building forms from queries – operators – functions – working with data base and tables.

UNIT-IV

My sql and PHP: – installation of PHP– and my sql – connections – my sql with apache server – configuration – simple program using apache server -database connectivity.

UNIT- V

Ajax and PHP: Ajax introduction – database – xml – history of and Ajax – how does Ajax works, memory leaks, xml http requests – get or Post methods – problem and challenges – benefits of Ajax – how and when to Ajax – selecting the right tools – and frame work for Ajax.

TEXT BOOK:

1. *Steve Suehring, Tim converse and Joyce Park,* Reprint:2009, **PHP 6 and MY SQL Bible,** Wiley India Pvt Limited.

REFERENCE BOOKS:

1. *Kevin Tatroe, Peter Macintyre and Rasmus Lerdorf,* , 2013,**Programming PHP,** Edition – III, Oriell'y Publications.
2. Vikram Vaswani **,** Ninenth Reprint 2008, **"The Complete Reference of MY SQL",** Tata McGraw-Hill.

15UCS63P	LAB VII: PROGRAMMING IN PHP AND MYSQL	SEMESTER - VI

Total Credits: 4
Hours Per week: 5

OBJECTIVES:

1. Understand the basics of the Web Technology
2. Learn all major concepts of PHP and MySQL that beginner developers need to master
3. Gain the PHP programming skills needed to successfully build interactive, data-driven sites

CONTENTS

1. Program to send an HTML formatted Email in PHP.
2. Program to do different types of Sorting in PHP.
3. Program to do String Manipulation in PHP.
4. Program to get color code from the user which displays the color name.
5. Program to do calculator functions
6. Program to upload a file in PHP.
7. Program for login authentication using PHP and MySQL
8. Creating a Pay slip for an employee using PHP and MySQL
9. Creating a Electricity bill using PHP and MYSQL, and generate the reports
10. Creating a student data base with DML QURIES.
11. Program to demonstrate how a web page can communicate with a web server while a user type characters in an input field
12. Download a small project module and convert into our Requirement
13. Example website

    www.phpclasses.com

    www.codeguru.com

15UCS6SP	SKILL BASED LAB –II: SOFTWARE TESTING LAB	SEMESTER - VI

Total Credits: 3
Hours Per week: 5

OBJECTIVES:

The subject aims to build the concepts regarding:

1. To learn and develop test cases.
2. To learn and development testing strategy.
3. To learn and development various testing tools.

Write at least 10 TEST CASES for the following programs. Test cases can be for Input data, Conditional expressions, control transfer, output, etc. Run-Test-Debug- until all the test cases are in success status. Marks distribution as follows:

1.List of Test Descriptions (at least 10) for the Program. (20%)

2.Test Cases (40%)

3.Program with all test case results success (30%)

4.Record (10%)

TEST CASE Example:

Test Description	**Test Steps**	**Expected Output**	**Actual Output**	**Status**
Acceptance of 10 digit input data	Input 10 Digit Number	Accepting 10 digit number	Accepted 10 digit number	Success
Non- acceptance of character data	Input a character data X	Character X should not be accepted	Accepting Character data	Failure

Modify PIC X(10) into PIC 9(10) and then run program for Test-id TC-02 again

Non- acceptance of character data	Input a character data X	Character X should not be accepted	Character data not accepted	Success
Digit sum of 10 digit is in single digit	Output data	Single digit sum	Single digit Sum	Success

15UCS5EA	ELECTIVE-I: E-LEARNING	SEMESTER - V

Total Credits: 4
Hours Per week: 6

OBJECTIVES:

1. E-Learning can accommodate different learning styles and facilitate learning through a variety of activities
2. Develops knowledge of the Internet and computers skills that will help learners throughout their lives and careers.
3. To learn development of E-Learning Contents.

CONTENTS

UNIT-I

E-Learning Evolution - Advantages and Disadvantages of E-Learning - Instructional design Models for E-Learning -Applying User-Centered Design to E-Learning - Methods and Measures to Retain Students Enrolled in Online Education -Choosing an Effective Communication Tool.

UNIT-II

Flash: Geometric shape tools – Drawing tools- fill and stroke controls- Selection Tools.

UNIT-III

Creating Animation and Effects: Animation strategies – TimeLine Animation – Character animation Techniques – fundamentals of Editing.

UNIT-IV

Sound: Import and Export formats – Importing sound to flash – adding sound to timeline – synchronizing audio to animations- stopping sounds – Working with sound forge.

UNIT-V

Video: Integrating and Importing Video – Editing video with Adobe Premiere – Organizing & Editing clips – Adding Transition between clips – Adding special effects to video.

TEXT BOOKS:

1. *Robert Reinhardt and Snow Dowd*,2006,**Macromedia flash 8 Bible,** First Edition, Wiley India (P) Ltd.
2. *Pamela Berman*, **E-Learning Concepts and Techniques**,2006Institute for Interactive Technologies, Bloomsburg University of Pennsylvania, USA.

REFERENCE BOOKS:

1. *Dinesh Maidasani* , **Flash 8,** 2006, First Edition, Firewall Media Publications.
2. 2.*Fred T.Hofstetter,*, 2001, **MultiMedia Literacy**, Tata McGraw Hill.

15UCS5EB	ELECTIVE –I: COMPUTER NETWORKS	SEMESTER – V

Total Credits: 4
Hours Per Week: 6

OBJECTIVES:

1. To inculcate knowledge on Networking concepts and technologies like wireless, broadband and Bluetooth.
2. Understand state-of-the-art in network protocols, architectures, and applications.
3. Exposure to the TCP/IP protocol suite.

CONTENTS

UNIT-I

Network Hardware: LAN – WAN – MAN – Wireless – Home Networks. Network Software: Protocol Hierarchies – Design Issues for the Layers – Connection-oriented and connectionless services – Service Primitives – The Relationship of services to Protocols. Reference Models: OSI Reference Model – TCP/IP reference Model – Comparison of OSI and TCP/IP -Critique of OSI and protocols – Critique of the TCP/IP Reference model.

UNIT-II

PHYSICAL LAYER - Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics. Wireless Transmission: Electromagnetic Spectrum – Radio Transmission – Microwave Transmission – Infrared and Millimeter Waves – Light Waves. Communication Satellites: Geostationary, Medium-Earth Orbit, Low Earth-orbit Satellites – Satellites versus Fiber.

UNIT-III

DATA-LINK LAYER: Error Detection and correction – Elementary Data-link Protocols – Sliding Window Protocols. MEDIUM-ACCESS CONTROL SUB LAYER: Multiple Access Protocols – Ethernet – Wireless LANs - Broadband Wireless – Bluetooth.

UNIT-IV

NETWORK LAYER: Routing algorithms – Congestion Control Algorithms. TRANSPORT LAYER: Elements of Transport Protocols – Internet Transport Protocols: TCP.

UNIT-V

APPLICATION LAYER: DNS – E-mail. NETWORK SECURITY: Cryptography– Symmetric Key Algorithms – Public Key Algorithms – Digital Signatures.

TEXT BOOKS:

1. *Andrew S. Tanenbaum,* 2010, **COMPUTER NETWORKS**, Pearson Education, Fourth Impression.

REFERENCE BOOKS:

1. 1.*Achyut Godbole* , Seventh Reprint 2007,**DATA COMMUNICATION AND NETWORKS** , Tata MaGraw-Hill.
2. 2.*Uyless Black*, , 1993, **COMPUTER NETWORKS - Protocols, Standards, and Interfaces** , Prentice-Hall International.

15UCS5EC	ELECTIVE- I: UNIFIED MODELING LANGUAGE	SEMESTER - V

Total Credits:4
Hours Per Week:6

OBJECTIVES:

1. Introducing students to the concepts and terms used in the object-oriented approach to systems analysis and design
2. Highlighting the importance of object-oriented analysis and design and its limitations.
3. Showing how we apply the process of object-oriented analysis and design to software development.

CONTENTS

UNIT-I

UML: Introduction to UML – Basic Structural Modeling: Classes – Relationships-Common Mechanism – Diagrams – Class diagrams.

UNIT – II

Advanced Structural Modeling: Advance classes – Advance relationships – Interfaces - Types and Roles – Packages - Instances – Object diagrams.

UNIT - III

Basic Behavioral Modeling – Interactions – Use Cases –Use Case diagrams- Interaction Diagrams – Activity diagram.

UNIT - IV

Advanced Behavioral Modeling: Events and Signal – State machines – Process and Threads – Time and Space – State chart diagrams.

UNIT - V

Architectural Modeling – Components –Deployment –Collaborations.

TEXT BOOK:

1. *Grady Booch, James Rumbaugh and Ivar Jacobson,* 2008 **,"The Unified Modeling Language User Guide"**, Second Edition Pearson Education, Fourth Impression.

15UCS6EA	ELECTIVE – II : NETWORK SECURITY AND CRYPTOGRAPHY	SEMESTER - VI

Total Credits: 4
Hours Per Week: 5

OBJECTIVES:

1. Extensive, detailed and critical understanding of the concepts, issues, principles and theories of computer network security.
2. Detailed and practical understanding of formalisms for specifying security related properties and validating them use model checking.
3. Critical theoretical and detailed practical knowledge of a range of computer network security technologies as well as network security tools and services.

CONTENTS

UNIT-I

Service mechanism and attacks – The OSI security architecture – A model for network security – symmetric Cipher model – Substitution techniques – transposition techniques – simplified des – block chipper principles – the strength of des – block chipper design principles and modes of operation.

UNIT-II

Triple des-blow fish – RCS Advanced Symmetric Block Ciphers –RC4 stream Cipher confidentially using symmetric encryption – introduction to number theory – public – key cryptography and RSA.

UNIT-III

Key management – Diffle Hellman key exchange – message authentication and hash function – hash algorithm – digital signature and authentication protocols – digital signature standard.

UNIT-IV

Authentication application – pretty good privacy – S/MIME – ip security – web security considerations –secure socket layer transport layer security –secure electronic transaction.

UNIT-V

Intruders –intrusion detection – password management –viruses and related threats – virus countermeasures – fire wall design principles – trusted systems.

TEXT BOOK:

1. *William Stallings*, 2006, **Cryptography and Network Security Principles and Practices**, Fourth edition, Pearson Education Limited.

REFERENCE BOOKS:

1. *Atul kahate,* 2013, **Cryptography and Network Security,** Third Edition, McGraw Hill Education(India) Private Limited.

2. *Behrouz A Forouzan and Debdeep Mukhopadhyay*, 2011, **Cryptography and Network Security**,Second Edition, Tata MaGraw-Hill.

15UCS6EB	ELECTIVE – II : ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM	SEMESTER-VI

Total Credits: 4
Hours Per week:5

OBJECTIVES:

1. Understand the strengths and limitations of various state-space search algorithms, and choose the appropriate algorithm for a problem.
2. Formulate and solve problems in the framework of constraint programming.
3. Represent domain knowledge in propositional and first-order logic. To have enriched knowledge regarding heuristic search, Knowledge representation and Expert systems.

CONTENTS

UNIT- I

Introduction: AI Problems – AI techniques – Criteria for success. Problems, Problem Spaces, Search: State space search – Production Systems – Problem Characteristics – Issues in design of Search.

UNIT- II

Heuristic Search techniques: Generate and Test – Hill Climbing – Best-Fist, Problem Reduction, Constraint Satisfaction, Means-end analysis.

UNIT- III

Knowledge representation issues: Representations and mappings – Approaches to Knowledge representations – Issues in Knowledge representations – Frame Problem.

UNIT -IV

Using Predicate Logic: Representing simple facts in logic – Representing Instance and Isa relationships – Computable functions and predicates – Resolution – Natural deduction.

UNIT- V

Representing knowledge using rules: Procedural Vs Declarative knowledge – Logic programming – Forward Vs Backward reasoning – Matching – Control knowledge-Brief explanation of Expert Systems-Definition- Characteristics-architecture-Knowledge Engineering- Expert System Life Cycle-Knowledge Acquisition Strategies-Expert System Tools.

TEXT BOOK:

1. *Elaine rich and Kelvin Knight*,1991,**Artificial Intelligence**, Tata McGraw-hill,Second Edition. (Chapters 1- 6).

REFERENCE BOOKS:

1. *Stuart Russell & Peter Norvig*,2010, **Artificial Intelligence a modern Approach**, Second Edition Pearson Education.
2. *George F Luger* , 2002, **Artificial Intelligence**, Fourth Edition, Pearson Education.
3. *V S Janaki Raman, K Sarukes and P Gopalakrishnan*, **Foundations of Artificial Intelligent and Expert Systems**, MacMillan India limited.

15UCS6EC	ELECTIVE – II : MOBILE COMPUTING	SEMESTER - VI

Total Credits: 4
Hours Per week: 5

OBJECTIVES

1. To introduce the mobile communication fundamentals.
2. To enable the students for writing android based script for application development.
3. To learn and understand eclipsed based IDE programming for the mobile environment.

CONTENTS

UNIT- I

Introduction - History of Wireless communication-Applications - Market for Mobile communications - Characteristics of Wireless Technologies - Cellular System infrastructure – A simplified reference model. Medium access control – Motivation for a specialized MAC-SDMAFDMA-TDMA-CDMA.

UNIT- II

Telecommunication systems – GSM - Mobile services - System architecture - Radio interface – Protocols - Localization and calling – Handover – Security - new data services – DECT – System architecture -. Satellite systems – Applications – Basics – GEO – LEO – MEO.

UNIT- III

Android: Introduction to Android-Eclipse -Downloading and installing Eclipse –Downloading and installing the JRE & Eclipse.

UNIT- IV

Downloading and installing the android SDK-Downloading and installing the android plugin for Eclipse-configuring the Android plug in for eclipse-Exploring the Android SDK- Contents in the Android SDK-Application Life Cycle.

UNIT -V

Application: Hello World!-Creating Your First android Project in Eclipse-Examining the Android created files-Hello World!-Creating the Hello World! Activity in the Windows CLI Editing the project files-Adding the JAVA_HOME Variable-Compiling and Installing the Application.

TEXT BOOKS:

1. *J. Schiller*,**Mobile Communications**,2003, Second Edition, Second Impression, Pearson Education Limited.
2. *Jerome (J.F.) and DiMarzio*, ,2008, **Android- A Programmer's Guide,** First Edition,McGraw Hill.

15UCS6ED	ELECTIVE – III : DATA MINING	SEMESTER - VI

Total Credits: 4
Hours Per week: 5

OBJECTIVES:

On Successful Completion of this subject

1. To introduce students to the basic concepts and techniques of Data Mining.
2. To develop skills of using recent data mining software for solving practical problems.
3. To gain experience of doing independent study and research.

CONTENTS

UNIT -I

Basic Data Mining Tasks – Data Mining Versus Knowledge Discovery in Data Bases – Data Mining Issues – Data Mining Matrices – Social Implications of Data Mining – Data Mining from Data Base Perspective.

UNIT- II

Data Mining Techniques – a Statistical Perspective on data mining – Similarity Measures– Decision Trees – Neural Networks – Genetic Algorithms.

UNIT -III

Classification: Introduction – Statistical – Based Algorithms – Distance Based Algorithms – Decision Tree – Based Algorithms – Neural Network Based Algorithms – Rule Based Algorithms – Combining Techniques.

UNIT -IV

Clustering: Introduction – Similarity and Distance Measures – Outliers – Hierarchical Algorithms . Partitional Algorithms.

UNIT –V

Association Rules: Introduction - Large Item Sets – Basic Algorithms – Parallel & Distributed Algorithms – Comparing Approaches – Incremental Rules – Advanced Association Rules Techniques – Measuring the Quality of Rules.

TEXT BOOK:

1. *Margaret H.Dunbam*, 2003,**Data Mining Introductory and Advanced Topics,** Pearson Education.

REFERENCE BOOK:

1. *Jiawei Han & Micheline Kamber*, 2001,**Data Mining Concepts & Techniques**, Academic Press.

15UCS6EE	ELECTIVE – III : OPEN SOURCE SOFTWARE	SEMESTER - VI

Total Credits: 4
Hours Per week: 5

OBJECTIVES:

1. Discuss the issues and currents in open source and open source development
2. Describe the history and philosophy of an open source project
3. Choose between the various open source licenses understanding the implications for users, developers, and the software community in general

CONTENTS

UNIT-I

Introduction to open sources – Need of open sources – advantages of open sources – application of open sources. Open source operating systems: LINUX : Introduction – general overview –Kernel mode and user mode –process – advanced concepts –scheduling – personalities – cloning – signals – development with Linux.

UNIT -II

MySQL : Introduction – setting up account – starting, terminating and writing your own SQL programs-record selection Technology – working with strings – Date and Time – sorting Query results – generating summary –working with meta data –using sequences – MySQL and Web.

UNIT- III

PHP: : Introduction –programming in web environment –variables-constants – data types – operators – statements – functions – arrays – OOP – string manipulations and regular expression – file handling and data storage – PHP and SQL database – PHP and LDAP – PHP connectivity – sending and receiving E-mails – debugging and error handling – security –templates.

UNIT- IV

Python: Platforms-Data types and operations-Main control structure-Functions-File I/O-OOP basics-Network programming-Basics of image processing-CGI scripting -Online resources & communities.

UNIT- V

Perl: Platforms-Data types and operations-Control structures-Subroutines-Regular expressions-CGI scripting-Online resources & communities.

TEXT BOOKS:

1. *Remy Card, Eric and Frank Mevel*,2003, **The Linux Kernel book**, Wiley Publications.
2. *Steve Suchring* , 2002, **MySQL Bible**, Wiley Publications.

REFERENCE BOOKS:

1. *Rasmus Lerdorf and Levin Tatroe* , 2002, **Programming PHP** , O'Reilly.
2. *Wesley J. Chun* , 2001,**Core Python Programming** Prentice Hall.
3. *Martin c. Brown* , 2009 , **Perl : The Complete Reference,** Second Edition, Tata McGraw-Hill.
4. *Vikram Vaswani* , 2009.,**MySQL:The Complete Reference,** Second Edition, Tata McGraw-Hill. *Steve Holzner,* **PHP : The Complete Reference**, Second Edition, Tata McGraw-Hill.

15UCS6EF	ELECTIVE – III : DATA COMMUNICATION AND NETWORKS	SEMESTER - V

Total Credits: 4
Hours Per week: 5

OBJECTIVES:

The subject aims to build the concepts regarding:

1. To study about the physical arrangement of networks, types and modes of networks, data conversions and transmission medium
2. To inculcate Knowledge the detection and correction of errors, link control and link protocols of data link layer, electrical specification and implementation of different networks.
3. Enables students to understand types of switching, the standardized data interface and it's working principle, the logic of link mechanisms used in networks and different layers of TCP/IP.

CONTENTS

UNIT -I

DATA COMMUNICATION :Introduction: Networks – Protocols and standards – Standards organizations – Line configurations – Topology – Transmission mode – Categories of networks – Inter networks. OSI model: Functions of the layers. Transmission media: Guided media – Unguided media – Transmission impairment – Performance.

UNIT-II

ERROR CONTROL AND DATA LINK PROTOCOLS: Error detection and correction: Types of errors – Detection –Cyclic Redundancy Check (CRC) – Check sum – Error correction. Data link control: Flow control – Error control. Data link protocols: Asynchronous protocols – Synchronous protocols

UNIT- III

NETWORKS AND SWITCHING: LAN: Project 802 – Ethernet – Token bus – Token ring – FDDI.MAN: IEEE 802.6 (DQDB) – SMDS.Switching: Circuit switching – Packet switching – Message switching.

UNIT- IV

X.25, FRAME RELAY, ATM AND SONET/ SDH: X.25: X.25 Layers. Frame relay: Introduction – Frame relay operation – Frame relay layers – Congestion control – Leaky bucket algorithm – Traffic control. ATM: Design goals – ATM architecture – ATM layers – ATM applications.SONET / SDH: Synchronous transport signals – Physical configuration–SONETlayers–Applications.

UNIT –V

NETWORKING DEVICES AND TCP / IP PROTOCOL SUITE Networking and internetworking devices: Repeaters – Bridges – Gateways – Other devices – Routing algorithms – Distance vector routing – Link state routing.TCP / IP protocol suite: Overview of TCP/IP.Network layers: Addressing – Subneting – Other protocols and network layers.Application layer: Domain Name System (DNS) – Telnet – File Transfer Protocol (FTP) – Trivial File Transfer Protocol (TFTP) – Simple Mail Transfer Protocol (SMTP) – Simple Network management Protocol(SNMP).

TEXT BOOKS:

1. *BehrouzA.Forouzan*, , 2000,**Data Communication and Networking'**, Second Edition, Tata McGraw Hill.
2. *William Stallings*, 2003 **,'Data and Computer Communication',** 8th Edition, Pearson Education.
3. *Andrew Tannenbaum.S*, , 2003 **,'Computer Networks'**, Pearson Education.

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