BACHELOR OF SCIENCE - COMPUTER TECHNOLOGY 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 Bachelor of Science (Computer Technology) Degree Examination of this College after 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 achieve by the time of their graduation:

1. Demonstrating a significant understanding the Key Concepts of various Computer technologies.
2. To stimulate the interest among the learners on various technologies through Lab sessions.
3. Inculcating professional competence in technologies, software design, database and Quality Assurance.
4. To facilitate the learners to develop skills to meet the requirements of the corporate.
5. To develop competency in research and in current technologies.

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							
15UCT13A	Core- I : C Programming	4	3	25	75	100	4
15UCT13B	Core- II : Computer System Architecture	4	3	25	75	100	4
15UCT13P	Core 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
		30				**650**	**26**
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

29/12/15

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

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

Part - III							
15UCT23A	Core -III : C++ Programming	5	3	25	75	100	4
15UCT23P	Core Lab - II : Programming in C++	4	3	40	60	100	4
15UCT23Q	Core Lab- III : Programming in Internet and Office Automation	2	3	20	30	50	2
15UMA2AB	Allied-2: Discrete Mathematics	5	3	25	75	100	4
Part - IV							
15UFC2FA	Value Education: Human Rights	2	3	-	50	50	2
		30				**600**	**24**
Third Semester							
Part - III							
15UCT33A	Core-IV: Data Structures	5	3	25	75	100	4
15UCT33B	Core-V: Java Programming	5	3	25	75	100	4
15UCT33P	Core Lab-IV: Programming in Java	4	3	40	60	100	4
15UCT3AA	Allied-3:Micro Processer and ALP	5	3	20	55	75	3
Part IV							
15UCT3SA	Skill Based Subject-1:Web Technology	4	3	20	55	75	3

15UCT3SP	Skill Based Lab-1: Web Technology	3	3	20	30	50	2
15UED34K	NMEC - I	2	3	-	50	50	2
15UFC3FA 15UFC3FB 15UFC3FC 15UFC3FD 15UFC3FE	Tamil / Advanced Tamil (OR)Yoga for Human Excellence / Women's Rights/ Constitution of India	2	3	-	50	50	2
		30				**600**	**24**
Fourth Semester							
Part – III							
15UCT43A	Core-VI: System Software and Operating Systems	6	3	25	75	100	4
15UCT43B	Core-VII: C#.Net Programming	5	3	25	75	100	4
15UCT43C	Core-VIII: RDBMS and ORACLE	5	3	25	75	100	4
15UCT43P	Core Lab-V: Programming in C#.Net and RDBMS	5	3	40	60	100	4
15UCT4AA	Allied-4: Network Security and Cryptography	5	3	20	55	75	3
Part IV							
15UED44K	NMEC - II	2	3	-	50	50	2
15UFC4FA 15UFC4FB 15UFC4FC	Tamil/ Advanced Tamil (or) General Awareness	2	3	-	50	50	2
		30				**575**	**23**

Fifth Semester							
Part – III							
15UCT53A	Core -IX: Data Communication and Networks	5	3	25	75	100	4
15UCT53B	Core -X: ASP .Net Programming	6	3	25	75	100	4
15UCT53P	Core Lab- VI : Programming in ASP.Net	5	3	40	60	100	4
15UCT5EA/ 15UCT5EB	Elective- I :	5	3	20	55	75	3
Part- IV							
15UIT5SB	Skill Based Subject- 2 : Software Testing	5	3	20	55	75	3
15UCT5SP	Skill Based Lab- 2 : Software Testing	4	3	20	30	50	2
		30				**500**	**20**
Sixth Semester							
Part – III							
15UCT63A	Core -XI: PHP and MYSQL	5	3	25	75	100	4
15UCT63B	Core- XII : Data Mining	5	3	25	75	100	4
15UCT63V	Core- XIII : Project Work Lab	5	3	20	55	75	3
15UCT63P	Core Lab - VII : Programming in PHP and MYSQL	5	3	40	60	100	4
15UCT6EA/ 15UCT6EB	ELECTIVE- II :	5	3	20	55	75	3
15UCT6EC/ 15UCT6ED	ELECTIVE- III :	5	3	20	55	75	3

Part-V							
15UEX65A	Extension Activity	-	-	50	-	50	2
		30				**575**	**23**
					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.	15UCT5EA	Software Engineering
2.	15UCT5EB	Mobile Computing

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.	15UCT6EA	Cloud Computing
2.	15UCT6EB	Computer Installation and Servicing

ELECTIVE – III

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

S. No.	Subject Code	Name of the Subject
1.	15UCT6EC	Digital Image Processing
2.	15UCT6ED	Graphics and Multimedia

NON MAJOR ELECTIVE COURSES

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

S. No.	Subject Code	Name of the Subject
1	15UED34K	Multimedia
2	15UED44K	ORACLE

FOR COURSE COMPLETION

Students has to complete the following subjects:

- Language papers (Tamil/Malayalam/French/Hindi, English) in I and II semester.
- Environmental Studies in I semester.
- Value Education in II and III semester respectively.
- General Awareness in IV semester.
- Allied papers in I, II, III and IV semesters.
- Non Major Elective Courses in the III and IV semester respectively.
- 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	2 x 100 =	200	08	**16**
Part II: English	4	2 x 100 =	200	08	
Part III:					
Core	4	12 x 100=	1200	48	**110**
Core Lab	2	1 x 50 =	50	02	
Core Lab	4	6 x 100 =	600	24	
Elective	3	3 x 75 =	225	09	
Project	3	1 x 75 =	75	03	
Allied Theory	4	2 x 100 =	200	08	
Allied Theory	3	2 x 75 =	150	06	
Skill Based Subject	3	2 x 75 =	150	06	
Skill Based Lab	2	2 x 50 =	100	04	
Part IV:					
Value Education	2	2 x 50 =	100	04	**12**
Environmental Studies	2	1 x 50 =	50	02	
General Awarenes	2	1 x 50 =	50	02	
NMEC	2	2 x 50 =	100	04	

Part V:					
Extension Activity	1	1 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)

முதல் ஆண்டு

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. Book for
Reference : 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

TEXT BOOKS:

Unit I &II - Naalukettu – M.T. Vasudevan Nair (D.C. Books, Kottayam, Kerala)

Unit III & IV - Manikkianum Mattu Prathana Kathakalum – Lalithampika Antharjanam (D.C.Books, Kottayam, Kerala)

Unit V - Expansion of ideas, General Essay and Translation from simple English (about 100 words) to Malayalam

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. **SahithyaCharitramPrasthanangalilude**-*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.

UNIT 1: PROSE

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

UNIT 2: 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- 3: ONE ACT PLAY

1. The Discovery – Herman Ould

UNIT- 4: 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 5: 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.

15UCT13A	CORE-I: C PROGRAMMING	SEMESTER - I

Credit Points: 4
Hours/Week: 4

OBJECTIVE:

1. The subject aims to build the concepts of Programming Language C

CONTENTS

UNIT- I

Introduction to C: Overview of Compilers And Interpreters – Structure of a C Program – Programming Rules – Executing The Program.
C Declarations: The C Character Set – Delimiters – The C Keywords – Identifiers – Constants – Variables – Rules For Defining Variables – Data Types – Declaring Variables – Initializing Variables – Type Conversion – Constant And Volatile Variables.

UNIT- II

Operators And Expressions: Priority of Operators And Their Clubbing – Comma And Conditional Operator – Arithmetic Operators – Relational Operators – Logical Operators – Bitwise Operators.
Input And Output in C: Formatted Functions – Unformatted Functions – Commonly Used Library Functions.
Decision Statements: If, If Else, Nested If-Else, Break, Continue, Go to, Switch, Nested Switch.
Loop Control Statements: The For Loop – Nested For Loops – The While Loop – The Do-While.

UNIT- III

Arrays: Array Initialization – Definition of Array – Characteristic of Array – One Dimensional Array – Predefined Streams – Two Dimensional Array – Three or Multi Dimensional Arrays.
Working With Strings And Standard Functions: Declaration And Initialization of String – Display of Strings With Different Formats – String Standard Functions – Applications of Strings.

Functions: Definition of Function – Declaration of Function And Function Prototypes – The Return Statement – Types of Functions – Call By Value And Reference – Function Returning More Values – Function As An Argument – Function With Operators – Function And Decision Statements – Function And Loop Statements – Recursion

UNIT- IV

Structure And Union: Features of Structures – Declaration And Initialization of Structures- Structure Within Structure – Array of Structures – Pointer To Structures – Structures And Functions – Typedef – Bit Fields – Enumerated Data Type – Union – Union of Structures

UNIT- V

Pointers: Features of Pointers – Pointer Declaration – Arithmetic Operations With Pointers – Pointers And Arrays – Pointers And Two Dimensional Arrays – Array of Pointers – Pointers To Pointers – Pointers And Strings - Function With Arrays And Pointers – Void Pointers.
Files: Streams And File Types – Steps For File Operations – File I/O – Structures Read And Write – Other File Function – Searching Errors In Reading/Writing Files – Command Line Arguments.

TEXT BOOK:

1. *Ashok N Kamthane*. 2002. **PROGRAMMING WITH ANSI AND TURBO C**, Pearson Education Publication.

REFERENCE BOOK:

1. *E Balagurusamy*. III Edition. 2004. **PROGRAMMING IN ANSI C**, Tata McGraw-Hill.

15UCT13B	CORE -II : COMPUTER SYSTEM ARCHITECTURE	SEMESTER - I

Credit Points: 4
Hours/Week: 4

OBJECTIVES:

To inculcate the knowledge on the

1. Digital behavior of the computer system
2. Ideas behind the organization of various core component of the computer system

CONTENTS

UNIT- I

Digital Logic Circuits: Digital Computers –Logic Gates – Boolean Algebra-Map Simplification- Combinational Circuits- Flip flops
Digital Components: Integrated Circuits- Decoders – Multiplexers – Registers – Shift Registers

UNIT- II

Data Representation: Data Types – Complements –Fixed Point Representation – floating Point Representation – Other Binary Codes – Error Detection Codes

UNIT- III

Central Processing Unit: Introduction – General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data Transfer and Manipulation – Program Control

UNIT- IV

Input – Output Organization: Peripheral Devices - Input – output interface- Asynchronous data transfer-Modes of Transfer- Priority Interrupt – Direct Memory Access – Input- Output Processor

UNIT- V

Memory Organization: Memory Hierarchy – Main Memory- Auxiliary Memory - Associative memory- Cache Memory- Virtual Memory

TEXT BOOKS:

1. *M. Morris Mano.* 1993.Third Edition. **"COMPUTER SYSTEM ARCHITECTURE"**, PHI.

REFERENCE BOOKS:

1. *V. K. Puri*. 2004. **DIGITAL ELECTRONICS CIRCUITS AND SYSTEMS**, Tata McGraw Hill Publication.
2. *M. Carter*. 2006. **COMPUTER ARCHITECTURE**, Schaum's outline series, Tata McGraw Hill Publication

15UCT13P	CORE LAB-I : PROGRAMMING IN C	SEMESTER - I

Credit Points: 4
Hours/Week: 3

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 print magic square of order n where n > 3 and n is odd.
5. Program to sort the set of n-numbers in ascending order.
6. Program using pointer to check whether the given string is a palindrome or not.
7. Program to count the number of Vowels in any sentence.
8. Program to find the factorial of a number using recursive function.
9. Program to print the student's Mark sheet assuming roll no, name, and marks in 5 subjects as array of structures and print the mark sheet in the university pattern.
10. Program to use function pointers to add two matrices and to return the resultant matrix to the calling function.
11. Program receiving two filename as arguments and check whether the file contents are same or not, and to delete the duplicate file.
12. Program to take 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 characters ii) no. of words and iii) no. of lines.

15UMA1AB	ALLIED- 1 : MATHEMATICAL STRUCTURE FOR COMPUTER SCIENCE	SEMESTER - I

Total Credits: 4
Hours Per Week: 5

OBJECTIVE:

1. To understand the concept of mathematics learning 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 ordinary 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. *Dr M.K. Venkataraman*. 2004. **ENGINEERING MATHEMATICS VOLUME II – NPC (Unit I)**
2. *M.K. Venkataraman*. 2005. **NUMERICAL METHODS IN SCIENCE & ENGINEERING - NPC, Revised Edition (Unit II & III)**
3. *S.P. Gupta & M.P. Gupta*. 1986**. BUSINESS STATISTICS**, Sultan Chand and Sons (Unit IV & V)

REFERENCE BOOKS:

1. *E. Balagurusamy***.** 1999**. NUMERICAL METHODS**, Tata McGraw Hill Publications.
2. *S.C.Gupta,V. K. Kapoor.*2000. **FUNDAMENTAL OF MATHEMATICAL STATISTICS**, Sultan Chand and Sons.

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

Total Credits: 4
Hours per Week: 6

(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'. புற நானூறு – பாடல் 184, 312 'உற்றுழி உதவியும்', 'ஈன்று புறந்தருதல்'
4. 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
5. 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 PRESCRIBED:

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 –Dr. K.M. George*(N.B.S. Kottayam)
2. *Jeevacharitrasahithyam malayalathil- Dr. Naduvattom Gopalakrishnan*(Kerala Bhasha Institute, *Trivandrum*)
3. *Athmakathasahithyam malayalathil –Dr. 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.

15UCT23A	CORE -III: C++ PROGRAMMING	SEMESTER - II

Hours/Week: 5
Credit Points: 4

OBJECTIVES:

To instill the knowledge on the

1. Basic Object-oriented programming concepts
2. Object Oriented Programming Language C++

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

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

TEXT BOOK:

1. *Ashok N. Kamthane*. 2003. **OBJECT-ORIENTED PROGRAMMING WITH ANSI AND TURBO C++,** Pearson Education Publication.

REFERENCE BOOKS:

1. *E. Balagurusamy*. 1998. **OBJECT-ORIENTED PROGRAMMING WITH C++,** Tata Mc-Graw Hill Publication.
2. *Yashvant. P. Kanetkar*. 2007. **Let us C++,** BPB, New Delhi.

15UCT23P	CORE LAB- II: PROGRAMMING IN C++	SEMESTER - II

Total Credits: 4
Hours/Week: 4

OBJECTIVES:

1. Program to create a class ARITHMETIC which consists of a FLOAT and an INTEGER variable and the Member functions ADD (), SUB (), MUL (), DIV () to perform addition, subtraction, multiplication, division respectively. Using a member function to get and display values.
2. 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.
3. Program to create a class FLOAT that contains one float data member, overloading all the four Arithmetic operators so that they operate on the object FLOAT.
4. Program to create a class STRING, with a Member Function to initialize, get and display strings, overload the Operator **+** to Concatenate two Strings, = = to Compare two strings
5. Program to create a class, which consists of EMPLOYEE Detail(E_Number, E_Name, Department, Basic, Salary, Grade), with 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.
6. Program to create a class SHAPE with 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.
7. Program to create two classes; each consists of two private variables, an integer and a float variable. Write member functions to get and display them. Write a FRIEND Function common to both classes, which takes the object of above two classes as arguments and the integer and float values of both objects separately and display the result.

8. Program using 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.
9. Program to check whether the given string is a palindrome or not using Pointers.
10. Program to create a File and to display the contents of that file with line numbers.
11. Program to merge two files into a single file.
12. Program to create divide by zero Exception.

15UCT23Q	CORE LAB- III : PROGRAMMING IN INTERNET AND OFFICE AUTOMATION	SEMESTER - II

Total Credits: 2
Hours/Week: 2

Internet

1. Creating e-mail ID.
2. Composing and sending a mail with attachment.
3. Forwarding a mail and to reply a mail with large number of recipients using cc and bcc options.
4. Searching newspaper sites, TV program schedules using Internet.
5. Verifying university /college details in their websites.
6. Upload resume in any job portal.

Office Automation

1. Creating and formatting resume using MS WORD.
2. Creating a class time table using MS WORD
3. Preparing mail merge document for a parent meet using MS WORD
4. Preparing Student mark sheet **using MS EXCEL**
5. Creating a chart for result analysis **using MS EXCEL**
6. Preparing mark list with following conditions using data filter and data sort in **MS EXCEL**
   - **a)** Mark list in ascending order.
   - **b)** Average greater than or equal to 60.
   - **c)** Average between 50 and 60.
   - d) Average below 40.
7. Designing organizational chart for Arts and Science College using POWER
8. POINT
9. Creating a power point presentation to advertise a product using Slide
10. Transition and Custom animation
11. Creating a database to student's Mark sheet using MS Access
12. Creating a data base to employee pay roll using MS Access

15UMA2AB	ALLIED- 2 : DISCRETE MATHEMATICS	SEMESTER - II

Total Credits: 4
Hours/Week: 5

OBJECTIVE:

1. To understand the concept of discrete mathematics learning applications of discrete structures in computer science

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 BOOK:

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

REFERENCE BOOKS:

1. *J. P Tremblay R. Manohar*. 1987. **DISCRETE MATHEMATICS STRUCTURES WITH APPLICATIONS TO COMPUTER SCIENCE**, Mc Graw Hill International Edition
2. *Dr M. K. Venketaramen, Dr N.Sridharan, N.Chandarasekaran*. 1997. **DISCRETE MATHEMATICS**, The National Publishing Company Chennai.

15UCT33A	CORE -IV: DATA STRUCTURES	SEMESTER - III

Total Credits: 4
Hours/Week: 5

OBJECTIVES:

To implant the knowledge on the

1. Basic terminologies in the domain of data structures.
2. Basic concepts on various data structures and its operations

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.

TEXT BOOKS:

1. *Ellis Horowitz, Sartaj Shani*. **DATA AND FILE STRUCTURES,** Galgotia Publication.
2. *Ellis Horowitz, Sartaj Shani, Sanguthevar Rajasekaran*. **COMPUTER ALGORITHMS**, Galgotia Publication.

REFERENCE BOOK:

1. *GA Vijayalakshmi Pai*. 2008. **DATA STRUCTURES AN**D **ALGORITHMS,** Tata McGraw Hill.

15UCT33B	CORE -V: JAVA PROGRAMMMING	SEMESTER - III

Credit Points: 4
Hours/Week: 5

OBJECTIVES:

To inculcate the knowledge on the

1. Basic Object-oriented programming concepts
2. Object Oriented Programming Language Java

CONTENTS

UNIT- I

Introduction to Object-Oriented Programming – The Java language – Variable Declarations and Arrays – Operators in Java.
Control Statements: An Introduction – Selection Constructs – Iteration Constructs – Jump Constructs .
Introduction to Classes: Instance variables – Class variables – Instance Methods – Constructors – Class Methods – Declaring Objects

UNIT- II

Classes and Methods in Detail: Method Overloading – Constructor Overloading – The this Reference – Using Objects in Method – Recursion – Access Modifiers – Inner Classes – Command Line Arguments. Inheritance: Basics of Inheritance – Super Class Variable and Subclass Object – The super reference – Constructor Chaining – Method Overriding – The final Keyword.
Abstract Classes and Interfaces: The abstract Classes and Methods – Defining Interface – Implementing Interfaces – Extending Interface – Interface Reference.
Exception Handling: Types of Exceptions-Uncaught Exceptions – Handling Exceptions – User Defined Exceptions

UNIT- III

Multithreaded Programming: Concept of Threads – Thread Creation – Thread's Life Cycle – Thread Scheduling – Synchronization and Deadlock.
Packages and Access Modifiers: Packages – An Introduction – The package Declaration – The import Statement – Illustration Package – The Java Language Packages.

Handling Strings: Creating Strings – Operations on Strings – Character Extractor Methods – String Comparison Methods

UNIT- IV

Input Output Classes: Input and Output Operations – Hierarchy of classes in java.io Package – File class – InputStream and OutputStream-RandomAccessFile Class.
Applets: Applet Basics – Applet Life Cycle – Running Applets – Methods of the Applet Class

UNIT- V

Abstract Windowing Toolkit : AWT classes – Hierarchy of Classes – Control Fundamentals – Component Class – Basic Component Classes – Various Container Classes – Frame Window in an Applet – Menus. Layout Management and Event Handling: Layout Management Policies – Standard Layout Managers – Handling Events – Hierarchy of Event Classes – Event Delegation Model – Event Classes – Event Listener Interfaces – Adapter Classes

TEXT BOOK:

1. *Instructional Software Research and Development* (ISRD) Group.2007. "**Introduction to Object Oriented Programming Through Java**", Tata McGraw-Hill Publishing Company Limited, New Delhi.

REFERENCE BOOKS:

1. *E.BalaGurusamy*, 2007. Third Edition." **Programming with JAVA – A Primer"**, Tata McGraw-Hill Publishing Company Limited, Third Edition.
2. *John R. Hubbard*. 2007. "**Schaum's Outline of Programming with Java**", Tata McGraw- Hill Publishing Company Limited, Second Edition.

15UCT33P	CORE LAB - IV: PROGRAMMMING IN JAVA	SEMESTER - III

Hours/Week: 4
Credit Points: 4

1. Program to implement STACK operations.
2. Program to implement Linked List.
3. Program to implement Quick Sort.
4. Program to implement the concept of multiple inheritance using Interfaces.
5. Program to creating an Exception called payout-of-bounds and throw the exception.
6. Program to implement the concept of multithreading with the use of any three multiplication tables and assign three different priorities to them.
7. Program to draw several shapes in the created windows.
8. Program to create a frame with four text fields 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.
9. Program to demonstrate the Multiple Selection List-box.
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 which open an existing file and append text to that file.

15UCT3AA	ALLIED -3: MICROPROCESSOR AND ALP	SEMESTER - III

Hours/Week: 5
Credit Points: 3

OBJECTIVE:

1. To inculcate the knowledge on various microprocessors

CONTENTS

UNIT- I

Introduction to microprocessors : Evolution of microprocessors – Single-chip Microcomputer – Embedded Microprocessors – Bit- Slice processors – Microprogramming – RISC and CISC Processors – Scalar and Superscalar Processors – Vector Processors – Array Processors – Symbolic Processors – Digital Signal Processors Intel 8086 – Pin Description of Intel 8086 – Operating modes of 8086 – Register organization of 8086 – BIU and EU – Interrupts – 8086 based computer system – Addressing Modes of 8086

UNIT- II

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

UNIT- III

Intel 386 and 486 Microprocessors: Intel 386 and 486 Microprocessor – 486DX Architecture – Register Organization of 486 Microprocessor – Memory Organization – Operating Modes of Intel 486 – Virtual Memory – Memory Management Unit – Gates – Interrupt and Exceptions – Addressing Modes of 80486 – Pin Configuration

UNIT- IV

Input devices – Output devices – Memory and I/O addressing – 8086 Addressing and Address Decoding – Programmable I/O Ports – DMA Data Transfer. Other Microprocessors – PowerPC Microprocessors –

Pentium Microprocessors – Pentium Pro microprocessor – Alpha Microprocessor – Cyrix Microprocessor – MIPS Microprocessor – AMD Microprocessor

UNIT- V

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

TEXT BOOK:

1. *BadriRam*.Fourteenthreprint.2007**ADVANCEDMICROPROCOND INTERFACING**, Tata McGraw-Hill Publishing Company Limited.

REFERENCE BOOK:

1. *A.K. Ray, K.M. Bhurchandi*. Second Edition. 2007. **ADVANCED MICROPROCESSORS AND PERIPHERALS**, Tata McGraw-Hill Publishing Company Limited.

15UCT3SA	SKILL BASED SUBJECT- 1: WEB TECHNOLOGY	SEMESTER - III

Total Credits: 3
Hours/Week: 4

OBJECTIVES:

1. To understand the concepts of Hyper Text Markup Language
2. To understand the concept of Extended Markup Language

CONTENTS

UNIT- I

HTML: Programming in HTML – Classifications of Tags – Use of Padded & Unpadded Tags – Formatting Tags – Meaning of Forms – Uses of Forms – Creation of Tables –Meaning of frames-Creation of frames-Graphics in HTML.

UNIT- II

DHTML: Meaning of DHTML-Comparison between HTML and DHTML: Static and Dynamic, Procedural and Non-procedural - Programming in DHTML-Cascading style sheets.

UNIT- III

VB Script: Introduction to Visual Basic language-Introduction to scripting language-Introduction to VB Script-Features of VB Script-Data types in VB script- Client Side Programming.

UNIT- IV

Arrays: Singular arrays- Multiple array - Array handling Mechanism - Examples of arrays-Data Validation Techniques.
Strings: Meaning of strings-Meaning of functions-String functions (or) String Manipulation mechanism.

UNIT- V

Extensible Markup Language: Introduction to XML-Comparison of XML with other Web Designing Languages-Creating XML documents-XML Style sheets-XML Document Object Model-XML Query Language-Hyperlinks in XML Documents.

TEXT BOOK:

1. *M.Sulochana,S.Brinda*. 2013. Fourth Edition **"WEB PROGRAMMING",** Kalyani Publishers.

REFERENCE BOOKS:

1. *Deitel, Deitel, Nieto, Lin & Sadhu*. 2001. **XML HOW TO PROGRAM**, Pearson Education.

15UCT3SP	SKILL BASED LAB- 1 : WEB TECHNOLOGY	SEMESTER - III

Hours/Week: 3
Credit Points: 2

1. Creating a static web page with multiple links and images.
2. Creating a static web page with forms and frames.
3. Creating a web page using CSS.
4. Creating a XML document that marks up a letter.
5. Creating a XML document for a database with DTD.
6. Creating a Microsoft XML Schema document for any XML document and validate.
7. Creating a XML document with Extensible style sheet.
8. Constructing a DTD and a Corresponding XML document with simple links.
9. Program to swap images using VB Script.
10. Program using VB Script for data validation in student register form.

15UCT43A	CORE -VI: SYSTEM SOFTWARE AND OPERATING SYSTEM	SEMESTER - IV

Hours/Week: 6
Credit Points: 4

OBJECTIVES:

1. To instill the concepts of the functionalities of various system softwares
2. To inculcate the common functionality of operating system

CONTENTS

UNIT- I

Assembler: Elements of assembly Language programming-A simple assembly scheme-Pass structure of assemblers-Design of Two Pass assembler.
Macros and macro processor: Macro Definition and call-Micro Expansions-Nested macro calls.
Compilers and Interpreters: Aspects of compilation-Memory allocation-Compilation of expressions –Compilation of control structures-Code optimization-Interpreters.

UNIT-II

Evolution of OS Functions: OS Functions-Evolution of OS functions-Batch processing systems-Multiprogramming systems-Time sharing systems-Real time operating systems-OS structure.
Processes: Process definition – Process Control- Interacting Processes-Implementation of Interacting Processes-Threads.

UNIT-III

Scheduling: Scheduling policies-Job scheduling-Process Scheduling - Process management in unix-Scheduling in multiprocessor OS.
Deadlocks: Definition-Resource status modeling-Handling deadlocks-Deadlock detection and resolution-deadlock Avoidance-Mixed approach to deadlock handling.

UNIT- IV

Process Synchronization: Implementing control synchronization-Critical sections-Classical process synchronization problems-Evolution of Language features for process synchronization-Semaphores-Critical regions-Conditional critical regions-Monitors.
Inter-process Communication: Inter-process messages-Implementation issues- Mailboxes

UNIT- V

Memory Management: Memory allocation preliminaries-Contiguous memory allocation-Non contiguous memory allocation-Virtual memory using paging-Virtual memory using segmentation.
File Systems: Directory Structures-File production-Allocation of Disk space-Implementing file access-File sharing-File system reliability- Unix File System.

TEXT BOOK:

1. *DM Dhamdhere*.1999. 2nd Revised Edition **,"SYSTEMS PROGRAMMING AND OPERATING SYSTEMS"**, Tata McGraw-Hill Publishing.

REFERENCE BOOKS:

1. *Leland L. Beck*. Third Edition. 2003. **SYSTEM SOFTWARE-AN INTRODUCTION TO SYSTEMS PROGRAMMING**, Pearson Education Publishers.
2. *H.M. Deitel.* Second Edition. 2003. **OPERATING SYSTEMS**, Pearson Education Publication.
3. *Achyut S. Godbole.* 2002. **OPERATING SYSTEMS** , Tata McGraw Hill Publications.

15UCT43B	CORE -VII: C#.NET PROGRAMMING	SEMESTER - IV

Hours/Week: 5
Credit Points: 4

OBJECTIVES:

1. To insist the knowledge on Graphical User Interface Programming through Visual Basic
2. Gained problem solving skills using C#.

CONTENTS

UNIT- I

Introduction to C#: What is C#- Why C#?-Evolution –Characteristics-Applications –How does C# differ from C++ and Java.
Understanding .NET: .Net Strategy – Origins of .NET Technology- .Net Frame Work- Common Language Runtime – Frame work Base Classes – User and Program Interfaces – Visual Studio.Net - .Net Languages – Benefits of .Net Approach- C# and the .Net.

UNIT- II

Overview of C# - Literals, variables and data types -Operators, Expressions.

UNIT III

Branching and looping operations – Methods, Arrays, Strings.

UNIT- IV

Structures and Enumerations – Classes and Objects – Inheritance and Polymorphism, Multiple Inheritance.

UNIT- V

Operator overloading, Events, console I/O operations and Exceptions.

TEXT BOOK:

1. E. Balagurusamy. 2011. Third Edition."PROGRAMMING IN C#", Tata McGraw-Hill.

REFERENCE BOOK:

1. Microsoft. 2001. "C# Language Specifications", Microsoft Press

15UCT43C	CORE- VIII: RDBMS AND ORACLE	SEMESTER - IV

Hours/Week: 5
Credit Points: 4

OBJECTIVE:

1. To inculcate knowledge on RDBMS concepts and Programming with Oracle.

CONTENTS

UNIT- I

Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules – Theoretical Relational Languages. **Database Design: Data Modeling and Normalization:** Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams – De -normalization – Another Example of Normalization.

UNIT- II

Oracle9i: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus - SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

UNIT-III

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

UNIT- IV

PL/SQL: A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic 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 – Exceptions – Types of Exceptions.

UNIT- V

PL/SQL Composite Data Types: Records – Tables – arrays. **Named Blocks:** Procedures – Functions – Packages –Triggers –Data Dictionary Views.

TEXTBOOKS:

1. *Nilesh Shah* .2005. 2nd edition **DATABASE SYSTEMS USING ORACLE**, **PHI**. (UNIT-I:Chapters 1 & 2 UNIT-II: Chapters 3 & 4 UNIT III: Chapters 5 & 6 UNIT-IV:Chapters 10 & 11 UNIT-V:Chapters 12,13 & 14)

REFERENCE BOOKS:

1. *Arun Majumdar & Pritimoy* ***Bhattacharya*****. 2007. DATABASE MANAGEMENT SYSTEMS ,** TMH**.**
2. *Gerald V. Post*. 2004. 3rd edition **DATABASE MANAGEMENT SYSTEMS** , TMH.

15UCT43P	CORE LAB -V: PROGRAMMING IN C#.NET AND RDBMS	SEMESTER - IV

Hours/Week: 5
Credit Points: 4

C# Programming

1. Program to implement Array List Methods
2. Program to display current time using delegate, event and Inheritance
3. Program to display flod's triangle
4. Program to load an image, format the background color using windows application.
5. Program to find factorial and prime number using windows form application
6. Developing a simple project for student details using C# as front end and ORACLE as back end.

RDBMS PROGRAMING LIST:

1. Creating a tables and write queries using
   a) Comparison operators
   b) Logical operators
   c) Set operators
   d) Sorting operators
2. Creating a Queries using built in functions.
3. Program to create a PL/SQL block to prepare the electricity bill.
4. PL/SQL block to join two tables, first table contains roll number, name, total and the second table contains the roll no and the address.
5. Creating a database trigger to check the data validity of records.
6. Developing a Simple Project for library Management System using VB as front end and ORACLE as back end.

15UCT4AA	ALLIED- 4: NETWORK SECURITY AND CRYPTOGRAPHY	SEMESTER - IV

Hours/Week: 5
Credit Points: 3

OBJECTIVES:

1. To understand the various risks involved with network computers
2. To understand the various security tools and techniques

CONTENTS

UNIT- I

Attacks on computers and computer security: Introduction –Need for security – Security approaches -principles of security –Types of attacks. **Cryptography :** Concepts and techniques - introduction – plain text and cipher text –substitution techniques - transposition techniques encryption and decryption - symmetric and asymmetric key cryptography-possible type of attacks.

UNIT- II

Symmetric Key Algorithms and AES: Introduction - Algorithm Types and modes – An overview of symmetric key cryptography – Data encryption Standard (DES) – International Data Encryption Algorithm (IDEA)-Advanced Encryption Standard (AES) **Asymmetric Key Algorithms**: RSA - Digital Signature

UNIT- III

Digital certificate: Introduction – digital certificates. **Internet Security Protocols** : Introduction – basic concepts – Secure Socket Layer – (SSL) – Transport Layer Security(TLS) – Secure Hyper Text Transfer Protocol (SHTTP) – Time Stamping Protocol (TSP) – Secure Electronic Transaction (SET) – SSL Versus SET – 3-D secure Protocol – Electronic Money - Email security – Wireless Application Protocol (WIP)

UNIT- IV

User Authentication and Kerberos: Introduction – Authentication basics - Passwords – Authentication Tokens – Certificate based Authentication – biometric authentication – Kerberos – Key distribution centre – Security handshake Pitfalls – Single sign on (SSO) Approaches.

UNIT- V

Data Base Security- Network Security Firewalls - **Virtual Private Networks (VPN):** Introduction – Brief introduction to TCP/IP – Fire walls – IP security – Virtual Private networks (VPN) – Intrusion.

TEXT BOOK

1. *Atul Kahate***.** Second Edition. 2003**. CRYPTOGRAPY** AND **NETWORK SECURITY**, Tata McGraw-Hill.

15UCT53A	CORE- IX: DATA COMMUNICATION AND NETWORKS	SEMESTER - V

Hours/Week: 5
Credit Points: 4

OBJECTIVES

1. To instill the knowledge on network communication.
2. To inculcate the knowledge on internet working concepts.

CONTENTS

UNIT- I

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

UNIT- II

Transmission Media: Guided Media, Unguided Media – **Network Topologies:** Mesh, Star, Tree, Ring, Bus – Switching: Circuit switching, Message switching, Packet switching – **Routing Algorithms:** Routers and Routing – Factors affecting Routing Algorithms – Routing Algorithms – Approaches to Routing.

UNIT-III

Network Protocols and OSI Model- Integrated Services Digital Network (ISDN) – X.25 Protocol – Frame Relay – Asynchronous Transfer Mode (ATM)

UNIT- IV

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

UNIT- V

TCP: Features of TCP, Relationship between TCP and IP, Ports and Sockets, TCP connections, What makes TCP Reliable, TCP Packet Format – **User Datagram Protocol (UDP):** UDP Packet, Difference between UDP and TCP – Domain Name System (DNS) – Electronic Mail (Email) – File Transfer Protocol (FTP) – Web Browser Architecture

TEXT BOOK:

1. *Achyut S.Godbole*. 2007 . **DATA COMMUNICATIONS AND NETWORKS**, Tata McGraw Hill Publications.

REFERENCE BOOKS:

1. *Behrouz A. Forouzan*. 19th reprint, 2007. **DATA COMMUNICATIONS AND NETWORKING** – SECOND EDITION UPDATE, Tata McGraw-Hill Publication.
2. *Andrew S. Tanenbaum*. 3rd Edition, 2000. **COMPUTER NETWORKS**, Prentice Hall of India.

15UCT53B	CORE -X : ASP.NET PROGRAMMING	SEMESTER - V

Hours/Week: 6
Credit Points: 4

OBJECTIVES

1. To inculcate the knowledge on the ASP.Net
2. To instill the ASP.Net Programming concepts in the .Net Framework

CONTENTS

UNIT- I

Overview Of ASP.Net – Overview Of Asp.Net Controls – Understanding HTML Controls - Understanding And Handling Control Events – Installing The Asp.Net Framework – Using The Label Control - Using The Textbox Control - Using The Checkbox Control - Using The Radio button Control - Using The Button Control - Using The Link Button Control - Using The Image Button Control - Using The Image Control - Using The Image Map Control - Using The Panel Control .**Rich Controls**: Overview – Accepting File Upload – Displaying A Calendar – Creating A Pop Up Date Picker – Displaying Advertisements – Displaying Different Page Views – Displaying A Multi – Part Form – Displaying A Wizard.

UNIT- II

Creating Custom Controls With User Controls : Overview – Registering User Controls In The Web Configuration File – Exposing Properties From A User Control – Creating An Address Form Control – Dynamically Loading User Controls – Using The Reference Directive – Creating A Multi Page Wizard.Designing Websites With Master Pages : Overview – Creating Master Pages – Creating Default Content – Nesting Master Pages – Using Image And Hyperlink – Registering Master Page In Web Configuration – Loading Master Page Dynamically For Multiple Content Pages.

UNIT- III

Making Application State: Overview – Using Browser Cookies – Cookies Security Restrictions – Creating, Reading, Setting Properties and Deleting Cookies – Working With Multi Valued Cookies – Using Session State And Session Object – Using Profiles.

Validation Controls: Overview – Required Field Validator Control - Range Validator Control - Compare Validator Control – Regular Expression Validator Control - Custom Validator Control – Validation Summary Control.

UNIT- IV

ADO.Net: Overview – A tale of two providers – Connections, Commands and Data Readers – SQL Connection class – OLEDB Connection Class – Opening and Closing Connections – Command Classes – ExecuteNonQuery Method – ExecuteScalar Method – ExecuteReader Method – Closing a data reader – Transacted Command – Parameterized Commend – Store Procedure – Datasets and Data Adapters – DataSet Class – Data Sets Vs Data Readers – Data Adapter Classes – Data Adapter and Friends – Selecting & Updating Records in a Data Table –Command Builder Classes.

UNIT- V

Using the SQL Data Source Control : Overview – Creating Database Connection – Executing Database – Executing Stored Procedures – Filtering database rows – changing the data source mode – handling the SQL Command Execution errors – Cancelling Command Execution – using ASP.Net Parameter with SQL Data Source Control & Control Parameter object.

Web Services : Overview – Common terminologies used in web services – the web Service attributes - the web method attribute – building a web service – testing the web service – consuming web service – difference between web service and remoting.

TEXT BOOK:

1. *Vishal Gour, Jitender Singh Brar, Vipin Sharma*. 2011 ." **A BEGINNERS GUIDE ASP.NET** ", Kalyani Publishers.

REFERENCE BOOK:

1. *Dave Mercer*. 2002." **ASP.NET A BEGINNER'S GUIDE**", TataMcGraw-Hill Publications.

15UCT53P	CORE LAB -VI : PROGRAMMING IN ASP.NET	SEMESTER - V

Hours/Week: 5
Credit Points: 4

1. Creating a webpage using ASP.NET to display system time.
2. Displaying a photo gallery using ASP.NET.
3. Creating a web form to get the customer address.
4. Program to create cookies.
5. Program using RangeValidator Control.
6. Program using CompareValidator Control.
7. Creating a Master Page using ASP.NET.
8. Program to display a button in green color and it should change into yellow when the mouse moves over it.
9. Creating a simple application using SqlDataSource Control
10. Creating a simple application using ADO.NET which connect with ORACLE

15UIT5SB	SKILL BASED SUBJECT- 2: SOFTWARE TESTING	SEMESTER - V

Hours/Week: 5

Credit Points: 3

OBJECTIVES:

1. To understand the concepts of Various Software Development Lifecycles
2. To understand the concept of Test Development Life Cycle and various types of testing

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 of 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.

TEXT BOOK

1. *Srinivasan Desikan, Gopalswamy Ramesh*. 2006. **SOFTWARE TESTING PRINCIPLES AND PRACTICES**, Pearson Education.

REFERENCE BOOK

1. *WilliamE.Perry.* 2007. 3rd Edition. **EFFECTIVE METHODS OF SOFTWARE TESTING,** Wiley India**.**
2. *Renu Rajani, Pradeep Oak*. 2007. **SOFTWARE TESTING**, TMH.

15UCT5SP	SKILL BASED LAB-2 : SOFTWARE TESTING	SEMESTER - V

Credit Points: 2
Hours/Week: 4

1. Performing a test in the Win Runner Testing Tool to analyze the suitable problem and displaying the results.
2. Performing a test in the Load Runner Testing Tool to analyze the suitable problem and displaying the results.
3. Creating 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-Id	Test Description	Test Steps	Expected Output	Actual Output	Status
TC-01	Acceptance of 10 digit input data	Input 10 Digit Number	Accepting 10 digit number	Accepted 10 digit number	Success
TC-02	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					
TC-02	Non-acceptance of character data	Input a character data 'X'	Character X should not be accepted	Character data not accepted	Success
TC-03	Digit sum of 10 digit is in single digit	Output data	Single digit sum	Single digit Sum	Success

4. Creating test cases and testing the functionality of calculator.
5. Creating test cases and testing the C Program which generates sum of a individual digit of a 5-digit number until a single digit is produced.
6. Testing the C program: Sort and store the elements two arrays of integers into the third list.
7. Testing the C program: Experiment the operations of STACK using array implementation.
8. Testing the C++ Program: Palindrome string checking program. (Using Pointers)

15UCT63A	CORE- XI : PHP AND MYSQL	SEMESTER - VI

Credit Points: 4
Hours/Week: 5

OBJECTIVES:

1. To implement the web applications using PHP
2. To know about PHP in a detailed manner.

CONTENTS

UNIT- I

Essential PHP: Enter PHP - Creating your development environment- creating and running first PHP-mixing HTML and PHP - printing some text - adding comments to PHP code - working with variables - creating variable variables - creating constants - internal data types – Operators - Control Structure Statements- Branching and Looping

UNIT- II

Strings and Array: The string functions, converting to and from strings - formatting text strings - building yourself some arrays - modifying the data in arrays - deleting array elements Creating Functions - Creating function in PHP, Passing functions some data - introducing variable scope in PHP - Accessing global data, working with static variables - PHP conditional functions - PHP variable functions - nesting functions - creating include files - returning errors from functions.

UNIT- III

Reading Data in Web Pages - Setting up web pages to communicate with PHP- handling text fields- handling text areas - handling check boxes - handling radio buttons - handling list boxes -handling password controls - handling hidden controls - handling image maps - handling file uploads - handling buttons.

UNIT – IV

PHP Browser : Handling Power – using PHP server variable, using HTTP Headers- getting browser type, redirecting browsers with HTTP headers- Dumpling a form's data all once- Handling form data with custom array-

performing data validation- checking the user entered data, requiring numbers- requiring text- persisting user data.
File handling : fopen, feof, fgetc, file_get_contents, reading a file into an array with file, file_exists, filesize, fread, fscanf,, parse_ini_file, getting file info with stat, fseek, copy, unlink, fwrite, reading and writing binary files, fwrite, file_put_contents, locking files.

UNIT – V

Working with databases: What is database, creating a MySql database- creating a new table- putting data into the new database - accessing the database in PHP- updating databases- inserting into database- deleting records- creating new table- creating new database- sorting your data.

TEXT BOOK:

1. *Steven Holzner*, 2008. "**COMPLETE REFERENCE PHP**", Tata Mc Graw Hil.,

REFERENCE BOOKS:

1. *Steve Suehring*, *Tim Converse, Joyce Park*. 2009. **PHP6 MySQL** (Bible).
2. *Vikram Vaswani*.2004. **THE COMPLETE REFERENCE OF MYSQL**, Tata McGraw Hill Publications

15UCT63B	CORE -XII : DATA MINING	SEMESTER - VI

Hours/Week: 5
Credit Points: 4

OBJECTIVE

1. To understand the concepts of various algorithms and applications of data mining

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.

15UCT63V	CORE -XIII : PROJECT WORK LAB	SEMESTER - VI

Credit Points: 3
Hours/Week: 5

1. Each student should carry out individually one Project Work and it may be a work using the software packages that they have learned or the implementation of Concepts from the papers studied or implementation of any innovative idea.
2. The Project work should be compulsorily done in the college only under the supervision of the Department staff concerned
3. No candidate will be allowed to change the title of the Project work.
4. Final Viva-Voce will be conducted Both the Internal (Respective Guides) and External Examiners (20+55).

15UCT63P	CORE LAB- VII : PROGRAMMING IN PHP AND MYSQL	SEMESTER - VI

Credit Points: 4
Hours/Week: 5

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
    1. www.phpclasses.com
    2. www.codeguru.com

15UCT5EA	ELECTIVE- I : SOFTWARE ENGINEERING	SEMESTER - V

Credit Points: 3
Hours/Week: 5

OBJECTIVES:

1. To understand the concepts of software Development Lifecycle
2. To understand the concepts of various software engineering concepts

CONTENTS

UNIT- I

The Evolving role of software – Software – Software Crises & Myths – Software Engineering : Layered Technology – The Software Process Model – Evaluating Software Process Models – Components Based Development – The Formal Methods Model – 4GT – Software Scope – Resources – Software Project Estimation – Decomposition Techniques – Empirical Estimation Models.

UNIT- II

Analysis Concepts & Principles: Requirement Analysis – Analysis Principles – Software Prototyping – Specification. Analysis Modeling: Data Modeling – Functional Modeling & Information Flow – Behavioral Modeling.

UNIT- III

Design Concepts & Principles: The Design Process – Design Principles – Design Concepts – Effective Modular Design.

UNIT-IV

User Interface Design: The Golden Rules – UID – Task analyzing and modeling – Interface Design Activities – Implementation Tools – Design Evaluation.

UNIT- V

Component Level Design: Structured Programming – Comparison of Design Notations. Object oriented design: Design for Object Oriented Systems – the System design process – The Object Design Process.

TEXT BOOK:

1. *Roger S Pressman*. 2005. 5th Edition. **SOFTWARE ENGINEERING A PRACTIONER'S APPROACH**, TMH.

15UCT5EB	ELECTIVE- I : MOBILE COMPUTING	SEMESTER - V

Credit Points: 3
Hours/Week: 5

OBJECTIVES:

1. To inculcate the concepts of Mobile Computing Architecture
2. To understand the concepts of various Mobile Computing Technologies

CONTENTS

UNIT- I

INTRODUCTION – Mobility of Bits and Bytes – Wireless-the beginning – Mobile computing – Dialog control – Networks – Middle ware and gateways – Application and Services – Developing Mobile computing applications – Security in Mobile computing – Standards – Why is it necessary? – Standard bodies – Players in the wireless space.
MOBILE COMPUTING ARCHITECTURE – History of computers – History of internet –Internet-the Ubiquitous Network – Architecture for mobile computing – Three-Tier architecture – Design considerations for mobile computing – Mobile computing through Internet – Making Existing applications Mobile-enabled.

UNIT- II

MOBILE COMPUTING THROUGH TELEPHONY – Evolution of telephony – Multiple access procedures – Mobile computing through telephone – Developing an IVR application – Voice XML – Telephony applications programming interface(TAPI) EMERGING TECHNOLOGIES – Introduction – Bluetooth – Radio Frequency Identification (RFID) – Wireless Broadband (WiMAX) – Mobile IP – Internet Protocol Version 6 (IPv6) – Java card.

UNIT- III

GLOBAL SYSTEM FOR MOBILE COMMUNICATION (GSM) – GSM Architecture – GSM Entities – Call routing in GSM – PLMN Interfaces – GSM Address and Identifiers – Network aspects in GSM – GSM frequency allocation – Authentications and Security.

SHORT MESSAGE SERVICES (SMS) – Mobile computing over SMS – Short Message Services (SMS) – Value added services through SMS – Accessing SMS bearer.

UNIT- IV

GENERAL PACKET RADIO SERVICE (GPRS) – GPRS and Packet data network – GPRS Network architecture – GPRS Network operations – Data services in GPRS – Applications for GPRS – Limitations of GPRS – Billing and charging in GPRS. WIRELESS APPLICATION PROTOCOL (WAP) – WAP – MMS – GPRS applications.

UNIT- V

CDMA and 3G – Spread Spectrum technology – Is-95 – CDMA Vs GSM – Wireless data – 3rd Generation networks – Applications on 3G. WIRELESS LAN – Advantages – IEEE 802.11 Standards – Wireless LAN architecture – Mobility in Wireless LAN – Deploying Wireless LAN – Mobile ADHOC networks and Sensor networks – Wireless LAN Security – WiFi Vs 3G.

TEXT BOOK:

1. *Ashoke K Talukder, Roopa R Yavagal*. Fourth Reprint 2007. **MOBILE COMPUTING,** Tata McGraw Hill

15UCT6EA	ELECTIVE- II: CLOUD COMPUTING	SEMESTER - VI

Credit Points: 3
Hours/Week: 5

OBJECTIVES:

1. To understand the concepts of Cloud Computing
2. To understand the concepts of Cloud Application Development

CONTENTS

UNIT- I

Cloud Computing Basics - Cloud Computing Overview-Applications-Intranets and the cloud-First Movers in the cloud. When you can use cloud computing-benefits-Limitations – Security concerns.

UNIT- II

Cloud Computing Services –operational, economic, staffing benefits – Thomson Reuters. Cloud Computing Technology: Hardware and Infrastructure : Clients – Security-Network-Services

UNIT - III

Accessing the cloud: Platforms – web applications – Web API- Web browsers. Cloud Storage: Overview- providers – Standards: Applications-Client – Infrastructure-Service.

UNIT- IV

Cloud Computing at work: Software as a Service: overview – driving forces - company offerings – industries. Software Plus Services : Overview – Mobile device integration – Providers –Microsoft Online

UNIT- V

Developing Applications : Google-Microsoft-Intuit Quick Base- Cast Iron Cloud –Bungee Connect- Development –trouble shooting –Application Management-Virtualizations –Server solutions-Cloud Service-Best Practices

TEXT BOOK

1. *Anthony T.Velte, Toby.J.Velte, Robert Elsenpeter*.2009. **CLOUD COMPUTING- A LAB APPROACH** , Tata McGraw-Hill

15UCT6EB	ELECTIVE -II: COMPUTER INSTALLATION AND SERVICING	SEMESTER - VI

Credit Points: 3
Hours/Week: 5

OBJECTIVES:

1. The concepts of Computer Installation and Servicing

CONTENTS

UNIT- I

PC SYSTEM Personal Computer System - Functional Blocks - System Unit - Display Unit - Keyboard. INSIDE PC Motherboard - BIOS - CMOS-RAM - Motherboard types – Processors – Chipsets – USB. ON-BOARD MEMORY PC's Memory Organization - Memory packaging - I/O Ports - USB Port.

UNIT - II

Floppy Disk Drive and Controller - Hard Disk Drive and Controller, MMX – Multimedia Extensions.

UNIT - III

Input Devices - Monitors and Display Adapters.

UNIT- IV

Output Devices DOT Matrix Printer - Printer Controller - Laser Printer - Inkjet Printer. Computer Installation Power supply - PC Installation.

UNIT- V

Trouble shooting and servicing POST, Trouble shooting the mother board - Trouble shooting the Keyboard - Trouble shooting the disk devices - Trouble shooting the printer. Maintenance Diagnostic Software's - Data Security. Computers and Communication Networking – Modem - Internet.

TEXT BOOK:

1. *D.Balasubramaniam*.2005.SecondEdition."**COMPUTERINSTALLATION AND SERVICING**", Tata McGraw-Hill.

15UCT6EC	ELECTIVE- III: DIGITAL IMAGE PROCESSING	SEMESTER - VI

Credit Points : 3
Hours/Week: 5

OBJECTIVE

1. Knowledge on Image Processing Concepts

CONTENTS

UNIT- I

Digital Image Fundamentals Image Transforms- Walsh, Hadamard, Discrete cosine, Hotelling Transforms-Image Formation. File Formats.

UNIT-II

Image Enhancement Histogram Modification Techniques-Image Smoothening-Image Sharpening-Image Restoration-Degradation Model-Diagonalization of Circulant and Black Circulant matrices-algebraic approach to restoration.

UNIT-III

Image Compression and Segmentation Compression Models-Elements of Information Theory-Error free Compression-Inage Segmentation-Detection of Discontinuities-Edge Linking and boundary detection-Thresholding-Regions Oriented Segmentations-Morphology.

UNIT-IV

Feature Extraction Image feature descriptions-Interpretations of Line drawings, Image pattern recognition algorithms.

UNIT-V

Knowledge Representation and Use Knowledge Representation and Use-Image analysis using Knowledge about scenes-Image Understanding using two dimensional methods.

TEXT BOOKS:

1. *Gonzalez.R.C & Woods. R.E.* 2002. 2nd Edition. **DIGITAL IMAGE PROCESSING**, Pearson Education.(Chapters: 1, 2, 3, 4, 5, 8, 9, 10, 11 and 12).
2. *Anil Jain.K.* **FUNDAMENTALSOF DIGITAL IMAGE PROCESSING,** Prentice Hall of India.(Chapters: 5, 7, 8 and 11).

REFERENCE BOOKS:

1. *Sid Ahmed*.1995.**IMAGE PROCESSING**, McGraw Hill, New York.
2. *Milan Sonka, Vaclav Hlavac and Roger Boyle*.1999. Second Edition. **IMAGEPROCESSING ANALYSIS AND ACHINE VISION**,Thomson Brooks/Cole.

15UCT6ED	ELECTIVE -III: GRAPHICS AND MULTIMEDIA	SEMESTER - VI

Credit Points: 3
Hours/Week: 5

OBJECTIVES:

1. To inculcate knowledge on Graphics .
2. To understand the Multimedia concepts.

CONTENTS

UNIT- I

Output Primitives: Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. **Attributes of Output Primitives:** Line Attributes – Curve attributes – Color and Grayscale Levels – Area-fill attributes – Character Attributes.

UNIT- II

2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations. **2D Viewing:** The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation - 2D Viewing Functions – Clipping Operations.

UNIT- III

Text: Types of Text – Unicode Standard – Font – Insertion of Text -Text compression – File formats. **Image:** Image Types – Seeing Color – Color Models – Basic Steps for Image Processing –Scanner – Digital Camera – Interface Standards – Specification of Digital Images – CMS – Device Independent Color Models – Image Processing software – File Formats – Image Output on Monitor and Printer.

UNIT- IV

Audio: Introduction – Acoustics – Nature of Sound Waves – Fundamental Characteristics of Sound – Microphone – Amplifier – Loudspeaker – Audio Mixer – Digital Audio – Synthesizers – MIDI – Basics of Staff Notation – Sound Card – Audio Transmission – Audio File

formats and CODECs – Audio Recording Systems – Audio and Multimedia – Voice Recognition and Response - Audio Processing Software.

UNIT- V

Video: Analog Video Camera – Transmission of Video Signals – Video Signal Formats –Television Broadcasting Standards – PC Video – Video File Formats and CODECs – Video Editing –Video Editing Software.
Animation: Types of Animation – Computer Assisted Animation – Creating Movement – Principles of Animation – Some Techniques of Animation – Animation on the Web – Special Effects – Rendering Algorithms.
Compression: MPEG-1 Audio – MPEG-1 Video - MPEG-2Audio –MPEG-Video.

TEXTBOOKS:

1. *Donald Hearn, M.Pauline Baker.* 2001. 2nd edition. **"COMPUTER GRAPHICS", PHI**. (UNIT-I: 3.1-3.6,4.1-4.5 & UNIT-II: 5.1-5.4,6.1-6.5)
2. *Ranjan Parekh*.2007."**PRINCIPLES OF MULTIMEDIA",** TMH. (UNIT III: 4.1-4.7,5.1-5.16 UNIT-IV: 7.1-7.3,7.8-7.14,7.18-7.20,7.22,7.24,7.26-28 UNIT-V: 9.5-9.10,9.13,9.15,10.10-10.13)

REFERENCE BOOKS:

1. *Amarendra N Sinha, Arun D Udai*. 2008."**COMPUTER GRAPHICS**", TMH.
2. *Tay Vaughan*. Seventh Edition. 2006." **MULTIMEDIA:** Making it Work", TMH.

15UED34K	NMEC -I: MULTIMEDIA	SEMESTER - III

Credit Points: 2
Hours/Week: 2

OBJECTIVE

1. To understand the basics concepts of multimedia

CONTENTS

UNIT- I

Text: Types of Text – Unicode Standard – Font – Insertion of Text – Text compression – File formats

UNIT- II

Image: Image Types – Seeing Color – Color Models – Basic Steps for Image Processing – Scanner – Digital Camera

UNIT- III

Audio: Introduction – Acoustics – Nature of Sound Waves – Fundamental Characteristics of Sound – Microphone – Amplifier – Loudspeaker – Audio Mixer – Digital Audio – Sound Card – Audio Transmission – Audio File formats

UNIT- IV

Video: Analog Video Camera – Transmission of Video Signals – Video Signal Formats – Television Broadcasting Standards – PC Video – Video File Formats and CODECs – Video Editing – Video Editing Software.

UNIT- V

Animation: Types of Animation – Computer Assisted Animation – Creating Movement – Principles of Animation – Some Techniques of Animation – Animation on the Web

TEXT BOOK:

1. *Ranjan Parekh*. 2007. **PRINCIPLES OF MULTIMEDIA**, TMH.

15UED44K	NMEC-II: ORACLE	SEMESTER - IV

Credit Points: 2
Hours/Week: 2

OBJECTIVES:

1. To understand the concepts of Relational Database
2. To inculcate the knowledge on Oracle

CONTENTS

UNIT- I

Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules – Theoretical Relational Languages.

UNIT- II

Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

UNIT- III

with Table: Data Management and Retrieval: DML Commands adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table.

UNIT- IV

Arithmetic Operations – restricting Data with WHERE clause – Sorting

UNIT- V

DEFINE command – Multiple Tables: Joins and Set operations: Join – Set operations.

TEXT BOOK:

1. *Nilesh Shah*.2005. 2nd edition. **DATABASE SYSTEMS USING ORACLE**, PHI.

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