பகுதி - I தமிழ்ப் பாடத்திட்டம் (2015 - 2016) முதல்பருவம் (இளநிலை அறிவியல் பட்ட வகுப்புகளுக்குரியது) (For I-UG Science Degree Classes)

15LSU101

பாடத்திட்டப் பொதுநோக்கம்

- கற்றல் வழி சிந்தனைத் திறனையும், கருத்து வெளிப்பாட்டுத் திறனையும், மேம்படுத்துதல்.
- ஆய்வுநோக்கை மேம்படுத்துதல்.
- இலக்கியங்கள் உணர்த்தும் வாழ்வின் நுட்பமான பகுதிகளை உணர்த்துதல்.
- மனத்தினைப் பக்குவப்படுத்துதலில் இலக்கியம் தரும் பங்கினை உணர்த்துதல்.
- வளர்ந்து வரும் சமூகத்தில் அறஉணர்வு, பண்பாடு போன்றவை குறித்து அறிவூட்டல்.
- அரசுத் தேர்வுகளுக்கு மாணவர்களை ஆயத்தமாக்குதல்.

பாடத்திட்டப் பயன் விளைவு

- இந்திய குடியுரிமைப் பணி முதலான போட்டித் தேர்வுகளில், விருப்பப் பாடமாக இடம்பெறுகின்ற, 'தமிழ் இலக்கிய வரலாறு' குறித்த முழுமையான அறிமுகம் பெற்றிருத்தல்.
- கல்வெட்டியல், ஓலைச்சுவடியியல் மற்றும் தொல்லியல் சார்ந்த ஆவணத் தேடலுக்குரிய ஆய்வுமனப்பான்மையுடன், இலக்கியங்களை அணுகுதல்.
- தமிழின் வளர்ச்சித் துறையாகிய, 'அறிவியல் தமிழ்'; 'இணைய தமிழ்' குறித்த பன்நோக்கு அணுகுமுறையிலான ஆய்வுச் சிந்தனை மேம்பாடு.
- வேலைவாய்ப்புக்குரிய சுயதிறன் மேம்பாட்டுடன், படைப்பாக்கத்திறன் மேம்பாடும் பெற்றிருத்தல்.
- சமுதாய மற்றும் வாழ்வியல் மதிப்புகளைப் பேணுவதற்குக் கருவியாக இலக்கியங்களை நாடுகின்ற மனப்பான்மை வளர்ச்சி.
- மொழிபெயப்புத் துறைசார்ந்த வேலைவாய்புத் திறன் பெற்றிருத்தல்

15LAU101	:	தமிழ் முதல் தாள்	5-H,5-
அலகு – I : இ	க்கால இலக்	க்கியம்	
	தத்துவம் ∶ ட -	மகாகவி பாரதியார் – பகைவனுக்கு அருள்வா பலிகர் தலிக்கலக்க்கி – கி.சிக்க காக	ய்.
	ி வெற்னை:	வளு நபசசமூரத்து – களக்கூண்டு பாலேக்கர் பாரசிகாசன் – வமகின் சிரிப்ப – ம	ສແມງຄວາ
	அவற்கை: சமுதாயம்:	கவிக்கோ அப்துல் ரகுமான் – இன்றைய நில	െ പ്രപ്പാ. വെ
	அறிவியல்	கவிஞர் சிற்பி பாலசுப்பிரமணியன் – காலம்.	
	பெண்ணிய	ம் : கவிஞர் சிவரமணி – வையகத்தை வெற்றி	கொள்ள
	சூழலியல் : காசல் :	அன்பாதவன் - மரணம் வருமர்து – சாசல் உயில்	
	கள்னம்பிக்	வரமுதது - காதல உயல கை பா.விஜய் - கன்னம்பிக்கை	
ച്ചുരുക–II∶ച	அற இலக்கிய	ம்	
9 0	1. திருக்கு <u>ா</u>	றள் - தேர்ந்தெடுக்கப்பட்ட குறள்கள் 20	
	2. நான்மன	ளிக்கடிகை - தேர்ந்தெடுக்கப்பட்ட ஐந்து பாடல	ல்கள்
	3. திரிகடுக	ம் - தேர்ந்தெடுக்கப்பட்ட ஐந்து பாடல்கள்	
அலகு - III : ச	சிற்றிலக்கிய	۵	
	1. நரிவிருத்	தம் - அறன் வலியுறுத்தல்	
	2. தமிழ் வி	டு தூது - தமிழின் சிறப்புரைத்தல்	
	3. மதுரை ப	ீனாட்சியம்மைப் பிள்ளைத்தமிழ் - தொடுக்கும்	கடவுள் பழம்பாடல்
அலகு – IV : .	சிறுகதை		
	1. புதுமைப்	பித்தன் - நிகும்பலை	
	2. தனுஷ்கே	காடி ராமசாமி - கந்தகக் கிடங்கிலே	
	3. கந்தர்வல்	ர் - துண்டு	
	4. வாஸந்தி	- வடிகால்	
	5. சி.ஆர். ர	வீந்திரன் - வழுக்குமரம்	
அலகு- V : ெ	மாழிப்பயிற்	f	
	1. விண்ண	ப்பங்கள் எழுதுதல் மற்றும் கடிதப் பயிற்சி	
	2. மொழி)பயர்ப்புப் பயிற்சி	
பாட நூல்: க	ற்பகச்சோன	ல – தமிழ் ஏடு. கற்பகம் பல்கலைக்கழகத் தமிழ்	த் துறை வெளியீடு.

Part I TAMIL 2015. Karpagam University, Coimbatore - 21.

Course Objectives:

- To enable the learners to acquire English language skills at a faster pace.
- To introduce different kinds of literary works •
- To familiarize different genres of Literature
- To instruct moral values through literature.
- To improvise their productive and receptive skills
- To strengthen the basic knowledge about grammar. •

Course Outcomes:

- Learn to reflect on the literary works and communicate flexibly.
- Reading and comprehending literary works •
- Genres of literature to provide moral education •
- Develop communication skills in business environment
- Interpersonal skills will be developed. •
- Betterment of language competence •

UNIT I:

Prose: Google Guys (Extract) – Richard L Brandt **Poetry:** The Blind Pedlar – Osbert Sitwell Short Story: A Garden So Rich – Christie Craig Vocabulary: Prefixes, Antonyms, Sentence Completion Grammar: Articles, Adverbs, Pronouns **Composition:** Proverb Expansion

UNIT II:

Prose: Happiness 101 – Geeta Padmanabhan Poetry: An Old Woman – Arun Kolatkar Vocabulary: Suffixes, Analogies Grammar: Nouns, Adjectives **Composition:** Dialogue Writing

UNIT III:

Prose: Structured Procrastination – John Perry Short Story: The Umbrella Man – Roald Dahl One-Act Play: The Boy Who Stopped Smiling – Ramu Ramanathan Vocabulary: Synonyms, Euphemisms, Word Definitions Grammar: Verbs, Conjunctions and Interjection, Indirect/Reported Speech

UNIT IV:

Poetry: No Sentence – Anjum Hassan One-Act Play: While the Auto Waits- O' Henry Vocabulary: Words Often Confused, Anagrams Grammar: Prepositions, Voice- Active and Passive Composition: Letter Writing- Informal

UNIT V:

Short Story: The Bird – Amar Jalil One-Act Play: The Cellphone Epidemic – Claudia I. Haas Vocabulary: Portmanteau Words, One Word Substitute Grammar: Questions, Pronunciation Composition: Letter Writing- Formal

Text Book

Rao, G. Chandralekha and et al. Spring 2013. Emerald Publishers: Chennai.

Reference

Syamala. V, 2006, English for Communication, Emerald Publishers, Chennai.

		Semester – I
		L T P C
15ITU101	Problem Solving Using C	5005

Course Objectives (CO)

- To impart adequate knowledge on the need of programming languages and problem solving techniques.
- To develop programming logic.
- To develop programming skills using the fundamentals and basics of C Language.
- To enable effective usage of arrays, structures, functions, pointers and to implement the memory management concepts.
- To understand memory allocation concepts through pointers
- To teach the issues in file organization and the usage of file systems

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Gain experience about structured programming
- 2. Develop efficient algorithms for solving a problem.
- 3. Use the various constructs of a programming language viz. conditional, iteration and recursion.
- 4. Implement the algorithms in C" language.
- 5. Use simple data structures like arrays, stacks and linked list in solving problems.
- 6. Handle file in C.

UNIT-I

Programming and Problem Solving: Introduction to Computer based Problem Solving-Problem definition – Problem Solving- goals and objectives – problem identification and definitions. Algorithms for Problem definition – Program design and Implementation issues. Programming Environment – Computer Programming Languages – Types of Programming Languages – Compilers – interpreters. Construct algorithms for the following: Addition and Multiplication of Two numbers – Check for Odd or Even numbers – Check for Prime numbers – Summation of Set of Numbers.

UNIT-II

Introduction to C: Introduction - An Overview of C – Keywords and Identifier – Variables - Declarations of Variables - User Defined Type Declarations - Typedef – Enum - Constants – Data Types – Operators – Expressions - C Formatted I/O Operations. Decision Making and

Branching Statements - Decision Making and Looping Statements - Arrays-Strings - String Handling Functions.

UNIT-III

Functions, Structures and Union: Functions - Introduction - Definition of Functions -Function Declaration - Category of Functions - Nesting of Functions - Recursion - Passing Arrays to Function. Storage Classes - Auto-extern-static-register. Structures and Unions -Introduction - Defining a Structure - Declaring Structure Variables - Accessing Structure Members - Arrays of Structure - Unions.

UNIT-IV

Pointers: Pointers - Introduction - Declaring Pointer Variables - Pointer and Arrays -Pointers and Strings - Array of Pointers - Functions and Pointers - Function Returning Pointers -Pointers to functions - Pointers and Structures

UNIT-V

File Management: File Management in C - Introduction - Opening a File - Closing a file -Input/output operations on files - Error handling during I/O Operations - Random Access to Files - Command Line Arguments - Dynamic Memory Allocation.

Text Books

Ashok N. Kamthane, 2013, ITL Education Solutions Limited. C Programming. 1st Edition, Pearson Education, New Delhi. (Page Nos.: 1-18, 29-37, 259-261, 269-282, 291-310, 317-334, 341-365, 373-404, 415-452, 467-473, 481-500, 519-540, 551-559, 581-597, 617-631, 673-719).

Balagurusamy .E, 2007, Programming in ANSI C, 4th Edition, Tata McGraw Hill Publishers, New Delhi. [Unit - I (23-81), Unit - II (114-259), Unit - III (262-348), Unit - IV (351-388), Unit – V (389-442)].

Balagurusamy .E, 2012, Programming in ANSI C, 6th Edition, Tata McGraw Hill Publishers, New Delhi.

References

R.G.Dromey, 2009, How to solve it by Computer, Pearson Education, New Delhi.

Ashok N. Kamthane, 2004, Programming with ANSI and Turbo, 1st Edition, Pearson Education, New Delhi. [Unit - I (7-60), Unit - II (63-277), Unit - III (318-446), Unit - IV (281-315), Unit – V (451-525)].

Yeswanth Kanetkar, 2007, Let Us C, 8th Edition, BPB Publications, New Delhi. [Unit - I (1-39,489-513), Unit - II (49-312,335-362), Unit - III (155-392), Unit - IV (155-198), Unit - V (423-462)].

Karthikeyan.E, 2008, Textbook on C: Fundamentals, Data structure & Programming, 1st Edition, PHI Publications, New Delhi. [Unit - I (3-31), Unit - II (57-141), Unit - III (147-176,233-254), Unit – IV (191-229), Unit – V (261-287)]

Web Sites

http://www.cs.cf.ac.uk/Dave/C/CE.html http://www2.its.strath.ac.uk/courses/c/

http://www.iu.hio.no/~mark/CTutorial/CTutorial.html

		Semester – I
		LTPC
15ITU111	C Programming Lab	0 0 5 3
Course Objectives (CO)		

- To impart adequate knowledge on the need of programming languages and problem solving techniques.
- To develop programming logic
- To develop programming skills using the fundamentals and basics of C Language.
- To enable effective usage of arrays, structures, functions, pointers and to implement the memory management concepts.
- To understand memory allocation concepts through pointers
- To teach the issues in file organization and the usage of file systems

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Gain experience about structured programming
- 2. Develop efficient algorithms for solving a problem.
- 3. Use the various constructs of a programming language viz. conditional, iteration and recursion.
- 4. Implement the algorithms in C language.
- 5. Use simple data structures like arrays, stacks and linked list in solving problems.

Handle file in C.

- 1. Write a program to find factorial of a given number using recursive and non recursive
- 2. Write a program to generate Fibonacci series.
- 3. Write a program to print Multiplication table using for and Do While Loops
- 4. Write a program to find the roots of quadratic equation
- 5. Write a program to find Maximum number without using arrays
- 6. Write a program to convert a given number into words
- 7. Write a program to calculate SIN(x) without using library function
- 8. Write a program
 - (i) to find the length of a string
 - (ii) concatenation of two strings
- 9. Write a program to reverse the given string
- 10. Write a program to count the vowels in a given sentence
- 11. Write a program to check the given string is palindrome or not
- 12. Write a program to perform matrix multiplication
- 13. Write a program to perform Stack Operations

- 14. Write a program to sort and search the number using Binary search.
- 15. Using any one sorting method to sort given 'n' numbers using pointers.
- 16. Write a program to prepare an employee pay slip using structures
- 17. Write a program for Electricity Bill Preparation using files
- 18. Write a program for the Odd and even numbers are stored in separate files the original files.

		Semester – I
		LTPC
15ITU102	Digital Electronics	4 0 0 4

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Course Objectives (CO)

- To enable the students to gain knowledge on the architecture of modern computer.
- To understand how computer stores positive and negative numbers and to perform arithmetic operation of positive and negative numbers.
- To learn about logic gates and solve problems using Boolean algebra.
- To understand the simplification of circuits like adders, subtractors, multiplexers, encoders.
- To understand the basic computer organization and design.
- To learn Cache memory and its importance

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. To provide a strong foundation in construction of Sequential and Combinational Circuits.
- 2. To familiarize with the function of Gates, Flip Flops, Shift Registers, Counters, A/D& D/A Converters and its Applications.
- 3. Solve the problems using Boolean algebra
- 4. Understand the basic computer organization and design.
- 5. Learn about Cache memory and its importance
- 6. Solve the binary arithmetic problems and conversion among the number systems

UNIT I – Number System and Codes

Introduction to Digital concepts – Number Systems: Decimal, Binary, Octal and Hexadecimal Numbers – Conversion – 1's and 2's Complements of Binary Numbers – Binary Arithmetic with Signal and Unsigned Numbers – Codes: Binary Coded Decimal (BCD) — Excess-3 – Gray Code — ASCII Codes —Error Detection and Correction Codes.

UNIT II -Logic Gates and Boolean Algebra

Introduction to Logic Gates – OR, AND, NOT, NAND, NOR, EX-OR and EX-NOR Gates. Boolean Logic and Expression, Laws and Rules of Boolean Algebra, DeMorgan's Theorem – Simplification using Boolean Algebra – Karnaugh Map.

UNIT III – Combinational Logic Circuits

Basic overview of Logic functions – Basic Adders & Subtractor – Parallel Binary Adder – 4bit Binary Adder/Subtractor – Comparators –Encoders and Decoders – Code Converters – Multiplexers and Demultiplexers — Parity Generators/Checkers.

UNIT IV – Sequential Logic Circuits

Flip-flops: RS – Clocked RS – Edge-triggered RS, D, and JK – JK Master-Slave flip flops – Registers and it's Types –SISO, SIPO, PISO, PIPO - Shift Registers and its Types – Ring Counters – Asynchronous and Synchronous Counter – UP/DOWN Counter- Ring Counter.

UNIT V – D/A, A/D Converters

Digital to Analog converters: Resistor Networks - Binary Ladder – Analog to Digital converters: Counter type – Ramp type – Successive Approximation Type.

Text Books

Salivahanan, 2014, Digital Electronics and its Principles, 7th Edition, Tata McGraw Hill.

Albert Paul Malvino, Donald P. Leach and Goutam Saha, 2010, Digital Principles and Application, 7th Edition, Tata McGraw Hill.

Morris Mano, 2013, Digital Design: With an Introduction to Verilog HDL, 5th Edition, Pearson Education..

References

Jain R.P, 2012, Modern Digital Electronics, Fourth Edition, Tata McGraw Hill Company.

Botkar K.R, 2008, Integrated Circuits, Fourth Edition, Khanna Publications.

(Any 8 Experiments)

Course Objectives (CO)

- To enable the students to gain knowledge on the architecture of modern computer.
- To understand how computer stores positive and negative numbers and to perform arithmetic operation of positive and negative numbers.
- To learn about logic gates and solve problems using Boolean algebra.
- To understand the simplification of circuits like adders, subtractors, multiplexers, encoders.
- To understand the basic computer organization and design.
- To learn Cache memory and its importance

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. To provide a strong foundation in construction of Sequential and Combinational Circuits.
- 2. To familiarize with the function of Gates, Flip Flops, Shift Registers, Counters, A/D& D/A Converters and its Applications.
- 3. Solve the problems using Boolean algebra
- 4. Understand the basic computer organization and design.
- 5. Learn about Cache memory and its importance
- 6. Solve the binary arithmetic problems and conversion among the number systems
- 1. Verification of basic gates
- 2. Realization of Logic Gates Using Universal Gates
- 3. Adder using Gates
- 4. Subtractor using Gates.
- 5. Multiplexer
- 6. Demultiplexer
- 7. Encoder
- 8. Decoder
- 9. Study of Flip-flops
- 10. Binary to Gray and Gray to Binary Converter

Instruction Hours/week: L: 2 T: 0 P: 0 Marks: Internal: 100 External: Nil Total: 100

Course Objectives (CO)

- To teach and inculcate the importance of value based living and sustainable lifestyle.
- To give students a deeper understanding about the purpose of life.
- To teach and inculcate the essential qualities to become a good leader.
- To be responsible citizens with clear conviction to practice values and ethics in life.
- To create awareness about the values and their significance and role
- To imbibe the concept of discipline and freedom

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Students will understand the importance of value-based living.
- 2. Students will gain deeper understanding about the purpose of their life.
- 3. Students will understand and start applying the essential steps to become good leaders.
- 4. Students will emerge as responsible citizens with clear conviction to practice values and ethics in life.
- 5. Students will become value-based professionals
- 6. Students will contribute in building a healthy nation

UNIT – I

Concept of Self, self-esteem and self-confidence. Concept of personality, determinants and disorgiansation of it. Personality development – meaning.

$\mathbf{UNIT} - \mathbf{II}$

Goal setting – meaning and importance; steps in goal setting Manners and Etiquette – meaning need and importance; means to improve. Positive thinking.

UNIT – III

Discipline – meaning. Concept of Roles and Responsibility Time Management – Meaning and steps for effective time management.

$\mathbf{UNIT} - \mathbf{IV}$

Interpersonal relationship – meaning and importance; means to improve it. Healthy friendship.

$\mathbf{UNIT} - \mathbf{V}$

Family Relationship importance of it; Means to improve. Spirituality – meaning. Its relationship with Altruism, sacrifice, self control, tolerance and truthfulness.

TEXT BOOKS

1. Karpagam Academy of Higher Education, Study Material, 2015.

- Students will be able to apply quantitative reasoning and mathematical analysis methodologies to understand and solve problems.
- To achieve the analytical and reasoning competencies and to improve their communication and presentation skills
- To impact knowledge on both Aptitude and Soft skills to the students
- To actively do mathematics—such as analyzing data, constructing hypotheses, solving problems, reflecting on their work, and making connections.
- To critically evaluate and demonstrate various principles involved in solving mathematical problems and to adopt new and faster methods of calculations.
- To reinforce competencies in soft skills which are crucial in a social setting

Course Outcomes (COs)

On successful completion of the course the students will be able to:

- 1. Understand the basic concepts of QUANTITATIVE ABILITY
- 2. Understand the basic concepts of LOGICAL REASONING Skills
- 3. Acquire satisfactory competency in use of VERBAL REASONING
- 4. Actively do mathematics—such as analyzing data, constructing hypotheses, solving problems, reflecting on their work, and making connections.
- 5. Solve campus placements aptitude papers covering Quantitative Ability, Logical Reasoning and Verbal Ability
- 6. Compete in various competitive exams like CAT, CMAT, GATE, GRE, GATE, UPSC, GPSC etc.

UNIT - I

Introduction to Quantitative Aptitude, Speed Maths, Problems on Numbers, Averages,

Ratios and Proportions, Problems on Ages

UNIT - II

Number Series, Blood Relation, Image Analysis, Direction Sense, Syllogism, Coding and

Decoding

UNIT – III

Percentages, Data Interpretation, Profit and Loss, Simple Interest and Compound Interest

$\mathbf{UNIT} - \mathbf{IV}$

Parts of Speech, Tense, Subject Verb Agreement, Active and Passive Voice, Articles,

Prepositions

UNIT - V

Conditional Clause, Degrees of Comparison, Goal Setting, Interpersonal Skills

Bachelor of Information Technology, 2015, Karpagam Academy of Higher Education, Coimbatore-21, India

பகுதி - I தமிழ்ப் பாடத்திட்டம் (2015 - 2016) இரண்டாம் பருவம் (இளநிலை அறிவியல் பட்ட வகுப்புகளுக்குரியது) (For I-UG Science Degree Classes) 15LSU201

பாடத்திட்டப் பொதுநோக்கம்

- கற்றல் வழி சிந்தனைத் திறனையும், கருத்து வெளிப்பாட்டுத் திறனையும், மேம்படுத்துதல்.
- ஆய்வுநோக்கை மேம்படுத்துதல்.
- இலக்கியங்கள் உணர்த்தும் வாழ்வின் நுட்பமான பகுதிகளை உணர்த்துதல்.
- மனித மனத்தினைப் பக்குவப்படுத்துதலில் இலக்கியம் தரும் பங்கினை உணர்த்துதல்.
- வளர்ந்து வரும் சமூகத்தில் அறஉணர்வு, பண்பாடு போன்றவை குறித்து அறிவூட்டல்.
- அரசுத் தேர்வுகளுக்கு மாணவர்களை ஆயத்தமாக்குதல்.

பாடத்திட்டப் பயன் விளைவு

- இந்திய குடியுரிமைப் பணி முதலான போட்டித் தேர்வுகளில், விருப்பப் பாடமாக இடம்பெறுகின்ற, 'தமிழ் இலக்கிய வரலாறு' குறித்த முழுமையான அறிமுகம் பெற்றிருத்தல்.
- கல்வெட்டியல், ஓலைச்சுவடியியல் மற்றும் தொல்லியல் சார்ந்த ஆவணத் தேடலுக்குரிய ஆய்வுமனப்பான்மையுடன், இலக்கியங்களை அணுகுதல்.
- தமிழின் வளர்ச்சித் துறையாகிய, 'அறிவியல் தமிழ்'; 'இணைய தமிழ்' குறித்த பன்நோக்கு அணுகுமுறையிலான ஆய்வுச் சிந்தனை மேம்பாடு.
- வேலைவாய்ப்புக்குரிய சுயதிறன் மேம்பாட்டுடன், படைப்பாக்கத்திறன் மேம்பாடும் பெற்றிருத்தல் .
- சமுதாய மற்றும் வாழ்வியல் மதிப்புகளைப் பேணுவதற்குக் கருவியாக இலக்கியங்களை நாடுகின்ற மனப்பான்மை வளர்ச்சி.
- மொழிபெயப்புத் துறைசார்ந்த வேலைவாய்புத் திறன் பெற்றிருத்தல்

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15 Bachelor of Information Technology, 2015, Karpagam Academy of Higher Education, Coimbatore-21, India அலகு - I : பக்தி இலக்கியம்

சைவம் - மூவர் தேவாரத்திலிருந்து தேர்ந்தெடுக்கப்பெற்ற15 பாடல்கள்

2. வைணவம் – ஆண்டாள் நாச்சியாரின் திருப்பாவையிலிருந்து 11 பாடல்கள்

அலகு – II : சங்கஇலக்கியம்

அ). எட்டுத்தொகை

நற்றிணை: 1. இலை இல பிடவம், திணை – முல்லை, ஆசிரியர் – விழிக்கட் பேதைப் பெருங்கண்ணனார். 2. மடல் மா ஊர்ந்து, திணை – குறிஞ்சி, ஆசிரியர் – மடல் பாடிய மாதங்கீரனார்.

குறுந்தொகை : 1. உள்ளார் கொல்லோ, திணை – பாலை, ஆசிரியர் – பெருங்கடுங்கோ. 2. யாரினும் இனியன், திணை – மருதம், ஆசிரியர் – வடமவண்ணக்கன் தாமோதரனார்.

ஐங்குறுநூறு : 1. நுண்ணேர் புருவத்த, திணை – குறிஞ்சி, ஆசிரியர் – கபிலர். 2. அவறொறுந் தேரை, திணை – முல்லை, ஆசிரியர் - பேயனார்.

பதிற்றுப்பத்து – ததைந்த காஞ்சி, ஆசிரியர் - பாலைக் கௌதமனார்.

பரிபாடல் - வையை - திரை இரும் பனிப் பௌவம், ஆசிரியர் - மையோடக் கோவனார்.

கலித்தொகை – கடும் புனல் கால் பட்டு, திணை – பாலை, ஆசிரியர் - பெருங்கடுங்கோ.

புறநானூறு -1. சிறப்பில் சிதடு முறுப்பில், திணை – பொதுவியல், ஆசிரியர் – உறையூர் முதுகண்ணன் சாத்தனார். 2.இளையரு முதியரும் வேறுபுலம் படா – ஆசிரியர் – கயமனார்.

ஆ). பத்துப்பாட்டு - சிறுபாண் ஆற்றுப்படை – கடையெழு வள்ளல்களின் சிறப்பு, நல்லியக்கோடனின் சிறப்பு, ஈகைத் திறம்.

அலகு - III : காப்பியங்கள்

1.மணிமேகலை –பாத்திரம் பெற்ற காதை – தீவதிலகை, மணிமேகலைக்குச் சொல்லியது, சிறைக்கோட்டம் அறக்கோட்டமாக்கிய காதை – மணிமேகலை வேண்ட, மாவண்கிள்ளி, சிறைக்கோட்டத்தை அறக்கோட்டமாக்கியது.

கம்பராமாயணம் - இலக்கியநயம் மிக்க, தேர்ந்தெடுக்கப்பெற்ற 41 பாடல்கள்.

அலகு - IV : கட்டுரைகள்

திருக்குறளில் மனிதவள மேலாண்மைக் கருத்துக்கள் - திருமிகு ஹரி விஜயலட்சுமி.

தமிழர் வளர்த்த நுண்கலைகள்: சிற்பமும் ஓவியமும் – தொ.மு. பாஸ்கரத் தொண்டைமான்.

சமயமும் தமிழும் – பேராசிரியர் அ.ச.ஞானசம்பந்தன்.

4.தமிழில் அறிவியல் – ஒரு பார்வை - பேராசிரியர் சிவகுமார்.

இன்றைய நெருக்கடிப் பிரச்சனைகள் - நீர்வளம் - முனைவர் ச. முத்துக்குமரன்.

அலகு - V : இலக்கணமும் மொழிப்பயிற்சியும் 1.எழுத்து, சொல், பொருள் இலக்கண எழுத்துப்பயிற்சிகள் 2.பொதுக் கட்டுரைகள் பாட நூல்: கற்பகச்சோலை – தமிழ் ஏடு. கற்பகம் பல்கலைக்கழகத் தமிழ்த் துறை வெளியீடு.

Part I TAMIL 2015. Karpagam University, Coimbatore - 21, India

- To enable the learners to acquire English language skills through literature.
- To familiarize them with English literature. •
- To acquire Grammar knowledge.
- To help learners imbibe cultural values. •
- To acquire skill of making correct sentences. •
- To reflect originality on the application of soft skills and express in writing their views.

Course Outcome (COs)

After the completion of this course, a successful student will be able to:

- 1. Learn to enjoy the ecstasy of literature.
- 2. The select literary pieces will develop the confidence level of the learners.
- 3. To get the social values.
- 4. To know the importance of communication
- 5. Get sound knowledge in English
- 6. Trained to communicate well for business purpose.

UNIT I:

Prose: The Unexpected- Robert Lynd Poetry: The Village Schoolmaster – Oliver Goldsmith Short Story: The Lion's Share – Arnold Bennett Vocabulary: Homonyms Grammar: Irregular Verbs

UNIT II:

Prose: Travel by Train – J. B. Priestly Poetry: The Gift of India – Sarojini Naidu Grammar: Sentence patterns **Composition:** Reading Comprehension

UNIT III:

Prose: Women's Education is Almost More Important than the Education of Boys and Men – Indira Gandhi Short Story: The Necklace – Guy De Maupassant **One-Act Play:** The Referee – W.H. Andrews and Geoffrey Dearmer Vocabulary: Similes Grammar: Discourse Markers **Composition:** Report Writing

UNIT IV:

Poetry: Ozymandias – P.B. Shelley One-Act Play: The Pot of Broth- W.B. Yeats Vocabulary: Collective Nouns Grammar: Correction of Sentences **Composition:** Picture Reading

UNIT V:

Short Story: The Silver Butterfly– Pearl S. Buck One-Act Play: The Bear – Anton Chekov Vocabulary: Acronyms Grammar: Question Tags Composition: Drafting Advertisement

Text Book

Board of Directors, 2014,. Wings of Communication, Emerald Publishers: Chennai

Reference

Syamala, V., 2006, English for Communication, Emerald Publishers: Chennai.

		Semester – II
		LTPC
15ITU201	Object Oriented Programming with C++	5 0 0 5

- The objective of this course is to provide the student with the fundamental knowledge and skills to become a proficient C++ programmer.
- The student will learn to transpose the physical problem domain into a hierarchy of objects.
- Industry standard software engineering techniques will be presented and used to architect the system design.
- Objects, their behaviors, and their relationships, will be modeled and these models will be programmed into a functional application that the student will compile, modify, enhance and run.
- The student will program in a structured style whereby reinforcing the concepts of software quality, reliability and maintainability.
- To learn file handling in C++.

Course Outcomes (COs)

Upon completion of this course the students will be able to:

- 1. Understand the difference between top-down and bottom-up approach.
- 2. Apply the concepts of object-oriented programming in constructor and destructor.
- 3. Understand how to apply the major object-oriented concepts to implement inheritance and polymorphism.
- 4. Apply pointer concepts in C++
- 5. Understand how to manage console I/O operations.
- 6. Use the concepts of preprocessor directives and macros.

UNIT I

Introduction: Principles of object-oriented programming: Basic concepts of object-oriented programming – Benefits of OOP – Applications of OOPs – Structure of C++ Program C++ Tokens – Control Statement – Decision Making Statements- Loop Statements - Inline Functions – Function Overloading.

UNIT II

Control Structure, Functions and Constructors: Classes and Objects: Specifying a class – Creating Objects – Accessing Class Members – Defining Member Functions – Static Data Members – Static Member Functions - Array of Objects – Friend Functions. Constructors and Destructors: - Constructors – Parameterized Constructors - Multiple Constructors in a Class – Constructors with Default Arguments - Copy Constructor - Dynamic Constructor – Destructors.

UNIT III

Operator Overloading and Inheritance: Operator overloading: Defining operator overloading – overloading unary operators – overloading binary operators – overloading binary operators using friends – type conversions. Inheritance: - Inheritance – defining derived classes – single, multilevel, multiple, hierarchical inheritance- hybrid inheritance – virtual base classes – abstract classes.

UNIT IV

Pointers and I/O Operations: Pointers: Pointers to objects – this pointer – pointers to derived classes – virtual functions- Pure Virtual Functions. Managing console I/O operations :- C++ streams – C++ stream classes – unformatted I/O operations – formatted console I/O operations – Managing output with manipulators.

UNIT V

File Management: Files: Classes for file stream operations – Opening and Closing a file – sequential input and output operations – updating a file random access – Command Line Arguments. Templates and Exceptions:- Templates – class templates – function templates – member function templates – exception handling.

Text Books

K.R.Venugopal and Rajkumar Buyya, 2013, Mastering C++ 2nd Edition, Tata Mc Graw Hill Education, New Delhi.

Balagurusamy. E, 2007, Object Oriented Programming with C++, 3^{rd} Edition, Tata McGraw Hill publishing company Ltd, New Delhi. [Unit-I (7-14, 26 – 27, 32-52, 59- 82), Unit-II (88-147), Unit-III (151-207), Unit-IV (222-270), Unit V (277-340)].

Balagurusamy. E, 2013, Object Oriented Programming with C++, 6th Edition, Tata McGraw Hill publishing company Ltd, New Delhi.

References

Ashok N. Kamthane, 2009, Object Oriented Programming with ANSI and Turbo C++, 2nd Edition, Pearson Education, New Delhi.[Page Nos.:1-14, 19-32, 96-113,115-130,144-164, 171-187, 201-240, 251-281,290-317]

Yashavant Kanetkar, 2000, Let Us C++, 2nd Edition, BPB Publications. [Unit-I,(2-13, 19-80), Unit-II(87-96,177-182), Unit-III(187-197,261-304), Unit-IV(321-360),Unit V(385-463,540-566,571-586)].

Nabajyothi Barkakoti, 2001, OOPS in C++, 2nd Edition, Tata McGraw Hill Publishers. [Unit-I(3-39), Unit-II(161-179,189-206), Unit-III(209-223,231-254), Unit-IV(277-289),Unit V(295-325)].

Pearl software, 2002, OOP in C++, First Edition, Khanna Book Publishing Co(Pvt.) Ltd. Delhi. [Unit-I(1-67,83-92), Unit-II(185-220,223-237), Unit-III(241-247,251-265,293-307), Unit-IV(269-289),Unit V(309-319,321-333,337-345,347-369)].

Web Sites

www.daniweb.com www.eships.com www.allexperts.com

		Semester – II
		LTPC
15ITU211	C++ Programming Lab	0 0 5 3

Course Objectives

- To understand how C++ improves C with object-oriented feature.
- To learn the syntax and semantics of classes in C++ programming language.
- To learn how to write a function and constructors.
- To learn how to perform operator overloading and inheritance.
- To learn how to design C++ using pointers.
- To learn file handling in C++.

Course Outcomes (COs)

Upon completion of this course the students will be able to :

- 1. Understand the difference between top-down and bottom-up approach.
- 2. Apply the concepts of object-oriented programming in constructor and destructor.
- 3. Understand how to apply the major object-oriented concepts to implement inheritance and polymorphism.
- 4. Apply pointer concepts in C++
- 5. Understand how to manage console I/O operations.
- 6. Use the concepts of preprocessor directives and macros.

Write a C++ Program for the Following Concepts

Object and classes:

1. Create a class to implement the data structure STACK . Write a constructor to initialize the top of the stack to zero .Write a member function PUSH() to insert an element and a member function POP() to delete an element.

2. Create a class ARITH which consists of a FLOAT and an INTEGER variable. Write member functions ADD(),SUB(),MUL(),DIV(),MOD() to perform addition, subtraction, multiplication, division and modulus respectively. Write member functions to get and display MAT() object values.

Operator overloading:

3. Create a class MAT as a 2D matrix and R, C represents rows and columns of the matrix. Overload the operators +,-,* to add, subtract, multiply two matrices. Write member functions to get and display MAT() object values.

4. Create a class STRING. Write member functions to initialize to get and display strings. Overload the operator + to concatenate two strings, == tocompare two strings and a member function to find the length of the strings.

Inheritance:

5. Create a class which consists of EMPLOYEE detail like eno, ename, dept, basic salary, grade. Write member functions to get and display them. Derive a class PAY from the above class and Write member functions to calculate da , hra, pf depending on the grade and display the pay slip in a neat format using console I/O.

6. Create a class SHAPE which consist of two virtual functions cal_Area() and cal_Peri() to calculate area & perimeter of various figures. Derive three classes SQUARE,RECTANGLE and TRIANGLE from the class SHAPE and calculate area and perimeter of each class separately and display the result.

7. Create two classes which consist of two private variables, one integer and one float variable in each class. Write member functions to get and display them. Write a FRIEND function common to both classes which takes the object of the above two classes as arguments and the integer and float values of both the objects separately and display the result.

Console I/O:

8. Write a user-defined function USERFUN() which has the formatting commands like setw(), showpos(), precision(). Write a program which prints a multiplication table and uses userfun() for formatting.

Files:

9. Write a program to perform insertion, deletion and updation of records using files.

10. Write a program which takes a file as argument and copies into another file with line numbers using command line arguments.

Templates:

11. Write a Program to swap the numbers using the concept of function template.

- To have knowledge about the basic working of a microcontroller system and its programming in assembly language.
- To provide experience to integrate hardware and software for microcontroller • applications systems.
- To learn the various Concepts of Embedded System •
- To acquire knowledge about microcontrollers embedded processors and their • applications.
- T o develop the Programming Skills in 8051 Microcontroller. •
- To provide a strong knowledge in the field of Real Time Operating System. •

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Ability to understand the internal architecture and interfacing of different peripheral devices with Microcontrollers.
- 2. Ability to write the programs for microcontroller.
- 3. Understand the concepts of embedded systems
- 4. Understand the role of embedded systems in industry.
- 5. Understand the design concept of embedded systems
- 6. Integrate hardware and software for microcontroller applications systems.

UNIT I – 8051 Microcontroller

Introduction to Microcontroller and Embedded Processors - Microcontroller for Embedded Systems - Overview of 8051 Family - 8051 Architecture - 8051 flag bits and PSW Register -Register Bank and Stack.

UNIT II –8051 Programming

8051 Assembly and C Programming - Instruction Set -Address Modes - Loop and Jump Instructions - Arithmetic Instruction - Logic Instructions - Single Bit Instructions. Data Types and Directives - I/O Port Programming.

UNIT III – Internal Peripherals of 8051

Basic Registers of Timer - Programming 8051 Timer-Counter Programming - Basics of Serial Communication - 8051 Connection to RS232 - 8051 Serial Communication Programming – 8051 Interrupts - Programming External Hardware Interrupts.

UNIT IV – Applications

Interfacing LCD to the 8051 - Interfacing ADC - Sensors to 8051- Interfacing Stepper Motor - 8051 Interfacing to the Keyboard - Interfacing DAC to the 8051.

UNIT V – Real-Time Operating System

Survey of Software Architecture: Round Robin-Round Robin with Interrupts-Function -Queue Scheduling Architecture - Introduction of RTOS - RTOS Architecture - Task and Task States - Task and Data - Semaphores and Shared Data - Message Queues, Mailboxes and Pipes - Timer Function - Events - Memory Management.

Text Books

Mohammed Ali Mazidi and Janice Gillispie Mazidi, 2008, The 8051 Microcontroller and Embedded Systems, Third Edition, Pearson Education, Singapore.

Ayala, 2010, The 8051 Architecture and its Applications, Sixth Edition, Prentice Hall of India, New Delhi.

References

Embedded Microcontroller, 2008, Intel Manual - Volume I and II,.

Dr. Rajiv Kapadia, Jaico, 2004, The 8051 Microcontroller and Embedded Systems, First Edition, Publishing House, Mumbai.

		Semester II
		LTPC
15ITU202B	Allied Elective - I PC hardware and trouble shooting	4 0 0 4

- To learn the fundamentals of PC Hardware.
- To develop base knowledge in the installation of peripheral devices.
- To get a detailed knowledge of all the hardware components that make up a computer
- To understand the different interfaces required for connecting the hardware devices.
- To understand the components on the motherboard •
- To provide a strong knowledge in Trouble shooting of PC

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Understand the modern computer organization, processor and memory concept, Peripherals and recent system architecture
- 2. Identify the existing configuration of the computers and peripherals for upgrading the same as and when required.
- 3. Develop base knowledge in the installation of peripheral devices.
- 4. Learn the hardware components that make up a computer
- 5. Understand the different interfaces required for connecting the hardware devices.
- 6. Trouble shoots PC when required.

UNIT I – Micro Computer System

Introduction to Micro Computer System - Computer Organization - Number Systems and Codes Memory – Arithmetic and Logic Unit – Control Unit.

UNIT II – Peripheral Devices

Introduction to Peripheral Devices - Keyboard - CRT Display monitor - Printer - Magnetic Storage Devices - Floppy Disk Drive - Hard Disk Drive - Peripherals Interfaces and Controller – Keyboard Interface

UNIT III – Display Adapter

CRT Display - CRT Controller -Auxiliary Subsystems - Data Communication fundamentals - Serial Port in PC - Real time clock (RTC) - Magnetic Tape Subsystems -LAN – Memory Expansion Options

UNIT IV – Installation and Preventive Maintenance

Pre Installation Planning - Installation Practice - Routine Checks - Special Configurations -Memory Up Gradation

UNIT V – Trouble shooting

Troubleshooting – Computer faults – Nature of faults – Types of Faults Diagnostic Programs and Tools — Faults in Elimination Process – Systematic Troubleshooting – POST (Power on Self Test)

Text Books

B. Govindarajalu, 2011, IBM PC and Clones, Second Edition, Tata McGraw Hill Publishing Company.

Michael Meyers, 2003, Introduction to PC Hardware and Troubleshooting, First Edition, The Mike Meyers' Computer Skills, McGraw Hill.

Reference

Sanjay K. Bose, 1999, Hardware and Software of Personal Computers, New Age International Publishers.

		Semester II
		LTPC
15ITU202C	Allied Elective - I Microprocessor and its Applications	4 0 0 4

- To apply the fundamentals of assembly level programming of microprocessors.
- To build a program on a microprocessor using arithmetic & logical instruction set of 8086.
- To develop the assembly level programming using 8086 loop instruction set.
- To write programs based on string and procedure for 8086 microprocessor.
- To analyze abstract problems and apply a combination of hardware and software to address the problem
- To make use of standard test and measurement equipment to evaluate digital interfaces

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Apply the fundamentals of assembly level programming of microprocessors.
- 2. Build a program on a microprocessor using arithmetic & logical instruction set of 8086.
- 3. Develop the assembly level programming using 8086 loop instruction set.
- 4. Write programs based on string and procedure for 8086 microprocessor.
- 5. Analyze abstract problems and apply a combination of hardware and software to address the problem
- 6. Make use of standard test and measurement equipment to evaluate digital interfaces

UNIT I – Introduction to 8-bit Microprocessor

Introduction to 8085 – Pin Diagram –Architecture – Demultiplexing the Bus –Generation of Control Signals – Fetching, Decoding and Execution of Instruction – Instruction Timing and Status Flag.

UNIT II – Addressing Modes

Instruction Set – Addressing Modes – Instruction Format – Simple Program – Memory Read Machine Cycle – Memory Unit s Machine Cycle.

UNIT III- Interfacing Concepts

Peripheral I/O Instructions – Device Selection And Data transfer – Types of Data Transfer – Input Interfacing – Input Interfacing Using Decoders – Output Interfacing: LED and 7 Segment Display – Interfacing Memory.

UNIT IV Peripheral Devices

Introduction to Programmable Peripheral Interface 8255 – Pin Diagram –Architecture – Modes of Operation: I/O and BSR – Architecture and Operation of 8251(USART). Architecture and Operation of Programmable Interrupt Controller (8259) – Architecture of 8254(8253) Programmable Interval Timer/Counter –DMA Controller(8279).

UNIT V- Applications

Time Delay Program – Traffic Light Control System – Water Level Controller – Stepper Motor Control – Interfacing DAC –Interfacing ADC – Temperature Measurement.

Text Books

Ramesh S Gaonkar, 2000, Microprocessor Architecture, Programming and Application with 8085, Fourth Edition, Penram International Publishing, New Delhi.

M.K.Gupta, 2006, Microprocessor, Microcomputer, Microcontroller and Interfacing, First Edition, Paragon International Publisher, New Delhi.

References

Adithya P.Mathur , 2004, Introduction to Microprocessors, Second Edition, Tata Mc Graw Hill Publishers, New Delhi.

Ram.B, 2000, Fundamentals of Microprocessor and Microcontroller, Second Edition, Dhanpat Rai Publication, Mumbai.

- To have knowledge about the basic working of a microcontroller system and its programming in assembly language.
- To provide experience to integrate hardware and software for microcontroller applications systems.
- To learn the various Concepts of Embedded System
- To acquire knowledge about microcontrollers embedded processors and their applications.
- To develop the Programming Skills in 8051 Microcontroller.
- To provide a strong knowledge in the field of Real Time Operating System.

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Understand the internal architecture and interfacing of different peripheral devices with Microcontrollers.
- 2. Write the programs for microcontroller.
- 3. Understand the concepts of embedded systems
- 4. Understand the role of embedded systems in industry.
- 5. Understand the design concept of embedded systems
- 6. Integrate hardware and software for microcontroller applications systems.
- 1. Addition of 8/16 Bit Array of Data
- 2. Subtract of 8/16 Bit Array of Data
- 3. Multiplication & Division
- 4. Ones and Two's Compliment
- 5. Data Transfer using Parallel Port
- 6. Sorting of Numbers
- 7. Stepper Motor Interface
- 8. Wave Form Generation
- 9. Biggest and Smallest Number in an Array
- 10. D/A Converter

- To learn the fundamentals of PC Hardware.
- To develop base knowledge in the installation of peripheral devices.
- To get a detailed knowledge of all the hardware components that make up a computer
- To understand the different interfaces required for connecting the hardware devices.
- To understand the components on the motherboard
- To provide a strong knowledge in Trouble shooting of PC

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Understand the modern computer organization, processor and memory concept, Peripherals and recent system architecture
- 2. Identify the existing configuration of the computers and peripherals for upgrading the same as and when required.
- 3. Develop base knowledge in the installation of peripheral devices.
- 4. Learn the hardware components that make up a computer
- 5. Understand the different interfaces required for connecting the hardware devices.
- 6. Trouble shoots PC when required.

(Any 8 Experiments)

- 1. Identifying External Ports and Interfacing
- 2. Identifying PC cards and Interfacing.
- 3. Assembling of PC
- 4. Preventive Maintenance of a PC
- 5. Trouble Shooting of SMPS
- 6. Keyboard Servicing
- 7. Study of CRT
- 8. Communication and Bus Interfacing
- 9. Partitioning and Formatting Hard disks.
- 10. Installing System And Application Software

- To apply the fundamentals of assembly level programming of microprocessors.
- To build a program on a microprocessor using arithmetic & logical instruction set of 8086.
- To develop the assembly level programming using 8086 loop instruction set.
- To write programs based on string and procedure for 8086 microprocessor.
- To analyze abstract problems and apply a combination of hardware and software to address the problem
- To make use of standard test and measurement equipment to evaluate digital interfaces

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Apply the fundamentals of assembly level programming of microprocessors.
- 2. Build a program on a microprocessor using arithmetic & logical instruction set of 8086.
- 3. Develop the assembly level programming using 8086 loop instruction set.
- 4. Write programs based on string and procedure for 8086 microprocessor.
- 5. Analyze abstract problems and apply a combination of hardware and software to address the problem
- 6. Make use of standard test and measurement equipment to evaluate digital interfaces

(Any 8 Experiments)

- 1. Addition of 8/16-bit and Array of Data
- 2. Subtraction of 8/16-Bit Number
- 3. Multiplication of 8-Bit Number
- 4. Division of 8-bit Number
- 5. Fill and Transfer an Array of Data.
- 6. Ascending and Descending of an Array.
- 7. Data Transfer using Parallel Ports.
- 8. Stepper Motor Interface
- 9. Traffic Light Controller
- 10. A/D Convertor and D/A Convertor

15FCB201	FOUNDATI	ON COURSE - B	
	ENVIRONME	NTAL STUDIES	2H - 1 C
Total hours/week	x: L:2 T:0 P:0	Marks: Internal: 100	External: - Total:100

- To create the awareness about environmental problems among people.
- To develop an attitude of concern for the environment.
- To motivate public to participate in environment protection and improvement.
- To understand the transnational character of environmental problems and ways of addressing them, including interactions across local to global scales.
- To apply systems concepts and methodologies to analyze and understand interactions between social and environmental processes.
- To reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Master core concepts and methods from ecological and physical sciences and their application in environmental problem solving.
- 2. Master core concepts and methods from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.
- 3. Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
- 4. Understand the transnational character of environmental problems and ways of addressing them, including interactions across local to global scales.
- 5. Apply systems concepts and methodologies to analyze and understand interactions between social and environmental processes.
- 6. Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.

UNIT - I: Eco system and natural resources: Environment - Definition - components -Ecosystem -Definition, Concept, Scope, importance, structure and functions of ecosystem. Energy flow, Ecological succession. Food chains and food webs. Classification of ecosystem. Natural resources: Forest resources; water resources

UNIT - II: Environmental pollution: Cause, effects and control measures of Air pollution, water pollution, soil pollution, marine pollution, noise pollution, thermal pollution and nuclear hazards pollution. Solid waste management.

UNIT - III: Biodiversity and its conservation: Introduction- Definition, genetic, species and ecosystem diversity, biogeographical classification of India- Value of biodiversity: Consumptive, productive uses; social, ethical, aesthetic and option values. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.

UNIT - IV: Social issues and the environment: Urban problems related to energy- water conservation and management -Rain water harvesting- water shed management. Resettlement and Rehabitilisaion. Natural resources and associated problems and sustainable utilization. Environmental Education.

UNIT - V: Environment ethics: Environmental Ethics - Gender equity, ethical basis of environment education and awareness, conservation ethic and traditional value systems of India. Valuing nature, cultures, social justice, Human heritage, equitable use of resources, preserving resources for future generation, common property resources, Ecology and its uses and its degradation, Introduction to Environmental Protection Act (EPA).

TEXT BOOKS

- 1. Agarwal, K.M., P.K. Sikdar and S.C. Deb, 2002. A Text Book of Environment, Mac Millan India Ltd, Kolkatta, India.
- 2. Kotwal, P.C. and S. Banerjee, 2002. Biodiversity Conservation In Managed forest and protected areas, Agrobios, India.

REFERENCES

- 1. Singh, M.P., B.S. Singh and Soma S. Dey, 2004. Conservation of Biodiversity and Natural Resources. Daya Publishing House, Delhi.
- 2. Uberoi, N.K., 2005. Environmental Studies, Excel Books Publications, New Delhi, India.
- 3. Shaw, R and Krishnamurthy, R.R. 2009. Disaster management: global challenges and local solutions Universities Press (India) Private Ltd, Hyderabad.
- 4. Sorokin Pitirim. A, 1942. Man and Society In Calamity. New York: Dutton, 1942
- 5. Patrick L.Abbott, 2008. Natural Disasters, Mc Graw Hill, New York. Page: 1-7.

Instruction Hours / week: L: 2 T: 0 P: 0 Marks: Internal: 100 External: Nil Total: 100

Course Objectives (CO)

- Students will be able to apply quantitative reasoning and mathematical analysis methodologies to understand and solve problems.
- To achieve the analytical and reasoning competencies and to improve their communication and presentation skills
- To impact knowledge on both Aptitude and Soft skills to the students •
- To actively do mathematics—such as analyzing data, constructing hypotheses, solving problems, reflecting on their work, and making connections.
- To critically evaluate and demonstrate various principles involved in solving mathematical problems and to adopt new and faster methods of calculations.
- To reinforce competencies in soft skills which are crucial in a social setting

Course Outcomes (COs)

On successful completion of the course the students will be able to:

- 1. Understand the basic concepts of QUANTITATIVE ABILITY
- 2. Understand the basic concepts of LOGICAL REASONING Skills
- 3. Acquire satisfactory competency in use of VERBAL REASONING
- 4. Actively do mathematics—such as analyzing data, constructing hypotheses, solving problems, reflecting on their work, and making connections.
- 5. Solve campus placements aptitude papers covering Quantitative Ability, Logical Reasoning and Verbal Ability
- 6. Compete in various competitive exams like CAT, CMAT, GATE, GRE, GATE, UPSC. GPSC etc.

UNIT - I

Introduction to Quantitative Aptitude, Speed Maths, Problems on Numbers, Averages,

Ratios and Proportions, Problems on Ages

UNIT - II

Number Series, Blood Relation, Image Analysis, Direction Sense, Syllogism, Coding and

Decoding

UNIT – III

Percentages, Data Interpretation, Profit and Loss, Simple Interest and Compound Interest

UNIT - IV

Parts of Speech, Tense, Subject Verb Agreement, Active and Passive Voice, Articles,

Prepositions

UNIT - V

Conditional Clause, Degrees of Comparison, Goal Setting, Interpersonal Skills

- To develop confidence to respond in English during situations where the use of English is imperative.
- To develop fluency in actual conversation in the English language.
- To develop speech skills necessary for confident and intelligent participations in Group Discussions and develop skills related to teamwork in work places.
- To develop confidence to respond in English during situations where the use of English is imperative.
- To develop fluency in actual conversation in the English language.
- To develop knowledge about business communication.

Course Outcome (COs)

After the completion of this course, a successful student will be able to:

- Learn the basics and purposes of listening skill.
- Understand importance of speaking.
- Develop the speaking skills on telephone, business and also in travel
- Learnt some effective vocabulary learning strategies.
- Communicate clearly and effectively and handle their day to day affairs well with their knowledge of language skills.

UNIT I

Listening: Listening comprehension – Listening for Specific Information –Note Taking – Interpreting Charts and Diagrams.

UNIT II

Speaking: Essentials of effective communication – Greeting and Introducing – Making requests – Asking for permission – Giving and Denying Permission – Offering and Accepting Help – Asking for and Declining Help – Giving Instructions and Orders - Talking about likes and dislikes.

Telephone Skills – Understanding telephone conversation – handling calls – leaving messages –making requests - giving instructions and orders

Discussion Skills – Giving your opinion – agreeing and disagreeing – Making suggestions – Interrupting – questioning – reporting – Dealing with questions. (Completing dialogues)

UNIT III

Reading: Reading – Reading with a purpose –Skimming and Scanning – locating main points – reading critically – Sequencing of sentences – Reading comprehension.

UNIT IV

Writing: Paragraph Writing – Descriptive and Narrative. Safety Instructions/ Suggestions. Expansion of Abbreviations – Spellings- Report writing.
Translation- Translating short sentences and passages from English to Tamil and from Tamil to English.

UNIT V

Vocabulary: Improve English vocabulary: Synonyms – Antonyms – Prefixes – Suffixes – Idioms – Collocations – Different types of English – British and American (Choose the best answer type from a database of 50 words each for each topic)

Functional Grammar: Forming questions, getting answers – Articles – Parts of Speech – Punctuation – Common mistakes in English (Homophones)(Exercise based)

References

Language in Use: Kenneth Anderson, Cambridge University Press.

Kenneth Anderson, Joan MacLean and Tony Lynch, 2008, Study Speaking: A course in Spoken English for Academic Purpose, Cambridge University Press.

Spoken English Part I & II (for Tamil speakers), Orient Longman Pvt. Ltd.

Dr. J. John Love Joy, Dr.Francis M.Peter S.J. 2007, "Lets Communicate – Basic English for Everyone", Vaigarai Publications, 1st edition, Dindugul..

		Semester – III
		LTPC
15ITU301	Data Structures and Algorithms	5 0 0 5

To assess how the choice of data structures and algorithm design methods impacts the performance of programs

Comparton III

- To choose the appropriate data structure and algorithm design method for a specified application.
- To study the systematic way of solving problems, various methods of organizing large amounts of data.
- To employ the different data structures to find the solutions for specific problems. •
- To solve problems using data structures such as linear lists, stacks, queues.
- To understand the usage of Tree and Binary tree and search operations. •

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Choose appropriate data structure as applied to specified problem definition.
- 2. Handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures.
- 3. To design and apply appropriate data structures for solving computing problems
- 4. To analyze algorithms and to determine algorithm correctness and time efficiency class.
- 5. Use linear and non-linear data structures like stacks, queues, linked list etc.
- 6. Illustrate various technique to for searching and Sorting

UNIT I

Overview of Data Structures: Introduction to Data Structures: Introduction to the Theory of Data Structures Data Representation-Abstract Data Types-Data Types-Primitive Data Types-Difference between Abstract Data Types, Data Types, Data Structures. Programming and Analysis of Algorithms: Program Design-Algorithms-Different Approaches to Designing an Algorithm-Complexity-Big 'O' Notation-Algorithm Analysis-Structured Approach to Programming-Recursion-Tips and Techniques for Writing Programs in C.

UNIT II

Arrays and Linked Lists: Arrays: Introduction to Linear and Non-linear Data Structures-Arrays in C- one Dimensional Arrays-Array Operations-Two Dimensional Arrays-Multi Dimensional Arrays-Pointers and Arrays. Linked List: Introduction to Lists and Linked Lists-Dynamic Memory Allocation-Basic Operations-Double Linked Lists-Circular Linked Lists-Linked List in arrays-Linked Lists versus Arrays.

Polynomials and Sparse Matrix: Introduction-Representation of Polynomials.

UNIT III

Stack and Queues: Stack: Introduction- Representation of Stack using Arrays and Linked List-Applications of Stack-Stack and Recursion. Queues: Introduction- Representation of Queue-Circular Queue-Double Ended Queue-Priority Queue-Application of Queue.

UNIT IV

Trees and Searching: Trees: Introduction-Types-Basic Definition-Properties-Representation-Operation on Binary Tree-Binary Tree Traversal-Applications of Binary Tree-Height Balanced (AVL) Tree-Representation-Operations-Threaded Binary Tree-B Tree. Searching: Introduction-Sequential Search-Binary Search -Indexed Sequential Search

UNIT V

Graphs and Sorting: Graphs: Introduction-Sequential Representation-Linked Representation-Traversal of Graphs-Spanning Trees-Shortest Path. Sorting: Introduction – Selection Sort – Insertion sort – Bubble- Quick- Merge- Radix-Shell- Heap-Comparison of Time Complexity.

Text Book

ISRD GROUP, 2013, Data Structures Using C, 2nd Edition. [Unit-I(1-26), Unit-II(27-99), Unit III(129-206), Unit IV(210-248, 255-284, 340-344), Unit V(348-370, 308-339)].

References

Richard F.Gilberg and Behrouz A.Forouzan, 2012, Data Structures: A Pseudocode Approach with C, 2nd Edition, Cengage Learning, New Delhi.

Krishnamoorthy, 2008, Data Structures Using C, Tata McGraw Hill Publishing Company Limited, New Delhi.

Kruse R, 2007, Data Structures & Program Design In C, 2nd Edition, Prentice-Hall of India, New Delhi.

Muniswamy, 2007, C & Data Structures, I.K. International Publishing House.

Seymour Lipschutz and G.A.Vijayalakshmi Pai, 2007, Data Structures, Schaum's Outlines, Tata McGraw-Hill Publishing Company Limited, New Delhi.

Tanenbaum A M, 2007, Data Structures Using C, Prentice-Hall of India Pvt. Ltd, New Delhi.

Web Sites

www.gatesit.org/gitdownloads/C&DS.pdf

		Semester – III
		LTPC
15ITU302	Relational Database Management System	5005

Course Outcomes (COs)

- To describe a sound introduction to the discipline of database management systems.
- To give a good formal foundation on the relational model of data and usage of Relational Algebra.
- To introduce the concepts of basic SQL as a universal Database language.
- Ability to use PL/SQL
- To demonstrate the principles behind systematic database design approaches by covering conceptual design, logical design through normalization.
- To provide an overview of physical design of a database system, by discussing Database indexing techniques and storage techniques.

Course Outcomes (COs)

Upon completion of the course, students will be able to

- 1. Explain the features of database management systems and Relational database.
- 2. Design conceptual models of a database using ER modeling for real life applications and also construct queries in Relational Algebra.
- 3. Create and populate a RDBMS for a real life application, with constraints and keys, using SQL.
- 4. Retrieve any type of information from a data base by formulating complex queries in SQL.
- 5. Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.
- 6. Build indexing mechanisms for efficient retrieval of information from a database

UNIT I

Understanding Database Fundamentals: Origin of Database – Database elements – Design concepts – components of DBMS – Advantages and Disadvantages of DBMS. Database Models: Flat-file-hierarchical model – network model – relational model – object oriented model – Features of Object oriented Database Management system – Features of distributed DBMS – Comparison of DBMS & DDBMS - Object relational model. ER-model: entities – relationships – ERD symbols – cardinalities – sample ERD.

UNIT II

Entities and Entity Relationships: Relational Model: Introduction – Relational database: attributes and domains – Tuples – Relation and their schemes – Relation representation – keys – relationships – relational operations – Integrity rules. Relational Algebra: Basic operations – Additional relational algebraic operations – some Relational algebra queries. Functional dependency: Reasoning about FD's – closure of set of FD's – Attribute closure.

UNIT III

Objects: Relational database manipulation: Introduction – SQL: Data definition – Data manipulation: Basic data retrieval – condition specification – Arithmetic and aggregate operations. SQL joins – Set manipulation – categorization – updates – views – index. Data Control language: grant – revoke – simple privileges. Simple flashback queries.

UNIT IV

Overview of PL/SQL: Declaration section – executable command section: conditional logic, loops, CASE statements – exception handling section: predefined and user defined exceptions. Triggers: definition – types: row level, statement level, before and after, instead of – syntax – enabling and disabling triggers - replacing and dropping triggers. Cursors – definition – open – fetch – close – cursor attributes- select for update – types : implicit, explicit. Procedures, Functions: Local and global – procedures vs. functions – stored procedures, functions – create procedure syntax - create function syntax – calling procedures, functions. Replacing and dropping procedures, functions.

UNIT V

Packages: Package header – package body – calling package members - Replacing and dropping package. Overview of Normalization: advantages - disadvantages. Normal forms: first normal form – second normal form – third normal form – demoralization. Parallel Databases: Introduction – Design of Parallel Databases – Advantages and Disadvantages of Parallel Database.

Text Books

Bipin C. Desai, 2013, An Introduction to Database Systems, Galgotia Publications, New Delhi [Unit-I (20-30, 45-72, 660-663, 821-826), Unit – II (145-184, 293-306), Unit- III (208-242)]

Rajiv chopra, 2013, Database Management systems, 3^{rd} revised edition, S.Chand publications. [Unit I (404 – 432), Unit V (460-463)].

Kevin Loney and George Koch. 2002. Oracle 9i The Complete Reference, 1st Edition, Tata Mcgraw-Hill, New Delhi [Unit-IV(489-508), Unit – V (509-550)]

Alexis Leon, Mathews Leon, 2007, SQL Complete Reference [Unit-III (83-98, 103-118,132-139,153-165), Unit-IV (287-289,218-227,312-330), Unit – V (47-57)].

References

Shio Kumar Singh, 2011, Database Management Systems – Concepts, design and Applications 2^{nd} edition, Pearson Education, New Delhi.

Ragu Ramakrishnan and Gehrke, 2003, Database Management Systems, 3rd Edition, Tata McGraw-Hill, New Delhi, [Unit-I(26-47, 611-642), Unit-III(57-126, 130-173)].

Gerald V. Post, 2005, Database Management Systems Designing and Building Business Applications, 2nd Edition, Tata McGraw-Hill, New Delhi. [Unit-I(30-76), Unit-II(77-140), Unit-III(159-181, 182-220)].

Case Study

Project: University System Project : Course Registration System Project : Airline Reservation System

Web Sites www.databasedir.com www.rdbms.org

		Semester – III
		LTPC
15ITU311	RDBMS Lab	0 0 4 2

Course Outcomes (COs)

- To describe a sound introduction to the discipline of database management systems.
- To give a good formal foundation on the relational model of data and usage of Relational Algebra.
- To introduce the concepts of basic SQL as a universal Database language.
- Ability to use PL/SQL
- To demonstrate the principles behind systematic database design approaches by covering conceptual design, logical design through normalization.
- To provide an overview of physical design of a database system, by discussing Database indexing techniques and storage techniques.

Course Outcomes (COs)

Upon completion of the course, students will be able to

- 1. Explain the features of database management systems and Relational database.
- 2. Design conceptual models of a database using ER modeling for real life applications and also construct queries in Relational Algebra.
- 3. Create and populate a RDBMS for a real life application, with constraints and keys, using SOL.
- 4. Retrieve any type of information from a data base by formulating complex queries in SOL.
- 5. Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.
- 6. Build indexing mechanisms for efficient retrieval of information from a database

List of Programs

1. Create a table with following fields:

Employee table:

Field name	Constraint	Туре	Size
Employee_no	Primary key	Character	6
Employee_name		Character	30
Address		Character	25
Designation		Character	15
Dob		Date	
Gender	Check	Character	1
Doj		Date	
Salary		Number	10,2

Queries:

a) Display name of the employees whose salary is greater than "10,000".

- b) Display the details of employees in ascending order according to Employee Code
- c) Display the details of the employee earning the highest salary.
- d) Display the names of the employees who earn more than "Ravi"

2. Create a table named **Student** with the following fields and insert the values:

Field name	field type	field size
Student Name	character	15
Gender	character	6
Roll No.	character	10
Department Name	character	15
Address	character	25
Percentage of Marks	number	4,2

Queries:

a) Calculate the average mark percentage of the students.

- b) Display the names of the students whose percentage marks are greater than 80%
- c) Display the details of the student who got the highest percentage of marks.
- d) Display the details of the students whose mark percentage is between 50 and 70.
- e) Display the details of the students whose mark percentage is greater than the mark percentage of Roll No = 12CA01
- 3. Create a table with following fields:

Staff ta	able:
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Field name	Constraint	Туре	Size
Staff_no	Primary key	Character	6
Staff_name		Character	30
Dob		Date	
Dept_code	Foreign key	Character	4
Designation		Character	15
Basic Salary		Number	7,2

Department table:

Field name	constraint	Туре	Size
Dept_code	Primary key	Character	4
Dept_name		Character	30

Execute the following queries:

- 1. To list the staff who joined 2 years back.
- 2. To list the staff in computer science dept.
- 3. To list the staff_name and the dept_name in which he/she works.
- 4. To list the maximum and minimum salary in each dept.
- 5. To list the dept along with the total amount spent on salary
- 6. To list the name of the employees who draw the salary more than the average salary.

4. Create a table with the following fields:

Book table:

Field name	Constraint	Туре	Size
Access_no	Primary key	Character	6
Title		Character	30
Author		Character	30
Publisher		Character	30
Subject		Character	10
Price		Number	6,2

Execute the following queries:

- 1. The title of C and C++ books.
- 2. The books written by a particular author.
- 3. The books which cost between Rs.300/- and Rs.500/-
- 4. The number of books available in each subject.

5. The books in the decreasing order of the cost.

5. Create a table with the following fields:

Account table:

Field name	Constraint	Туре	Size
Acc_no	Primary key	Number	4
Cust_name		Varchar2	30
Branch_name		Varchar2	30
Cust_city		Varchar2	30

Borrower table:

Field name	Constraint	Туре	Size
Acc_no	Foreign key	Number	30
Branch_name		Varchar2	30
Amount		Number	8,2

Write a Query to perform different types of Join.

6. Create two tables course & batch with following fields:

COURSE: coursecodeno number(5),course name varchar(20), syllabus varchar(20) **BATCH**: bcode number(5), coursecode number(5),starting_date date, duration number(3),coursefee number(10,2)

Perform the following queries:

 \Box \Box Insert the details for course and batch tables with 10 records

 \Box \Box Show the description of the two tables

 $\Box \Box$ Select all the fields from course & batch tables

 \Box \Box Select all the fields from course & batch tables where coursecode=10

 \Box \Box Select all the fields from batch table where starting date=march 10th

 \Box Select batch code from batch table where net income>50000

 \Box Select course name, batch code & starting date from batch & course tables where course code in batch table and course code in course table are equal

 \Box \Box Select a syllabus from course where coursecode=5

7. Create table with following fields:

Product table:

Field name	Constraint	Туре	Size
Product_code	Primary key	Varchar2	7
Product_name		Varchar2	30
Price		Number	6,2
Quantity		Number	4

Vendor table:

Field name	Constraint	Туре	Size
Vendor_name		Varchar2	30
Vendor address		Varchar2	30
Product_code	Foreign Key	Varchar2	7

Create a trigger to fire when the Record is deleted and inserted.

8. Write a PL/SQL trigger to update the records while deleting the one record in another table.

voters_master:

Field name	Constraint	Туре	Size
voterid	Primary key	Number	5
name		Varchar2	30
Ward_no	Primary key	Number	4
dob		Date	
address		Varchar2	150

new_list

Field name	Constraint	Туре	Size
voterid		Number	5
ward_no		Number	4
name		Varchar2	30
Description		Character	50

9. Create a table to store the salary details of the employees in a company. Declare the cursor id to contain empno, employee name and net salary. Use cursor to update the employee details.

Salary:

Field name	Constraint	Туре	Size
emp_no	Primary key	Number	4
emp_name		Varchar2	30
designation		Varchar2	25
dept		Varchar2	30
basic		Number	5

- 10. Write the PL/SQL program to find the factorial and Fibonacci series of given number.
- 11. (i) Write the PL/SQL program to check whether the string is Palindrome.
 - (ii) Write the PL/SQL program to reverse a number.
 - (iii) Write the PL/SQL program to check whether the number is Armstrong.
- 12. Write a PL/SQL block to create and handle user defined exception. clientmaster

Field name	Constraint	Туре	Size
client_id		Number	6
client_name		Varchar2	30
address		Varchar2	50
phone		Number	10
balance		Number	10,2

13. Create a table to store the salary details of the employees in a company. Declare the cursor_id to contain employee number, employee name, and net salary. Use cursor to update the employee details.

salary

Field name	Constraint	Туре	Size
emp_no	Primary key	Number	4
emp_name		Varchar2	30
designation		Varchar2	25
dept		Varchar2	30
basic		Number	5
da_percent		Number	3
ma		Number	6,2
other_allowance		Number	6,2
deduction		Number	6,2

14. Create a table **stock** contains the itemcode varchar2(10), itemname varchar2(50), current_stock number(5), data_of_last_purchase date. Write a stored procedure to seek for an item using itemcode and delete it, if the date of last purchase is before 1 year from the current date. If not, update the current stock.

15. Create a table to contain phone_number, user_name, address. Write a function to search for address using phone_number.

Vendor table:

Field name	Constraint	Туре	Size
Vendor_name		Character	30
Vendor address		Character	30
Product_code	Foreign Key	Character	7

Create a trigger to fire when the Record is deleted.

15ITU303	Numerical Methods	4 2 0 4
		LTPC
		Semester-III

- Course Objectives (CO)
- To understand the basic concepts of numerical methods
- To develop the mathematical skills in the areas of numerical methods.
- To understand numerical techniques as powerful tool in scientific computing.
- To provide suitable and effective methods called Numerical Methods, for obtaining approximate representative numerical results of the problems.
- To solve problems in the field of Applied Mathematics, Theoretical Physics and Engineering which requires computing of numerical results using certain raw data.
- To solve complex mathematical problems using only simple arithmetic operations. The approach involves formulation of mathematical models of physical situations that can be solved with arithmetic operations.

Course Outcomes (COs)

On completion of the course students will be able to

- 1. Apply Numerical analysis which has enormous application in the field of Science
- 2. Familiar with numerical integration and differentiation, numerical solution of ordinary differential equations.
- 3. Familiar with calculation and interpretation of errors in numerical method.
- 4. Develop and apply the appropriate numerical techniques for the problem, interpret the results, and assess accuracy.
- 5. Understand the basics of Numerical Differentiation & Integration and numerical solutions of ordinary differential equations.
- 6. Understand the concepts of difference operators and the use of Interpolation.

UNIT I

Solution of algebraic and transcendental equations: Bisection method –Regula Falsi method – Newton Raphson method. Polynomial Equations – Graeffe's root squaring method.

UNIT II

Solution of simultaneous linear algebraic equations: Gauss elimination method – Gauss Jordan method – Method of triangularization – Gauss-Jacobi method – Gauss-seidel method.

UNIT III

Interpolation: Gregory Newton Forward and Newton Backward interpolation formula – Interpolation with unequal intervals — Lagrange's interpolation formula – Inverse interpolation formula.

UNIT IV

Numerical Differentiation and Integration: Newton's Forward and backward differences to compute derivatives – Trapezoidal rule, Simpson's 1/3 &3/8 rule.

UNIT-V

Numerical methods for solving ordinary differential equations – Taylor series(I order) – Euler and Modified Euler method – Runge kutta methods (II order , III order and IV order).

Text Book

Venkataraman .M.K., 2001, Numerical Methods in Science and Engineering, Fifth Edition, National publishing Company ,Madras. (Unit I - V)

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Bachelor of Information Technology, 2015, Karpagam Academy of Higher Education, Coimbatore-21, India

References

Kandaswamy. P., Thilagavathy K. and K.Gunavathy., 2013, Numerical Methods, S. Chand & Company Ltd., New Delhi.

Vedamurthy V.N.,N.CH.S.N.Iyenger., 1999, Numerical Methods, Vikas Publishing House Pvt Ltd, New Delhi.

Semester III L T P C 15ITU304A Core Elective - I Wireless and Mobile Computing 4 0 0 4

Course Objectives (CO)

- To know the evolution of Mobile communication and cell concept to improve capacity of the system.
- To know the types of channel coding techniques, data transmission modes and services of GSM.
- To know the types of channel coding techniques, data transmission modes and services of GPRS
- To Know about wireless application protocol in 3G spectrum technology
- To know about various security mechanism used in Mobile computing
- To learn various Security Issues in Mobile Computing

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Understand the basic architecture of mobile computing
- 2. Evaluate the performance and need of wireless technology and GSM
- 3. Understand the basic concept of short message service and GPRS
- 4. Understand the architecture of wireless application protocol and 3G spectrum network
- 5. Understand Security Framework for Mobile Environment
- 6. Analyze various security mechanism and issues in security over mobile computing

UNIT I

Introduction: Introduction – Mobile Computing architecture – History – Three Tier architecture – Design consideration for Mobile Computing – Mobile Computing through Telephony – Evaluation – Multiple access procedure – Satellite Communication systems – Mobile Computing through Telephone – Developing an IVR Application – Voice XML – TAPI.

UNIT II

Emerging Technology and GSM: Introduction- Blue tooth – Radio Frequency Identification - Wireless Broad Band – Mobile IP – Internet Protocol Version 6 – Java Card – GIS- Global system for Mobile Communication – GSM architecture – GSM entities – Call routing in GSM – PLMN Interface – GSM address and Identifiers – Network aspects in GSM – Mobility Management – GSM Frequency allocation – Authentication and Security.

UNIT III

Short Message Service and GPRS: Mobile Computing over SMS – Short Message Service – Value added Service through SMS – Accessing the SMS bearer – GPRS – introduction – GPRS and Packet Data Network – GPRS Network architecture – GPRS Operations – Data Services – Applications – Limitation – EDGE.

UNIT IV

Wireless Application Protocol: Introduction – WAP – MMS – GPRS Applications – CDMA and 3G – Spread Spectrum Technology – IS-95 – CDMA Versus GSM – Wireless Data - 3G Networks – Application on 3G. – Wireless LAN – Wireless LAN Technologies – IEEE 802.11 Standards – Wireless LAN architecture – Mobility – Wireless LAN Security.

UNIT V

Mobile Computing Security: Security Issues in Mobile Computing – Introduction – Information Security – Security Techniques and algorithms – Security Protocols – Public Key Infra structure – Trust – Security – Security Models – Security Framework for Mobile Environments. Next Generation Networks .

Text Book

Asoke K. Talukder, Hasan Ahmed and Roopa R. Yavagal, 2010, Mobile Computing Technology, Application and Service Creation, 2nd Edition, Tata McGraw Hill.

References

Jochen Burkhardt Dr .Horst Henn, Klaus Rintdoff, Thomas Schack, 2009, Pervasive Computing, Pearson Education.

Fei Hu, Xiaojun Cao, 2010, Wireless Sensor Networks Principles and Practice, CRC Press.

- To know the basic concepts involved in mobile development environment
- Describe the limitations and challenges of working in a mobile and wireless environment
- To facilitate students to understand android SDK
- To help students to gain a basic understanding of Android application development.
- To inculcate working knowledge of Android Studio development tool
- To integrate multimedia, camera and Location based services in Android Application.

Course Outcomes (COs)

After completion of this course, the students will be able to:

- 1. Identify various concepts of mobile programming that make it unique from programming for other platforms,
- 2. Critique mobile applications on their design pros and cons
- 3. Utilize rapid prototyping techniques to design and develop sophisticated mobile interfaces
- 4. Describe and work within the capabilities and limitations of a range of mobile computing devices.
- 5. Program mobile applications for the Android operating system that use basic and advanced phone features
- 6. Understand various Mobile security issues.

UNIT I

Introduction to Mobile Development : What is mobile computing?, History of mobile environments – early mobile phones to smartphones and tablets, Development for mobile environments, Differences from traditional application development, Trends in mobile development.

UNIT II

Mobile Development : Introduction, Advantages, Limitations, Features useful for mobiles – Geolocation, offline web applications, offline web storage, animations, 2D/3D graphics, Audio/Video etc., Frameworks -- HTML5, Phone Gap (Apache Cordova) framework and jQuery Mobile framework.

UNIT III

Introduction to Android: Android Overview -- Features, Architecture, Applications, Application frameworks, Libraries, Runtime, Kernel, Android Ecosystem – Application stores, publishing, Android Development Tools – Android SDK, Android emulator, Development on hardware devices

UNIT IV

Basic Android Development: Writing Android Applications, Activity Lifecycle, Multi device support, Fragments, Data storage, Intents, Data sharing, Audio playback, Photo capture

UNIT V

Advanced Android Development : Animations. OpenGL ES, Wireless connections, Data syncing, Location aware applications, Best practices for development, Security, Distribution and Monetizing Lab: Exercises using PhoneGap and the Android SDK using various features of Android.

Text Book

Ed Burnette, 2010, Hello Android: Introducing Google's Mobile Development Platform, 3rd edition., The Pragmatic Programmers.

References

Wallace Jackson, 2012, Android Apps for Absolute Beginners, 2^{nd} Edition, Apress. Jeff Mc Wherter , Scott Gowell, 2012, Professional Mobile Application Development, 1^{st} Edition.

- To learn basics of Cloud computing.
- To learn different Cloud Computing services
- To know the concepts of event management and its applications
- To learn the basic Green computing strategies and its applications
- To learn the challenges and economics involved in shifting computing hardware to the cloud
- To learn about the environmental impact of Green Computing

Course Outcomes (COs)

After completion of this course, the students will be able to:

- 1. Analyze the Cloud computing setup with its vulnerabilities and applications using different architectures.
- 2. Use and Examine different cloud computing services
- 3. Understand and explore event management application and explore web-based databases.
- 4. Understand the role of Green computing and its top ten strategies which impacts environment
- 5. Relate green IT to sustainable development,
- 6. Discuss how the choice of hardware and software can facilitate a more sustainable operation

UNIT I

Understanding cloud computing: An introduction to cloud computing- what it is & what it is not- History - The network is the computer: How cloud computing works. Companies in the cloud: cloud computing today. The pros and cons of cloud computing- benefits- developing cloud services.

UNIT II

Cloud computing for the community- Cloud computing for the corporation- Using Cloud services: collaborating on calendars, schedules, and Task management. Exploring online calendar applications- Exploring online schedule applications- Exploring online planning and task management.

UNIT III

Collaborating on Event Management: Event Management applications - Exploring Event Management Applications – Collaborating on project Management : Exploring project Management Applications – Collaborating on databases :how it works-Exploring Web-Based Databases.

UNIT IV

Green Computing Strategies That Companies Should Be Aware Of - The Climate Savers Computing Initiative Top Ten Strategies - CSCI: Computer Science or Computer Software Configuration Item? - Expectations from the CSCI Degree - CSCI Major Requirements Disclosed - The 12 Green Computer Companies.

UNIT V

Green Computing for Environmental Impact Management - Green Initiative Business: Good For IT Business? - Organization Planning for Green Computing - Tips for Green Computing Strategic Initiative - Green Computing: Tips for Strategic Planning Organization -Implementing Green Computing in a Business Organization Beneficial to All

Text Books

Michael Miller, 2009, CLOUD COMPUTING Web-Based Applications That Change The Way You Work and Collaborate Online, Pearson Education.

Bud E.Smith, 2014, Green Computing: Tools and Techniques for Saving energy, money and resources, CRC press.

References

Haley Beard, 2008, Cloud Computing Best Practices for Managing and Measuring Processes for on demand computing, Applications and Data Centers in the Cloud with SLAs, 1st Edition, Emereo Pvt. Ltd.

Instruction Hours / week: L: 2 T: 0 P: 0 Marks: Internal: 100 External: Nil Total: 100

Course Objectives

- Students will be able to apply quantitative reasoning and mathematical analysis methodologies to understand and solve problems.
- To achieve the analytical and reasoning competencies and to improve their communication and presentation skills
- To impact knowledge on both Aptitude and Soft skills to the students •
- To actively do mathematics—such as analyzing data, constructing hypotheses, solving problems, reflecting on their work, and making connections.
- To critically evaluate and demonstrate various principles involved in solving mathematical problems and to adopt new and faster methods of calculations.
- To reinforce competencies in soft skills which are crucial in a social setting

Course Outcomes (COs)

On successful completion of the course the students will be able to:

- 1. Understand the basic concepts of QUANTITATIVE ABILITY
- 2. Understand the basic concepts of LOGICAL REASONING Skills
- 3. Acquire satisfactory competency in use of VERBAL REASONING
- 4. Actively do mathematics—such as analyzing data, constructing hypotheses, solving problems, reflecting on their work, and making connections.
- 5. Solve campus placements aptitude papers covering Quantitative Ability, Logical Reasoning and Verbal Ability
- 6. Compete in various competitive exams like CAT, CMAT, GATE, GRE, GATE, UPSC, GPSC etc.

UNIT - I

Time, Speed and Distance, Time and Work, Pipes and Cisterns, Geometry, Data Arrangement

UNIT – II

Analogy, Logic based Venn diagram, Probability, Permutation and Combination, Logarithms

UNIT – III

Data Sufficiency, Clocks, Calendar, Reading Comprehension, Sentence Correction, Sentence Completion, Spotting the Errors, Jumbled Sentences

$\mathbf{UNIT} - \mathbf{IV}$

Synonyms, Antonyms, Verbal Analogy, Statements and Assumptions, Group Discussion

UNIT - V

Resume Writing, Introduction to HR rounds, Time Management, Attitude and Behaviour

		Semester-IV
		LTPC
15ENU401	English - IV	4 0 0 4

- To train the students in understanding the concepts of communication.
- To be familiar with the four basic skills of English. •
- To train students in developing their written communication. •
- To train students in developing their presentation skills.
- To acquire the skill of making grammatically correct sentences.
- To reflect originality on the application of soft skill views and express in writing their views.

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Acquire proficiency in communication.
- 2. Students have become adept in written communication and presentation skills.
- 3. Developed the skill of writing in English and that of public speaking.
- 4. Establish and maintain social relationships.
- 5. Develop communication skills in business environment.
- 6. Enhanced communication competency through LSRW skills

UNIT I - Concept of Communication - Barrier to Communication - Body language -Personality Development - Etiquette and Manners- Soft Skills - Emotional Intelligence

UNIT II - Listening Comprehension - Reading Comprehension - Paragraph writing -Precise Writing – Writing Resume and Covering Letter -Speaking – Welcome Address, Vote of Thanks, Compering, Debates, Role Play, Dialogues - Vocal Communication Techniques. Voice, Quality, Volume, Pitch

UNIT III – Dicto Composition – Letter Writing (Informal, Letters to the Editor etc) – Term paper - Book reviews

UNIT IV - Business Correspondence - Layout of Business Letter - Formal Styles of Business Letters – Letters of Acceptance, Appointment, Resignation, Complaint, Sending E-mails.

UNIT V - Effective Presentation - Planning - Audience Analysis - Logical Sequencing -Timing of the Presentation - Conclusion - Answering Queries - Group Discussion -Interview.

Text Book

Juneja. P. Om and Aarati Mujumdar, "Business Communication -Techniques and Methods", Orient Blackswan Pvt. Ltd., Hyderabad: 2010.

References

Badi, R.V and K. Aruna. Business Communication, 2008, Vrinda Publications: New Delhi.

Balasubramanian M and G Anbalagan. Performance in English. 2007, Anuradha Publications: Kumbakonam

Mohan, Krishna and Meenakshi Raman.2008, Effective English Communication, Tata McGraw Hill: New Delhi.

Selley, John. Oxford Guide to Effective Writing and Speaking. 2005, OUP: New Delhi.

		Semester IV
		LTPC
15ITU401	Web Technology	6006

- To learn client and server-side scripting languages
- Understand the technologies used in Web designing.
- Know the importance of object-oriented aspects of Scripting.
- To understand and practice embedded dynamic scripting on client-side Internet Programming
- To master the theory behind scripting and its relationship to classic programming
- To gain some fluency programming in HTML, ASP, JavaScript and related languages, to design and implement one's own scripting language.

Course Outcomes (COs)

After completion of this course, the students will be able to:

- 1. Choose, understand, and analyze any suitable real time web application
- 2. Design simple web pages using markup languages like HTML and XHTML
- 3. Create dynamic web pages using ASP and java script that is easy to navigate and use.
- 4. Program server-side web pages that have to process request from client-side web pages.
- 5. Develop web pages using ASP, JSP and VBScript.
- 6. Develop embedded dynamic scripting on client-side Internet Programming

UNIT I

Introduction to HTML: Introduction-HTML Browsers-History of HTML and SGML-HTML Command Tags-Quotation Marks-Spacing-Special Symbols-Tags with Automatic Line Breaks-URLs-Understanding Domain Names-Links-Defining Web Page-Main Body of Text- Headers-Adding Paragraph-Formatting Text-Font Type, Size, Predefined Fonts, Bold, Italic-Setting Colors-Text Color, Superscripts and Subscripts-Underlining Text-Preformatted Text-Blinking Text-Block Quotes-Margins-Line Breaks-Ordered and Unordered List-Links-Scaling an Image-Images Alignment. More on HTML: Creating Table-Dividing Table into Columns-Dividing Table into Rows- Creating Headers- Adding Border –Putting a Background Image- Heading across two or More Columns-Changing Color of a Cell-Aligning the Contents of a Cell-Display of Tables.

UNIT II

HTML, Forms, Frames and Style Sheets: HTML : Working with Forms-Creating Forms-Working with Menus-Working with Radio Buttons-Check Boxes-Text Boxes -Text Areas-Password Boxes-Submit Button-Resetting the Form-Working with Frames-Creating Frameset-Creating Columns-Creating Rows and Columns-Combining Framesets-Giving Colors to the Borders-Space between Frames-Nesting Framesets-Showing or Hiding Scrollbars-Alternatives to Frames. Cascading Style Sheets: Introduction to CSS-Creating Style Sheets-Common Tasks with CSS-Colors-The Font Family-Assigning Classes-The Layer Tag-CSS Tags

UNIT III

eXtensive Markup Language: Introduction-Features of XML-XML Support and Usage-Compatibility of XML with Others-Structure of XML Document-Common Errors-Structures in XML-Creating Document Type Declarations-Flow Objects-Length-Colour and Background Properties

UNIT IV

ASP: How Active Server Pages Really Work?-Variables-Procedures-ASP Forms-Date Types-Operators. More on ASP: Introduction to Object Hierarchies-Getting Information from the Visitor-Sending Information to Visitors-ASP Applications-Getting in at the Top (Server Object)-Response Object Methods.

UNIT V

Java Script and VB Script : Java Script: Introduction-Operators-Assignments-Comparisons-Reserved Words-Browsers to Use-Software Requirement-Starting with Java Script-Using Quotes, Alert-Functions-Eval Function-Using Statements in Java Script-Working with Objects-Properties-Browser objects-Date object-Math Object-String Object-Defining Objects-Handling Events in Java Script-Event Handling Attributes-Window Events-Working with Forms-Form Elements-User Actions-windows and Frames-Window Object-Frame Object-Document Object-Navigator Object-Screen Object-Using Images and Math-Images and Animation-Area Object-Math Object-Java Script Objects.

VB Script: Introduction-Adding VB Script code to HTML- Adding VB Script code to Documents-Data Types-Getting the Message Across.

Text Books

Thomas A.Powell, 2010, The Complete Reference HTML and CSS, 5th Edition, Tata MC-Graw Hill Publications, New Delhi.

Ramesh Bangia, 2010, Web Technology, 1st Edition, Firewall Media Publications, New Delhi.

David Flanagan, 2011, Javascript: The Definitive Guide, 6th Edition, O'Reilly Media.

References

Abbey Deitel, Harvey Deitel, Paul Deitel, 2012, Internet and World Wide Web: How to Program, 5th Edition, Prentice Hall.

Rohit Khurana, 2002, JavaScript, 1st Edition, A.P.H Publishing, New Delhi.

Xavier C, 2008, World Wide Web With HTML, 1st Edition, Tata MC-Graw Hill Publications, New Delhi.

Danny Goodman, 2003, Javascript Bible 3rd Edition, IDG Books India(p) Ltd, New Delhi.

Achyut S. Godbole, 2003, Web Technologies , 2nd Edition, Tata Mc Graw Hill.

Chris Bates, 2007, Web programming Building Internet Applications, 3rd edition, Wiley.

Xavier C., 2003, Web Technology & Design, 1st edition, New Age Publication.

Web Sites

www.w3schools.com/ www.htmlcodetutorial.com/ jmarshall.com/easy/

		Semester IV
		LTPC
15ITU402	JAVA Programming	5 1 0 6

Course Objectives

• To understand the fundamentals of programming such as variables, conditional and iterative execution, methods, etc.

- To understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
- To use the Java SDK environment to create, debug and run simple Java programs.
- To use Java in various technologies in different platforms.
- To understand the fundamental of Packages and access modifiers and interface in java.
- To understand the fundamental of Exception Handling and AWT component and AWT classes.

Course Outcomes (COs)

After completion of this course, the students will be able to:

- 1. Obtain knowledge of the structure and model of the Java programming language.
- 2. Use the Java programming language for various programming technologies (understanding)
- 3. Develop software in the Java programming language (application)
- 4. Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements (analysis)
- 5. Use the certain technologies by implementing them in the Java programming language to solve the given problem (synthesis)
- 6. Choose an engineering approach to solving problems, starting from the acquired knowledge of programming and knowledge of operating systems. (evaluation)

UNIT I

Introduction to Java: Object Oriented Paradigm and Concepts-Structured versus Object Oriented Approach. Java Language: Features of Java -Environment-Java Architecture-Java Development Kit-Types of Java Program. Variable Declaration and Arrays: Data Types-Java Tokens –Variable Declaration – Type Casting and Conversion – Arrays, Operators, And Control Statements: Selection Constructs – Iteration Constructs –Jump Statements.

UNIT II

Classes and Objects

Introduction to classes: Instance variables, Class variables, Instance Methods, Constructors, Class methods, Declaring Objects, Garbage Collection, Method Overloading - Constructor Overloading - This Reference. Inheritance: Super class variables- Method Overriding - final Keyword, Abstract Classes and Interfaces.

UNIT III

Exception Handling: Fundamentals – Hierarchy of Classes – Types of Exceptions-Exception Class – Uncaught Exceptions – Handling Exceptions – User Defined Exceptions. Multithreaded Programming: The Java Thread Model – Runnable Interface - Thread Class – Thread Creation – Thread's Life Cycle – Thread Scheduling -Synchronization and Deadlock.

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Packages and Access Modifiers: Package Declaration – The CLASSPATH variable - import statement – The Java Language Packages - Access Protection.

UNIT IV

Strings: Creation – Operation on strings - Character Extraction Methods – Comparison – Searching and Modifying –Data Conversion and valueOf() Methods – Changing case of characters - String Buffer Class and its methods. Collection and Utilities: Collection of Objects – Core Interfaces and Classes – Iterators – List, Set, Map Implementations.

UNIT V

Input Output Classes: I/O Operations –Hierarchy of Classes – File class – Input Stream, Output Stream, FilterInputStream, FilterOutputStream, Reader and Writer classes – Random Access File class –Stream Tokenizer. Applets: Basics – Life Cycle –Methods –Graphics Class- Color, Font, and Font Metrics Class – Using the Status window – Passing parameters to Applets – getDocumentBase() and getCodeBase(). AWT Components: AWT Classes – Basic Component and Container Classes – Frame Window in an Applet.

Text Books

Herbert Schildt, 2014, Java Complete Reference, 9th Edition, Tata McGraw Hill, New Delhi.

ISRD Group, 2007, Introduction to Object Oriented Programming through Java, 1st Edition, Tata McGraw Hill, New Delhi.[Unit-I (3-104), Unit-II (105-127), Unit-III (129-164), Unit-IV (219-236, 253-280), Unit-V (165-199, 283-307)]

References

Deitel H.M. and P.J.Deitel, 2005, Java-How to Program, 6th Edition, Pearson Education, New Delhi.

Dr.S Somasundaram, 2004, Java Programming, 1st Edition, Techmedia. New Delhi.

E.Balagurusamy, 2010, Programming with Java – A Primer, 4th Edition, Tata McGraw Hill, New Delhi.

Web Sites

www.java.sun.com www.knking.com www.webdeveloper.com www.forums.sun.com www.netbeans.com

		Semester Iv
		LTPC
15ITU411	JAVA Programming Lab	0 0 6 3

• To understand the fundamentals of programming such as variables, conditional and iterative execution, methods, etc.

- To understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
- To use the Java SDK environment to create, debug and run simple Java programs. •
- To use Java in various technologies in different platforms.
- To understand the fundamental of Packages and access modifiers and interface in java.
- To understand the fundamental of Exception Handling and AWT component and AWT classes.

Course Outcomes (COs)

After completion of this course, the students will be able to:

- 1. Obtain knowledge of the structure and model of the Java programming language.
- 2. Use the Java programming language for various programming technologies (understanding)
- 3. Develop software in the Java programming language (application)
- 4. Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements (analysis)
- 5. Use the certain technologies by implementing them in the Java programming language to solve the given problem (synthesis)
- 6. Choose an engineering approach to solving problems, starting from the acquired knowledge of programming and knowledge of operating systems. (evaluation)
- 1. Write a program to find the sum of series $1+x+x^2+x^3+\dots$
- 2. Write a program to find maximum and sum of an array
- 3. Write a Program to generate Fibonacci Series and Factorial for a number
- 4. Define a class for Employee with name and date of appointment. Create employee objects and sort them as per their date of appointment.
- 5. Create a method to calculate the area & perimeter of a circle. Extend the semicircle class child of circle class and override the method to calculate the area and perimeter of a semicircle (if possible use this & super keywords)
- 6. Create an interface called arithmetic, which defines methods for sum, multiplication, division, subtraction, percentage and implement of them.
- 7. Write a program to an exception out of bounds, if mark is greater than 100 throw an exception
- 8. Write a program to generate multiplication table by multithreading

- 9. Create a package, which holds the class and an interface defined in the question 5 & 6 and use them in your main method/class.
- 10. Write a program to perform string operations
- 11. Create a StringBuffer object and illustrate the operation of the append() and reverse() methods.
- 12. Write a program to create an applet and draw any shapes using color
- 13. Write an Applet Program to create Menus
- 14. Write an Applet Program to perform operations in listbox
- 15. Write an application that converts between meters and feet. its first command-line argument is a number. Its second command-line argument if either "feet" or "meters". If this argument equal "feet", display a string reporting the equivalent number of meters. If this argument equal "meters", display a string reporting the equivalent number of feet. Otherwise, report that the unit system is not recognized

		Semester IV
		LTPC
15ITU403A	Allied Elective-II Operations Research	4 2 0 4

Course Objectives (CO)

This course enables the students to

- To learn the basic concepts and applications of linear programming.
- To impart knowledge in concepts and tools of Operations Research. •
- To know the constructive techniques to make effective business decisions •
- Define and formulate linear programming problems and appreciate their limitations
- To Identify and develop operational research models from the verbal description of • the real system
- To Solve network models like the shortest path, minimum spanning tree, and • maximum flow problems

Course Outcomes (COs)

On successful completion of the course, students will be able to

- 1. Understand the basic concepts and application of operation research in various fields.
- 2. Understand and analyze managerial problems in industry so that they are able to use resources (capitals, materials, staffing, and machines) more effectively
- 3. Define and formulate linear programming problems and appreciate their limitations
- 4. Recognize the importance and value of Operations Research and mathematical modeling in solving practical problems in industry
- 5. Identify and develop operational research models from the verbal description of the real system
- 6. Solve network models like the shortest path, minimum spanning tree, and maximum flow problems

UNIT I

Linear Programming: Formulation of LPP – Graphical solution to LPP –Simplex method – Big M method and Duality in LPP.

UNIT II

Transportation model: Introduction - Mathematical Formulation -Finding initial Basic Feasible solutions - Optimum solution for non degeneracy and degeneracy model -Unbalanced Transportation problems and Maximization case in Transportation problem

UNIT III

The Assignment problem - Mathematical formulation of the problem - Hungarian method -Unbalanced Assignment problem- Maximization case in Assignment problem.

Queuing theory : Introduction - Characteristics of queuing system. Problems in (M/M/1):(∞ /FIFO) and (M/M/1):(N/FIFO) models.

UNIT IV

Inventory Control: Introduction – Costs involved in inventory – Deterministic EOQ models - Purchasing Model without and with shortage, Manufacturing Model without and with shortage -Price break.

UNIT V

PERT and CPM: Network representation - Calculation of Earliest expected time, latest allowable occurrence time. CPM - various floats for activities - critical path.

PERT -Time estimates in PERT- Probability of meeting scheduled date of completion of projects.

Text Book

Kanthi Swarup, Gupta P.K., Man Mohan., 2006, Operations Research, Sultan Chand & Sons, New Delhi. (For Unit I – V)

References

Sharma J.K., 2009, Operations Research: Theory and Applications, Macmillan publishers India Ltd, New Delhi.

Sundaresan V, Ganapathy Subramanian K.S., and Ganesan K., 2005 (III edition), Resource Management Techniques, A. R. Publications, Nagapatinam.

Shanthi Sophia Bharathi D.,1999 (II edition), Operations Research/Resource management techniques, Charulatha Publications.

		LTPC
15ITU403B	Allied Elective-II Statistical Methods	4 2 0 4

Semester IV

Course Objectives (CO)

- To recognize the error in the number generated by the solution.
- To compute solution of algebraic and transcendental equation by numerical methods like Bisection method and Newton Rapshon method.
- To apply method of interpolation and extrapolation for prediction.
- To recognize elements and variable in statistics and summarize qualitative and quantitative data.
- To calculate mean, median and mode for individual series.
- To outline properties of correlation and compute Karl-Pearson's coefficient of correlation.

Course Outcomes (COs)

Upon completion of the course students shall be able to:

- 1. Recognize the error in the number generated by the solution.
- 2. Compute solution of algebraic and transcendental equation by numerical methods like Bisection method and Newton Rapshon method.
- 3. Apply method of interpolation and extrapolation for prediction.
- 4. Recognize elements and variable in statistics and summarize qualitative and quantitative data.
- 5. Calculate mean, median and mode for individual series.
- 6. Outline properties of correlation and compute Karl-Pearson's coefficient of correlation.

UNIT-I

Meaning and definition of statistics – Classification of data - Frequency distribution - Diagrammatic Presentation – Bar diagram and Pie diagram – Graphic Presentation – Histogram, Frequency Polygon, Frequency curve and Ogives.

UNIT – II

Measures of central tendency – Arithmetic mean, median and mode. Measures of dispersion-Range, standard deviation, Coefficient of variation.

UNIT – III

Correlation – Meaning and definition - Scatter diagram –Karl pearson's correlation coefficient. Rank correlation.

Regression: Regression in two variables – Regression coefficient problems – uses of regression.

$\mathbf{UNIT} - \mathbf{IV}$

Probability theory : Axioms of Probability–Addition theorem – Multiplication theorem – conditional Probability.

Theoretical Distribution: Basic Concepts - Binomial distribution, Poisson Distribution & Normal distribution (No derivations) and simple problems.

UNIT – V

Test of significance: Tests based on Means only-Both Large sample and Small sample tests - Chi square test - goodness of fit.

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Bachelor of Information Technology, 2015, Karpagam Academy of Higher Education, Coimbatore-21, India

Text book

R.S.N.Pillai, Bagavathy, 2002, "Statistics", S. Chand & Company Ltd. New Delhi.

References

Jerrold H.Zar, 2003, Bio-Statistical Analysis, Fourth Edition, Pearson Education, (Pvt) .Ltd, New Delhi.

PA.Navnitham. 2006. Business Mathematics and Statistics, Jai Publishers, Trichy – 21.

S.P. Gupta, 2001, "Statistical methods". Sultan Chand & Sons, New Delhi.

- To learn the basic concepts of sets, types of sets, functions and relations
- To understand about Pigeonhole principle, Permutation and Combination, Mathematical Induction
- To solve the problems using Recurrence relations and generating functions.
- To know the basic concepts of Logical Connectives, Graphs and Trees.
- To express ideas using mathematical notation
- To solve problems with the help of tools of mathematical analysis.

Course Outcomes

On successful completion of the course, students will be able to

- 1. Familiar with elementary algebraic set theory.
- 2. Acquire a fundamental understanding of the core concepts in growth of functions.
- 3. Describe the method of recurrence relations.
- 4. Get wide knowledge about graphs and trees
- 5. Initiate to knowledge from inference theory
- 6. Solve problems with the help of tools of mathematical analysis.

UNIT-I

Mathematical logic: Connections well formed formulas, Tautology, Equivalence of formulas, Tautological implications, Duality law, Normal forms, Predicates, Variables, Quantifiers, Free and bound Variables.

UNIT-II

Relations: Properties of Binary relations – Equivalence relations - composition of relations, Closure of relations – Order relations – Partial order relations.

Functions: one-to-one, onto, one-to-one-onto functions – composition of functions, Inverse functions.

UNIT-III

Formal languages and Automata: Grammars: Phrase–structure grammar, context-sensitive grammar, context-free grammar, regular grammar. Finite state automata- Deterministic finite automata and Non deterministic finite automata-conversion of non deterministic finite automata to deterministic finite automata.

UNIT-IV

Lattices and Boolean algebra: Partial ordering, Poset, Lattices, Boolean algebra, Boolean functions, Theorems, Minimization of Boolean functions.

UNIT-V

Graph Theory: Directed and undirected graphs, Paths, Reachability, Connectedness, Matric representation, Eular paths, Hamiltonian paths, Trees, Binary trees simple theorems, and applications.

Text Book

Tremblay J.P., and R.P Manohar., 1975 . Discrete Mathematical Structures with applications to computer science, Tata Mc.Graw Hill, New Delhi. (For Unit I - V)

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Bachelor of Information Technology, 2015, Karpagam Academy of Higher Education, Coimbatore-21, India

References

Sundaresan V., Ganapathy Subramanian K.S., and Ganesan K., 2002. Discrete Mathematics, A.R. Publications, Nagapatinam.

Veerarajan T.,2007, Discrete mathematics with graph theory and combinatorics, Tata Mcgraw hill companies, New Delhi.

Sharma.J.K, 2005, Discrete Mathematics, Second Edition, Macmillan India Ltd.

		Semester IV	
		LTPC	
15SSD301	Soft Skill Development – II	$2 \ 0 \ 0 \ 1$	

Instruction Hours / week: L: 2 T: 0 P: 0 Marks: Internal: 100 External: Nil Total: 100

Course Objectives (CO)

- Students will be able to apply quantitative reasoning and mathematical analysis methodologies to understand and solve problems.
- To achieve the analytical and reasoning competencies and to improve their communication and presentation skills
- To impact knowledge on both Aptitude and Soft skills to the students
- To actively do mathematics—such as analyzing data, constructing hypotheses, solving problems, reflecting on their work, and making connections.
- To critically evaluate and demonstrate various principles involved in solving mathematical problems and to adopt new and faster methods of calculations.
- To reinforce competencies in soft skills which are crucial in a social setting

Course Outcomes (COs)

On successful completion of the course the students will be able to:

- 1. Understand the basic concepts of QUANTITATIVE ABILITY
- 2. Understand the basic concepts of LOGICAL REASONING Skills
- 3. Acquire satisfactory competency in use of VERBAL REASONING
- 4. Actively do mathematics—such as analyzing data, constructing hypotheses, solving problems, reflecting on their work, and making connections.
- 5. Solve campus placements aptitude papers covering Quantitative Ability, Logical Reasoning and Verbal Ability
- 6. Compete in various competitive exams like CAT, CMAT, GATE, GRE, GATE, UPSC, GPSC etc.

UNIT - I

Time, Speed and Distance, Time and Work, Pipes and Cisterns, Geometry, Data Arrangement

UNIT – II

Analogy, Logic based Venn diagram, Probability, Permutation and Combination, Logarithms

UNIT – III

Data Sufficiency, Clocks, Calendar, Reading Comprehension, Sentence Correction, Sentence Completion, Spotting the Errors, Jumbled Sentences

$\mathbf{UNIT}-\mathbf{IV}$

Synonyms, Antonyms, Verbal Analogy, Statements and Assumptions, Group Discussion

UNIT - V

Resume Writing, Introduction to HR rounds, Time Management, Attitude and Behaviour

- To design, formulate, and construct applications with VB.NET
- To integrate variables and constants into calculations applying VB.NET
- To determine logical alternatives with VB.NET decision structures
- To implement lists and loops with VB.NET controls and iteration
- To separate operations into appropriate VB.NET procedures and functions
- To assemble multiple forms, modules, and menus into working VB.NET solutions

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Grasp the fundamentals of a programming language and know the basic differences between programming languages
- 2. Choose the architecture based on the problem to be solved.
- 3. Differentiate between the types of applications supported by .Net
- 4. Build, compile and execute a VB .Net program
- 5. Apply techniques to develop error-free software
- 6. To build integrated VB.NET solutions using files and structures with printing capabilities. Translate general requirements into data-related solutions using database concepts

UNIT I

Introduction to .NET: .NET Framework features & architecture, CLR, Common Type System, MSIL, Assemblies and class libraries. Introduction to visual studio, Project basics, types of project in .Net, IDE of VB.NET- Menu bar, Toolbar, Solution Explorer, Toolbox, Properties Window, Form Designer, Output Window, Object Browser. The environment: Editor tab, format tab, general tab, docking tab. visual development & event driven Programming -Methods and events.

UNIT II

The VB.NET Language: The VB.NET Language- Variables -Declaring variables, Data Type of variables, Forcing variables declarations, Scope & lifetime of a variable, Constants, Arrays, types of array, control array, Structure Programming – Modularity – Information Hiding – Abstraction – Events – subroutines and functions– Message box – Input box. Control flow statements: conditional statement, loop statement.

UNIT III

Working with WPF: Introduction : Understanding Windows Graphics - WPF: A Higher-Level API - The Architecture of WPF. XAML: Basics, Properties and Events in XAML – Loading and compiling -Layout-.Classic Controls: The Control Class - Content Controls -Text Controls - List Controls - Range-Based Controls.

UNIT IV

Objects and collections: Understanding objects, Properties, Methods. Understanding collections. Files : Introduction – Classification of files – Processing files – handling files and folder using class – Directory class – file class.

UNIT V

Database programming with ADO.NET: Overview of ADO, from ADO to ADO.NET, Accessing Data using Server Explorer. Creating Connection, Command, Data Adapter and Data Set with OLEDB and SQLDB. Display Data on data bound controls, display data on data grid. Generate Reports Using CrystalReportViewer.

Text Books

Bryan Newsome, 2012, Beginning Visual Basic 2012, John Wiley & Sons, Inc.

Shirish Chavan, 2007, Visual Basic .Net, 1st Edition, Pearson Education, New Delhi.

Matthew MacDonald Pro, 2008, Windows Presentation Foundation with .NET 3.5, Apress.(Chapters 1,2,4 and 7 only).

Duncan Mackenzie and Kent Sharkey, 2006, Sams Teach Yourself Visual Basic.Net, 1st Edition, Techmedia, New Delhi.

References

Ian Griffiths, Chris Shells, 2005, Programming Windows Presentation Foundation. 1st Edition, O'Reilly Publishers.

Jeffrey R. Shapiro, 2002, The Complete Reference Visual Basic.Net, Tata -McGraw-Hill Edition, New Delhi.

Web Sites

www.startvbdotnet.com www.functionx.com www.devarticles.com www.dotnetspider.com www.developerfusion.com http://www.wpftutorial.net/HelloWPF.html
- To learn the fundamental concepts of networking standards, protocols and . technologies.
- Introduce the concept of communication protocols and give an overview of Data Communication Standards.
- To learn different techniques for framing, error control, flow control and routing.
- To learn OSI and TCP/IP Layers and protocols Design
- To learn the layering concepts in computer networks.
- To understand the functions of each layer

Course Outcomes (COs)

After completion of this course the student will be able to:

- 1. Analyze the requirements for a given organizational structure to select the most appropriate networking architecture, topologies, transmission mediums, and technologies.
- 2. Conceptualize and explain the functionality of the different layers within a network architecture
- 3. Understand design issues, flow control and error control
- 4. Analyze data flow between TCP/IP model using Application, Transport and Network Layer Protocols.
- 5. Illustrate applications of Computer Network capabilities, selection and usage for various sectors of user community.
- 6. Understand and analysis structure of Authentication Service and Electronic Mail Security, web security and IP security

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UNIT I

Introduction: The uses of Computer Networks, Networks Hardware, Network Software, OSI Reference Model, TCP/IP Reference Model.

UNIT II

Physical Layer: Theoretical Basis for Data Communication- Transmission Media- Wireless Transmission- Communication Satellites- The Public Switched Telephone Network- The Mobile Telephone System- Cable Television.

UNIT III

Data Link Layer Design Issues- Error Detection and Correction - Elementary data Link Protocols, Medium Access Control Sub layer: The Channel Allocation Problem - ALOHA -Collision- Free Protocols - Wireless LAN Protocols - Ethernet: Ethernet Cabling.

UNIT IV

The Network Layer: Network layer design issues- Routing Algorithms- Congestion control Algorithms- The Transport Layer: The Transport Services – Elements of Transport Protocols - Remote Procedure Call.

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UNIT V

Presentation Layer: Presentation Layer design issues- Data Compression Techniques-Cryptography. The Application Layer: Application Layer Design issues- Files Transfer, Access and Management- Electronic Mail- Virtual Terminals- Other Applications.

Text Book

Andrews S. Tanenbaum, 2013, Computer Networks. 5th Edition, Prentice Hall of India, New Delhi.

References

Ciiwan-Hwa Wu , J. Dawicl Irwin, 2011, Introduction to Computer Networks and Cybersecurity, CRC Press, New York.

Andrews S. Tanenbaum, 2003, Computer Networks, 4th Edition, Prentice Hall of India, New Delhi.

Douglas E. Comer, 2000, Computer Networks and Internets, 2nd Edition, Pearson Education Asia, New Delhi.

Stanford H. Rowe and Marsha L. Schuh, 2005, Computer Networking, 1st Edition, Pearson Education,

William Stallings, 2007, Data and Communication Network, 8th Edition, Tata McGraw Hill, New Delhi.

Web Sites

www.mhhe.com/engcs/compsci/forouzan/

www.amazon.com/Data-Communications-Networking-Behrouz-Forouzan/dp/0072923547 highered.mcgraw-hill.com/sites/0072515848/information_center_view0/ -

		Semester v
		LTPC
15ITU503	Software Engineering	5 0 0 5

To understand the nature of software development and software life cycle process models, agile software development, SCRUM and other agile practices.

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- To explain methods of capturing, specifying, visualizing and analyzing software • requirements.
- To understand concepts and principles of software design and user-centric approach • and principles of effective user interfaces.
- To know basics of testing and understanding concept of software quality assurance • and software configuration management process.
- To understand the need of project management and project management life cycle. •
- To understand project scheduling concept and risk management associated to various type of projects.
- Implement a given software design using sound development practices.

Course Outcomes (COs)

- 1. Apply their knowledge of mathematics, sciences, and computer science to the modeling, analysis, and measurement of software artifacts.
- 2. Work effectively as leader/member of a development team to deliver quality software artifacts.
- 3. Analyze, specify and document software requirements for a software system.
- 4. Verify, validate, assess and assure the quality of software artifacts.
- 5. Design, select and apply the most appropriate software engineering process for a given project, plan for a software project, identify its objectives and risks, and estimate its cost and time.
- 6. Express and understand the importance of negotiation, effective work habits, leadership, and good communication with stakeholders, in written and oral forms, in a typical software development environment.

UNIT I

Introduction to Software Engineering: The Evolving Role of Software-Software-Software Myths- A Generic View of process: Software Engineering -A Layered Technology- Process Models: Prescriptive Models- Waterfall Model- Incremental process Models. Evolutionary Process Models: Prototyping, The Spiral Model- Specialized process Models. Capability Maturity Model.

UNIT II

Requirement Engineering: Requirement Engineering tasks – Initiating requirement engineering process - Eliciting requirements. Building the Analysis Model: Requirements Analysis-Analysis Modeling Approaches-Data Modeling Concepts: Data Objects-Data attributes-Relationships Cardinality and Modality-Flow Oriented Modeling: Creating Data Flow Model-Creating a Control Flow Model-The Control Specification-The Process Specification- Creating a Behavioral Model.

UNIT III

Design Engineering: Design with the Context of Software Engineering-Design Process and Design Quality-Design Concepts-Creating An Architectural Design: Software ArchitectureData Design-Architectural Design- Assessing Alternative Architectural Designs-Mapping Data Flow into Software Architecture. Modeling Component level Design: Designing Class based components- Designing conventional components

UNIT IV

Performing User Interface Design: The Golden Rules: Place the User in Control-Reduce the User's Memory Load-Make the Interface Consistent- User Interface Analysis and Design: Interface Analysis and Design Models- The Process- Interface Analysis: User Analysis - Task analysis and Modeling. Interface Design Concepts-Applying Interface Design Steps-User Interface Design Patterns-Design Issues –Design Evaluation.

UNIT V

Testing Tactics: Testing Strategies-Testing strategies for conventional software-Unit Testing-Integration Testing- Validation Testing- System Testing. Software Testing Fundamentals-Black -Box and White-Box Testing- White Box Testing-Basis Path Testing- Control Structure Testing: Condition Testing- Data Flow Testing-Loop Testing- Black Box Testing-Quality Concepts: Quality- Quality Control –Quality Assurance –Cost Of Quality – Software Quality Assurance – ISO 9000 Quality standards.

Text Books

Roger S. Pressman, 2010, Software Engineering – A Practitioner's Approach, 7th Edition, McGraw Hill International Edition, New Delhi.[Unit-1:-33-39,45-47,52-54,59-63,77-93 Unit-2:-176-190,207-217,226-232,248-253 Unit-3:-258-273,286-291,298-320,330-339,347-353 Unit-4:- 357-383 Unit-5:- 394-404, 406-411 ,420-441,745-750]

Ian Sommerville, 2009, Software Engineering 8th Edition, Pearson Education Publication, New Delhi.[Unit-1:-27-32,87-101,Unit-3 :-210,217,Unit-4:-385- 400 Unit-5:- 466]

References

Kalkar S.A, 2007, Software Engineering a Concise Study, 1st edition, Prentice Hall India, New Delhi.

Richard Fairley, 1998, Software Engineering Concepts, 1st Edition, Tata McGraw Hill Publishing, New Delhi.

Stephen Schach, 2007, Software Engineering, 7th Edition, Tata McGraw Hill, New Delhi.[Unit-1:- 51-54,60-64].

Daniel Hoffman and Paul Strooner, 1995, Software Design Automated Testing and Maintenance, Thomson Publications, Asia.

Web Sites

www.bleading –edge.com www.astrain fotech.com www.edistalearning.com www.indiaedu.com www.claensoft.com

		Semester v
		LTPC
15ITU504	Operating Systems	5 0 0 5

G 4 **T**7

Course Objectives (CO)

- To understand the main components of an OS & their functions.
- To study the process management and scheduling.
- To understand various issues in Inter Process Communication (IPC) and the role of OS in IPC. To understand the concepts and implementation Memory management policies and virtual memory.
- To understand the working of an OS as a resource manager, file system manager, process manager, memory manager and I/O manager and methods used to implement the different parts of OS
- To understand the structure and organization of the file system
- To learn case studies based on different operating system.

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Describe the important computer system resources and the
- 2. Perform the role of operating system in their management policies and algorithms.
- 3. Understand the process management policies and scheduling of processes by CPU
- 4. Evaluate the requirement for process synchronization and coordination handled by operating system
- 5. Describe and analyze the memory management and its allocation policies.
- 6. Identify use and evaluate the storage management policies with respect to different storage management technologies, identify the need to create the special purpose operating system.

UNIT I

Introduction: What is an OS? – Mainframe systems Desktop Systems – Multiprocessor systems – distributed systems – real time systems. Process: - Process concepts – Operation on process – cooperation process - Inter process Communication - Mutual Exclusion - Critical sections- primitives – Semaphores

UNIT II

Processor Scheduling: Deadlock: Deadlock prevention, avoidance, detection, recovery from deadlock-preemptive scheduling: - Scheduling Criteria – Scheduling Algorithms – FCFS-SJF- Priority – Round Robin – Multilevel Queue – Multilevel Feedback Queue.

UNIT III

Storage management: Memory Management - swapping- Contiguous memory allocation – paging, segmentation – segmentation with paging – Virtual memory: Virtual storage organization – Demand Paging, Process Creation – Page replacement – Thrashing.

UNIT IV

File systems: Introduction – File System Concepts – Access Methods – Directory structure – File Sharing – Allocation Methods –Efficiency and performance – Recovery Disk Performance Optimization: Introduction – Disk structure – Disk scheduling – Disk management.

UNIT V

Case studies: LINUX, Windows 2000, Windows XP: History- Design principles- File system

Text Book

Silberschatz Galvin Gagne, 2012, Operating system concepts, 9th Edition, Wiley India (pvt) Ltd, New Delhi.

References

Achyut S. Godbole and Atul Kahate, 2011, Operating Systems, 3rd Edition, Tata Mc Graw Hill Education Pvt. Limited, New Delhi.

Deitel H.M, 2005, Operating systems, 3rd Edition, Addison Wesley Publication, New Delhi.

Pramod Chandra P. Bhatt, 2007, An Introduction to Operating Systems, 2nd Edition, Prentice Hall India, New Delhi.

Tanenbaum Woodhull, 2005, Operating Systems, 2^{nd} Edition, Pearson Education (LPE), New Delhi.

William Stallings, 2009, Operating Systems internals and Design Principles, 6th Edition, Prentice Hall India, New Delhi.

Web Sites

www.webopedia.com searchwindowsserver.tech.target.com www.ghu.org www.computerhope.com www.answers.com www.osdata.com

- To design, formulate, and construct applications with VB.NET
- To integrate variables and constants into calculations applying VB.NET
- To determine logical alternatives with VB.NET decision structures
- To implement lists and loops with VB.NET controls and iteration
- To separate operations into appropriate VB.NET procedures and functions
- To assemble multiple forms, modules, and menus into working VB.NET solutions

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Grasp the fundamentals of a programming language and know the basic differences between programming languages
- 2. Choose the architecture based on the problem to be solved.
- 3. Differentiate between the types of applications supported by .Net
- 4. Build, compile and execute a VB .Net program
- 5. Apply techniques to develop error-free software
- 6. To build integrated VB.NET solutions using files and structures with printing capabilities. Translate general requirements into data-related solutions using database concepts

List of Programs

- 1. Write a VB.NET program to calculate Simple interest and compound Interest
- 2. Write a VB.NET program to implement Calculator.
- 3. Write a VB.NET program to implement Notepad
- 4. Write a VB.NET program to draw several shapes and fill with color.
- 5. Write a VB.NET program to perform the following in list box
 - a) Add an item
 - b) Delete an item
 - c) List count
 - d) Clear the List
- 6. Write a program to calculate the total marks of the student and print the grades
- 7. Write a VB.NET Program to implement Employee Payroll System.
- 8. Write a VB.NET program to create and manipulate a File.
- 9. Write a Program to implement a Web Browser
- 10. Write a program to maintain the details of doctors in a hospital with their specialization.
- 11. Write a program to animate the picture using Timer Control.
- 12. Write a program to move the object from one location to another. Change the color and size of object at different time interval.

- 13. Write a program to place ten pictures in the list box. Using timer control take the picture from List box and change the form background after specific time interval.
- 14. Write a program to implement speaking program. Get the text input from the user and convert into voice.
- 15. Write a program to implement chatting.

- To learn Install the Database and Back up and recover data.
- To administer users and manage data.
- To transport data between databases and configure the network.
- To optimize schemas, tables, indexes and views
- To manage database services and clients
- To take backup and perform recovery.

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Create, maintain and manipulate an Oracle Database.
- 2. Understand various schema and transaction methods
- 3. Understand and implement connectivity and user management
- 4. Create and understand the application of user roles, privileges, and the security of the database.
- 5. Understand various concept involved in database security
- 6. Understand and perform backup and recovery process

UNIT I

Oracle DBA's: The Oracle DBA's Role- Different DBA Job Classifications- Types of Databases, Oracle Database 10g Architecture: Oracle Database Structures- Oracle Processes-Oracle Memory Structures-Oracle Database Transaction.

Creating an Oracle Database: Create the Database- Creating the parameter file- Creating a New Database- Using a server parameter File(SPFILE)- Starting Up and Shutting Down the Database from SQL * Plus.

UNIT II

Schema Management: Type Of SQL Statements- Oracle Schemes- Table spaces- Tables-Indexes- Integrity Constraints- Views- Synonyms-Sequences- Triggers- Object information. Transaction Management: Transactions- Properties- Concurrency Control- Isolation Levels and the ISO Standard- Implementing Concurrency Control- Read Consistency.

UNIT III

Connectivity and user Management: Using SQL * Plus and iSQL*Plus-Loading and Transforming Data - Using Data Pump Export and Import- Managing the operational Oracle Database: Managing and Monitoring the operational Database- Oracle Enterprise Manager:

UNIT IV

User Management and Database Security: Managing Users- Resource Manager- Controlling Access - Auditing - Authenticating Users- Enterprise User Security .

UNIT V

Backing up Databases: Examining the Flash Recovery Area –The RMAN- Control File-Backup Tool-User Managed Backups- Database Corruption Detection- Enhanced Data Protection For Disaster Recovery-Database Recovery

Text Books

Sam R. Alapatti, 2007, Expert Oracle Database 10g Administration, Springer (India) Private Limited, New Delhi.

Loney, 2008, Oracle Database 10g DBA Handbook, Tata McGraw-Hill Education.

References

Sam Alapati, 2005, Expert Oracle Database 10g Administration, 1st Edition, Grace Wong Publishers.

- Understand various data mining functionalities
- Inculcate knowledge on data mining query languages.
- Know in detail about data mining algorithms
- Characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering.
- Learn Multidimensional schemas suitable for data warehousing
- Understand and implement classical models and algorithms in data warehouses and data mining

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Preprocess the data for mining applications
- 2. Apply the association rules for mining the data
- 3. Design and deploy appropriate classification techniques
- 4. Cluster the high dimensional data for better organization of the data
- 5. Discover the knowledge imbibed in the high dimensional system
- 6. Evaluate various mining and data warehousing techniques

UNIT I

Basic data mining tasks – data mining versus knowledge discovery in databases – data mining issues – data mining metrics – social implications of data mining – data mining from a database perspective. Data mining techniques: Introduction – a statistical perspective on data mining – similarity measures – decision trees – neural networks – genetic algorithms.

UNIT II

Classification: Introduction – Statistical – based algorithms - distance – based algorithms – decision tree - based algorithms - neural network – based algorithms –rule - based algorithms – combining techniques.

UNIT III

Clustering: Introduction – Similarity and Distance Measures – Outliers – Hierarchical Algorithms - Partitional Algorithms. Association rules: Introduction - large item sets - basic algorithms – parallel & distributed algorithms – comparing approaches- incremental rules – advanced association rules techniques – measuring the quality of rules.

UNIT IV

Data warehousing: an introduction - characteristics of a data warehouse – data marts – other aspects of data mart. Online analytical processing: introduction - OLTP & OLAP systems – data modelling –star schema for multidimensional view –data modelling – multifact star schema or snow flake schema – OLAP TOOLS – State of the market – OLAP TOOLS and the Internet

UNIT V

Developing a data WAREHOUSE: why and how to build a data warehouse –data warehouse architectural strategies and organization issues - design consideration – data content – metadata distribution of data – tools for data warehousing – performance considerations – crucial decisions in designing a data warehouse. Applications of data warehousing and data

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mining in government: Introduction - national data warehouses – other areas for data warehousing and data mining.

Text Books

Margaret H. Dunham, 2003, Data mining introductory and advanced topics, Pearson education.

C.S.R. Prabhu, Data warehousing concepts, techniques, products and a applications, 2^{nd} Edition, Prentice Hall India.

Sam Anahory and Dennis Murray, 2009, Data Warehousing in the Real World, Pearson Education, New Delhi.

Jiawei Han, Micheline Kamber, Jian Pei, 2012, Data Mining: Concepts and Techniques: Concepts and Techniques, Morgan Kaufmann Publishers

References

Arun K.Pujari, 2003, Data mining Techniques, Universities Press (India) Pvt. Ltd.

Alex Berson, Stephen J. Smith, 2001, Data warehousing, data mining, & OLAP, TMCH.

Jiawei Han & Micheline Kamber, 2001, Data mining Concepts & Techniques, Academic press.

			Seme	ster	V	
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15ITU505C	Core Elective – II	Big Data Analytics	5 0	0	5	

- To provide an overview of an exciting growing field of big data analytics.
- To impart to students the skills required to design scalable systems that can accept, store, and analyze large volumes of unstructured data.
- The objective of this course is to ascertain that the students know the fundamental techniques and tools used to design and analyze large volumes of data.
- To teach the fundamental techniques and principles in achieving big data analytics with scalability and streaming capability.
- To enable students to have skills that will help them to solve complex real-world problems in for decision support.
- To understand, and practice big data analytics and machine learning approaches

Course Outcomes (COs)

After completion of this course, the students will be able to:

- 1. Explain the motivation for big data systems and identify the main sources of Big Data in the real world.
- 2. Demonstrate an ability to use frameworks Hadoop to efficiently store retrieve and process Big Data for Analytics.
- 3. Implement several Data Intensive tasks using the Map Reduce Paradigm
- 4. Understand the key issues in big data management and its associated applications in intelligent business and scientific computing.
- 5. Interpret business models and scientific computing paradigms, and apply software tools for big data analytics.
- 6. Achieve adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc.

UNIT I

Introduction to Big Data : Introduction to BigData Platform – Challenges of Conventional Systems - Intelligent data analysis – Nature of Data - Analytic Processes and Tools - Analysis vs. Reporting - Modern Data Analytic Tools - Statistical Concepts: Sampling Distributions - Re-Sampling - Statistical Inference - Prediction Error.

UNIT II

Mining Data Streams: Introduction To Streams Concepts – Stream Data Model and Architecture - Stream Computing - Sampling Data in a Stream – Filtering Streams – Counting Distinct Elements in a Stream – Estimating Moments – Counting Oneness in a Window – Decaying Window - Real time Analytics Platform(RTAP) Applications - Case Studies - Real Time Sentiment Analysis, Stock Market Predictions.

UNIT III

Hadoop: History of Hadoop- The Hadoop Distributed File System – Components of Hadoop- Analyzing the Data with Hadoop- Scaling Out- Hadoop Streaming- Design of HDFS-Java interfaces to HDFS- Basics-Developing a Map Reduce Application-How Map Reduce Works-Anatomy of a Map Reduce Job run-Failures-Job Scheduling-Shuffle and Sort – Task execution - Map Reduce Types and Formats- Map Reduce Features

UNIT IV

Hadoop Environment: Setting up a Hadoop Cluster - Cluster specification - Cluster Setup and Installation – Hadoop Configuration-Security in Hadoop - Administering Hadoop – HDFS - Monitoring-Maintenance-Hadoop benchmarks- Hadoop in the cloud

UNIT V

Frameworks: Applications on Big Data Using Pig and Hive – Data processing operators in Pig – Hive services – HiveQL – Querying Data in Hive - fundamentals of HBase and ZooKeeper - IBM InfoSphere BigInsights and Streams. Visualizations - Visual data analysis techniques, interaction techniques; Systems and applications

Text Books

Tom White, 2012, Hadoop: The Definitive Guide, 3rd Edition, O'reilly Media.

Michael Berthold and David J. Hand, 2007, Intelligent Data Analysis, Springer.

References.

Chris Eaton, Dirk DeRoos, Tom Deutsch, George Lapis, Paul Zikopoulos, 2012, Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data, McGraw Hill Publishing.

Anand Rajaraman and Jeffrey David Ullman, 2012, Mining of Massive Datasets, Cambridge University Press.

- Able to share and view information within the organization
- To have access to the intranet all the time.
- Promote fundamental concepts within the company over intranet
- Cost effective, saves money this is one of the greatest benefits of the intranet.
- Messages, event and information can be placed on the intranet as they are quick. This saves time.
- To learn to maintain database and its applications

Course Outcomes (COs)

After completion of this course, the students will be able to:

- 1. Understand the advantage of intranet over groupware technologies
- 2. Understand the concept of sharing of files over Intranet
- 3. Work on Intranet chat tools and Intranet phones
- 4. Gain knowledge over the Intranet usage of Group scheduling, Message boards, News Feeds and other applications
- 5. Understand how to integrate intranet with existing applications
- 6. Understand impact to f security issues and its mechanisms

UNIT I

Introduction: Intranets: Internet Definition – The Internet in Action – Intranets Versus traditional Groupware – Client server basics and Theory. Building Intranet – Server Software – Starting with the Server – Connectivity – wide area networks – Selecting an Intranet Service Provider – Client Issues – Security.

UNIT II

Applications: Business applications – Viewing corporate Information with HTML – Authoring Tool – Creating a Dynamic & Functional site – Presentations: PDF – SGML-Audio – Video.

UNIT III

Intranet: Intranet Corporate data – Sharing files – using databases – Direct access. Communication – E-Mail – Intranet chat tools – Intranet phones.

UNIT IV

Intranet applications: Developing Intranet applications – Intranet tools – Creating real word applications – Group scheduling – Message boards – Contact Databases – Alert messaging and real time chat – News Feeds – Group Document creation and Editing – Private Messaging areas – Document submission – Search functions – Help Desk – Reference Desk.

UNIT V

Administering Intranet: Integrating existing applications – Maintaining a user Databases – Designing a successful file structure – Maintaining Security – Hardware and software upgrades – the Future of Intranets.

Text Book

David Garrett, 1998, Intranet Unleased, 2nd Edition, Techmedia publication, New Delhi.[Unit-I(3-220), Unit-II(299-390), Unit-III(393-499), Unit-IV(513-698), Unit-V(701-802)]

References

Dasgupta, Subhasish. 2001. Managing Internet and Intranet Technologies in Organizations: Challenges and opportunities, 1st Edition, Idea Group Publishing.

Rolf Oppliger, 2002, Internet and Intranet Security, 2nd edition, Artech House Inc.

- To understand the various characteristics of Intelligent agents
- To learn about the different search strategies in AI
- To learn to represent knowledge in solving AI problems
- To understand the different ways of designing software agents
- To know about the various applications of AI.
- Understand the various searching techniques, constraint satisfaction problem and example problems- game playing techniques.

Course Outcomes (COs)

At the end of the course, the student should be able to:

- 1. Identify problems that are amenable to solution by AI methods.
- 2. Identify appropriate AI methods to solve a given problem.
- 3. Formalize a given problem in the language/framework of different AI methods.
- 4. Implement basic AI algorithms.
- 5. Design and carry out an empirical evaluation of different algorithms on a problem formalization, and state the conclusions that the evaluation supports.
- 6. Ability to apply knowledge representation, reasoning, and machine learning techniques to real-world problems

UNIT I

What is Artificial Intelligence?: The AI Problems - The Underlying Assumption - What is an AI Technique? - The Level of the Model - Criteria for Success.

Problems, Problem Spaces , and Search: Defining the Problem as a State Space Search -Production Systems - Problem Characteristics - Production System Characteristics - Issues in the Design Of Search Programs.

UNIT II

Heuristic Search Techniques: Generate-and-Test - Hill Climbing - Best-First Search - Problem Reduction - Constraint Satisfaction - Means-Ends Analysis

UNIT III

Knowledge Representation Issues: Representations and Mappings - Approaches to Knowledge Representation - Issues in Knowledge Representation - The Frame Problem. *Using Predicate Logic:* Representing Simple Facts in Logic - Representing Instance and Isa Relationships - Computable Functions and Predicates – Resolution - Natural Deduction. *Weak Slot-and-Filler Structures:* Semantic Nets - Frames. *Strong Slot-and-Filler Structures:* Conceptual Dependency - Scripts – CYC.

UNIT IV

Lisp: Why Lisp? – Lisps - Typing at Lisp - Defining Programs - Basic Flow of Control in Lisp - Lisp Style - Atoms and Lists - Building Up List Structure - More on Predicates – Properties - The for function – Recursion - Scope of Variables

UNIT V

Expert Systems: A Little History - Features Of an Expert System – Players in the Expert System Use of Expert Systems - Real Experts Vs Expert Systems. Organizing Knowledge - Representing Knowledge. Expert Systems Vs Conventional Programs: Basic Characteristics of an Expert System, Expert Systems Make Mistakes.

Expert System Applications: Basic Activities Of Expert Systems - The Types Of Problems that Expert Systems Solve. Application-*Oriented AI Research:* Medicine – Overview - Medical Systems: MYCIN

Text Books

Elaine Rich, Kavin Knight and Shiva Shankar B. Nair, 2009, Artificial Intelligence, 3rd Edition, Tata McGraw Hill Publishing Company Limited, New Delhi.(Page Nos.: 4-20, 25-47; 50-74; 79-96; 99-125; 128-142, 422-429)

Nils J.Nilsson, 2013, Artificial Intelligence A New Synthesis, Morgan Kaufmann Publishers. Inc.

Elaine Rich, Kevin Knight, 1999, Artificial Intelligence, ,7th Edition, Tata McGraw-Hill.(Unit I, Unit II, Unit III)

Eugene Charniak, Drew McDermott, 1998, Introduction to Artificial Intelligence, Addison-wesley.(Unit IV)

Donald A. Waterman, 2004, A Guide To Expert Systems, 5th Edition, Pearson Education.(Unit V)

Avron Barr, Edward A.Feigenbaum, 1986, The Handbook of Artificial Intelligence, Addison-Wesley Publishing Company(Unit V)

References

Nils J.Nilsson, 2003, Artificial Intelligence: A New Synthesis, Morgan Kaufmann Publishers.

Ben Coppin, 2005, Artificial Intelligence Illuminated, Narosa Publishing House Pvt.Ltd.

		Semester vi
		LTPC
15ITU602	Multimedia and its Applications	5 0 0 5

• To understand the multimedia communications systems, application and basic principles,

Come agt on VI

- To analyze of the multimedia streaming,
- To perform and establish multimedia communication terminals,
- To present multimedia communications
- Explore a brief history of multimedia in education
- Analyze instructional and informational media (print materials, audio/visual materials and/or web-based materials, games/simulations, etc.)

Course Outcomes (COs)

Upon successful completion the student will be able to:

- 1. Define multimedia to potential clients.
- 2. Identify and describe the function of the general skill sets in the multimedia industry.
- 3. Identify the basic components of a multimedia project.
- 4. Identify the basic hardware and software requirements for multimedia development and playback.
- 5. Describe the process of digitizing (quantization) of different analog signals (text, graphics, sound and video).
- 6. Use appropriate tools for the design, development and creation of digital media artefacts.

UNIT I

Multimedia – An overview: Introduction – Multimedia presentation and production – Characteristics of Multimedia presentation – Hardware and Software Requirements – Uses of Multimedia. Text: Types of text - Font - Text File formats. Image: Image data representation – Image file formats – Image processing software. Graphics: Advantages of graphics – Uses – Components of a graphics system.

UNIT II

Audio: Sound waves – Types and properties of sound – Components of audio system – Digital audio - Musical Instrument Digital Interface (MIDI) – Audio file formats – Audio processing software. Video: Motion video – Television systems – Video file formats – Video processing software. Animation: Uses of animation – Computer based animation – Animation file formats – Animation software.

UNIT III

Introducing Photoshop elements: About elements – Welcome screen – Create mode – Menu bar – Toolbox – Options bar – Panels. Organizing images: Obtaining images – Tagging images - Searching for images - Opening and saving images. Selecting Areas – Layers – Text and Drawing Tools.

UNIT IV

Understanding Flash: Understanding Flash basic elements – Creating a simple animation. Learning Flash Toolbox: Learning the toolbox – Using tools. Learning Flash Panels: Understanding the panels. Using timeline and layers: Understanding how timeline works – Understanding layers. Drawing objects: Drawing lines and fills – Using colors – Rotating, skewing and scaling – Grouping objects. Creating animation – How animation works – Creating motion tweens – Creating shape tweens. Understanding masks – Creating masks.

UNIT V

Creating symbols and using the library: Learning about symbols – Creating symbols – Using libraries. Learning Basic ActionScript concepts: ActionScript basics – Data type basics. Learning basic ActionScript Programming: Applying ActionScript – Using ActionScript to Control actions – Using Actionscript to control properties – Understanding Actions and Event Handlers.

Text Books

Ranjan Parekh, 2013, Principles of Multimedia, 2nd Edition, Tata McGraw hill . (Unit I, Unit II)

Nick Vandome, 2011, Photoshop Elements 9, Tata McGraw hill. (Unit III)

Brian Underdahl, 2002, Macromedia Flash MX – A Beginners Guide, Dreamtech Press. (Unit IV, Unit V)

References

Tay Vaughan, 2002, Fundamentals of Multimedia, 5th Edition, Tata McGraw-Hill.

Bill Sanders. 2001. Flash5 Action Script, 1st Edition, DreamTech Press, New Delhi.

		Semester VI
		LTPC
15ITU611	Multimedia Lab	0 0 5 3

- To understand the multimedia communications systems, application and basic principles,
- To analyze of the multimedia streaming,
- To perform and establish multimedia communication terminals,
- To present multimedia communications
- Explore a brief history of multimedia in education
- Analyze instructional and informational media (print materials, audio/visual materials and/or web-based materials, games/simulations, etc.)

Course Outcomes (COs)

Upon successful completion the student will be able to:

- 1. Define multimedia to potential clients.
- 2. Identify and describe the function of the general skill sets in the multimedia industry.
- 3. Identify the basic components of a multimedia project.
- 4. Identify the basic hardware and software requirements for multimedia development and playback.
- 5. Describe the process of digitizing (quantization) of different analog signals (text, graphics, sound and video).
- 6. Use appropriate tools for the design, development and creation of digital media artefacts.

Flash

- 1. Change a Shape to Another Shape. (Shape Animation)
- 2. Create a Man to walk with the help of Key Frame Animation.
- 3. Change the Colors of an object with the help of Animation.
- 4. Draw a Bird with Flash tools and make it fly with key Frame Animation.
- 5. Create a Shining Stores with the help of Movie Clip.
- 6. Create an animation to represent a growing moon using frame by frame animation
- 7. Create an animation to bounce a ball on steps.
- 8. Simulate movement of a cloud.
- 9. Create Morphing between two images in Flash.
- 10. Create an Action script to execute for a event in a Flash application.

Photoshop

- 1. Create Water Drops using Photoshop.
- 2. Animate Plane Flying with the Clouds using Photoshop.
- 3. Create Plastic Surgery for Nose using Photoshop.
- 4. Create a Web Page using Photoshop
- 5. Given a picture of a flower with a background, Extract the flower and organize on a different background.
- 6. Display the given picture through your name using mask.

- To describe different parallel architectures, inter-connect networks, programming models and algorithms for common operations such as matrix-vector multiplication.
- To define problem, develop an efficient parallel algorithm to solve it.
- To analyze processors time complexity as a function of the problem size and number of processors.
- Given a parallel algorithm, an input to it, and the number of processors, show the steps performed by that algorithm on that input.
- To learn various Parallel programming languages:
- To learn parallel processing algorithms and analyze their performance

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Understand basic construction and use of parallel computers
- 2. Understand different type pf processor organizations like mesh, binary tree, hyper tree and pyramid networks
- 3. Understand parallel algorithms and key technologies.
- 4. Analyze the performance issues in parallel computing and trade-offs.
- 5. Understand, appreciate and apply parallel algorithms in problem Solving.
- 6. make of the terminology to measure the performance of parallel algorithms and parallel computers

UNIT I

Computational Demands of modern science-advent of practical parallel processing-parallel processing terminology. PRAM algorithms: A model of serial computation-PRAM model of parallel computation-PRAM algorithms: parallel reduction-list ranking-preorder tree traversal merging two sorted lists.

UNIT II

Processor organizations: mesh networks-binary tree networks-hyper tree networks-pyramid networks. Processor arrays-connection machine Multiprocessors: uniform memory access multiprocessors-non-uniform memory access multiprocessors

UNIT III

Parallel programming languages: programming parallel processes-an illustrative example-a sample application-FORTRAN 90-Fortran 90 programmer's model-Fortran 90 language features. nCUBE C: the run-time model-extensions to the c language-sample program-OCCAM programmer's model-language constructs-sample program-CLINDA-programmer's model – language constructs-sample programs

UNIT IV

Elementary parallel algorithms-classifying MIMD algorithms-reduction: hypercube SIMD model shuffle-exchange SIMD model-2-D mesh SIMD model-UMA multiprocessor model Matrix multiplication-sequential matrix multiplication-algorithms for multiprocessors

UNIT V

Sorting: Enumeration sort-lower bounds on parallel sorting-odd even transposition sort-quick sort based algorithms-parallel quick sort-hyper quick sort. Combinatorial search-divide and conquer-branch and bound-traveling salesperson problem parallel branch and bound algorithms.

Text Book

Lin and Snyder, 2008, Principles of Parallel Programming, 2nd Edition, Addison-Wesley Publication.

References

Yun Calvin Lin, Lawrence Snyder, 2008, Principles of parallel programming, 2nd Edition, Pearson/Addison Wesley Publication, India.

Lin, 2011, Principles of Parallel Programming, 3rd Edition, Addison-Wesley Publication.

			Semest	er VI
			LTP	• C
15ITU603B	Core Elective – III	Information Security	500) 5

- To provide students with basic concepts in information system and the benefits with these systems in modern society
- To differentiate between data, information, and knowledge
- To understand systems definition, systems requirements, and information needed for decision maker
- To understand several requirement and operations that the analyst needed to analyze, design, and implement the systems in what is called system development life cycle (SDLC)
- Appraise the interrelationships among elements that comprise a modern security system, including hardware, software, policies, and people
- Assess the role of strategy and policy in determining the success of information security

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Understand the basic of computer network threat and vulnerability and overview of digital crime.
- 2. Understand the various types of cyber attacks and criminals planning activities for cracking the system.
- 3. Understand the cryptography and it application and some of the important terms used in information security
- 4. Understand various Information Security Policies
- 5. Identify, Assess and control risk that occur while handling information transmission
- 6. Understand various security technologies available to handle different types of threats

UNIT I

Introduction : History, What is Information Security?, Critical Characteristics of Information, NSTISSC Security Model, Components of an Information System, Securing the Components, Balancing Security and Access, The SDLC, The Security SDLC

UNIT II

SECURITY INVESTIGATION : Need for Security, Business Needs, Threats, Attacks, Legal, Ethical and obstacles to security, Ten steps to building a secure organization.

UNIT III

Security analysis : Risk Management: Identifying and Assessing Risk, Assessing and Controlling Risk

UNIT IV

Logical Design: Blueprint for Security, Information Security Policy, Standards and Practices, ISO 17799/BS 7799, NIST Models, VISA International Security Model, Design of Security Architecture, Planning for Continuity

UNIT V

Physical Design: Security Technology, IDS, Scanning and Analysis Tools, Cryptography, Access Control Devices, Physical Security, Security and Personnel

Text books

Michael E Whitman and Herbert J Mattord, 2003, Principles of Information Security, 1st Edition, Vikas Publishing House, New Delhi,

John R. Vacca, 2013, Computer and Information Security Handbook, Elsevier.

References

Micki Krause, Harold F. Tipton, 2004, Handbook of Information Security Management, CRC Press LLC.

Stuart Mc Clure, Joel Scrambray, George Kurtz, Hacking Exposed, 2nd Edition, Tata McGraw-Hill.

- To learn the fundamental principles and practices associated with each of the agile development methods:
- To learn how agile methods scale to large and distributed projects, including the role of systems engineering. And, to learn the essentials of collaboration as they apply to agile methods.
- To perform in-depth explorations into aspects of agile development that are particularly relevant to each student through detailed discussion sessions.
- To understand the benefits and pitfalls of working in an Agile team.
- To provide a good understanding of software design and a set of software technologies and APIs.
- To understand Agile development and testing through various case studies

Course Outcomes (COs)

After completion of this course the students will be able to:

- 1. Realize the importance of interacting with business stakeholders in determining the requirements for a software system
- 2. Perform iterative software development processes: how to plan them, how to execute them.
- 3. Point out the impact of social aspects on software development success.
- 4. Develop techniques and tools for improving team collaboration and software quality.
- 5. Perform Software process improvement as an ongoing task for development teams.
- 6. Show how agile approaches can be scaled up to the enterprise level.

UNIT I

Introduction :Software is new product development – Iterative development – Risk-Driven and Client-Driven iterative planning – Time boxed iterative development – During the iteration, No changes from external stakeholders – Evolutionary and adaptive development - Evolutionary requirements analysis – Early "Top Ten" high-level requirements and skilful analysis – Evolutionary and adaptive planning – Incremental delivery – Evolutionary delivery – The most common mistake – Specific iterative and Evolutionary methods.

UNIT II

Agile And Its Significance: Agile development – Classification of methods – The agile manifesto and principles – Agile project management – Embrace communication and feedback – Simple practices and project tools – Empirical Vs defined and prescriptive process – Principle-based versus Rule-Based – Sustainable discipline: The human touch – Team as a complex adaptive system – Agile hype – Specific agile methods. The facts of change on software projects – Key motivations for iterative development – Meeting the requirements challenge iteratively – Problems with the waterfall. Research evidence

UNIT III

Agile Methodology : Method overview – Lifecycle – Work products, Roles and Practices values – Common mistakes and misunderstandings – Sample projects – Process mixtures – Adoption strategies – Fact versus fantasy – Strengths versus "Other" history.

UNIT IV

Case Study: Agile – Motivation – Evidence – Scrum – Extreme Programming – Unified Process – Evo – Practice Tips.

UNIT V

Agile Practicing and Testing: Project management – Environment – Requirements – Test – The agile alliances – The manifesto – Supporting the values – Agile testing – Nine principles and six concrete practices for testing on agile teams.

Text Books

Craig Larman, 2004, Agile and Iterative Development – A Manager's Guide, 1st Edition, Pearson Education.

Thomas Stober, Uwe Hansmann, 2010, Agile Software Development: Best Practices for Large Software Development Projects, 1st Edition, Springer Publications.

References

James Shore, Chromatic, 2008, The Art of Agile Development, 2nd edition, O'Reilly Media Inc. Publishers, USA.

- To understand fundamental concepts of computer networking.
- To familiarize with the basic taxonomy and terminology of the computer networking area.
- To understand the function of each layer of the TCP/IP protocol suite •
- To understand why a protocol is essential for communication between computers •
- To familiarize the functions of IP protocol
- To learn the requirements of IP routing and choose appropriate routing methods •

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Independently understand basic computer network technology.
- 2. Understand and explain Data Communications System and its components.
- 3. Identify the different types of network topologies and protocols.
- 4. Identify the different types of network devices and their functions within a network.
- 5. Understand and building the skills of subnetting and routing mechanisms.
- 6. Able to analyze IP addressing requirements and design an addressing scheme

UNIT I

Introduction: History of internet - Interconnecting devices - Protocols and Standards -TCP/IP protocol suite - Internetworking Devices - Routing Concept - Classful IP Addressing - Subnetting - Supernetting - Classless Addressing

UNIT II

ARP & RARP - Proxy ARP - ARP over ATM - ARP and RARP Protocol Format. IP Datagram - Fragmentation - Options - IP Datagram Format - Routing IP Datagrams -Checksum. ICMP - Types of Messages - Message Format - Error Reporting - Query -Checksum.

UNIT III

Group Management - IGMP Message - IGMP Operation - Process to Process Communication - UDP Operation - TCP Services - Flow Control.

UNIT IV

BOOTP - DHCP - Address Discovery and Binding. DNS - Name Space - DNS in Internet -Resolution – Resource Records.

UNIT V

Remote Login - FTP - SMTP - SNMP. IP over ATM Wan - Cells - Routing the Cells -ATMARP - Logical IP Subnets-VPN.

Text Book

Behrouz A. Forouzan, 2010, TCP/IP Protocol Suite, 4th Edition, Tata McGraw Hill Publication, New Delhi.

References

Andrews S Tanenbaum, 2003, Computer Networks, 4th Edition, Prentice Hall of India Private Ltd, New Delhi.

Buck Graham, 2007, TCP/IP Addressing, 2nd Edition, Harcount India Private Limited, New Delhi.

Douglas E Comer, 2000, Computer Networks and Internets, 4^{th} Edition, Pearson Education Asia, New Delhi .

William Stallings, 2007, Data and Computer Communication Network, 8th Edition, Tata McGraw Hill, New Delhi.

Web Sites

en.wikipedia.org/wiki/Internet_protocol_suite www.yale.edu/pclt/COMM/TCPIP.HTM www.w3schools.com/tcpip/default.asp

		Semester VI
		LTPC
15ITU604	J2EE	0 0 0 4

- To Architect J2EE applications using industry-recognized best practices
- To understand the importance of extension JDBC package in Enterprise Java applications.
- To Integrate J2EE applications with external systems
- To Identify and resolve J2EE security issues
- To Design and develop Web applications using JSP
- To implement and access Web Service components using EJB

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Understand J2EE technology and its applications
- 2. Understand JDBC components and its functionality
- 3. Invoke the remote methods in an application using Remote Method Invocation (RMI)
- 4. Develop a session using servlets and understand inter servlet communications
- 5. Make a reusable software component, using Java Bean
- 6. Develop a EJB application

UNIT I

Introducing J2EE basics: Need for enterprise programming– J2EE advantages – Enterprise architecture types – J2EE Multi-Tier Architecture – Architecture of J2EE – Introducing J2EE components – J2EE containers – Types of J2EE technologies .

UNIT II

Databases: JDBC objects –concept of JDBC – JDBC driver types – JDBC packages – overview of JDBC process-Database connection-statement objects - Resultset. Remote Method Invocation: RMI concept –Sever side – Client side.

UNIT III

Java servlets: simple java servlet – anatomy of a java servlet – deployment descriptor – session tracking with servlets – cookies. Inter servlet communication: chaining – tunneling.

UNIT IV

Java server pages: Introduction- JSP tags – variables and objects – methods – control statements – loops – tomcat -cookies – session objects.

UNIT V

Enterprise Java Beans: EJB container ,classes, Interfaces – Deployment descriptors – Session java Bean – Entity Java Bean- Message driven Bean.

Text books

Jim Keogh, 2012, J2EE 1.4 Complete Reference, Tata McGraw-Hill Publishing Company, New Delhi

Dreamtech Software Team, 2007, Java server programming (J2EE 1.4) Black Book, Kogent Solutions Inc.

Reference

James McGoven, Rahim Adatis & Group, 2006, J2EE 1.4 Bible, Dreamtech Publishing.

- To know the fundamentals of Knowledge Managements and its applications.
- To understand the basics of Information Security
- To know the legal, ethical and professional issues in Information Security
- To know the aspects of risk management
- To learn the Evolution of Knowledge management.
- To learn and assess various types of security threats in information security

Course Outcomes (COs)

After the completion of this course, a successful student will be able to

- 1. Identify and analyze the applications of knowledge management (KM)
- 2. Understand knowledge management models and technologies to business situations.
- 3. Create a KM system to capture and evaluate knowledge of Expert
- 4. Understand the basic concepts in information system and the benefits with these systems in modern society
- 5. Analyze information security needs of an organization.
- 6. Understand the need of security mechanism and risk management.

UNIT I

Knowledge Management Km Myths – KM Life Cycle – Understanding Knowledge – Knowledge, intelligence – Experience – Common Sense – Cognition and KM – Types of Knowledge – Expert Knowledge – Human Thinking and Learning.

UNIT II

Knowledge Management System Life Cycle Challenges in Building KM Systems – Conventional vs. KM System Life Cycle (KMSLS) – Knowledge Creation and Knowledge Architecture – Nonaka's Model of Knowledge Creation and Transformation. Knowledge Architecture.

UNIT III

Capturing Knowledge Evaluating the Expert – Developing a Relationship with Experts – Fuzzy Reasoning and the Quality of Knowledge – Knowledge Capturing Techniques, Brain Storming – Protocol Analysis – Consensus Decision Making – Repertory Grid- Concept Mapping – Blackboarding

UNITIV

Information Security History, What is Information Security ?, Critical Characteristics of Information, NSTISSC Security Model, Components of an Information System, Securing the Components, Balancing Security and Access, The SDLC, The Security SDLC.

UNIT V

Security Investigation Need for Security, Business Needs, Threats, Attacks, Legal, Ethical and Professional Issues – Risk Management: Identifying and Assessing Risk, Assessing and Controlling Risk

Text Books

Elias.M. Award & Hassan M. Ghaziri, 2008, Knowledge Management, 2nd Edition Pearson Education , India.

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Michael E Whitman and Herbert J Mattord, 2011, Principles of Information Security,2nd Edition, Vikas Publishing House, New Delhi.

References

C.W. Holsapple, 2009, Handbooks on Knowledge Management, 1st Edition, International Handbooks on Information Systems.

Guus Schreiber, 2001, Knowledge Engineering and Management,3rd Edition Universities Press.

This subject provides students with

- To learn basic system concept and definitions of system simulation and modeling
- To learn various methods to generate and test random variable
- Techniques to model and to simulate various systems
- The ability to analyze a system and to make use of the information to improve the performance.
- To learn Discrete, Poisson, Geometric, Gamma distribution methods to design a simulation model
- To learn simulation language and generate model

Course Outcomes (COs)

After the completion of this course, a successful student will be able to:

- 1. Understand the principles within computer modelling and simulation
- 2. Generate and test random number by applying various techniques
- 3. Understand and evaluate various distribution models
- 4. Create a manual simulation even scheduling
- 5. Design and evaluate simulation experiments
- 6. Implement simulation case studies and analyze the result

UNIT I

Principle of computer modeling and simulation, Monte Carlo simulation. Nature of computer modelling and simulation. Limitations of simulation, areas of application. System and environment – components of a system – Discrete and continuous systems. Models of a system – A variety of modelling approaches.

UNIT II

Random number generation, technique for generating random numbers – Midsquare method – The midproduct method – Constant multiplier technique – Additive ongruential method – Linear congruencies method – Tests for random number – The Kolmogorov Smirnov test – The chi-square test. Random variable generation – Inverse transform technique – Exponential distribution –Uniform distribution – Weibull distribution, empirical continuous distribution – Generating approximate normal variates.

UNIT III

Empirical discrete distribution – Discrete uniform distribution – Poisson distribution – Geometric distribution – Acceptance – Rejection technique for Poisson distribution – Gamma distribution.

UNIT IV

Design and evaluation of simulation experiments – Input – Output analysis – Variance reduction technique – Verification and validation of simulation models. Discrete event simulation – Concepts in discrete – event simulation – Manual simulation using event scheduling, single channel queue, two server queue, simulation of inventory problems.

UNIT V

Simulation languages - GPSS - SIMSCRIPT - SIMULA - Programming for discrete

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event systems in GPSS and C. Case Study : Simulation of LAN – Manufacturing system – Hospital management system.

Text Books

Jerry Banks and John S. Carson II, 1984, Discrete Event System Simulation, Prentice Hall Inc.

Narsingh Deo, 1979, System Simulation with Digital Computer, Prentice Hall of India.

Andrei Borshchev, 2013, The Big Book of Simulation Modeling: Multimethod Modeling with AnyLogic 6, AnyLogic North America.

References

Peter Fritzson, August 2011, Introduction to Modeling and Simulation of Technical and Physical Systems with Modelica, Wiley-IEEE Press.

Francis Neelamkovil, 1987, Computer Simulation and Modeling, John Wiley & Sons,.

Averil M. Law and W. David Kelton, 1991, Simulation Modeling and Analysis, McGraw Hill International Editions.