BACHELOR OF TECHNOLOGY

Computer Science and Engineering

COURSE STRUCTURE & SYLLABUS

(Batches admitted from the Academic Year 2020 -2021)

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(Autonomous Institution-UGC, Govt. of India)

Accredited by NBA & NAAC with 'A' Grade, UGC, Govt. of India

NIRF Indian Ranking–2020, Accepted by MHRD, Govt. of India

Band Excellent- National Ranking by ARIIA, MHRD, Govt. of India

Affiliated to JNTUH, Approved by AICTE, ISO 9001:2015 Certified Institution, 2nd Rank CSR,

AAAA+ Rated by Digital Learning Magazine, AAA+ Rated by Careers 360 Magazine

Platinum Rated by AICTE-CII Survey, National Ranking-Top 100 Rank band by Outlook,

National Ranking-Top 100 Rank band by Times News Magazine,

141 Natinal Ranking by India Today Magazing

Maisammaguda, Dhullapally, Secunderabad, Kompally-500100

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AAAA+ Rated by Digital Learning Magazine, AAA+ Rated by Careers 360 Magazine
6th Rank CSR, Platinum Rated by AICTE-CII Survey, Top 100 Rank band by ARIIA, MHRD, Govt. of India
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COURSE STRUCTURE
I Year B. Tech – I Semester (I Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks INT	Max. Marks EXT
1	2000BS01	Mathematics – I	3	1	0	4	30	70
2	2000BS05	Applied Physics	3	1	0	4	30	70
3	2005ES01	Programming for Problem Solving	3	1	0	4	30	70
4	2003ES01	Engineering Drawing	1	0	4	3	30	70
5	2000BS61	Applied Physics Lab	0	0	3	1.5	30	70
6	2005ES61	Programming for Problem Solving Lab	-	0	3	1.5	30	70
7	2000MC01	Environmental Science*	3	0	0	0	100	0
		Induction Programme						
		TOTAL	**13**	**3**	**10**	**18**	**280**	**420**

I Year B. Tech – II Semester(II Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks INT	Max. Marks EXT
1	2000BS02	Mathematics – II	3	1	0	4	30	70
2	2005ES02	Python Programming	3	1	0	4	30	70
3	2000HS01	English	2	0	0	2	30	70
4	2002ES01	Basic Electrical Engineering	3	0	0	3	30	70
5	2003ES61	Engineering Workshop	1	0	3	2.5	30	70
6	2002ES61	Basic Electrical Engineering Lab	0	0	2	1	30	70
7	2005ES62	Python Programming Lab	0	0	3	1.5	30	70
8	2000HS61	English Language & Communication Skills Lab	0	0	2	1	30	70
9	2000MC02	French Language*	2	0	0	0	100	0
		TOTAL	**12**	**2**	**10**	**19**	**340**	**560**

Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree

II Year B. Tech – I Semester (III Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1	2000BS04	Probability &Statistics	3	1	0	4	30	70
2	2004ES01	Analog & Digital Electronic Circuits	3	0	0	3	30	70
3	2005PC01	Data Structures & Algorithms	3	0	0	3	30	70
4	2005PC02	Operating System	3	0	0	3	30	70
5	2005PC03	Discrete Mathematics	3	0	0	3	30	70
6	2005PC61	Data Structures & Algorithms Lab	0	0	3	1.5	30	70
7	2005PC62	Operating System Lab	0	0	3	1.5	30	70
8	2000MC03	Human values and Professional Ethics	2	0	0	0	100	0
		TOTAL	**17**	**1**	**6**	**19**	**310**	**490**

Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree

II Year B. Tech – II Semester (IV Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1.	2000HS03	Managerial Economics and Financial Analysis	3	0	0	3	30	70
2.	2005PC05	Software Engineering	3	0	0	3	30	70
3.	2005PC06	Computer Organization	3	0	0	3	30	70
4.	2005PC04	Object Oriented Programming through Java	3	0	0	3	30	70
5.	2005PC07	Formal Language & Automata Theory	3	0	0	3	30	70
6.	2005PC08	Database Management Systems	3	0	0	3	30	70
7.	2005PC63	Object Oriented Programming through Java Lab	0	0	3	1.5	30	70
8.	2005PC64	Database Management Systems Lab	0	0	3	1.5	30	70
9.	2000MC04	Indian Constitution *	2	0	0	0	100	0
		TOTAL	**20**	**0**	**6**	**21**	**340**	**560**

Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree

III Year B. Tech – I Semester (V Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks INT	Max. Marks EXT
1	2000HS04	Management Science	3	0	0	3	30	70
2	2005PC09	Compiler Design	3	0	0	3	30	70
3	2005PC10	Design and Analysis of Algorithms	3	0	0	3	30	70
4	2005PC11	Computer Networks	3	0	0	3	30	70
5		Professional Elective-1	3	0	0	3	30	70
6		Open Elective-I	3	0	0	3	30	70
7	2005PC65	Design and Analysis of Algorithms Lab	0	0	3	1.5	30	70
8	2005PC66	Computer Networks Lab	0	0	3	1.5	30	70
9	2000MC05	Technical Communications and Soft Skills*	2	0	0	0	100	0
		TOTAL	**20**	**0**	**6**	**21**	**340**	**560**

Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree

III Year B. Tech – II Semester (VI Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks INT	Max. Marks EXT
1	2000HS02	Professional English	3	0	0	3	30	70
2	2012PC01	Data Warehousing and Data Mining	3	0	0	3	30	70
3	2012PC02	Web Technologies	3	0	0	3	30	70
4		Professional Elective - 2	3	0	0	3	30	70
5		Professional Elective-3	3	0	0	3	30	70
6		Open Elective - 2	3	0	0	3	30	70
7	2012PC61	Data Warehousing and Data Mining Lab	0	0	3	1.5	30	70
8	2012PC62	Web Technologies Lab	0	0	3	1.5	30	70
9	2000MC06	Indian Tradition Knowledge *	2	0	0	0	100	0
		TOTAL	20	0	6	21	340	560

Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree Industry Oriented Mini Project/ Internship - During Summer Vacation-Evaluation in

IV Year B. Tech – I Semester (VIISemester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1	2005PC12	Machine Learning	3	0	0	3	30	70
2	2005PC13	Information Security	3	1	0	4	30	70
3		Professional Elective -4	3	0	0	3	30	70
4		Open Electives-3	3	0	0	3	30	70
5	2005PC67	Machine Learning Lab	0	0	3	1.5	30	70
6	2005PC68	Information Security Lab	0	0	3	1.5	30	70
7	2005PR01	Industry Oriented Mini Project / Internship	0	0	0	2	30	70
8	2005PR02	Project-I	0	0	8	4	30	70
		TOTAL	**12**	**0**	**14**	**22**	**340**	**560**

Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree
*Summer between III & IV Year: Mini Project

IV Year B. Tech – II Semester (VIII Semester)

S. No	Subject Code	Subject	L	T	P	C	Max. Marks	
							INT	EXT
1		Professional Elective-V	3	0	0	3	30	70
2		Professional Elective-VI	3	0	0	3	30	70
3		Open Elective -4	3	0	0	3	30	70
4	2005PR03	Technical Seminar	0	0	0	2	100	0
5	2005PR05	Project-II	0	0	12	6	30	70
6	2005PR04	Innovation Startup & Entrepreneurship	0	0	4	2	30	70
		TOTAL	**9**	**0**	**12**	**19**	**220**	**280**

Semester	I-I	I-II	II-I	II-II	III-I	III-II	IV-I	IV-II	TOTAL
Credits	18	19	19	21	21	21	22	19	160

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PROFESSIONAL ELECTIVES

PROFESSIONAL ELECTIVES					
Professional Elective –I		**Professional Elective –II**		**Professional Elective -III**	
2005PE01	Artificial Neural Networks	2005PE03	Principles Natural language Processing	2005PE05	Pattern Recognition
2012PE01	Foundations of Data Science	2012PE02	Social Network Analytics	2012PE03	Web Mining
2005PE02	Graphics & Multimedia	2005PE04	Mobile Computing	2005PE06	Real-Time Systems
Professional Elective –IV		**Professional Elective –V**		**Professional Elective –VI**	
2005PE07	Computer Vision	2005PE09	Deep Learning	2005PE11	Web Services
2012PE04	Business Analytics	2012PE05	Big Data Analytics	2012PE06	Distributed Trust and Block Chain Technology
2005PE08	Cloud Computing	2005PE10	Soft Computing	2005PE12	Internet of Things

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000BS01) MATHEMATICS – I

B.Tech. I YearI Sem   **L T PC**

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Course Objectives: To learn

- Types of Matrices and their properties, concept of a rank of the matrix and applying this concept to know the consistency and solving the system of linear equations.

- Concept of Eigen values and Eigenvectors and to reduce the quadratic form to canonical form.

- Geometrical approach to the mean value theorems, their application to the mathematical problems and Evaluation of improper integrals using Beta and Gamma functions

- Partial differentiation, concept of total derivative, finding maxima and minima of function of two and three variables.

- Evaluation of multiple integrals and their applications.

Course Outcomes:

After learning the contents of this paper, the student must be able to

- Write the matrix representation of a set of linear equations and to analyse the solution of the system of equations

- Find the Eigen values and Eigen vectorsand reduce the quadratic form to canonical form using orthogonal transformations.

- Solve the applications on mean value theorems and evaluate the improper integrals using Beta and Gamma functions

- Find the extreme values of functions of two variables with/ without constraints.

- Evaluate the multiple integrals and apply the concept to find areas, volumes.

UNIT-I:

Matrices: Types of Matrices, Symmetric; Skew-symmetric; Hermitian;Skew-Hermitian; Orthogonal matrices; Unitary Matrices; Rank of a matrix by Echelon form and Normal form, Inverse of Non-singular matrices by Gauss-Jordan method; System of linear equations; Solving system of Homogeneous and Non-Homogeneous equations. Gauss elimination method;Gauss Seidel Iteration Method.

UNIT-II:

Eigen values and Eigen vectors: Eigen values and Eigenvectors and their properties; Diagonalization of a matrix; Cayley-Hamilton Theorem (without proof); Finding inverse and power of a matrix by Cayley-Hamilton Theorem; Linear Transformation and Orthogonal Transformation; Quadratic forms and Nature of the Quadratic Forms; Reduction of Quadratic form to Canonical form by Orthogonal Transformation.

UNIT-III:

Differential Calculus: Rolle'smean value theorem (without proof), Lagrange's Mean value theorem(without proof)with their Geometrical Interpretation, Cauchy's Mean value Theorem (without proof). Taylor'sseries,Maclaurin'sseries. Definition of Improper Integral; Definition of Beta and Gamma functions, properties, relation between them and evaluation of integrals using Beta and Gamma functions.

UNIT-IV:

Multivariable Calculus: Definitions of Limit and Continuity. Partial Differentiation; Euler's Theorem; Total derivative; Jacobian; Functional dependence & independence, Maxima and minima of functions of two variables and three variables using method of Lagrange multipliers.

UNIT-V:

Multiple Integrals: Evaluation of Double Integrals (Cartesian and Polar coordinates); Change of order of integration (only Cartesian form); Evaluation of Triple Integrals: Change of variables (Cartesian to polar) for double and (Cartesian to Spherical and Cylindrical polar coordinates) for triple integrals. Areas (by double integrals) and Volumes (by double integrals and triple integrals).

TEXTBOOKS:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36thEdition, 2010.

2. R. K. Jain and S.R.K. Iyengar, Advanced Engineering Mathematics,Narosa Pubishers, 4th Edition, 2014.

REFERENCES:

1. Michael Greenberg, Advanced Engineering Mathematics, Pearson Education, 2nd Edition, 1998.
2. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons, 9thEdition,2006.
3. Ramana B.V., Higher Engineering Mathematics, Tata McGraw Hill New Delhi,11thReprint, 2017.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000BS05) APPLIED PHYSICS

B.Tech. I YearI Sem   L T P C

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Course Objectives:
- Students will demonstrate skills in scientific inquiry, problem solving and laboratory techniques.
- Students will be able to demonstrate competency and understanding of the concepts found in Quantum Mechanics, Fiber optics and lasers, Semiconductor physics.
- The graduates will be able to solve non-traditional problems that potentially draw on knowledge in multiple areas of physics.
- To study applications in engineering like memory devices, transformer core and electromagnetic machinery.

Course Outcomes: Upon graduation:
- The student would be able to learn the fundamental concepts on Quantum behaviour of matter in its micro state.
- The knowledge of fundamentals of Semiconductor physics, Electronic devices, Lasers and fibre optics enable the students to apply to various systems like communications, solar cell, photo cells and so on.
- Design, characterization and study of properties of material help the students to prepare new materials for various engineering applications.
- The course also helps the students to have exposure on dielectric materials and magnetic materials.

UNIT-I: Quantum Mechanics :

Introduction to quantum physics, Black body radiation, Photoelectric effect,   Compton effect experiment and Compton shift, de-Broglie's hypothesis, Wave-particle duality, Davisson and Germer experiment, Heisenberg's Uncertainty principle, Wave function and its physical significance, Schrodinger's time independent wave equation, Particle in one dimensional box.

UNIT-II: Semiconductor Physics :

Intrinsic and Extrinsic semiconductors, Fermi level in intrinsic and extrinsic semiconductors, calculation of carrier concentration in intrinsic and extrinsic semiconductors, Carrier generation and recombination, Carrier transport: diffusion and drift, Hall effect: determination of Hall coefficient and experiment, Hall voltage, direct and indirect band gap semiconductors, p-n junction diode: energy band diagram for open and closed circuits , Zener diode and its V-I Characteristics and applications.

UNIT-III: Optoelectronics :

Radiative and non-radiative recombination mechanisms in semiconductors, LED and Device structure, Materials, Characteristics and figures of merit, Semiconductor photo detectors: Solar cell, PIN and Avalanche and their structure , Materials, working principle and Characteristics and applications.

UNIT-IV: Lasers and Fiber Optics :

Lasers: Characteristics of Lasers, interaction of radiation with matter: stimulated absorption, spontaneous and stimulated emission, Einstein's relations, Principle and working of Laser: Population inversion, Pumping mechanisms, Types of Lasers: Ruby laser, He-Ne laser, Semiconductor lasers, Applications of laser. Fiber Optics: Introduction Optical fiber, Optical fiber as a dielectric wave guide, Total internal reflection, Acceptance angle, Acceptance cone and Numerical aperture, mode and transmission of signal through Step and Graded index fibers, Losses associated with optical fibers, Applications of optical fibers in communication system (block diagram) and in other fields.

UNIT-V: Dielectric and Magnetic Properties of Materials

Electric dipole, dipole moment, dielectric constant, polarizability, electric displacement, electric susceptibility, types of polarization: electronic, ionic and orientation (qualitative) polarizations, calculation of polarizabilities of electronic and ionic polarization, Internal fields in a solid, Clausius-Mossotti equation, Ferroelectrics, Piezo electrics and Pyro electrics, Applications of dielectrics, Magnetization, field intensity, magnetic field induction, permeability and susceptibility, Bohr magneton, Classification of magnetic materials on the basis of magnetic moment, hysteresis curve based on domain theory, soft and hard magnetic materials, applications of magnetic materials.

TEXT BOOKS:

1. Engineering Physics, B.K. Pandey, S. Chaturvedi - Cengage Learing.
2. Halliday and Resnick, Physics - Wiley.
3. A textbook of Engineering Physics, Dr. M. N. Avadhanulu, Dr. P.G. Kshirsagar - S. Chand

REFERENCES:

1. Richard Robinett, Quantum Mechanics
2. J. Singh, Semiconductor Optoelectronics: Physics and Technology, Mc Graw-Hill inc. (1995).
3. Online Course: "Optoelectronic Materials and Devices" by Monica Katiyar and Deepak Guptha on NPTEL
4. "Semiconductor Physics And Devices", Mc Graw Hill, 4th Edition by Donald Neamen

5. Introduction to Solid State Physics by Charles kittel, wiley student edition.
6. S.M. Sze, Semiconductor Devices: Physics and Technology, wiley (2008

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005ES01): PROGRAMMING FOR PROBLEM SOLVING

B.Tech. I YearI Sem   **L T PC**
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Course Objectives:
- To learn the fundamentals ofcomputers.
- To understand the various steps in programdevelopment.
- To learn the syntax and semantics of C programminglanguage.
- To learn the usage of structured programming approach in solvingproblems.

Course Outcomes: The student will learn
- To write algorithms and to draw flowcharts for solvingproblems.
- To convert the algorithms/flowcharts to C programs.
- To code and test a given logic in C programminglanguage.
- To decompose a problem into functions and to develop modular reusablecode.
- To use arrays, pointers, strings and structures to write Cprograms.
- Searching and sortingproblems.

UNIT I:
Introduction: Introduction to components of a computer system: disks, primary and secondary memory, processor, operating system, compilers, creating, compiling and executing a program etc., Number systems.
Introduction to Algorithms: steps to solve logical and numerical problems. Representation of Algorithm, Flowchart/Pseudo code with examples, Program design and structured programming. Introduction to C Programming Language:
Structure of a C program, Identifiers, variables (with data types and space requirements), Syntax and Logical Errors in compilation, object and executable code, Operators- Arithmetic operators, relational and logical operators, increment and decrement operators, Bitwise operators, conditional operator, assignment operator, expressions and precedence, Expression evaluation, type conversion, typedef, The main method and command line arguments.
I/O: Simple input and output with scanf and printf, formatted I/O, Introduction to stdin, stdout and stderr.

UNIT II:
Conditional Branching and Loops: Writing and evaluation of conditionals and consequent branching with if, if-else, switch-case, ternary operator, goto, Iteration with for, while, do while loops
Arrays: one and two dimensional arrays, creating, accessing and manipulating elements of arrays.

Strings: Introduction to strings, handling strings as array of characters, basic string functions available in C (strlen, strcat, strcpy, strstr etc.), arrays of strings

UNIT – III
Functions: Designing structured programs, declaring a function, Signature of a function, Parameters and return type of a function, passing parameters to functions, call by value, Passing arrays to functions, passing pointers to functions, idea of call by reference, Some C standard functions and libraries, Passing 1-D arrays, 2-D arrays tofunctions
Recursion: Simple programs, such as Finding Factorial, Fibonacci series, Towers of Hanoi etc., Limitations of Recursive functions.
Storage Classes - extern, auto, register, static, scope rules, block structure.

UNIT IV:
Structures: Defining structures, initializing structures, unions, Array of structures
Pointers: Idea of pointers, Defining pointers, Pointers to Arrays and Structures, pointers to pointers ,Use of Pointers in self-referential structures, usage of self referential structures in linked list (no implementation) Enumeration data type and bit-fields.
Dynamic Memory Management functions, Preprocessing Directives, Preprocessor: Commonly used Preprocessor commands like include, define, undef, if, ifdef, ifndef .

UNIT – V
File Handling: Files: Text and Binary files, Creating and Reading and writing text and binary files, Appending data to existing files, Writing and reading structures using binary files, Random access using fseek, ftell and rewind functions
Introduction to Algorithms: Algorithms for finding roots of quadratic equations, finding minimum and maximum numbers of a given set, finding if a number is prime number, etc. Basic searching in an array of elements (linear and binary search techniques), Basic algorithms to sort array of elements (Bubble, Insertion and Selection sort algorithms), Basic concept of order of complexity through the example programs

Text Books:
1. Computer Science: A Structured Programming Approach Using C, B. A. ForouzanandR. F. Gilberg, Third Edition, CengageLearning.
2. Programming in C. P. Dey and M Ghosh , Second Edition, Oxford UniversityPress.

Reference Books:
1. The C Programming Language, B.W. Kernighan and Dennis M. Ritchie, Second Edition, Pearsoneducation.
2. Programmingwith C, B. Gottfried, 3rd edition, Schaum's outlines, McGraw Hill Education (India) PvtLtd.
3. C From Theory to Practice, G S. Tselikis and N D. Tselikas,CRCPress.
4. Basic computation and Programming with C, Subrata Saha and S. Mukherjee, CambridgeUniversityPress

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2003ES01) ENGINEERIG DRAWING

B.Tech. I Year.   L / T/ P/ C
                                                                                   1/ 0 / 4/ 3

(2003ES01) ENGINEERING DRAWING

Course Objectives:

1. To enable the students with various concepts like Dimension, Conventions and standards related to working drawing in order to become professionally efficient and to introduce fundamental concepts of curves used in engineering,
2. Students are capable to understand the Orthographic Projections of Points and Lines and are able to improve their visualization skills so that they can apply these skills in developing the new products.
3. Understands and becomes efficient in applying the concept of Orthographic Projections of Points, Lines and Planes in industrial applications
4. Can employ freehand 3D pictorial sketching to aid in the visualization process and to efficiently communicate ideas graphically.
5. Analyze a drawing and can efficiently communicate ideas graphically and Draw the 3D views using CAD.

Course Outcomes:

1. Gets knowledge on usage of various drawing instruments and capable to draw various curves like conic curves, cycloidal curves and in-volutes.
2. Understand the Orthographic Projections of Points and Lines and are able to improve their visualization skills so that they can apply these skills in developing the new products.
3. Understand about orthographic projection and able to draw planes and solids according to orthographic projections.
4. Can employ freehand 3D pictorial sketching to aid in the visualization process and to draw the 3D views using CAD software.
5. To convert and draw the given orthographic view to isometric view using CAD software and vice versa.

Introduction to Auto CAD Software:
The Menu System, Toolbar (Standard, Object Properties, Draw, Modify and Dimension), Drawing Area (Background, Cross hairs, Coordinate System), Dialog boxes and windows, Shortcut menus (Button Bars), The Command Line, The Status Bar, Different methods of zoom as used in CAD, Select and erase objects.

UNIT-I:

Introduction to Engineering Drawing:
Principles of Engineering drawing and their significance, Conventions, Drawing Instruments
Engineering Curves: Construction of Ellipse, Parabola and Hyperbola – General and Special methods; Cycloidal curves- Epicycloids and Hypocycloids.

UNIT-II:

Orthographic Projections, Projections of Points & Straight Lines: Principles of Orthographic Projections – Conventions; Projections of Points in all positions; Projections

of lines Parallel to one Plane and Perpendicular to other Plane and Vice-versa - Inclined to one Plane andParallel to other Plane and Vice-versa - Surface Inclined to both the Planes.

UNIT-III:

Projections of Planes: Projections of Planes- Surface Parallel to one Plane and Perpendicular to other Plane and Vice-versa - SurfaceInclined to one Plane and Parallel to other Plane and Vice-versa - Surface Inclined to both the Planes.

UNIT-IV:

Projections of Regular Solids: Projections of Regular Solids-Parallel to one Plane and Perpendicular to other Plane and Vice-versa- Inclined to one Plane and Parallel to other Plane and Vice-versa- Inclined to both the Planes– Prisms, Pyramids, Cylinder and Cone.

UNIT-V:

Isometric Projections: Principles of Isometric projection – Isometric Scale, Isometric Views, Conventions; Isometric Views of lines, Planes, Simple and Compound Solids

Conversion of Isometric Views to Orthographic Views and Vice-versa, Conventions **Introduction to Solid Modeling:** Creation of simple solid models relevant to the domain.

TEXT BOOKS

1. Engineering Drawing, N.D. Bhatt – N.D. Bhatt & V.M Panchal, 48th Edition, 2005 Charotar Publishing House, Gujarat.
2. "Computer Aided Engineering Drawing"by Dr. M H Annaiah, Dr C N Chandrappa and Dr B Sudheer Premkumar Fifth edition, New Age International Publishers.

REFERENCES

1. Engineering Drawing / Basant Agarwal and McAgarwal / McGraw Hill
2. Computer Aided Engineering Drawing – S. Trymbaka Murthy, - I.K. International Publishing House Pvt. Ltd., New Delhi, 3rd revised edition-2006.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000BS61)APPLIED PHYSICS LAB

B.Tech. I YearI Sem   **LTPC**

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List of Experiments:
Note : Any 8 Experiments to be Performed

1. **Energy gap of a PN junction diode**

   To determine the energy band gap of a semiconductor p-n junction diode

2. **Solar Cell**

   Characteristics of a given Solar Cell

3. **Light Emitting Diode**

   To study the VI characteristics of a Light Emitting Diode

4. **Stewart and Gee's Experiment**

   To determine the magnetic induction at the center and at several points on the axis of a circular coil

5. **HALL Effect Experiment**

   Determination of hall coefficient and Hall voltage
   To calculate the Hall coefficient and the carrier concentration of the sample material.

6. **Photoelectric Effect**

   To determine the work function of a given material.

7. **LASER**

   To study the characteristics of LASER diode Sources.

8. **A) Optical Fiber Numerical Aperture**

   To determine the numerical Aperture (NA) of the given optical fiber

   B) Optical Fiber Bending Loss
   To determine the loss caused in optical fibers in dB due to macro bending of the fiber

9. **A) LCR series Circuit**

   To study the frequency response of LCR series circuits and to determine the Resonant Frequency.

   B) LCR Parallel Circuit

   To study the frequency response of LCR parallel circuits and to determine the Resonant Frequency.

10. **R-C Circuit**

    To determine the time constant of the given RC circuit

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005ES61) PROGRAMMING FOR PROBLEM SOLVING LAB

B.Tech. I YearI Sem   **LTPC**
                                                                    0031.5

Course Objectives: The students will learn the following:
- To work with an IDE to create, edit, compile, run and debugprograms
- To analyze the various steps in programdevelopment.
- To develop programs to solve basic problems by understanding basic concepts in C like operators, control statements etc.
- To develop modular, reusable and readable C Programs using the concepts like functions, arraysetc.
- To write programs using the Dynamic Memory Allocationconcept.
- To create, read from and write to text and binary files

Course Outcomes: The candidate is expected to be able to:
- formulate the algorithms for simpleproblems
- translate given algorithms to a working and correctprogram
- correct syntax errors as reported by thecompilers
- identify and correct logical errors encountered duringexecution
- represent and manipulate data with arrays, strings andstructures
- use pointers of differenttypes
- create, read and write to and from simple text and binaryfiles
- modularize the code with functions so that they can bereused

Practice sessions:
1. Write a simple program that prints the results of all the operators available in C (including pre/ post increment, bitwise and/or/not, etc.). Read required operand values from standard input.
2. Write a simple program that converts one given data type to another using auto conversion and casting. Take the values form standardinput.

Simple numeric problems:
a) Write a program for fiend the max and min from the threenumbers.
b) Write the program for the simple, compoundinterest.
c) WriteprogramthatdeclaresClassawardedforagivenpercentageofmarks,wheremark <40%= Failed, 40% to <60% = Second class, 60% to <70%=First class, >= 70% = Distinction. Read percentage from standardinput.
d) Writeaprogramthatprintsamultiplicationtableforagivennumberandthenumberof

rows in the table.

For example, for a number 5 and rows = 3, the output should be:

5 x 1 = 5

5 x 2=10

5 x 3=15

e) Write a program that shows the binary equivalent of a given positive number between 0 to 255.

Expression Evaluation:

i) A building has 10 floors with a floor height of 3 meters each. A ball is dropped from the top of the building. Find the time taken by the ball to reach each floor. (Use the formulas = ut+(1/2)at^2 where u and a are the initial velocity in m/sec (= 0) and acceleration in m/sec^2 (= 9.8m/s^2)).

ii) Write a C program, which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +,-,*, /, % and use SwitchStatement)

iii) Write a program that finds if a given number is a primenumber

iv) Write a C program to find the sum of individual digits of a positive integer and test given number ispalindrome.

v) A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of thesequence.

vi) Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by theuser.

vii) Write a C program to find the roots of a Quadraticequation.

viii) Write a C program to calculate the following, where x is a fractional value. 1-x/2 +x^2/4-x^3/6

ix) WriteaCprogramtoreadintwonumbers,xandn,andthencomputethesumofthis geometricprogression:1+x+x^2+x^3+..................+x^n.Forexample:ifnis3andxis5, then the program computes 1+5+25+125.

Arrays and Pointers and Functions:

a) Write a C program to find the minimum, maximum and average in an array ofintegers.

b) Write a functions to compute mean, variance, Standard Deviation, sorting of n elements in single dimensionarray.

c) Write a C program that uses functions to perform thefollowing:

i. Addition of TwoMatrices

ii. Multiplication of TwoMatrices

iii. Transpose of a matrix with memory dynamically allocated for the new matrix as row and column counts may notbesame.

d) Write C programs that use both recursive and non-recursivefunctions

To find the factorial of a giveninteger.

i) To find the GCD (greatest common divisor) of two givenintegers.

ii) To find x^n

e) Write a program for reading elements using pointer into array and display the values using array.

f) Write a program for display values reverse order from array usingpointer.

g) Write a program through pointer variable to sum of n elements fromarray.

Strings

a) Write a C program to convert a Roman numeral ranging from I to L to its decimal equivalent.

b) Write a C program that converts a number ranging from 1 to 50 to Romanequivalent

c) Write a C program that uses functions to perform the followingoperations:

- To insert a sub-string in to a given main string from a givenposition.
- To delete n Characters from a given position in a givenstring.

d) Write a C program to determine if the given string is a palindrome or not (Spelled same in both directions with or without a meaning like madam, civic, noon, abcba,etc.)

e) Write a C program that displays the position of a character ch in the string S or – 1 if S doesn't contain ch.

f) Write a C program to count the lines, words and characters in a giventext.

Structures & Unions:

a) Write a C program that uses functions to perform the following operations usingStructure

- Reading a complex number
- Writing Complex Number
- Addition of 2 ComplexNumbers
- Multiplication of two complex numbers

b) Write a C program to store information of 5 students usingstructures.

c) Write a C program to Access all structures members using pointer structurevariable.

d) Write a C program to access members ofunion?

Files

a) Write a C program to display the contents of a file to standard outputdevice.

b) Write a C program which copies one file to another, replacing all lowercase characters with their uppercaseequivalents.

c) Write a C program to count the number of times a character occurs in a text file. The file name and the character are supplied as command linearguments.

d) Write a C program that does thefollowing:

e) It should first create a binary file and store 10 integers, where the file name and 10 values aregiveninthecommandline.(hint:convertthestringsusingatoifunction)Nowthe

program asks for an index and a value from the user and the value at that index should be changed to the new value in the file. (hint: use fseek function).The program should then read all 10 values and print them back.

f) Write a C program to merge two files into a third file (i.e., the contents of the firs t file followed by those of the second are put in the thirdfile).

Miscellaneous:

a. Write a menu driven C program that allows a user to enter n numbers and then choose between finding the smallest, largest, sum, or average. The menu and all the choices are to be functions. Use a switch statement to determine what action to take. Display an error message if an invalid choice isentered.

b. Write a C Program to construct a pyramid of numbers as follows:1

```
    *          1          1          *
   * *        2 3        2 2        * *
  * * *      4 5 6      3 3 3      * * *
                       4 4 4 4    * * * *
```

c. Write a C Program implement Student Data Base System Using Files&Structures.

Sorting and Searching:

a. Write a C program that uses non recursive function to search for a Key value in a given list of integers using linear searchmethod.

b. Write a C program that uses non recursive function to search for a Key value in a given sorted list of integers using binary searchmethod.

c. Write a C program that implements the Bubble sort method to sort a given list of integers in ascendingorder.

d. Write a C program that sorts the given array of integers using selection sort in descending order

e. Write a C program that sorts the given array of integers using insertion sort in ascending order

f. Write a C program that sorts a given array ofnames

Suggested Reference Books for solving the problems:

i. Byron Gottfried, Schaum's Outline of Programming withC,McGraw-Hill

ii. B.A. Forouzan and R.F. Gilberg C Programming and Data Structures, Cengage Learning, (3rd Edition)

iii. Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language,PrenticeHall of India

iv. R.G. Dromey, How to solve it by Computer, Pearson(16thImpression)

v. Programming in C, Stephen G. Kochan, Fourth Edition,PearsonEducation.

vi. Herbert Schildt, C: The Complete Reference, Mc Graw Hill,4thEdition

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000MC01)ENVIRONMENTAL SCIENCE

B.Tech. I YearI Sem   **LTPC**

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Course Objectives:
- Understanding the importance of ecological balance for sustainabledevelopment.
- Understanding the impacts of developmental activities and mitigationmeasures.
- Understanding the environmental policies andregulations

Course Outcomes:
Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainabledevelopment.

UNIT-I
Ecosystems: Definition, Scope, and Importance of ecosystem. Classification, structure, and function of an ecosystem, Food chains, food webs, and ecological pyramids. Flow of energy, Biogeochemical cycles, Bioaccumulation, Biomagnifications, ecosystem value, services and carrying capacity, Field visits.

UNIT-II
Natural Resources: Classification of Resources: Living and Non-Living resources, **water resources:** use and over utilization of surface and ground water, floods and droughts, Dams: benefits and problems. **Mineral resources:** use and exploitation, environmental effects of extracting and using mineral resources, **Land resources:** Forest resources, **Energy resources:** growing energy needs, renewable and non renewable energy sources, use of alternate energy source, case studies.

UNIT-III
Biodiversity And Biotic Resources: Introduction, Definition, genetic, species and ecosystem diversity. Value of biodiversity; consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation, Hot spots of biodiversity. Field visit. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation. National Biodiversityact.

UNIT-IV
Environmental Pollution and Control Technologies: **Environmental Pollution:** Classification of pollution, **Air Pollution:** Primary and secondary pollutants, Automobile and Industrial pollution, Ambient air quality standards. **Water pollution**: Sources and types of

pollution, drinking water quality standards. **Soil Pollution:** Sources and types, Impacts of modern agriculture, degradation of soil. **Noise Pollution:** Sources and Health hazards,standards, **Solid waste:** Municipal Solid Waste management, composition and characteristics of e-Waste and its management. **Pollution control technologies:** Wastewater Treatment methods: Primary, secondary and Tertiary. Overview of air pollution control technologies, Concepts of bioremediation. **Global Environmental Issues and Global Efforts:** Climate change and impacts on human environment. Ozone depletion and Ozone depleting substances (ODS). Deforestation and desertification. International conventions / Protocols: Earth summit, Kyoto protocol, and Montréal Protocol. NAPCC-GoIinitiatives.

UNIT-V
Environmental Policy, Legislation & EIA: Environmental Protection act, Legal aspects Air Act- 1981, Water Act, Forest Act, Wild life Act, Municipal solid waste management and handling rules, biomedical waste management and handling rules, hazardous waste management and handling rules. EIA: EIA structure, methods of baseline data acquisition. Overview on Impacts of air, water, biological and Socio-economical aspects. Strategies for risk assessment, Concepts of Environmental Management Plan (EMP). **Towards Sustainable Future:** Concept of Sustainable Development Goals, Population and its explosion, Crazy Consumerism, Environmental Education, Urban Sprawl, Human health, Environmental Ethics, Concept of Green Building, Ecological Foot Print, Life Cycle assessment (LCA), Low carbon lifestyle.

TEXT BOOKS:
1. Textbook of Environmental Studies for Undergraduate Courses by ErachBharucha for UniversityGrants Commission.
2. Environmental Studies by R. Rajagopalan, OxfordUniversityPress.

REFERENCE BOOKS:
1. Environmental Science: towards a sustainable future by Richard T. Wright. 2008 PHL Learning Private Ltd.NewDelhi.
2. Environmental Engineering and science by Gilbert M. Masters and Wendell P. Ela. 2008 PHI LearningPvt.Ltd.
3. Environmental Science by Daniel B. Botkin & Edward A. Keller, WileyINDIAedition.
4. Environmental Studies by Anubha Kaushik, 4th Edition, New age internationalpublishers.
5. Text book of Environmental Science and Technology - Dr. M. Anji Reddy 2007, BS Publications.
6. Introduction to Environmental Science by Y.Anjaneyulu,BS.Publications.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000BS02) MATHEMATICS – II

B.Tech. I YearIISem   **L T PC**
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Course Objectives:
- To learn Methods of solving the differential equations of first and higherorder
- Evaluation of multiple integrals and theirapplications
- The physical quantities involved in engineering field related to vector valuedfunctions
- The basic properties of vector valued functions and their applications to line, surface and volumeintegrals

Course Outcomes: After learning the contents of this paper the student must be able
                   to:
- Identify whether the given differential equation of first order is exact ornot
- Solve higher differential equation and apply the concept of differential equation to real worldproblems
- Evaluate the multiple integrals and apply the concept to find areas, volumes, centre of mass and Gravity for cubes, sphere and rectangular parallelpiped
- Evaluate the line, surface and volume integrals and converting them from one toanother

UNIT-I:
First Order ODE Exact, linear and Bernoulli's equations; Applications: Newton's law of cooling, Law of natural growth and decay; Equations not of first degree: equations solvable for p, equations solvable for y, equations solvable for x and Clairaut's type.

UNIT-II:
Ordinary Differential Equations of Higher Order Second order linear differential equations with constant coefficients: Non-Homogeneous terms of the type e^{ax}, *sin ax, cos ax*, polynomials in x, $e^{ax V(x)}$and *x V(x)*, method of variation of parameters. Equations reducible to linear ODE with constant coefficients: Legendre's equation, Cauchy-Eulerequation.

UNIT-III:
Multivariable Calculus (Integration): Evaluation of Double Integrals (Cartesian and polar coordinates); change of order of integration (only Cartesian form); Evaluation of Triple Integrals: Change of variables (Cartesian to polar) for double and (Cartesian to Spherical and Cylindrical polar coordinates) for triple integrals.
Applications: Areas (by double integrals) and volumes (by double integrals and triple integrals), Centre of mass and Gravity (constant and variable densities) by double and triple integrals (applications involving cubes, sphere and rectangular parallelpiped).

UNIT-IV:

Vector Differentiation: Vector point functions and scalar point functions. Gradient, Divergence and Curl. Directional derivatives, Tangent plane and normal line. Vector Identities. Scalar potential functions. Solenoidal and Irrotational vectors.

UNIT-V:

Vector Integration: Line, Surface and Volume Integrals. Theorems of Green, Gauss and Stokes (without proofs) and their applications.

TEXT BOOKS:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36thEdition,2010
2. Erwin kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley&Sons,2006
3. G.B. Thomas and R.L. Finney, Calculus and Analytic geometry,9thEdition, Pearson,Reprint,2002.

REFERENCES:

1. Paras Ram, Engineering Mathematics, 2nd Edition, CBSPublishes
2. S. L. Ross, Differential Equations, 3rd Ed., WileyIndia,1984.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005ES02) PYTHON PROGRAMMING

B.Tech. I YearII Sem   **LTPC**

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Course Objectives:

This course will enable students to
- Learn Syntax and Semantics and create Functions inPython.
- Handle Strings and Files inPython.
- Understand Lists, Dictionaries and Regular expressions inPython.
- Implement Object Oriented Programming concepts inPython.
- Build GUI Programming inPython.
-

Course Outcomes:

The students should be able to
- Examine Python syntax and semantics and be fluent in the use of Python flow control andfunctions.
- Demonstrate proficiency in handling Strings and FileSystems.
- Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use RegularExpressions.
- Interpret the concepts of Object-Oriented Programming as used inPython.
- Implement exemplary applications related to Graphical User Interface (GUI) in Python.

UNIT I
PYTHON Programming Introduction, History of Python, Python is Derived from?, Python Features, Python Applications, Why Python is Becoming Popular Now a Day?, Existing Programming Vs Python Programming, Writing Programs in Python, Top Companies Using Python, Python Programming Modes, Interactive Mode Programming, Scripting Mode Programming, Flavors in Python, Python Versions, Download & Install the Python in Windows & Linux, How to set Python Environment in the System?, Anaconda - Data Science Distributor, Downloading and Installing Anaconda, Jupyter Notebook & Spyder, Python IDE - Jupyter Notebook Environment, Python IDE – Spyder Environment, Python Identifiers(Literals), Reserved Keywords, Variables, Comments, Lines and Indentations, Quotations, Assigning Values toVariables

UNIT II
Data Types in Python, Mutable Vs Immutable, Fundamental Data Types: int, float, complex, bool, str, Number Data Types: Decimal, Binary, Octal, Hexa Decimal & Number Conversions,

Inbuilt Functions in Python, Data Type Conversions, Priorities of Data Types in Python, Python Operators, Arithmetic Operators, Comparison (Relational) Operators, Assignment Operators, Logical Operators, Bitwise Operators, Membership Operators, Identity Operators, Slicing & Indexing, Forward Direction Slicing with +ve Step, Backward Direction Slicingwith -ve Step, Decision Making Statements, if Statement, if-else Statement, elif Statement, Looping Statements, Why we use Loops in python?, Advantages of Loops
for Loop, Nested for Loop, Using else Statement with for Loop, while Loop, Infinite while Loop, Using else with Python while Loop, Conditional Statements, break Statement, continue Statement, Pass Statement

UNIT III
Advanced Data Types: List, Tuple, Set, Frozenset, Dictionary, Range, Bytes & Bytearray, None, List Data Structure, List indexing and splitting
Updating List values, List Operations, Iterating a List, Adding Elements to the List, Removing Elements from the List, List Built-in Functions, List Built-in Methods, Tuple Data Structure, Tuple Indexing and Splitting, Tuple Operations, Tuple Inbuilt Functions, Where use Tuple, List Vs Tuple, Nesting List and Tuple, Set Data Structure, Creating a Set, Set Operations, Adding Items to the Set, Removing Items from the Set, Difference Between discard() and remove(), Union of Two Sets, Intersection of Two Sets, Difference of Two Sets, Set Comparisons, Frozenset Data Structure, Dictionary Data Structure, Creating the Dictionary, Accessing the Dictionary Values, Updating Dictionary Values, Deleting Elements Using del Keyword, Iterating Dictionary, Properties of Dictionary Keys, Built-in Dictionary Functions, Built-in Dictionary Methods, List Vs Tuple Vs Set Vs Frozenset VsDictionary
Range, Bytes, Bytearray & None

UNIT IV
Python Functions, Advantage of Functions in Python, Creating a Function, Function Calling, Parameters in Function, Call by Reference in Python, Types of Arguments, Required Arguments, Keyword Arguments, Default Arguments, Variable-Length Arguments, Scope of Variables, Python Built-in Functions, Python Lambda Functions, String with Functions, Strings Indexing andSplitting
String Operators, Python Formatting Operator, Built-in String Functions, Python File Handling, Opening a File, Reading the File, Read Lines of the File, Looping through the File, Writing the File, Creating a New FileUsing with Statement with Files, File Pointer Position, Modifying File PointerPosition
Renaming the File & Removing the File, Writing Python Output to the Files
File Related Methods, Python Exceptions, Common Exceptions, Problem without Handling Exceptions, except Statement with no Exception, Declaring Multiple Exceptions, Finally Block, Raising Exceptions, Custom Exception,

UNIT V
Python Packages, Python Libraries, Python Modules, Collection Module, Math Module, OS Module, Random Module, Statistics Module, Sys Module, Date & Time Module, Loading the Module in our Python Code, import Statement, from-import Statement, Renaming a Module, Regular Expressions, Command Line Arguments, Object Oriented Programming (OOPs), Object-oriented vs Procedure-oriented Programming languages, Object, Class, Method,

Inheritance, Polymorphism, Data Abstraction, Encapsulation, Python Class and Objects, Creating Classes in Python, Creating an Instance of the Class, Python Constructor, Creating the, Constructor in Python, Parameterized Constructor, Non-Parameterized Constructor, In-built Class Functions, In-built Class Attributes, Python Inheritance, Python Multi-Level Inheritance, Python Multiple Inheritance, Method Overriding, Data Abstraction in Python, Graphical User Interface (GUI) Programming, Python Tkinter, Tkinter Geometry, pack() Method, grid() Method, place() Method, TkinterWidgets

TEXT BOOK:

1. Core Python Programming, Wesley J. Chun, Second Edition, Pearson

REFERENCE BOOK:
1. Programming Languages, A.B. Tucker, R.E. Noonan, TMH.
2. Programming Languages, K. C. Louden and K A Lambert., 3rd edition, Cengage Learning.
3. Programming Language Concepts, C Ghezzi and M Jazayeri, Wiley India.
4. Programming Languages 2nd Edition Ravi Sethi Pearson.
5. Introduction to Programming Languages Arvind Kumar Bansal CRC Press.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000HS01) ENGLISH

B.Tech. I YearII Sem

LTPC

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INTRODUCTION

In view of the growing importance of English as a tool for global communication and the consequent emphasis on training students to acquire language skills, the syllabus of English has been designed to develop linguistic, communicative and critical thinking competencies of Engineering students.

In English classes, the focus should be on the skills development in the areas of vocabulary, grammar, reading and writing. For this, the teachers should use the prescribed text for detailed study. The students should be encouraged to read the texts leading to reading comprehension and different passages may be given for practice in the class. The time should be utilized for working out the exercises given after each excerpt, and also for supplementing the exercises with authentic materials of a similar kind, for example, newspaper articles, advertisements, promotional material etc. The focus in this syllabus is on skill development, fostering ideas and practice of language skills in various contexts and cultures.

Course Objectives:
The course will help to
a. Improve the language proficiency of students in English with an emphasis on Vocabulary, Grammar, Reading and Writing skills.
b. Enhance competencies in writing essays and gist of the passage in words.
c. Equip students to study academic subjects more effectively and critically, using the theoretical and practical components of English syllabus.
d. Develop study skills and communication skills in formal and informal situations.

Course Outcomes:
Students should be able to
1.Use English Language effectively in spoken and written forms.
2.Comprehend the given texts and respond appropriately.
3.Communicate confidently in various contexts and different cultures.
4.Acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.

UNIT –I
'The Raman Effect' from the prescribed textbook 'English for Engineers' published by Cambridge University Press.
Vocabulary Building: The Concept of Word Formation --The Use of Prefixes and Suffixes.
Grammar: Identifying Common Errors in Writing with Reference to Articles and Prepositions.
Reading: Reading and its Importance- Techniques for Effective Reading.
Basic Writing Skills: Sentence Structures - Use of Phrases and Clauses in Sentences-Importance of Proper Punctuation- Techniques for writing precisely – Paragraph writing – Types, Structures and Features of a Paragraph - Creating Coherence-Organizing Principles of Paragraphs in Documents.

UNIT –II

'Ancient Architecture in India' from the prescribed textbook 'English for Engineers' published by Cambridge University Press.

Vocabulary: Homonyms, Homophones and Homographs. Acquaintance with Prefixes and Suffixes from Foreign Languages in English to form Derivatives-Words from Foreign Languages and their Use in English.

Grammar: Identifying Common Errors in Writing with Reference to Noun-pronoun Agreement and Subject- verb Agreement.

Reading: Improving Comprehension Skills – Techniques for Good Comprehension

Writing: Format of a Formal Letter-Writing Formal Letters - E.g., Letter of Complaint, Letter of Requisition, Job Application with Resume.

UNIT –III

'Blue Jeans' from the prescribed textbook 'English for Engineers' published by Cambridge University Press.

Vocabulary: Synonyms and Antonyms

Grammar: Identifying Common Errors in Writing with Reference to Misplaced Modifiers and Tenses and Question Tags

Reading: Sub-skills of Reading- Skimming and Scanning

Writing: Nature and Style of Sensible Writing- Defining- Describing Objects, Places and Events – Classifying- Providing Examples or Evidence, E-mail writing and practices.

UNIT –IV

'What Should You Be Eating' from the prescribed textbook 'English for Engineers' published by Cambridge University Press.

Vocabulary: Idioms and phrases, Phrasal Verbs and One word substitutions

Grammar: Active voice and Passive voice- Redundancies and Clichés in Oral and Written Communication.

Reading: Comprehension- Intensive Reading and Extensive Reading

Writing: Writing Practices--Writing Introduction and Conclusion - Essay Writing-Précis Writing.

UNIT –V

'How a Chinese Billionaire Built Her Fortune' from the prescribed textbook 'English for Engineers' published by Cambridge University Press.

Vocabulary: Standard Abbreviations in English and Technical Vocabulary and their usage

Grammar: Reported speech and Common Errors in English

Reading: Reading Comprehension-Exercises for Practice

Writing: Report writing - Introduction – Characteristics of a Report – Categories of Reports, Formats- Structure of Reports (Manuscript Format) -Types of Reports - Writing a Report.

Prescribed Textbook:

1.Sudarshana, N.P. and Savitha, C. (2018). English for Engineers. Cambridge UniversityPress.

References:

1.Swan, M. (2016). Practical English Usage. Oxford UniversityPress.

2.Kumar, S and Lata, P.(2018). Communication Skills. Oxford UniversityPress.

3.Wood, F.T. (2007).Remedial English Grammar.Macmillan.

4.Zinsser, William. (2001). On Writing Well. Harper ResourceBook.

5.Hamp-Lyons, L. (2006).Study Writing. Cambridge UniversityPress.

6.Exercises in Spoken English. Parts I –III. CIEFL, Hyderabad. Oxford UniversityPress

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2002ES01) BASIC ELECTRICAL ENGINEERING

B.Tech. I YearII Sem   **L T PC**
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Course Objectives:
- To introduce the concepts of electrical circuits and itscomponents
- To understand magnetic circuits, DC circuits and AC single phase & three phasecircuits
- To study and understand the different types of DC/AC machines andTransformers.
- To import the knowledge of various electrical installations.
- To introduce the concept of power, power factor and itsimprovement.

Course Outcomes:
- To analyze and solve electrical circuits using network laws andtheorems.
- To understand and analyze basic Electric and Magneticcircuits
- To study the working principles of ElectricalMachines
- To introduce components of Low Voltage Electrical Installations

UNIT-I: D.C. Circuits
Electrical circuit elements (R, L and C), voltage and current sources, KVL&KCL, analysis of simple circuits with dc excitation. Superposition, Thevenin and Norton Theorems. Time-domain analysis of first-order RL and RC circuits.

UNIT-II: A.C. Circuits
Representation of sinusoidal waveforms, peak and rms values, phasor representation, real power, reactive power, apparent power, power factor, Analysis of single-phase ac circuits consisting of R, L, C, RL, RC, RLC combinations (series and parallel), resonance in series RL-C circuit.
Three-phase balanced circuits, voltage and current relations in star and delta connections.

UNIT-III: Transformers
Ideal and practical transformer, equivalent circuit, losses in transformers, regulation and efficiency. Auto-transformer and three-phase transformer connections.

UNIT-IV: Electrical Machines
Generation of rotating magnetic fields, Construction and working of a three-phase induction motor, Significance of torque-slip characteristic. Loss components and efficiency, starting and speed control of induction motor. Single-phase induction motor. Construction, working, torque-speed characteristic and speed control of separately excited dc motor. Construction and working   of   synchronous   generators.

UNIT-V: Electrical Installations

Components of LT Switchgear: Switch Fuse Unit (SFU), MCB, ELCB, MCCB, Types of Wires and Cables, Earthing. Types of Batteries, Important Characteristics for Batteries. Elementary calculations for energy consumption, power factor improvement and battery backup.

TEXT-BOOKS/REFERENCE-BOOKS:

1. Basic Electrical Engineering - D.P. Kothari and I.J. Nagrath, 3rd edition 2010,Tata McGraw Hill.
2. D.C. Kulshreshtha, "Basic Electrical Engineering", McGrawHill,2009.
3. L.S. Bobrow, Fundamentals of Electrical Engineering", Oxford UniversityPress,2011
4. Electrical and Electronics Technology, E. Hughes, 10th Edition,Pearson,2010
5. Electrical Engineering Fundamentals, Vincent Deltoro, Second Edition, PrenticeHall India,1989.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

B.Tech. I Year II Sem   **L / T/ P/C**

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(2003ES61) ENGINEERING WORKSHOP

Course Objectives:

1. To Study of different hand operated power tools, uses and their demonstration.
2. To gain a good basic working knowledge required for the production of various engineering products.
3. To provide hands on experience about use of different engineering materials, tools, equipment's and processes those are common in the engineering field.
4. To develop a right attitude, team working, precision and safety at workplace.
5. To study commonly used carpentry joints and to have practical exposure to various welding and joining processes.

Course Outcomes: At the end of the course, the student will be able to:

1. Study and practice on machine tools and their operations
2. Practice on manufacturing of components using workshop trades including pluming, fitting, carpentry, foundry, house wiring and welding.
3. Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.
4. Apply basic electrical engineering knowledge for house wiring practice.
5. Study commonly used carpentry joints.

I. Carpentry
   1. Cross lapjoint
   2. Mortise & tenon joint

II. Fitting
 1. V- fitting
 2. Semi - Circular Fitting

III. Tin Smithy
1. Making of Rectangular Tray
2. Making of Conical Funnel

IV. Housing wiring
1. Two points controlled by two-one way switches(parallel connection)
2. One point controlled by two-two way switches(stair case connection).

V. Foundry
1. Single piece pattern
2. Multi-piece pattern

VI. Black Smithy

1. Round to Square
2. S - Hook

Trades for Demonstration:

1. Plumbing
2. Welding
3. Machine Shop
4. Metal Cutting (WaterPlasma)

TEXT BOOKS:

1. Workshop Manual, P. Kannaiah and K. L. Narayana, 3rd Edition, Scitech,2015
2. Elements of Workshop Technology Vol.1 & 2, S. K. Hajra Choudhury, A. K. Hajra Choudhury and Nirjhar Roy, 13th Edition, Media Promoters & Publishers Pvt. Ltd., 2010.

REFERENCE BOOKS:

1. Workshop Manual / Venkat Reddy/ BSP
2. Workshop Manual / K Venu Gopal / Anuradha

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2002ES61) BASIC ELECTRICAL ENGINEERING LAB

B.Tech. I YearII Sem   **LTPC**

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Course Objectives:
- To analyze a given network by applying various electrical laws and networktheorems
- To know the response of electrical circuits for differentexcitations
- To calculate, measure and know the relation between basic electricalparameters.
- To analyze the performance characteristics of DC and AC electricalmachines

Course Outcomes:
- Get an exposure to basic electricallaws.
- Understand the response of different types of electrical circuits to differentexcitations.
- Understand the measurement, calculation and relation between the basic electrical parameters
- Understand the basic characteristics of transformers and electricalmachines.

List of experiments/demonstrations:
1. Verification of OhmsLaw
2. Verification of KVL andKCL
3. Transient Response of Series RL and RC circuits using DCexcitation
4. Transient Response of RLC Series circuit using DC excitation
5. Resonance in series RLCcircuit
6. Calculations and Verification of Impedance and Current of RL, RC and RLC seriescircuits
7. Measurement of Voltage, Current and Real Power in primary and Secondary Circuits of a Single PhaseTransformer
8. Load Test on Single Phase Transformer (Calculate Efficiency andRegulation)
9. Three Phase Transformer: Verification of Relationship between Voltages and Currents (Star-Delta, Delta-Delta, Delta-star,Star-Star)
10. Measurement of Active and Reactive Power in a balanced Three-phasecircuit
11. Performance Characteristics of a Separately/Self Excited DC Shunt/CompoundMotor
12. Torque-Speed Characteristics of a Separately/Self Excited DC Shunt/CompoundMotor
13. Performance Characteristics of a Three-phase InductionMotor
14. Torque-Speed Characteristics of a Three-phase InductionMotor
15. No-Load Characteristics of a Three-phaseAlternator

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005ES62) PYTHON PROGRAMMING LAB

B.Tech. I YearII Sem   **LTPC**
                                                                 0031.5

Course Objectives:
- Introduce core programming basics and program design with functions using Python programminglanguage.
- To understand a range of Object-Oriented Programming, as well as in-depth data and information processingtechniques.
- To understand the high-performance programs designed to strengthen the practical expertise.

Course Outcomes:

- Student able to understand the basic concepts scripting and the contributions of scriptinglanguage
- Ability to explore python especially the object oriented concepts, and the built in objects ofPython.
- Ability to create practical and contemporary applications such as TCP/IP network programming, Web applications, discrete eventsimulations

Week 1:
1. Python program to print "HelloPython"
2. Write a program that computes and prints the result of $512 - 282 / 47 \cdot 48 + 5$.
 It is roughly .1017
3. Ask the user to enter a number. Print out the square of the number but use the sep optional argument to print it out in a full sentence that ends in a period. Sample output is shown below.
 Enter a number: 5
 The square of 5 is 25.
4. Ask the user to enter a number x. Use the sep optional argument to print out x, 2x, 3x, 4x, and 5x, each separated by three dashes, like below.
 Enter a number: 7
 7---14---21---28---35

Week 2:
1. Write a program that asks the user to enter three numbers (use three separate input statements). Create variables called total and average that hold the sum and average of the three numbers and print out the values of total and average.
2. A lot of cell phones have tip calculators. Write one. Ask the user for the price of the meal and the percent tip they want to leave. Then print both the tip amount and the total bill with the tip included.

3. Write a program which will find all such numbers which are divisible by 7 but are not a multiple of 5,between 2000 and 3200 (both included). The numbers obtained should be printed in a comma-separated sequence on a single line.

Hints: Consider use range(#begin, #end) method

4. Write a program that calculates and prints the value according to the given formula: Q = Square root of [(2 * C * D)/H]
Following are the fixed values of C and H:C is 50. H is 30.D is the variable whose values should be input to your program in a comma-separated sequence, let us assume the following comma separated input sequence is given to the program: 100,150,180The output of the program

Hint:

If the output received is in decimal form, it should be rounded off to its nearest value (for example, if the output received is 26.0, it should be printed as 26)18, 22,24should be:

Week 3:
1. Write a program that asks the user to enter a length in centimeters. If the user enters a negative length, the program should tell the user that the entry is invalid. Otherwise, the program should convert the length to inches and print out the result. There are 2.54 centimeters in an inch.
2. Ask the user for a temperature. Then ask them what units, Celsius or Fahrenheit, the temperature is in. Your program should convert the temperature to the other unit. The conversions are F = 9 5 C + 32 and C = 5 9 (F − 32)
3. Ask the user to enter a temperature in Celsius. The program should print a message based on the temperature: • If the temperature is less than -273.15, print that the temperature is invalid because it is below absolute zero. • If it is exactly -273.15, print that the temperature is absolute 0. • If the temperature is between -273.15 and 0, print that the temperature is below freezing. • If it is 0, print that the temperature is at the freezing point. • If it is between 0 and 100, print that the temperature is in the normal range. • If it is 100, print that the temperature is at the boiling point. • If it is above 100, print that the temperature is above the boiling point
4. Write a program that asks the user how many credits they have taken. If they have taken 23 or less, print that the student is a freshman. If they have taken between 24 and 53, print that they are a sophomore. The range for juniors is 54 to 83, and for seniors it is 84 and over.

Week 4:
1. A year is a leap year if it is divisible by 4, except that years divisible by 100 are not leap years unless they are also divisible by 400. Write a program that asks the user for a year and prints out whether it is a leap year or not
2. Write a multiplication game program for kids. The program should give the player ten randomly generated multiplication questions to do. After each, the program should tell them whether they got it right or wrong and what the correct answer is.

   Question 1: 3 x 4 = 12
   Right!
   Question 2: 8 x 6 = 44
   Wrong.
   The answer is 48.
   ...
   ...
   Question 10: 7 x 7 = 49
   Right.
3. A jar of Halloween candy contains an unknown amount of candy and if you can guess exactly how much candy is in the bowl, then you win all the candy. You ask the person in charge the following: If the candy is divided evenly among 5 people, how many pieces would be left over? The answer is 2 pieces. You then ask about dividing the candy evenly among 6 people, and the amount left over is 3 pieces. Finally, you ask about dividing the candy evenly among 7 people, and the amount left over is 2 pieces. By looking at the bowl, you can tell that there are less than 200 pieces. Write a program to determine how many pieces are in the bowl

   Write a program that asks the user to enter a value n, and then computes $(1 + \frac{1}{2} + \frac{1}{3} + \cdots + \frac{1}{n}) - \ln(n)$. The ln function is log in the math module

Week 5:
1. A number is called a perfect number if it is equal to the sum of all of its divisors, not including the number itself. For instance, 6 is a perfect number because the divisors of 6 are 1, 2, 3, 6 and 6 = 1 + 2 + 3. As another example, 28 is a perfect number because its divisors are 1, 2, 4, 7, 14, 28 and 28 = 1 + 2 + 4 + 7 + 14. However, 15 is not a perfect number because its divisors are 1, 3, 5, 15 and 15 $\ne$ 1 + 3 + 5. Write a program that finds all four of the perfect numbers that are less than 10000.
2. . Ask the user to enter 10 test scores. Write a program to do the following:
   (a) Print out the highest and lowest scores.
   (b) Print out the average of the scores.
   (c) Print out the second largest score.
   (d) If any of the scores is greater than 100, then after all the scores have been entered, print a message warning the user that a value over 100 has been entered.
   (e) Drop the two lowest scores and print out the average of the rest of them
3. Write a program that computes the factorial of a number. The factorial, n!, of a number n is the product of all the integers between 1 and n, including n. For instance, $5! = 1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 = 120$. [Hint: Try using a multiplicative equivalent of the summing technique.]

Week 6:

1. Write a program that asks the user for a number and then prints out the sine, cosine, and tangent of that number.
2. The Fibonacci numbers are the sequence below, where the first two numbers are 1, and each number thereafter is the sum of the two preceding numbers. Write a program that asks the user how many Fibonacci numbers to print and then prints that many.
   1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89 . . .
3. Use a for loop to print a triangle like the one below. Allow the user to specify how high the triangle should be.

```
*
**
***
****
*****
```

Week 7:

1. Use for loops to print a diamond like the one below. Allow the user to specify how high the diamond should be.

```
*
***
*****
*******
*****
***
*
```

2. Write a program that asks the user to enter an angle between −180◦ and 180◦ . Using an expression with the modulo operator, convert the angle to its equivalent between 0 ◦ and 360◦ .
3. (a) One way to find out the last digit of a number is to mod the number by 10. Write a program that asks the user to enter a power. Then find the last digit of 2 raised to that power.

   (b) One way to find out the last two digits of a number is to mod the number by 100. Write a program that asks the user to enter a power. Then find the last two digits of 2 raised to that power.

   (c) Write a program that asks the user to enter a power and how many digits they want. Find the last that many digits of 2 raised to the power the user entered

Week 8:

1. The GCD (greatest common divisor) of two numbers is the largest number that both are divisible by. For instance, gcd(18, 42) is 6 because the largest number that both 18 and 42 are divisible by is 6. Write a program that asks the user for two numbers and computes their gcd. Shown below is a way to compute the GCD, called Euclid's Algorithm.
   • First compute the remainder of dividing the larger number by the smaller number
   • Next, replace the larger number with the smaller number and the smaller number with the remainder.

- Repeat this process until the smaller number is 0. The GCD is the last value of the larger number.
2. Write a program that asks the user to enter a string. The program should then print the following:
  - (a) The total number of characters in the string
  - (b) The string repeated 10 times
  - (c) The first character of the string (remember that string indices start at 0)
  - (d) The first three characters of the string
  - (e) The last three characters of the string
  - (f) The string backwards
  - (g) The seventh character of the string if the string is long enough and a message otherwise
  - (h) The string with its first and last characters removed
  - (i) The string in all caps
  - (j) The string with every a replaced with an e
  - (k) The string with every letter replaced by a space

Week 9:

1. Write a program that asks the user to enter a string. The program should create a new string called new string from the user's string such that the second character is changed to an asterisk and three exclamation points are attached to the end of the string. Finally, print new string. Typical output is shown below: Enter your string: Qbert Q*ert!!!
2. Write a program that computes the net amount of a bank account based a transaction log from console input. The transaction log format is shown as following:
D 100   W 200 D means deposit while W means withdrawal.
Suppose the following input is supplied to the program:D 300D 300 W200D 100Then, the output should be: 500

Week 10:

1. A website requires the users to input username and password to register. Write a program to check the validity of password input by users.
Following are the criteria for checking the password:
1. At least 1 letter between [a-z]
2. At least 1 number between [0-9]
1. At least 1 letter between [A-Z]
3. At least 1 character from [$#@]
4. Minimum length of transaction password: 6
5. Maximum length of transaction password: 12
Your program should accept a sequence of comma separated passwords and will check them according to the above criteria. Passwords that match the criteria are to be printed, each separated by a comma.
Example
If the following passwords are given as input to the program:
ABd1234@1,a F1#,2w3E*,2We3345

Then, the output of the program should be:
ABd1234@1

2. Write a program that accepts sequence of lines as input and prints the lines after making all characters in the sentence capitalized
    Suppose the following input is supplied to the program:
    Hello world
    Practice makes perfect
    Then, the output should be:
    HELLO WORLD
    PRACTICE MAKES PERFECT

3. The goal of this exercise is to see if you can mimic the behavior of the in operator and the count and index methods using only variables, for loops, and if statements.
    (a) Without using the in operator, write a program that asks the user for a string and a letter and prints out whether the letter appears in the string.
    (b) Without using the count method, write a program that asks the user for a string and a letter and counts how many occurrences there are of the letter in the string.
    (c) Without using the index method, write a program that asks the user for a string and a letter and prints out the index of the first occurrence of the letter in the string. If the letter is not in the string, the program should say so.

TEXT BOOK:
1. Core Python Programming, Wesley J. Chun, Second Edition, Pearson

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000HS61)ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB

B.Tech. I YearII Sem   **L T PC**
                                                          0 0 2 1

The Language Lab focuses on the production and practice of sounds of language and familiarizes the students with the use of English in everyday situations both in formal and informal contexts.

Course Objectives:

1. To facilitate computer-assisted multi-media instruction enabling individualized and independent language learning
2. To sensitize students to the nuances of English speech sounds, word accent, intonation and rhythm
3. To bring about a consistent accent and intelligibility in students' pronunciation of English by providing an opportunity for practice in speaking
4. To improve the fluency of students in spoken English and neutralize their mother tongue influence
5. To train students to use language appropriately for public speaking and interviews
6. To foster better understanding of nuances of English language through audio- visual experience and group activities
7. To inculcate Neutralization of accent for intelligibility
8. To enhance students' speaking skills with clarity and confidence which in turn enhances their employability skills

Syllabus

English Language and Communication Skills Lab (ELCS) shall have two parts:

a.Computer Assisted Language Learning (CALL)Lab
b.Interactive Communication Skills (ICS)Lab

Listening Skills
Objectives
1.To enable students develop their listening skills so that they may appreciate its role in the LSRW skills approach to language and improve their pronunciation

2.To equip students with necessary training in listening so that they can comprehend the speech of people of different backgrounds and regions
Students should be given practice in listening to the sounds of the language, to be able to recognize them and find the distinction between different sounds, to be able to mark stress and recognize and use the right intonation in sentences.
• Listening for general content
• Listening to fill up information
• Intensive listening
• Listening for specific information

Speaking Skills
Objectives
1. To involve students in speaking activities in various contexts
2. To enable students express themselves fluently and appropriately in social and professional contexts
•Oral practice: Just A Minute (JAM) Sessions
•Describing objects/situations/people
•Role play – Individual/Group activities
•Group Discussion – Group activities

The following course content is prescribed for the English Language and Communication Skills Lab based on Unit-6 of AICTE Model Curriculum 2018 for B.Tech First Year English. As the syllabus is very limited, it is required to prepare teaching/learning materials by the teachers collectively in the form of handouts based on the needs of the students in their respective colleges for effective teaching/learning and timesaving in the Lab)

Exercise – I CALL Lab:
Understand: Listening Skill- Its importance – Purpose- Process- Types- Barriers of Listening.
Practice: Introduction to Phonetics – Speech Sounds – Vowels and Consonants.

ICS Lab:
Understand: Communication at Work Place- Spoken vs. Written language.
Practice: Ice-Breaking Activity and JAM Session- Situational Dialogues – Greetings – Taking Leave
– Introducing Oneself and Others.

Exercise – II CALL Lab:
Understand: Structure of Syllables – Word Stress and Rhythm– Weak Forms and Strong Forms in Context.
Practice: Basic Rules of Word Accent - Stress Shift - Weak Forms and Strong Forms in Context.

ICS Lab:
Understand: Features of Good Conversation – Non-verbal Communication.
Practice: Situational Dialogues – Role-Play- Expressions in Various Situations –Making Requests and Seeking Permissions - Telephone conversation.

Exercise - III CALL Lab:
Understand: Intonation-Errors in Pronunciation-the Influence of Mother Tongue (MTI). Practice: Common Indian Variants in Pronunciation – Differences in British and American Pronunciation.

ICS Lab:
Understand:Telephonic Etiquette, How to make Formal Presentations.
Practice:Formal Telephone conversation and Formal Presentations.
Exercise – IV CALL Lab:
Understand: Consonant Clusters, Plural and Past tense Markers
Practice: Words often Misspelled – Confused/ Misused.

ICS Lab:
Understand: Public Speaking – Exposure to Structured Talks.
Practice: Making a Short Speech – Extempore.

Exercise – V CALL Lab:
Understand: Listening for General and Specific Details.
Practice: Listening Comprehension Tests.

ICS Lab:
Understand: Group Discussion and Interview Skills.
Practice: Case study Group Discussions and Mock Interviews.

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Minimum Requirement of infrastructural facilities for ELCS Lab:
1.Computer Assisted Language Learning (CALL)Lab:
The Computer Assisted Language Learning Lab has to accommodate 40 students with 40 systems, with one Master Console, LAN facility and English language learning software for self- study by students.
System Requirement (Hardware component):
Computer network with LAN facility (minimum 40 systems with multimedia) with the following specifications:
i) Computers with Suitable Configuration
ii)High Fidelity Headphones

2.Interactive Communication Skills (ICS) Lab:
The Interactive Communication Skills Lab: A Spacious room with movable chairs and audio-visual aids with a Public-Address System, LCD and a projector etc.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000MC02) FRENCH LANGUAGE

B.Tech. I YearIISem   **LTPC**
                                                           2 0 0 0

Introduction:
In view of the growing importance of foreign languages as a communication tool in some countries of the world, French has been identified as one of the most popular languages after English. As a result, French program is introduced to develop the linguistic and communicative skills of engineering students and to familiarize them to the French communication skills. This course focuses on basic oral skills.

Course Objectives:
- To inculcate the basic knowledge of the Frenchlanguage.
- To hone the basic sentence constructions in day to day expressions for communication in theirvocation.

Course Outcomes
- The students will be able to communicate in French atA1level.
- The student will have an advantage in the competitive jobmarket.
- This course benefits the graduates when pursuing study *opportunities* in the countries where French is the officiallanguage.

UNIT - I:
Speaking: Introduction to the French language and culture – Salutations - French alphabet - Introducing people
Writing: Understand and fill out a form
Grammar: The verbs "to be ' and "to have " in the present tense of the indicative Vocabulary: The numbers from 1 to 20 - Professions - Nationalities

UNIT - II:
Speaking: Talk about one's family – description of a person - express his tastes and preferences -express possession - express negation
Writing: Write and understand a shortmessage
Grammar: Nouns (gender and number) - Articles - The –er verbs in the present – Possessive adjectives - Qualifying adjectives
Vocabulary: The family – Clothes - Colors - The numbers from 1 to 100 - The classroom

UNIT - III

Speaking: Talk about your daily activities - be in time - ask and indicate the date and time –talk about sports and recreation - express the frequency Writing: A letter to a friend

Grammar - The expression of time – Their verbs in the present - The verbs do, go, take, come, -Adverbs - Reflexive verbs

Vocabulary - The days and months of theyear-The sports -Hobbies

UNIT - IV

Speaking: Express the quantity - ask and give the price - express the need, the will and the capacity - compare (adjective) - speak at the restaurant / in the shops

Writing: A dialogue between a vendor and a customer at the market

Grammar: Verbs "to want", "to can" - Express capacity / possibility - Express will / desire –the future tense

Vocabulary: The food – Meals - Fruits and vegetables – The parts of the body

UNIT - V

Speaking: Express the prohibition and the obligation - describe an apartment - talk about the weather / ask the weather - ask the opinion - give your opinion - express your agreement or disagreement

Writing: Descriptions

Grammar: Demonstrative adjectives -Prepositions - The verb 'must' to indicate obligation and necessity in the present

Vocabulary: Seasons – Holidays - The city – Furniture

NOTE: The students are exposed to simple listening and reading activities.

REFERENCE BOOKS

1. Apprenons le Français 1& 2, New SaraswatiHouse,2015
2. A propos, A1, LangersInternational,2010
3. Easy French Step-by-step by MyrnaBellRochester
4. Ultimate French Beginner-Intermediate (Coursebook) ByLividLanguage
5. Ã L'Aventure: An Introduction to French Language and Francophone Cultures by Evelyne Charvier-Berman, AnneC.Cummings.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000BS04) PROBABILITY AND STATISTICS

B.Tech. II YearISem   **LTPC**

                                                                                 3 1 0 4

Course Objectives:
- Understand a random variable that describes randomness or an uncertainty in certain realistic situation. It can be of either discrete or continuoustype.
- In the discrete case, study of the binomial and the Poisson random variables and the Normal random variable for the continuous case predominantly describe important probability distributions. Important statistical properties for these random variables provide very good insight and are essential for industrialapplications.
- Most of the random situations are described as functions of many single randomvariables.
- The types of sampling, Sampling distribution of means, Sampling distribution of variance, Estimations of statistical parameters, Testing of hypothesis of few unknown statistical parameters.

Course Outcomes:
- Students would be able to identify distribution in certain realistic situation. It is mainly useful for circuits as well as non-circuit branches of engineering. Also able to differentiate among many random variables involved in the probability models. It is quite useful for all branches ofengineering.
- The student would be able to calculate mean and proportions (small and large sample) and to make important decisions from few samples which are taken out of unmanageably huge populations.

UNIT – I
Probability and Discrete Probability Distributions:
Probability Definition, conditional probability, Baye's theorem (without proof) ; Discrete Random variables ,Binomial and Poisson distributions and their properties. (Without proof)

UNIT – II
Continuous Probability Distributions: Continuous random variables and their properties (without proof), distribution functions , Normal distribution.
Curve Fitting: Curve fitting by the method of least squares- fitting of straight lines, second degree parabolas and exponential curves.

UNIT – III
Sampling Distribution: Definitions of population, sample, statistic, parameter. Types of sampling, Expected values of Sample mean and variance, sampling distribution, Standard

error, Sampling distribution of mean and sampling distribution of variance.

UNIT – IV
Testing of hypothesis: Null hypothesis, Alternate hypothesis, type I, & type II errors - critical region, confidence interval, Level of significance, one tailed test and two tailed test. **Large sample tests:**
i. Test of Equality of means of two samples equality of sample mean and population mean(cases of known variance & unknown variance, equal and unequalvariances)
ii. Tests of significance difference between sample proportion and population proportion & difference between two sampleproportions.

UNIT – V
Small sample tests: Student t-distribution, its properties; Test of significance difference between sample mean and population mean; difference between means of two small samples. Snedecor's F-distribution and it's properties. Test of equality of two population variances. Chi-square distribution, it's properties, Chi-square test of goodness of fit.

TEXT BOOKS:
1. Higher Engineering Mathematics by Dr. B.S Grewal,KhannaPublishers
2. Probability and Statistics for Engineers and Scientists by Sheldon M.Ross, AcademicPress

REFERENCE BOOKS:
1. Mathematics for Engineers by K.B.Datta and M.S.Sriniva, CengagePublications
2. Probability and Statistics by T.K.V.lyengar & B.KrishnaGandhiEt
3. Fundamentals of Mathematical Statistics by S C Gupta andV.K.Kapoor
4. O.neil by P&S onlyapplications
5. Veerajan T., Engineering Mathematics (for semester III) , Tata McGraw-Hill, New Delhi,2010. Erwin Kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons,2006.
6. P.G. Hoel, S.C.Port and C.J. Stone, Introduction to Probability theory, Universal Book Stall, 2003(Reprint).

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2004ES01) ANALOG AND DIGITAL ELECTRONICS CIRCUITS

B.Tech. II YearISem   **LT PC**
                                                                               3 0 0 3

Course Objectives:
- To familiarize the student with the principle of operation, analysis and designof Junction diode, BJT and FET amplifier circuits, transistors and field effecttransistors.
- To understand diodeasrectifier.
- To apply principles of Boolean algebra to minimize logic expressions using minimization techniques.
- To outline the formal procedures to design the combinational and sequential circuits of desiredfunctionality.

Course Outcomes:
   Upon successful completion of this course, the student will be ableto:
- Understand and analyze the different types of diodes, operation anditscharacteristics.
- Design and analyze the DC bias circuitry of BJTandFET.
- Perform arithmetic operations on different number systems and to apply the principles of Boolean algebra to minimize logicexpressions.
- Analyze some basic components used in digital systems such as adder and subtractor, decoder, encoder, multiplexer, flip-flops, registers and counters.
- Design various combinational PLDs such as ROMs, PALs,PALs.

UNIT -I
Junction Diode: P-N Junction as a Diode, Volt- Ampere Characteristics, Temperature dependence of VI characteristics, Transition and Diffusion Capacitances, Breakdown Mechanisms in Semiconductor Diodes, Zener Diode Characteristics.
Rectifiers and Filters: The P-N junction as a Rectifier, Half wave Rectifier, Full wave Rectifier, Inductor Filters, and Capacitor Filters.

UNIT –II
Bipolar Junction Transistor: The Junction Transistor, Transistor as an Amplifier, Common Base, Common Emitter and Common Collector Configurations , BJT Specifications, BJT Hybrid Model, Comparison of CB, CE, and CC Amplifier Configurations.
Transistor Biasing and Stabilization: Operating Point, The DC and AC Load lines, Need for Biasing, Bias Compensation using Diodes and Transistors, Thermal Runaway,Analysis of a Transistor   Amplifier   Circuit   using   h-   Parameters,

UNIT –III

Field Effect Transistor: The Junction Field Effect Transistor, Volt-Ampere characteristics, **MOSFET:** MOSFET Characteristics in Enhancement and Depletion modes, Comparison of BJT and FET.

Digital Systems: Binary Numbers, Number base conversions, Octal, Hexadecimal and other base numbers, complements, binary codes, Error detection and correction, Basic theorems and properties of Boolean Algebra, Boolean functions, canonical and standard forms.

UNIT –IV

Gate–Level Minimization: The K-Map Method, Three-Variable Map, sum of products, product of sums simplification, Don't care conditions, NAND and NOR implementation, Exclusive-OR function.

Combinational Logic Circuits: Combinational circuit for different code converters, Binary Adder-Subtractor, Decimal Adder, Binary Multiplier, Decoders, Encoders, Multiplexers, De-multiplexers.

UNIT –V

Sequential Logic Circuits: Sequential Circuits, Latches, Flip-flops, analysis of clocked sequential circuits, Registers, Shift registers, Ripple counters, Synchronous counters.

Memory: Introduction, Random-Access memory, ROM, Programmable Logic Array, Programmable Array Logic.

TEXT BOOKS:
1. Millman's Electronic Devices and Circuits – J. Millman, C.C.Halkias, and SatyabrataJit, 2 Ed.,1998,TMH
2. Electronic Devices and Circuits – David A. Bell, 5Ed,Oxford.
3. M. Morris Mano, Michael D. Ciletti (2008), Digital Design, 4th edition, Pearson Education/PHI,India.
4. Thomas L.Floyd (2006), Digital fundamentals, 9th edition, Pearson Education International.

REFERENCE BOOKS:
1. Integrated Electronics – J. Millman and Christos C. Halkias, 1991 Ed., 2008,TMH.
2. Electronic Devices and Circuits - K. Lal Kishore, 2ndEd.,2005,BSP.
3. Electronic Devices and Circuits – S.Salivahanan, N.Suresh Kumar, A.Vallavaraj, 2nd Ed., 2008,TMH.
4. Zvi. Kohavi (2004), Switching and Finite Automata Theory, Tata McGraw Hill,India.
5. C.V.S. Rao (2009), Switching and Logic Design, 3rd edition, Pearson Education,India.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC01) DATA STRUCTURES AND ALGORITHMS

B.Tech. IIYear I SEM   LTPC
                                                                                3 0 0 3

Objectives:
- To impart the basic concepts of data structures andalgorithms.
- To understand concepts about searching and sortingtechniques
- To understand basic concepts about stacks, queues, lists trees andgraphs.
- To enable them to write algorithms for solving problems with the help of fundamental data Structures

Outcomes:
At the end of the course the students are able to:
- For a given Algorithm student will able to analyze the algorithms to determine time& computation complexity and justify thecorrectness.
- For a given Search problem (Linear Search and Binary Search) student will ableto implementit. For a given problem of Stacks, Queues and linked list student will able to implementitand analyze the same to determine the time and computationcomplexity.
- Student will able to write an algorithm Selection Sort, Bubble Sort, InsertionSort,Quick Sort, Merge Sort, Heap Sort and compare their performance in term of Space andTime complexity. Student will able to implement Graph search and traversal algorithms and determinethe time and computationcomplexity.

UNIT-I
Introduction: Basic Terminologies: Elementary Data Organizations. Data Structure Operations: insertion, deletion, traversal etc. Analysis of an Algorithm, Asymptotic Notations, Time-Space trade off. **Searching:** Linear Se arch and Binary Search Techniques and their complexity analysis.

UNIT-II
Stacks and Queues: **ADT Stack and its operations:** Algorithms and their complexity analysis, Applications of Stacks: Expression Conversion and evaluation – corresponding algorithms and complexity analysis. **ADT Queue:** Types of Queue: Simple Queue, Circular Queue, Priority Queue. Operations on each types of Queues, Algorithms and their analysis.

UNIT-III

Linked Lists: Singly linked lists: Representation in memory, Algorithms of several operations: Traversing, Searching, Insertion into, Deletion from linked list; Linked representation of Stack and Queue, Header nodes. **Doubly Linked List:** operations on it and algorithmic analysis. **Circular Linked List:** all operations their algorithms and complexity analysis.

UNIT-IV

Trees: Basic Tree Terminologies: Different types of Trees: Binary Tree, Threaded Binary Tree, Binary Search Tree, **AVL Tree:** Tree operations on each of the trees and their algorithms with complexity analysis. Applications of Binary Trees, B-Tree, B+ Tree: definitions, algorithms and analysis.

UNIT-V

Sorting and Hashing: Objective and properties of different sorting algorithms: Selection Sort, Bubble Sort, Insertion Sort, Quick Sort, Merge Sort, Heap Sort. Performance and Comparison among all the methods, Hashing.
Graph: Basic Terminologies & Representations, Graph search and traversal algorithms &complexity analysis.

TEXT BOOKS:

1. "Fundamentals of Data Structures", Illustrated Edition by Ellis Horowitz, Sartaj Sahni, Computer Science Press.

REFERENCE BOOKS:

1. Algorithms, Data Structures, and Problem Solving with C++", Illustrated Edition by Mark Allen Weiss, Addison-Wesley PublishingCompany
2. "How to Solve it by Computer", 2nd Impression by R. G. Dromey, PearsonEducation.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC02) OPERATING SYSTEMS

B.Tech. II YearISem   **LTPC**
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Course Objectives:
Students will be able:
1. To learn the mechanisms of OS to handle processes and threads and theircommunication
2. To learn the mechanisms involved in memory management in contemporaryOS
3. To gain knowledge on distributed operating system concepts that includes architecture, Mutual exclusion algorithms, deadlock detection algorithms and agreementprotocols
4. To know the components and management aspects of concurrencymanagement

Course Outcomes:
At the end of the course students will be able to:
1. Create processes andthreads.
2. Develop algorithms for process scheduling for a given specification of CPU utilization, Throughput, Turnaround Time, Waiting Time, ResponseTime.
3. For a given specification of memory organization develop the techniques for optimally allocating memory to processes by increasing memory utilization and for improving the accesstime.
4. Design and implement file managementsystem.
5. Develop the I/O management functions in OS for the given I/O devices andOS.

UNIT - I:
Introduction: Concept of Operating Systems, Generations of Operating systems, Types of Operating Systems, OS Services, System Calls, Structure of an OS - Layered, Monolithic, Microkernel Operating Systems, Concept of Virtual Machine. Case study on UNIX and WINDOWS Operating System.

UNIT - II:
Processes: Definition, Process Relationship, Different states of a Process, Process State transitions, Process Control Block (PCB), Context switching.
Thread: Definition, Various states, Benefits of threads, Types of threads, Concept of multithreads
Process Scheduling: Foundation and Scheduling objectives, Types of Schedulers, Scheduling criteria: CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time. Scheduling algorithms: Pre-emptive and Non pre-emptive, FCFS, SJF, RR. Multiprocessor scheduling: Real Time scheduling: RM and EDF.
UNIT - III:
Inter-process Communication: Critical Section, Race Conditions, Mutual Exclusion,

Hardware Solution, Strict Alternation, Peterson's Solution, The Producer\Consumer Problem, Semaphores, Event Counters, Monitors, Message Passing, Classical IPC Problems: Reader's & Writer Problem, Dinning Philosopher Problem etc.

Deadlocks: Definition, Necessary and sufficient conditions for Deadlock, Deadlock Prevention, and Deadlock Avoidance: Banker's algorithm, Deadlock detection andRecovery.

UNIT - IV:

Memory Management: Basic concept, Logical and Physical address map, Memory allocation: Contiguous Memory allocation – Fixed and variable partition–Internal and External fragmentation and Compaction; Paging: Principle of operation – Page allocation – Hardware support for paging, Protection and sharing, Disadvantages of paging.

Virtual Memory: Basics of Virtual Memory – Hardware and control structures – Locality of reference, Page fault , Working Set , Dirty page/Dirty bit – Demand paging, Page Replacement algorithms: Optimal, First in First Out (FIFO), Second Chance (SC), Not recently used (NRU) and Least Recently used(LRU).

UNIT - V:

I/O Hardware: I/O devices, Device controllers, Direct memory access Principles of I/O Software: Goals of Interrupt handlers, Device drivers, Device independent I/O software, Secondary-Storage Structure: Disk structure, Disk scheduling algorithms

File Management: Concept of File, Access methods, File types, File operation, Directory structure, File System structure, Allocation methods (contiguous, linked, indexed), Free- space management (bit vector, linked list, grouping), directory implementation (linear list, hash table), efficiency andperformance.

Disk Management: Disk structure, Disk scheduling - FCFS, SSTF, SCAN, C-SCAN, Disk reliability, Disk formatting, Boot-block, Bad blocks

TEXT BOOKS:

1. Operating System Concepts Essentials, 9th Edition by AviSilberschatz, Peter Galvin, Greg Gagne, Wiley Asia StudentEdition.
2. Operating Systems: Internals and Design Principles, 5th Edition, William Stallings, Prentice Hall ofIndia.

REFERENCE BOOKS:

1. Operating System: A Design-oriented Approach, 1st Edition by Charles Crowley, Irwin Publishing
2. Operating Systems: A Modern Perspective, 2nd Edition by Gary J.Nutt,Addison-Wesley
3. Design of the Unix Operating Systems, 8th Edition by Maurice Bach, Prentice-Hall of India
4. Understanding the Linux Kernel, 3rd Edition, Daniel P. Bovet, Marco Cesati, O'Reilly and Associates.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC03) DISCRETE MATHEMATICS

B.Tech.IIYear I Sem   **LTPC**
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Course Objectives:
- Use mathematically correct terminology andnotation.
- Construct correct direct and indirectproofs.
- Use division into cases in aproof.
- Usecounterexamples.
- Apply logical reasoning to solve a variety ofproblems.

Course Outcomes:
At the end of the course the students are able to:
- For a given logic sentence express it in terms of predicates, quantifiers, and logical connectives
- For a given a problem, derive the solution using deductive logic and prove the solution based on logicalinference
- For a given a mathematical problem, classify its algebraic structure Evaluate Boolean functions and simplify expressions using the properties of Boolean algebra Develop the given problem as graph networks and solve with techniques of graphtheory.

UNIT-I
Propositional Logic: Syntax, Semantics, Validity and Satisfiability, Basic Connectives and Truth Tables, Logical Equivalence: The Laws of Logic, Logical Implication, Rules of Inference, Normal Forms, Disjunctive and Conjunctive Normal Form, The use of Quantifiers.

UNIT-II
Sets, Relation and Function: Operations and Laws of Sets, Cartesian Products, Binary Relation, Partial Ordering Relation, Equivalence Relation, Image of a Set, Sum and Product of Functions, Bijective functions, Inverse and Composite Function, Size of a Set, Finite and infinite Sets, Countable and uncountable Sets.

Principles of Mathematical Induction: The Well-Ordering Principle, Recursive definition, The Division algorithm: Prime Numbers, The Greatest Common Divisor: Euclidean Algorithm, The Fundamental Theorem of Arithmetic.

UNIT-III
Algebraic Structures and Morphism: Algebraic Structures with one Binary Operation, Semi Groups, Monoids, Groups, Congruence Relation and Quotient Structures, Free and Cyclic Monoids and Groups, Permutation Groups, Substructures, Normal Subgroups, Algebraic

Structures with two Binary Operation, Rings, Integral Domain and Fields. Boolean Algebra and Boolean Ring, Identities of Boolean Algebra, Duality, Representation ofBoolean Function.

UNIT-IV
Elementary Combinatorics: Basic counting techniques-inclusion and exclusion, pigeon-hole principle, permutations and combinations With Repetition and Without Repetition.

UNIT-V
Graphs and Trees: Graphs and their properties, Degree, Connectivity, Path, Cycle, Sub Graph, Isomorphism, Eulerian and Hamiltonian Walks, Graph Colouring, Colouring maps and Planar Graphs, Colouring Vertices, Colouring Edges, List Colouring, Perfect Graph, definition properties and Example, rooted trees, trees and sorting, weighted trees and prefix codes, Bi-connected component and Articulation Points, Shortestdistances.

TEXT BOOKS:
1. Kenneth H. Rosen, Discrete Mathematics and its Applications, Tata McGraw–Hill
2. Susanna S. Epp, Discrete Mathematics with Applications,4th edition,Wadsworth PublishingCo.Inc.
3. C L Liu and D P Mohapatra, Elements of Discrete Mathematics AComputer Oriented Approach, 3rd Edition by, Tata McGraw–Hill.

REFERENCE BOOKS:
1. J.P. Tremblay and R. Manohar, "Discrete Mathematical Structure and It's Application to Computer Science", TMGEdition,TataMcGraw-Hill
2. Norman L. Biggs, Discrete Mathematics, 2nd Edition, Oxford UniversityPress. Schaum's Outlines Series, Seymour Lipschutz,MarcLipson,
3. Discrete Mathematics, Tata McGraw–Hill

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC61) DATA STRUCTURES & ALGORITHMS LAB

B.Tech. II YearISem   **LTPC**
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Course Objectives:
- To make the student learn a object oriented way of solvingproblems.
- To make the student write ADTS for all datastructures.

Course Outcomes:

At the end of the course the students are able to:

- For a given algorithm student will able to analyze the algorithms to determine time & computation complexity and justify thecorrectness.
- For a given Search problem (Linear Search and Binary Search) student will able to implement it.
- For a given problem of Stacks, Queues and linked list student will able to implement it and analyze the same to determine the time and computationcomplexity.
- Student will able to write an algorithm Selection Sort, Bubble Sort, Insertion Sort, Quick Sort, Merge Sort, Heap Sort and compare their performance in term of Space and Time complexity.

Week1: Write C programs to implement recursive and non recursive

i)Linearsearch   ii) BinarySearch.

Week2: Write C programs to implement

i)Bubblesort   ii) Selectionsort

iii) Quicksort   iv) Insertionsort

Week3: Write C programs to implement the following using an array.
   a) StackADT   b) Queue ADT

Week4: Write C programs to implement list ADT to perform following operations

a) Insert an element intoalist.   b) Delete an element from list

c) Search for a key elementin list   d) count number of nodes inlist.

Week5: Write C programs to implement the following using a singly linked list.

a)StackADT   b) Queue ADT.

Week6: Write C programs to implement the Deque (double ended queue)ADT using a doubly linked list and an array.

Week7: Write a C program to perform the following operations:
a) Insert an element into a binary searchtree.
b) Delete an element from a binary searchtree.
c) Search for a key element in a binary searchtree.

Week 8: Write C programs for implementing the following sorting methods:
a)Mergesort   b) Heapsort

Week 9: Write C programs that use recursive functions to traverse the given binary tree in
a)Preorder b) inorder and c) postorder.

Week 10: Write a C program to perform the following operations
a) Insertion into aB-tree
b) Deletion from a B-tree

Week 11: Write a C program to perform the following operation
a) Insertion into an AVL-tree

Week 12: Write a C program to implement all the functions of a dictionary (ADT) using hashing.

TEXT BOOKS:
- C and Data Structures, Third Edition, P.Padmanabham,BSPublications.
- C and Data Structures, Prof. P.S.Deshpande and Prof. O.G. Kakde,DreamtechPress.
- Data structures using C, A.K.Sharma, 2ndedition,Pearson.
- Data Structures using C, R.Thareja, OxfordUniversityPress.
- C and Data Structures, N.B.Venkateswarlu andE.V.Prasad,S.Chand.
- C Programming and Data Structures, P.Radha Krishna,Hi-TechPublishers.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC62) OPERATING SYSTEMS LAB

B.Tech. II Year I Sem   **L T P C**
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Course Objectives:
- To understand the functionalities of various layers of OSI model
- To explain the difference between hardware, software; operating systems, programs and files.
- Identify the purpose of different software applications.

Course Outcomes:
At the end of the course the students are able to:
- Ability to implement inter process communication between two processes.
- Ability to design and solve synchronization problems.
- Ability to simulate and implement operating system concepts such as scheduling,
- Deadlock management, file management, and memory management.

Week 1: Simulate the following CPU scheduling algorithms.
a) Round Robin b) SJF c) FCFS d) Priority.

Week 2: Simulate all file allocation strategies
a) Sequential b)Indexed c)Linked.

Week 3: Simulate MVT and MFT.

Week 4: Write a C program to simulate the following contiguous memory allocation
Techniques a) Worst fit b) Best fit c) First fit.

Week 5: Simulate all File Organization Techniques
a) Single level directory b) Two level c) Hierarchical d)DAG.

Week 6: Simulate Bankers Algorithm for Dead Lock Avoidance.

Week 7: Simulate Bankers Algorithm for Dead Lock Prevention.

Week 8: Write a C program to simulate disk scheduling algorithms.
a) FCFS b) SCAN c) C-SCAN

Week 9: Simulate all page replacement algorithms
a)FIFO b)LRU c)LFU

Week 10: Simulate Paging Technique of memory management.

Week11: Write a C program to simulate producer-consumer problem using semaphores.

Week 12: Write a C program to simulate the concept of Dining-philosophers problem.

REFERENCE BOOKS:
1. An Introduction to Operating Systems, P.C.P Bhatt, 2nd edition, PHI.
2. Modern Operating Systems, Andrew S Tanenbaum, 3rd Edition ,PHI

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000MC03) HUMAN VALUES AND PROFESSIONAL ETHICS

B.Tech. II YearISem   **LTPC**
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Course Objective:
To enable the students to imbibe and internalize the Values and Ethical Behaviour in the personal and Professional lives.

Course Outcome:
The students will understand the importance of Values and Ethics in their personal lives and professional careers. The students will learn the rights and responsibilities as an employee, team member and a globalcitizen.

UNIT - I:
Introduction to Human Values: Need, basic Guidelines, Content and Process for Value Education, Self Exploration - 'Natural Acceptance' and Experiential Validation. Continuous Happiness and Prosperity - A look at basic Human Aspirations. Right understanding, Relationship and Physical Facilities. Understanding Happiness and Prosperity correctly

UNIT - II:
Understanding Harmony in the Family and Society: Harmony in Human - Human Relationship: Understanding harmony in the Family the basic unit of human interaction. Understanding values in human - human relationship; meaning of Nyaya and program for its fulfillment to ensure Ubhay-tripti; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship. Understanding the harmony in the society (society being an extension of family). Visualizing a universal harmonious order in society - Undivided Society (AkhandSamaj), Universal Order (SarvabhaumVyawastha) - from family to worldfamily!

UNIT – III:
Introduction to Professional Ethics: Basic Concepts, Governing Ethics, Personal & Professional Ethics, Ethical Dilemmas, Life Skills, Emotional Intelligence, Thoughts of Ethics, Value Education, Dimensions of Ethics, Profession and professionalism, Professional Associations, Professional Risks, Professional Accountabilities, Professional Success, Ethics and Profession.

UNIT – IV:
Professional Practices in Engineering: Work Place Rights & Responsibilities, Professions and Norms of Professional Conduct, Norms of Professional Conduct vs. Profession; Responsibilities,ObligationsandMoralValuesinProfessionalEthics,Professionalcodesof

ethics, the limits of predictability and responsibilities of the engineering profession. Central Responsibilities of Engineers – The Centrality of Responsibilities of Professional Ethics; lessons from 1979 American Airlines DC-10 Crash and Kansas City Hyatt Regency Walk awayCollapse.

UNIT – V:

Global issues in Professional Ethics: Introduction – Current Scenario, Technology Globalization of MNCs, International Trade, World Summits, Issues, Business Ethics and Corporate Governance, Sustainable Development Ecosystem, Energy Concerns, Ozone Depletion, Pollution, Ethics in Manufacturing and Marketing, Media Ethics, War Ethics, Bio Ethics, Intellectual Property Rights.

TEXT BOOKS:

1. R. R. Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and ProfessionalEthics.
2. Professional Ethics: R. Subramanian, Oxford UniversityPress,2015.
3. Ethics in Engineering Practice & Research, Caroline Whitbeck, 2e,Cambridge University Press2015.

REFERENCE BOOKS:

1. Prof. K. V. Subba Raju, 2013, Success Secrets for Engineering Students, Smart Student Publications,3rdEdition.
2. Ivan IIIich, 1974, Energy & Equity, The Trinity Press, Worcester, and HarperCollins,USA
3. Engineering Ethics, Concepts Cases: Charles E Harris Jr., Michael S Pritchard, Michael J Rabins, 4e, Cengagelearning,2015.
4. Business Ethics concepts & Cases: Manuel G Velasquez, 6e,PHI,2008.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000HS03)MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS

B.Tech. II YearII Sem   **LTPC**
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Course Objectives:
To enable the student to understand and appreciate, with a particular insight, the importance of certain basic issues governing the business operations namely; demand and supply, production function, cost analysis, markets, forms of business organizations, capital budgeting, financial accounting and financial analysis.

Course Outcomes:
At the end of the course, the student will understand the market dynamics namely, demand and supply, demand forecasting, elasticity of demand and supply, pricing methods and pricing in different market structures, gain an insight into how production function is carried out to achieve least cost combination of inputs and cost analysis, develop an understanding of how capital budgeting decisions are carried out, understanding the framework for both manual and computerized accounting process, know how to analyze and interpret the financial statements through ratio analysis.

UNIT I
Introduction & Demand Analysis: Definition, Nature and Scope of Managerial Economics. Demand Analysis: Demand Determinants, Law of Demand and its exceptions. Elasticity of Demand: Definition, Types, Measurement and Significance of Elasticity of Demand. Demand Forecasting, Factors governing demand forecasting, methods of demand forecasting.

UNIT II
Production & Cost Analysis: Production Function - MRTS, Least Cost Combination of Inputs, Laws of Returns, Internal and External Economies of Scale. Cost Analysis: Cost concepts. Break-even Analysis (BEA)-Determination of Break-Even Point (simple problems) – Managerial Significance.

UNIT III
Markets & New Economic Environment: Types of competition and Markets, Features of Perfect competition, Monopoly and Monopolistic Competition. Pricing: Objectives and Policies of Pricing. Methods of Pricing. Business: Features and evaluation of different forms of Business Organization: Sole Proprietorship, Partnership, Joint Stock Company, Public Enterprises and their types, New Economic Environment: Changing Business Environment in Post-liberalizationscenario.

UNIT IV

Capital Budgeting: Capital and its significance, Types of Capital, Estimation of Fixed and Working capital requirements, Methods and sources of raising capital - Capital Budget, Cash Budget. Capital Budgeting: features of capital budgeting proposals, Methods of Capital Budgeting: Payback Method, Accounting Rate of return (ARR) and Net Present Value Method (simple problems).

UNIT V

Introduction to Financial Accounting & Financial Analysis: Accounting concepts and Conventions - Double-Entry Book Keeping, Journal, Ledger, Trial Balance - Final Accounts (Trading Account, Profit and Loss Account and Balance Sheet with simple adjustments). Financial Analysis: Analysis and Interpretation of Liquidity Ratios, Activity Ratios, and Capital structure Ratios and Profitabilityratios.

TEXT BOOKS:

1. Varshney &Maheswari: Managerial Economics, SultanChand, 2009.
2. S.A. Siddiqui & A.S. Siddiqui, Managerial Economics and Financial Analysis, New Age international Publishers,Hyderabad2013.
3. M. Kasi Reddy & Saraswathi, Managerial Economics and Financial Analysis, PHI New Delhi,2012.

REFERENCES:

1. Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi,2012.
2. H. Craig Peterson & W. Cris Lewis, Managerial Economics,Pearson,2012.
3. Lipsey &Chrystel, Economics, Oxford UniversityPress,2012.
4. Domnick Salvatore: Managerial Economics In a Global Economy,Thomson,2012.
5. Narayanaswamy: Financial Accounting - A Managerial Perspective,Pearson,2012.
6. S.N. Maheswari& S.K. Maheswari, Financial Accounting,Vikas,2012.
7. Truet and Truet: Managerial Economics: Analysis, Problems and Cases, Wiley,2012.
8. Dwivedi: Managerial Economics,Vikas,2012.
9. Shailaja & Usha: MEFA, UniversityPress,2012.
10. Aryasri: Managerial Economics and Financial Analysis,TMH, 2012.
11. Vijay Kumar &Appa Rao, Managerial Economics & Financial Analysis, Cengage2011.
12. J.V. Prabhakar Rao & P.V. Rao, Managerial Economics & Financial Analysis, Maruthi Publishers,2011.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC05)SOFTWARE ENGINEERING

B.Tech. II YearII Sem   **LTPC**
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Course Objectives:
- To comprehend the various software processmodels.
- To understand the types of software requirements and SRSdocument.
- To know the different software design and architecturalstyles.
- To learn the software testing approaches and metrics used in softwaredevelopment.
- To know about quality control and riskmanagement.

Course Outcomes:
At the end of the course the students are able to:
- To compare and select a process model for a business system.
- To identify and specify the requirements for the development of anapplication.
- To develop and maintain efficient, reliable and cost-effective softwaresolutions.
- To critically think and evaluate assumptions and arguments of theclient.

UNIT - I:
Introduction to Software Engineering: The evolving role of software, Changing Nature of Software, Software myths.
A Generic view of process: A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.
Process models: The waterfall model, Incremental process models, Evolutionary process models, The Unified process, Agility and Agile Process models of Agile Development and Tools

UNIT - II:
Software Requirements: Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document (IEEE FORMAT) and its contents.
Requirements engineering process: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.
System models: Context Models, Behavioral models, Data models, Object models, structured methods. UML Diagrams.

UNIT - III:
Design Engineering: Design process and Design quality, Design concepts, the design model.

Creating an architectural design: Software architecture, Data design, Architectural styles and patterns, ArchitecturalDesign.

Object-Oriented Design: Objects and object classes, An Object-Oriented design process, Design evolution.

Performing User interface design: Golden rules, User interface analysis and design, interface analysis, interface design steps.

UNIT -IV:

Testing Strategies: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.

Product metrics: Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

Metrics for Process and Products: Software Measurement, Metrics for software quality.

UNIT - V:

Risk management: Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan.

Quality Management: Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

TEXT BOOKS:

1. Software Engineering A Practitioner's Approach, Roger S Pressman, 6th edition. McGrawHill InternationalEdition.
2. Software Engineering, Ian Sommerville, 7th edition, Pearsoneducation.

REFERENCE BOOKS:

1. Software Engineering, A Precise Approach, Pankaj Jalote,WileyIndia,2010.
2. Software Engineering: A Primer, Waman S Jawadekar,TataMcGraw-Hill,2008
3. Software Engineering, Principles and Practices, Deepak Jain, Oxford UniversityPress.
4. SoftwareEngineering1:Abstraction and modeling, DinerBjorner, Springer Internationaledition,2006.
5. SoftwareEngineering2: Specification of systems and languages, Diner Bjorner, Springer Internationaledition2006.
6. Software Engineering Principles and Practice, Hans Van Vliet, 3rd edition, John Wiley &SonsLtd.
7. Software Engineering3: Domains, Requirements, and Software Design, D. Bjorner, Springer International Edition.
8. Introduction to Software Engineering, R. J.Leach,CRCPress.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC06) COMPUTER ORGANIZATION

B.Tech. II YearII Sem   **LTPC**
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Course Objectives: To expose the students to the following:
1. How Computer Systems work & the basicprinciples
2. Instruction Level Architecture and InstructionExecution
3. The current state of art in memory systemdesign
4. How I/O devices are accessed and itsprinciples.
5. To provide the knowledge on Instruction Level Parallelism
6. To impart the knowledge onmicroprogramming
7. Concepts of advanced pipeliningtechniques.

Course Outcomes:
Upon completion of this course, students should be able to:
- Student will learn the concepts of computer organization for several engineering applications.
- Student will develop the ability and confidence to use the fundamentals of computer organization as a tool in the engineering of digitalsystems.
- An ability to identify, formulates, and solves hardware and software computer engineering problems.

UNIT I
Basic Functional units of Computers: functional units, basic Operational concepts, Bus structures. Software, Performance, Multiprocessors and Multicomputer.
Data Representation: Signed number representation, fixed and floating point Representations.
Computer Arithmetic: Addition and subtraction, multiplication Algorithms, Division Algorithms. Error detection and correction codes

UNIT II
Register Transfer Language and Micro Operations: RTL- Registers, Register transfers, Bus and memory transfers. **Micro operations:** Arithmetic, Logic, and Shift micro operations, Arithmetic logic shiftunit.
Basic Computer Organization and Design: Computer Registers, Computer instructions, Instruction cycle. Instruction codes, Timing and Control, Types of Instructions: Memory Reference Instructions, Input – Output and Interrupt, Complete Computer Description.

UNIT III
Central Processing Unit organization: General Register Organization, Stack organization**,** Instruction formats, Addressing modes, Data Transfer and Manipulation, Program Control,

CISC and **RISC** Processors

Control unit design: Design approaches, Control memory, Address sequencing, micro program example, design of CU. Micro Programmed Control.

UNITIV

Memory Organization: Semiconductor memory technologies, hierarchy, Interleaving, **Main Memory-**RAM and ROM chips, Address map, Associative Memory-Hardware organization. Match logic. Cache memory-size vs. block size, Mapping Functions-Associate, Direct, Set Associative mapping. Replacement algorithms, write policies. **Auxiliary memory-**Magnetic tapesetc

UNIT V

Input –Output Organization: Peripheral devices, Input-output subsystems, I/O device interface, I/O Processor, I/O transfers–Program controlled, Interrupt driven, and DMA, interrupts and exceptions. I/O device interfaces – SCII, USB

Pipelining and Vector Processing: Basic concepts, Instruction level Parallelism Throughput and Speedup, Pipeline hazards. **Case Study-** Introduction to x86 architecture.

Suggested Text Books:

1. "Computer Organization and Design: The Hardware/Software Interface", 5th Edition by David A. Patterson and John L. Hennessy,Elsevier.
2. "Computer Organization and Embedded Systems", 6th Edition bycarlHamacher, McGrawHill HigherEducation.

Suggested ReferenceBooks:

2. "Computer Architecture and Organization", 3rd Edition by John P.Hayes, WCB/McGraw-Hill
3. "Computer Organization and Architecture: Designing for Performance", 10th Edition by William Stallings, PearsonEducation.
4. "Computer System Design and Architecture", 2nd Edition by Vincent P. Heuring and Harry F. Jordan, PearsonEducation.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC04) OBJECT ORIENTED PROGRAMMING THROUGH JAVA

B.Tech. II Year IISem   **LTPC**
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Course Objective:
- The objective of this course is to provide object-oriented concepts through which robust, secured and reusable software can be developed.
- To understand object-oriented principles like abstraction, encapsulation, inheritance and polymorphism and apply them in solvingproblems.
- To understand the principles of inheritance and polymorphism and demonstrate how they relate to the design of abstractclasses.
- To understand the implementation of packages and interfaces.
- To understand the concepts of exception handling, multithreading and collectionclasses.
- To understand the design of Graphical User Interface using applets and swingcontrols.

Course Outcomes:

At the end of the course the students are able to:
- An understanding of the principles and practice of object-oriented analysis and design in the construction of robust, maintainable programs which satisfy theirrequirements;
- A competence to design, write, compile, test and execute straightforward programs using a high-levellanguage;
- An appreciation of the principles of object-orientedprogramming;
- An awareness of the need for a professional approach to design and the importanc eof good documentation to the finishedprograms.
- Be able to implement, compile, test and run Java programs comprising more than one class, to address a particular softwareproblem.
- Demonstrate the ability to use simple data structures like arrays in a Javaprogram.
- Be able to make use of members of classes found in the JavaAPI.
- Demonstrate the ability to employ various types of selection constructs in a java program. Be able to employ a hierarchy of Java classes to provide a solution to a given set of requirements.
- Able to develop applications using Applet andSwings.

UNIT-I
Object-oriented thinking- A way of viewing world – Agents and Communities, messages and methods, Responsibilities, Classes and Instances, Class Hierarchies- Inheritance, Method binding, Overriding and Exceptions, Summary of Object-Oriented concepts.
An Overview of Java -History of Java, comments, Data types, Variables, Constants, Scope andLifetimeofvariables,Operators,Typeconversionandcasting,Enumeration,Controlflow-

block scope, conditional statements, loops, break and continue statements, simple java standalone programs, arrays, console input and output, classes, methods, constructors, static, this keyword, recursion, exploring string classes and garbage collection.

UNIT – II
Inheritance–Inheritance hierarchy, super keyword, preventing inheritance: final classes and methods, the Object class and its methods**.**
Polymorphism–dynamic binding, Constructor and method overloading, method overriding, abstract classes**.**
Interfaces-Interfaces Vs Abstract Classes, defining an interface, implementing interfaces, accessing implementations through interface references, extending interface, inner class.
Packages-Defining, creating and accessing a package, CLASSPATH, Access modifiers, importing packages.

UNIT-III
Exception Handling-Dealing with errors, benefits of exception handling, the classification of exceptions - exception hierarchy, checked exceptions and unchecked exceptions, usage of try, catch, throw, throws and finally, creating own exception subclasses.
Multithreading – Differences between multiple processes and multiple threads, thread lifecycle, creating threads, interrupting threads, thread priorities, synchronizing threads, inter-thread communication-producer consumer problem.

UNIT-IV
Collection Framework in Java – Introduction to java collections, Overview of java collection framework, Commonly used collection classes-ArrayList, LinkedList, HashSet, TreeSet, Map-HashMap, TreeMap, Legacy Classes-Vector, Stack,Hashtable.
Other Utilities-Scanner, String Tokenizer, Random, Date.
Files-Streams-Byte Streams, Character Streams, Text input/output, Binary input /output , File Management using File class.

UNIT-V
Applets – Inheritance hierarchy for applets, differences between applets and applications, Life cycle of an applet and Passing parameters to applets
GUI Programming - Swing -The AWT class hierarchy, Introduction to Swing, Swing Vs AWT, Hierarchy for Swing components, Overview of Swing components – JButton, JLabel, JTextField, JCheckBox, RadioButton, JTextArea, etc simple Swing applications, Layout managers– FlowLayout, BorderLayout, GridLayout andGridbagLayout.
Event Handling-Events, Event sources, Event classes, Event Listeners, Delegation event model, Handling Mouse and Key events, Adapter classes.

TEXTBOOKS:

1. Java Fundamentals–A Comprehensive Introduction, Herbert Schildt and Dale Skrien, TMH.
2. Understanding Object-Oriented Programming with Java, updated edition, T. Budd, PearsonEducation

REFERENCE BOOKS:

1. Java for Programmers, P.J.Deite land H.M.Deitel, PEA(or) Java: Howto Program , P.J.Deitel andH.M.Deitel,PHI
2. ObjectOrientedProgrammingthroughJava,P.RadhaKrishna,UniversitiesPress.
3. Thinking in Java, BruceEckel,PE
4. Programming in Java, S.Malhotra and S.Choudhary, Oxford UniversitiesPress.
5. Design Patterns Erich Gamma, Richard Helm, Ralph Johnson and JohnVlissides

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC07) FORMAL LANGUAGES AND AUTOMATA THEORY

B.Tech. II Year II Sem   **LTPC**
                                                               3003

Objectives:

The purpose of this course is to acquaint the student with an overview of the theoretical foundations of computer science from the perspective of formal languages.

- Classify machines by their power to recognize languages.
- Employ finite state machines to solve problems in computing.
- Explain deterministic and non-deterministic machines.
- Comprehend the hierarchy of problems arising in the computer sciences.

Outcomes:

- Graduate should be able to understand the concept of abstract machines and their power to recognize the languages.
- Attains the knowledge of language classes & grammars relationship among them with the help of Chomsky hierarchy.
- Graduate will be able to understanding the pre-requisites to the course compiler or advanced compiler design.

UNIT - I

Introduction to Finite Automata: Structural Representations, Central Concepts of Automata Theory and it's Applications. Deterministic Finite Automata, Nondeterministic Finite Automata, Finite Automata with Epsilon-Transitions. Moore and Mealy machine. Equivalence and minimization of FSM.

UNIT - II

Regular Expressions: Finite Automata and Regular Expressions, Applications of Regular Expressions, Algebraic Laws for Regular Expressions, Pumping Lemma for Regular Languages, Applications of the Pumping Lemma, Closure Properties of Regular Language. Equivalence of FA and Regular expression.

UNIT - III

Context-FreeGrammars: Definition,DerivationsUsingaGrammar,Leftmostand RightmostDerivations,theLanguageofaGrammar,SententialForms,ParseTrees, Minimization of Context-Free Grammar, Ambiguity in Grammars andLanguages.

Push Down Automata: Construction of Pushdown Automaton, the Languages of a PDA, Equivalence of PDA's and CFG's, Deterministic Pushdown Automata.

UNIT - IV

Normal Forms for Context- Free Grammars, Closure Properties of Context-Free Languages. Types of Normal Forms and it's conversations.

Introduction to Turing Machines: Turing Machine, Programming Techniques for Turing Machines, Extensions to the basic Turing Machine, Restricted Turing Machines, Universal Turing Machine(UTM).

UNIT - V

Undecidability: A Language that is Not Recursively Enumerable, An Undecidable Problem That is RE, Undecidable Problems about Turing Machines, Post's Correspondence Problem, Intractable Problems**:** The Classes P and NP, NP- Complete Problem. Rice's Theorem.

TEXT BOOKS:

1. Introduction to Automata Theory, Languages, and Computation, 3nd Edition, John E. Hopcroft, Rajeev Motwani, Jeffrey D. Ullman, Pearson Education.
2. Introduction to the Theory of Computation, Michael Sipser, 3rd edition, CengageLearning.
3. Kamala Krithivasan and Rama R, Introduction to FormalLanguages, Automata Theory and Computation, Pearson Education,2009.

REFERENCE BOOKS:

1. Introduction to Languages and the Theory of Computation, John C Martin, TMH.
2. Introduction to Computer Theory, Daniel I.A. Cohen, JohnWiley.
3. A Text book on Automata Theory, P. K. Srimani, Nasir S. F. B, Cambridge University.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC08) DATABASE MANAGEMENT SYSTEMS

B.Tech. II YearII Sem   **LTPC**
                                                                 3 0 0 3

Course Objectives:
- To understand the basic concepts and the applications of databasesystems.
- To master the basics of SQL and construct queries usingSQL.
- To understand the relational database designprinciples.
- To become familiar with the basic issues of transaction processing and concurrencycontrol.
- To become familiar with database storage structures and accesstechniques.

Course Outcomes:
- Demonstrate the basic elements of a relational database management system and Ability to identify the data models for relevantproblems.
- Ability to design entity relationship model and convert entity relationship diagrams into RDBMS and formulate SQL queries on thedata.
- Apply normalization for the development of applicationsoftware.

UNIT – I: Introduction: Database System Applications, Purpose of Database Systems, View of Data, Database Languages – DDL, DML, Relational Databases, Database Design, Database Architecture, Data Mining and Information Retrieval, Database Users and Administrators, History of Database Systems.

Introduction to Data base design: Database Design and ER diagrams, Entities, Attributes and Entity sets, Relationships and Relationship sets, Additional features of ER Model, Conceptual Design with the ER Model, Conceptual Design for Large enterprises.

UNIT – II: Relational Model: Introduction to the Relational Model, Integrity Constraints over Relations, Enforcing Integrity constraints, Querying relational data, Logical data base Design: ER to Relational, Introduction to Views, Destroying /Altering Tables and Views.

Relational Algebra and Calculus: Preliminaries, Relational Algebra, Relational calculus–Tuple relational Calculus, Domain relational calculus.

UNIT – III: SQL: Queries, Constraints, Triggers: Form of Basic SQL Query, UNION, INTERSECT, and EXCEPT, Nested Queries, Aggregate Operators, NULL values, Natural JOINS, Complex Integrity Constraints in SQL, Triggers and Active Data bases..

Schema Refinement and Normal Forms: Introduction to Schema Refinement, Functional Dependencies - Reasoning about FDs, Normal Forms, Properties of Decompositions,

Normalization, Schema Refinement in Database Design, Other Kinds of Dependencies.

UNIT – IV: Transaction Management: Transactions, Transaction Concept, A Simple Transaction Model, Storage Structure, Transaction Atomicity and Durability, Transaction Isolation, Serializability.

Concurrency Control: Lock–Based Protocols, Multiple Granularity, Timestamp-Based Protocols, Validation-Based Protocols.

Recovery System-Failure Classification, Recovery and Atomicity, Recovery Algorithm, Buffer Management, Failure with loss of nonvolatile storage, Remote Backupsystems.

UNIT – V: Storage and Indexing: Overview of Storage and Indexing: Data on External Storage, File Organization and Indexing, Index Data Structures, Comparison of File Organizations. Tree-Structured Indexing: Intuition for tree Indexes, Indexed Sequential Access Method (ISAM), **B+ Trees**: A Dynamic Index Structure, Search, Insert, Delete.

TEXT BOOKS:

1. Data base Management Systems, Raghu Ramakrishnan, Johannes Gehrke, McGraw Hill Education (India) Private Limited, 3rd Edition. (Part of UNIT-I, UNIT-II, UNIT-III, UNIT-V)
2. Data base System Concepts, A. Silberschatz, Henry. F. Korth, S. Sudarshan, McGraw Hill Education(India) Private Limited l, 6th edition.(Part ofUNIT-I,UNIT-IV)

REFERENCE BOOKS:

2. Database Systems, 6th edition, R Elmasri, Shamkant B.Navathe, PearsonEducation.
3. Database System Concepts, Peter Rob & Carlos Coronel, CengageLearning.
4. Introduction to Database Management, M. L. Gillenson and others, Wiley StudentEdition.
5. 4.Database Development and Management, Lee Chao, Auerbach publications, Taylor& Francis Group. Introduction to Database Systems, C. J. Date, PearsonEducation.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC63)   PROGRAMMING THROUGH JAVA LAB

B.Tech. II YearIISem   **LTPC**

                                                                               0031.5

Course Objectives:
- To prepare students to become familiar with the Standard Java technologies ofJ2SE
- To prepare students to excel in Object Oriented programming and to succeed as a Java Developer through global rigorouseducation.
- To provide Students with a solid foundation in OOP fundamentals required to solve programming problems and also to learn Advanced Java topics like J2ME, J2EE, JSP and JavaScript
- To train Students with good OOP programming breadth so as to comprehend, analyze, design and create novel products and solutions for the real lifeproblems.
- To inculcate in students professional and ethical attitude, multidisciplinary approach and an ability to relate java programming issues to broader applicationcontext.
- To provide student with an academic environment aware of excellence, written ethical codes and guidelines and lifelong learning needed for a successful professionalcareer.

Course Outcomes:
- Able to analyze the necessity for Object Oriented Programming paradigm and over structured programming and become familiar with the fundamental concepts inOOP.
- Demonstrate an ability to design and develop java programs, analyze, and interpret object oriented data and report results.
- Demonstrate an ability to design an object oriented system, Swing components or multithreaded process as per needs andspecifications.
- Demonstrate an ability to visualize and work on laboratory and multidisciplinary tasks like console and windows applications both for standalone and Appletsprogram

Week 1: a) Write a java program to find the Fibonacci series using recursive and non recursive functions.
  a) Write a java program to multiply two givenmatrices.

Week 2: a) Write a java program for Method overloading and Constructor overloading.
  b) Write a java program to display the employee details using Scannerclass.
  c) Write a java program that checks whether a given string is palindrome ornot.

Week 3: a) Write a java program to represent Abstract class with example.
  b) Write a java program to implement Interface using extends keyword.

Week 4: a) Write a java program to create user defined package.

Week 5: a) Write a java program to create inner classes.

   b) Write a java program for creating multiple catchblocks.

   c) Write a Java Program for creating User DefinedException.

Week 6: a) Write a java program for producer and consumer problem using Threads. b)Write a Java program that implements a multi-thread application that has three threads.

Week 7: a) Write a java program to implement all file operations.

   b) Write a Java Program to list all the files in a directory including the files present in all its sub directories.

Week 8: a) Write a java program to represent ArrayList class.

   b) Write a Java program loads phone no, name from a text file usingHashtable.

Week 9: a) Write an applet program that displays a simple message. b)Write a Java program compute factorial value using Applet.

   c)Write a program for passing parameters usingApplet.

Week 10: Write a java program for handling Mouse events and Key events

Week 11: Write a java program that works as a simple calculator. Use a Grid Layout arrange Buttons for digits and for the + - * % operations. Add a text field to display the result.

TEXT BOOK/ REFERENCE BOOKS:

1. Java Fundamentals – A Comprehensive Introduction, HerbertSchildt and Dale Skrien,TMH.
2. Java for Programmers, P.J.Deitel and H.M.Deitel, PEA (or) Java:How to Program , P.J.Deitel andH.M.Deitel,PHI

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC64) DATABASE MANAGEMENT SYSTEMS LAB

B.Tech. II YearII Sem

LTPC
0031.5

Course Objectives:
Students will have the ability to:
- Keep abreast of current developments to continue their own professionaldevelopment.
- To engage themselves in lifelong learning of Database management systems theories and technologies this enables them to purse higher studies.
- To interact professionally with colleagues or clients located abroad and the ability to overcome challenges that arises from geographic distance, cultural differences, and multiple languages in the context ofcomputing.
- Develop team spirit, effective work habits, and professional attitude in written and oral forms, towards the development of databaseapplications

Course Outcomes:
Students will be able to demonstrate their skills
- In drawing the ER, EER, and UMLDiagrams.
- In analyzing the business requirements and producing a viable model for the implementation of thedatabase.
- In converting the entity-relationship diagrams into relationaltables.
- To develop appropriate Databases to a given problem that integrates ethical, social, legal, and economicconcerns.

A. Practice on SQL Queries to acquire knowledgeonRDBMS.

B. CaseStudy:
Objective: This lab enables the students to practice the concepts learnt in the subject DBMS by developing a database for an example company named "Roadway Travels" whose description is as follows. The student is expected to practice the designing, developing and querying a database in the context of example database -Roadway travels". Students are expected to use "Mysql" database.

Roadway Travels: "Roadway Travels" is in business since 1997 with several buses connecting different places in India. Its main office is located in Hyderabad.

The company wants to computerize its operations in the following areas:
- ReservationsandTicketing
- Cancellations

- Reservations&Cancellation:

Reservations are directly handled by booking office. Reservations can be made 30 days in advance and tickets issued to passenger .One Passenger /person can book many tickets (to his/her family).

Cancellations are also directly handed at the booking office.

In the process of computerization of Roadway Travels you have to design and develop a Database which consists the data of Buses, Passengers, Tickets, and Reservation and cancellation details. You should also develop query's using SQL to retrieve the data from the database.

The above Process involves many steps like

1. Analyzing the problem and identifying the Entities and Relationships, 2. E-R Model, 3. Relational Model 4. Normalization 5. Creating the database 6. Querying. Students are supposed to work on these steps week wise and finally create a complete "Database System" to Roadway Travels. Examples are given at every experiment for guidance to students.

Experiment 1: E-R Model

Analyze the problem carefully and come up with the entities in it using software design tool. Identify what data has to be persisted in the database. This contains the entities, attributes etc.

Identify the primary keys for all the entities. Identify the other keys like candidate keys, partial keys, if any.

Example:

Entities:
1. BUS
2. Ticket
3. Passenger

Relationships:
1. Reservation
2. Cancellation

PRIMARY KEY ATTRIBUTES:

1. Ticket ID (TicketEntity)
2. Passport ID(PassengerEntity)
3. Bus_NO(BusEntity)

Apart from the above mentioned entities you can identify more. The above mentioned are few.

Ex: Bus Entity

–

Ex: Reservation relationship

Note: *The student is required to submit a document by writing the Entities and Keys to the lab teacher*

Experiment 2: Installation of Mysql and practicing DDL, commands

Installationof MySql. In this week you will learn Creating databases, How to create tables, altering the database, dropping tables and databases if not required. You will also try truncate, rename commands etc.
Example for creation of a normalized "Passenger" table.

```
CREATE TABLE Passenger ( Passport_id INTEGER
PRIMARY      KEY,Name      VARCHAR(50) NotNULL,
AgeInteger Not NULL,
Sex Char,
Address VARCHAR (50) Not NULL);
```

Similarly create all other tables.

Note: Detailed creation of tables is given at the end. Experiment 3: Practicing DML commands

DML commands are used to for managing data within schema objects. Some examples:
- SELECT - retrieve data from the adatabase
- INSERT - insert data into atable
- UPDATE - updates existing data within atable

- DELETE-deletes all records from a table, the space for the recordsremain

Inserting values into "Bus" table:
Insert into Bus values (1234,'hyderabad', 'tirupathi');
Insert into Bus values (2345,'hyderabd' 'Banglore');
Insert into Bus values (23,'hyderabd','Kolkata');
Insert into Bus values (45,'Tirupathi,'Banglore');
Insert into Bus values (34,'hyderabd','Chennai');

Inserting values into "Passenger" table:
Insert into Passenger values (1, 45,'ramesh', 45,'M','abc123');
Insert into Passenger values (2, 78,'geetha', 36,'F','abc124');
Insert into Passenger values (45, 90,' ram', 30,'M','abc12');
Insert into Passenger values (67, 89,' ravi', 50,'M','abc14');
Insert into Passenger values (56, 22,'seetha', 32,'F','abc55');

Few more Examples of DMLcommands:
Select * from Bus; (selects all the attributes and display)
UPDATE BUS SET Bus No = 1 WHERE BUS NO=2;

Experiment 4: Querying
In this week you are going to practice queries(along with sub queries) using ANY, ALL, IN, Exists, NOT EXISTS, UNION, INTERSECT, Constraints etc.

Practice the following Queries:
Display unique PNR_no of all Passengers. Display all the names of male passengers.
Display the ticket numbers and names of all the passengers.
Find the ticket numbers of the passengers whose name start with 'r' and ends with 'h'. Find the names of passengers whose age is between 30 and 45.
Display all the passengers names beginning with 'A' Display the sorted list of passengers names

Experiment 5: Aggregate Functions and Number Functions, Nested Query and Co-related Queries You are going to practice queries using Aggregate functions and number functions(COUNT, SUM, AVG, and MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.
Write a Query to display the Information present in the Passenger and cancellation tables. Hint: Use UNION Operator.
Display the number of days in a week on which the 9W01 bus is available.
Find number of tickets booked for each PNR_no using GROUP BY CLAUSE. Hint: Use GROUP BY on PNR_No.

Find the distinct PNR numbers that are present.
Find the number of tickets booked by a passenger where the number of seats is greater than 1.Hint: Use GROUP BY, WHERE and HAVINGCLAUSES.
Find the total number of cancelled seats.

Nested Query and Co-related Queries
Use the tables sailors, reserves, boats for implementing the following
Sailors (sid: integer, sname: string, rating: integer, age: real);
Boats(bid: integer, bname: string, color: string); Reserves(sid: integer, bid: integer, day: date).
● Find the names of sailors who have reservedboat103
● Find the name and the age of the youngestsailor
● Find the names and ratings of sailor whose rating is better than some sailor called Horatio
● Find the names of sailors who have reserved allboats

Experiment 6: VIEWS and JOIN

In this week, we are going to implement views and also perform various operations like alter, update and delete commands.
View:
Write a query to execute and verify the SQL commands using Views (Use Employee Table)
(a) Alter (b) Update (c) Delete
Join:
Write a query to execute and verify the SQL commands using Join (Use Customer Table)
(a) Inner join, (b).Left join, (c).Right join (d).Full join

Experiment 7: Triggers

In this week you are going to work on Triggers. Creation of insert trigger, delete trigger, update trigger. Practice triggers using the above database.

Eg: CREATE TRIGGER up d check BEFORE UPDATE ON passenger FOR EACH ROW
BEGIN

IF NEW.Tickent N0 > 60 THEN SET
New.Tickent no = Ticket no; ELSE SET
New.Ticket no = 0; END IF;
END;

Experiment 8: Procedures
In this session you are going to learn Creation of stored procedure, Execution of procedure and modification of procedure. Practice procedures using the above database.
Eg: CREATE PROCEDURE myProc()

BEGIN
SELECT COUNT(Tickets) FROM Ticket WHERE age>=40; End;

Experiment 9: Cursors

In this week you need to do the following: Declare a cursor that defines a result set. Open the cursor to establish the result set. Fetch the data into local variables as needed from the cursor, one row at a time. Close the cursor when done.

CREATE PROCEDURE myProc (in_customer_id INT) BEGIN DECLARE v_id INT;
DECLARE v_nameVARCHAR(30);
DECLAREclCURSORFORSELECTppno,nameFROMPassengerWHERE ppno=in_customer_id; OPENcl;
FETCH cl
into v_id, v_name; Close cl; END

Tables BUS

Bus No: Varchar:

PK (Primary key) Source: Varchar Destination:

Varchar DeptTime:Varchar **Passenger**

PPNO: Varchar(15)) :

PK Name:

Varchar(15) Age : int (4) Sex:Char(I 0) : Male/Female Address: VarChar(20)

Passenger_Tickets

PPNO: Varchar(15)) : FK Ticket No: Numeric (9)

Reservation

PNR_No: Numeric(9) :

PK Journey_date :datetime(8) No_of_seats : int (8) Address: Varchar(50)

Contact_No: Numeric (9) —> Should not be less than 9 and Should not accept any other character other than Integer Status: Char (2) : Yes / No

Cancellation

PNR_No:Numeric(9):

FK Journey_date:datetime (8) No_of_seats : int (8)

Address : Varchar (50)

Contact_No: Numeric (9) —> Should not be less than 9 and should not accept any other character other than Integer

Status: Char (2) : Yes / No

Ticket

Ticket_No: Numeric(9):

PK Journey_date :datetime(8) Age : int (4)

Sex:Char(10) :Male/Female
Source :Varchar Destination :Varchar Dep_time :Varchar

Experiment 10: Normalization

Database normalization is a technique for designing relational database tables to minimize duplication of information and, in so doing, to safeguard the database against certain types of logical or structural problems, namely data anomalies. For example, when multiple instances of a given piece of information occur in a table, the possibility exists that these instances will not be kept consistent when the data within the table is updated, leading to a loss of data integrity. A table that is sufficiently normalized is less vulnerable to problems of this kind, because its structure reflects the basic assumptions for when multiple instances of the same information should be represented by a single instanceonly.

For the above table in the First normalization we can remove the multi valued attribute Ticket_id and place it in another table along with the primary key of passenger.

First Normal Form: The above table can be divided into two tables as shown below.

_____
_____

Passenger

| Name | Age | Sex | Address | PassportID |

_____
_____

Passport_id Ticket_id

_____
_____

You can do these cond and third normal forms if required. And how Normalize dtables are given at the end.

Experiment 11: PL/SQL Programs

In this week, you are going to learn and work on PL/SQL procedures.

- Write a PL/SQL procedure to find the average of marks?
- Write a PL/SQL procedure to find the factorial of a number?
- Write a PL/SQL code to calculate tax for an employee of an organization–XYZ and to display his/her name & tax, by creating table under employee database as below.

Employee_salaryEmp_no   Basic HRA DA   Total_deduction

Net_salary   Gross_salary

Experiment 12: Revoke/Grant/Commit/Rollback

In this week, you need to do the following: Declare a table that defines a result set using revoke, grant, save point, commit, rollback operations

Consider the following tables namely "DEPARTMENTS" and "EMPLOYEES" Their schemas are as follows, Departments (dept _no , dept_ name , dept_location); Employees (emp_id , emp_name , emp_salary);

1. Developaquerytograntallprivilegesofemployeestableintodepartmentstable
2. Developaquerytograntsomeprivilegesofemployeestableintodepartmentstable
3. Developaquerytorevokeallprivilegesofemployeestablefromdepartmentstable
4. Develop a query to revoke some privileges of employees table from departmentstable
5. Write a query to implement the savepoint
6. Write a query to implement thecommit
7. Write a query to implementrollback

Reference Books:
1. Introduction to SQL, RickF. Vander Lans, Pearsoneducation..
2. Oracle PL/SQL, B.Rosenzweig and E.Silvestrova, Pearsoneducation.
3. Oracle PL/SQL Programming, StevenFeuerstein,SPD.
4. SQL & PL/SQL for Oracle 10g,B lack Book, Dr.P.S.Deshpande, DreamTech
5. Oracle Database 11g PL/ SQL Programming,M.McLaughlin,TMH
6. SQL Fundamentals, J.J.Patrick, PearsonEducation

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000MC04) INDIAN CONSTITUTION
B.Tech. II YearII Sem

L T P C
2 0 0 0

Course Objective:

- To enable the students to be aware of emergence and evolution of Indian Constitution, to understand their fundamental rights and duties and to understand the structure and composition of ElectionCommission.

Course Outcome:

- Students will be able tounderstand and discuss about Indian constitution. The students will learn their Rights and Responsibilities as an Indiancitizen.

UNIT –I
Meaning and Importance of Constitution, Evolution of the constitution of India. Salient features of the constitution ofIndia

UNIT –II
Scheme of fundamental rights, fundamental duties and its legal status. The Directive Principles of State Policy- Significance and implementation

UNIT –III
Government of the Union : President of India – Election and Powers, Prime Minister and Council of Ministers, Lok Sabha – Composition and Powers, Rajya Sabha – Composition and Powers

UNIT –IV
The historical perspectives of the constitutional amendments in India. Emergency provisions: National Emergency, President Rule, Financial Emergency, Local self-government-Constitutional scheme in India

UNIT –V
Election Commission: Role and Functioning, Chief Election Commissioner and Election Commissioners, State Election Commission: Role and Functioning, Institute and Bodies for the welfare of SC/ST/OBC and women.

TEXTBOOKS:
1. The Constitution of India, 1950 (Bare Act), GovernmentPublication.
2. M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis,2014.

REFERENCES:
1. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015
2. 'Indian Administration' by Avasti andAvasti

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000HS04) MANAGEMENT SCIENCE
B.Tech. III Year I Sem

L T P C
3 0 0 3

Course Objectives:

1. To understand the concept of management, administration, organization, objectives, nature, scope, role, responsibilities & approaches of a management.
2. To understand concept & importance of OFC & different types of organization structures.
3. To understand the role of management in production through PPC, Plant Location & Layout techniques, Quality Control, Work-study.
4. To study Materials/Purchases/Stores/Inventory Management
5. To Study Management of Marketing Mix, Physical Distribution & PLC Strategies.
6. To study HRM/PMIR by Recruitment, Selection, Training & Development.
7. To Study the PPC through PERT/CPM, Estimate Time/Costs & resource leveling & smoothing.
8. To understand Strategic Mgt & SWOT, CPP & Different types of functional strategies of a SBU.
9. To study MIS, ERP, MRP, TQM, CMM, SCM, BPO, BPR, Bench Marking and Balance Score Card.

Course Outcomes:

1. Able to apply the concepts & principles of management in real life industry.
2. Able to design & develop organization chart & structure for an enterprise.
3. Able to apply PPC techniques, Quality Control, Work-study principles in real life industry.
4. Able to maintain Materials departments, & Determine EOQ Able to identify Marketing Mix Strategies for an enterprise.
5. Able to apply the concepts of HRM in Recruitment, Selection, Training & Development .
6. Able to develop PERT/CPM Charts for projects of an enterprise and estimate time & cost of project.

UNIT – I

Introduction to Management and Organisation: Concepts of Management and organization- nature, importance and Functions of Management, - Taylor's Scientific Management Theory- Fayal's Principles of Management- Maslow's theory of Hierarchy of Human Needs- Douglas McGregor's Theory X and Theory Y - Hertzberg Two Factor Theory of Motivation - Leadership Styles, Designing Organizational Structures: Basic concepts related to Organization - Departmentation and Decentralization,

UNIT – II

Operations and Marketing Management: Principles and Types of Plant LayoutMethods of Production(Job, batch and Mass Production), Work Study - Basic procedure involved in Method Study and Work Measurement - Statistical Quality Control: control charts for Variables and Attributes (simple Problems) and Acceptance Sampling, TQM, Six Sigma, Objectives of Inventory control, EOQ, ABC Analysis, Purchase Procedure, Stores Management and Store Records - JIT System, Supply Chain Management, Functions of Marketing, Marketing Mix, and Marketing Strategies based on Prodcut Life Cycle, Channels of distribution.

UNIT – III

 Human Resources Management(HRM): Concepts of HRM, HRD and Personnel Management and Industrial Relations (PMIR), HRM vs PMIR, Basic functions of HR Manager: Manpower planning, Recruitment, Selection, Training and Development, Plcement, Wage and Salary Administration, , Performance Appraisal, Job Evaluation and Merit Rating - Performance Management System.

UNIT - IV

Project Management (PERT/ CPM): Network Analysis, Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Identifying critical path, Probability of Completing the project within given time, Project Cost Analysis, (simple problems)

UNIT - V

Strategic Management and Contemporary Strategic Issues: Mission, Goals, Objectives, Policy, Strategy, Programmes, Environmental Scanning, Value Chain Analysis, SWOT Analysis, Steps in Strategy Formulation and Implementation, Generic Strategy alternatives. Bench Marking and Balanced Score Card as Contemporary Business Strategies.

TEXT BOOKS

1. Stoner, Freeman, Gilbert, Management, 6th Ed, Pearson Education, New Delhi, 2004.
2. P. Vijay Kumar, N. Appa Rao and Ashnab, Chnalill, Cengage Learning India, 2012.

REFERENCE BOOKS

1. Kotler Philip and Keller Kevin Lane: Marketing Management, Pearson, 2012.
2. Koontz and Weihrich: Essentials of Management, McGraw Hill, 2012.
3. Thomas N. Duening and John M. Ivancevich Management - Principles and Guidelines, Biztantra, 2012.
4. Kanishka Bedi, Production and Operations Management, Oxford Uiversity Press, 2012.
5. Samuel C. Certo: Modern Management, 2012.
6. Schermerhorn, Capling, Poole and Wiesner: Management, Wiley, 2012.
7. Parnell: Strategic Management, Cengage, 2012. 8. Lawrence R Jauch, R. Gupta and William F. Glueck: Business Policy and Strategic Management Science, McGraw Hill,

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC09) COMPILER DESIGN
B.Tech. III Year I Sem

L T P C
3 0 0 3

Course Objectives:

☐ To provide an initial Understanding of language translators, Knowledge of various techniques used in compiler construction and also use of the automated tools available in compilers construction.☐

Course Outcomes:

By the end of the semester, the student will be able to:

☐ Understand the necessity and types of different language translators inuse.☐

☐ Apply the techniques and design different components (phases) of a compiler by hand.☐

☐ Solve problems, Write Algorithms, Programs and test them for the results.☐

☐ Use the tools Lex, Yacc in compiler construction.☐

UNIT – I:

Language Translation: Basics, Necessity, Steps involved in atypical language processing system, Types of translators, Compilers: Overview and Phases of a Compiler, Pass and Phases of translation, bootstrapping, data structures in compilation

Lexical Analysis (Scanning): Functions of Lexical Analyzer, Specification of tokens: Regular expressions and Regular grammars for common PL constructs. Recognition of Tokens: Finite Automata in recognition and generation of tokens. Scanner generators: LEX-Lexical Analyzer Generators.

UNIT – II:

Syntax Analysis (Parsing): Functions of a parser, Classification of parsers. Context free grammars in syntax specification,

Top down parsing –Definition, types of top down parsers: Backtracking, Recursive descent, Predictive, LL (1), Preprocessing the grammars to be used in top down parsing, Error recovery, and Limitations. Bottom up parsing: Definition, types of bottom up parsing, Handle pruning. Shift Reduce parsing, LR parsers: LR(0), SLR, CALR and LALR parsing, Error recovery, Handling ambiguous grammar, Parser generators: YACC-yet another compile.

UNIT – III:

Semantic analysis: Attributed grammars, Syntax directed definition and Translation schemes, Type checker: functions, type expressions, type systems, types checking of various constructs.

Intermediate Code Generation: Functions, different intermediate code forms- syntax tree, DAG, Polish notation, and Three address codes. Translation of different source language constructs into intermediate code.

Symbol Tables: Definition, contents, and formats to represent names in a Symbol table. Different approaches used in the symbol table implementation for block structured and non block structured languages, such as Linear Lists, Self Organized Lists, and Binary trees, Hashing based STs.

UNIT –IV:

Runtime Environment: Introduction, Activation Trees, Activation Records, Control stacks. Runtime storage organization: Static, Stack and Heap storage allocation. Storage allocation for arrays, strings, and records etc.

Code optimization: goals and Considerations for Optimization, Scope of Optimization: Local optimizations, DAGs, Loop optimization, Global Optimizations. Common optimization techniques: Folding, Copy propagation, Common Sub expression eliminations, Code motion, Frequency reduction, Strength reduction etc.

UNIT – V:

Control flow and Data flow analysis: Flow graphs, Data flow equations, global optimization: Redundant sub expression elimination, Induction variable eliminations, Live Variable analysis. Object code generation: Object code forms, machine dependent code optimization, register allocation and assignment generic code generation algorithms, DAG for register allocation.

TEXT BOOKS:

1. Compilers, Principle, Techniques, and Tools. – Alfred.VAho, Monica S.Lam, Ravi Sethi, Jeffrey D. Ullman ; 2nd Edition, Pearson Education.

2. Modern Compiler implementation in C , - Andrew N.Appel Cambridge University Press.

REFERENCES:

1.lex&yacc, -John R Levine, Tony Mason, Doug Brown;O'reilly.

2.Compiler Construction,-LOUDEN,Thomson.

3. Engineering a compiler – Cooper&Linda,Elsevier

4. Modern Compiler Design – Dick Grune, Henry E.Bal, Cariel TH Jacobs, Wiley Dreatech

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC10) DESIGN AND ANALYSIS OF ALGORITHMS
B.Tech. III Year I Sem

L T P C
3 0 0 3

Course Objectives:

☐ To analyze performance of algorithms.☐

☐ To choose the appropriate data structure and algorithm design method for a specified application.☐

☐ To understand how the choice of data structures and algorithm design methods impacts the performance of programs.☐

☐ To solve problems using algorithm design methods such as the greedy method, divide and conquer, dynamic programming, backtracking and branch and bound.☐

☐ Prerequisites (Subjects) Data structures, Mathematical foundations of computer science.☐

Course Outcomes:

☐ Be able to analyze algorithms and improve the efficiency of algorithms.☐

☐ Apply different designing methods for development of algorithms to realistic problems, such as divide and conquer, greedy and etc. Ability to understand and estimate the performance of algorithm.☐

UNIT - I

Introduction-Algorithm definition, Algorithm Specification, Performance Analysis-Space complexity, Time complexity, probabilistic analysis Randomized Algorithms.

Divide and conquer- General method, applications - Binary search, Merge sort, Quick sort, Strassen's Matrix Multiplication.

UNIT - II

Disjoint set operations- union and find algorithms, Efficient non-recursive binary tree traversal algorithms, spanning trees, graph traversals- BFS and DFS, AND/OR graphs, Game Tree, Connected Components and Spanning trees, Bi-connected components

UNIT - III

Greedy method- General method, applications- Knapsack problem, Job sequencing with deadlines, Minimum cost spanning trees, Single source shortest path problem.

Dynamic Programming- General Method, applications- All pairs shortest path problem, Optimal binary search trees, 0/1 knapsack problem, Reliability design, Traveling sales person problem.

UNIT - IV

Backtracking-General method, applications-The 8-queen problem, sum of subsets problem, graph coloring, Hamiltonian cycles.

Branch and Bound- General Method, applications-0/1 Knapsack problem, LC Branch and Bound solution, traveling sales person problem.

UNIT - V

NP- Hard and NP-Complete problems- Basic concepts, Non-deterministic algorithms, NP - Hard and NP- Complete classes, Cook's theorem.

TEXT BOOKS:

1. Fundamentals of Computer Algorithms, 2nd Edition, Ellis Horowitz, SartajSahniand S. Raja sekharan, Universities Press.

2. Design and Analysis of Algorithms, P. H. Dave, H. B. Dave, 2ndedition, Pearson Education.

REFERENCE BOOKS:

1. Algorithm Design: Foundations, Analysis and Internet examples, M. T. Goodrich and R. Tomassia, John Wiley andsons.
2. Design and Analysis of Algorithms, S. Sridhar, Oxford Univ. Press
3. Design and Analysis of algorithms, Aho, Ullman and Hopcroft, Pearson Education.
4. Foundations of Algorithms,, R. Neapolitan and K. Naimipour, 4thedition, Jones and Bartlett Student edition.
5. Introduction to Algorithms, 3rdEdition, T. H. Cormen, C. E. Leiserson, R. L. Rivest, and C. Stein, PHI

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC11) COMPUTER NETWORKS
B.Tech. III Year I Sem

L T P C
3 0 0 3

Course Objectives:

 To introduce the fundamental various types of computer networks.

 To demonstrate the TCP/IP and OSI models with merits and demerits.

 To explore the various layers of OSI Model.

 To introduce UDP and TCP Models.

 To introduce Encryption Security Mechanism

Course Outcomes:

 Students should be understand and explore the basics of Computer Networks and various Protocols. She will be in a position to understand the World Wide Web concepts.

 Students will be in a position to administrate a network and flow of information further he/she can understand easily the concepts of network security, Mobile and Adhoc networks.

UNIT – I

Data Communications: Components – Direction of Data flow – Networks – Components and Categories – Types of Connections – Topologies –Protocols and Standards – ISO / OSI model, Physical layer: Transmission modes, Multiplexing, Transmission Media, Switching, Circuit Switched Networks, Datagram Networks and Virtual Circuit Networks.

UNIT – II

Data link layer: Introduction, Framing, and Error – Detection and Correction – Parity – LRC– CRC Hamming code, Flow and Error Control, Noiseless Channels, Noisy Channels, HDLC, Point to Point Protocols. 111 Medium Access sub layer: ALOHA, CSMA/CD, LAN– Ethernet IEEE 802.3, IEEE 802.5 – IEEE 802.11, Random access, Controlled access

UNIT – III

Network layer: Logical Addressing, Internetworking, Tunneling, Address mapping, ICMP, IGMP, Forwarding, Uni-Cast Routing Protocols, Multicast Routing Protocols.

UNIT – IV

Transport Layer: Process to Process Delivery, UDP and TCP protocols, Data Traffic, Congestion, Congestion Control, QoS, Integrated Services, Differentiated Services, QoS in Switched Networks.

UNIT – V

Application Layer: Domain name space, DNS in internet, electronic mail, SMTP, FTP, WWW, HTTP, SNMP, Security – PGP - SSH

TEXT BOOKS:

1. Data Communications and Networking, Behrouz A. Forouzan , Fourth Edition TMH, 2006.

2. Computer Networks, Andrew S Tanenbaum, 4th Edition. Pearson Education, PHI.

REFERENCES:

1. Data communications and Computer Networks, P.C .Gupta, PHI.

2. An Engineering Approach to Computer Networks, S. Keshav, 2nd Edition, Pearson

Education.

3. Understanding communications and Networks, 3rd Edition, W.A. Shay, Cengage Learning.

4. Computer Networking: A Top-Down Approach Featuring the Internet. James F. Kurose & Keith W. Ross, 3 rd Edition, Pearson Education.

5. Data and Computer Communication, William Stallings, Sixth Edition, Pearson Education, 2000

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE- 1

(2005PE01) ARTIFICIAL NEURAL NETWORKS
B.Tech. III Year I Sem

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Course Objective:
This course introduces the basics of Neural Networks and essentials of Artificial Neural Networks with Single Layer and Multi-layer Feed Forward Networks. Also deals with Associate Memories and introduces Fuzzy sets and Fuzzy Logic system components. The Neural Network and Fuzzy Network system application to Electrical Engineering is also presented. This subject is very important and useful for doing Project Work.

Course Outcome:
After going through this course the student gets a thorough knowledge on, biological neurons and artificial neurons, comparative analysis between human and computer, artificial neural network models, characteristics of ANN's, different types of activation functions, learning strategies, learning rules, perceptron models, single and multi layer feed-forward and feed—back neural networks, back-propagation algorithm, Kolmogorov Theorem, different types of associative memories and basics of fuzzy logic, concept of classical and fuzzy sets, fuzzy logic system components fuzzification and defuzzification, with which he/she can able to apply the above conceptual things to real-world electrical and electronics problems and applications.

Unit – I
Introduction: Neural network, Human brain, biological and artificial Neurons, model of Neuron Knowledge representation, Artificial intelligence and Neural network, Network architecture, Basic Approach of the working of ANN – training, Learning and generalization.

Unit – II
Supervised learning: Single- layer networks, perception-linear separability, limitations of multi layernetwork architecture, back propagation algorithm (BPA) and other training algorithms, applications of adaptive multi-layer network architecture, recurrent network, feedfor-word
networks, radial- basis-function (RBF) networks.

Unit – III
Unsupervised learning: Winner-takes-all networks, Hamming networks, maxnet, simple competitive learning vector-quantization, counter-propagation network, adaptive resonance theory, Kohonen's self-organizing maps, principal component analysis.

Unit – IV
Associated models: Hopfield networks, brain-in-a-box network, Boltzman machine.

Unit - V
Optimization methods: Hopfield networks for-TSP, solution of simultaneous linear equations, Iteratedradiant descent, simulated annealing, fenetic algorithm.

Text Books:
1. Simon Haykin, "Neural Networks – A Comprehensive Foundation", Macmillan Publishing Co., NewYork, 1994.
2. K. Mahrotra, C.K. Mohan and Sanjay Ranka, "Elements of Artificial Neural Networks", MIT Press,1997 – Indian Reprint Penram International Publishing (India), 1997

Reference Books:
1. A Cichocki and R. Unbehauen, "Neural Networks for optimization and Signal processing", John Wiley and Sons, 1993.

2. J.M. Zurada, "Introduction to Artificial Neural networks", (Indian edition) Jaico Publishers, Mumbai, 1997.
3. Limin Fu. "Neural Networks in Computer Intelligence", TMH.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL EECTIVE-I
(2012PE01) FOUNDATIONS OF DATA SCIENCE
B.Tech. IIIYear I Sem

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CourseObjectives:
The course is aimed at
1. Building the fundamentals of data science.
2. Imparting design thinking capability to build big-data
3. Developing design skills of models for big data problems
4. Gaining practical experience in programming tools for data sciences
5. Empowering students with tools and techniques used in data science

CourseOutcomes:
At the end of the course the student should be able to:
1. Apply data visualization in big-data analytics
 2. Utilize EDA, inference and regression techniques
3. Utilize Matrix decomposition techniques to perform data analysis
4. Apply data pre-processing techniques
 5. Apply Basic Machine Learning Algorithms

UNIT-1
Big Data and Data Science - Big Data Analytics, Business intelligence vs Big data, big data frameworks, Current landscape of analytics, data visualization techniques, visualization software.
Exploratory Data Analysis (EDA), Statistical measures, Basic tools (plots, graphs and summary statistics) of EDA, Data Analytics Lifecycle, Discovery.

UNIT-2

Developing Initial Hypotheses, Identifying Potential Data Sources, EDA case study, testing hypotheses on means, proportions and variances

UNIT-3
Regression models: Simple linear regression, least-squares principle, MLR, logistic regression, Multiple correlation, Partial correlation.
Matrices to represent relations between data, Linear algebraic operations on matrices – Matrix decomposition: Singular Value Decomposition (SVD) and Principal Component Analysis (PCA).

UNIT-4
Data cleaning - Data integration - Data Reduction - Data Transformation and Data Discretization, Feature Generation and Feature Selection, Feature Selection algorithms: Filters-Wrappers - Decision Trees -

UNIT-5

Random Forests.
Classifiers - Decision tree - Naive Bayes - k-Nearest Neighbors (k-NN), k-means – SVM
Association Rule mining – Ensemble methods.

TEXT BOOKS
1.Mining of Massive Datasets. v2.1, Jure Leskovek, Anand Rajaraman and Jefrey Ullman.,
Cambridge University Press. (2019). (free online)
2.Big Data Analytics, paperback 2nd ed., Seema Acharya, Subhasini Chellappan, Wiley (2019).
REFERENCE BOOKS
1.Doing Data Science, Straight Talk From The Frontline, Cathy O'Neil and Rachel Schutt,
O'Reilly (2014).
2.Data Mining: Concepts and Techniques", Third Edition, Jiawei Han, Micheline Kamber and
Jian Pei, ISBN 0123814790,(2011).
3.Big Data and Business Analytics, Jay Liebowitz, CRC press (2013)
4.Data mining methods,2nd edition, C. Rajan, Narosa (2016)

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL EECTIVE-I

(2005PE02) Computer Graphics & Multimedia
B.Tech. IIIYear I Sem

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OUTCOMES:

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

• Design two dimensional graphics.

• Apply two dimensional transformations.

• Design three dimensional graphics.

• Apply three dimensional transformations.

• Apply Illumination and color models.

• Apply clipping techniques to graphics.

• Understood Different types of Multimedia File Format

• Design Basic 3d Scenes using Blender

OBJECTIVES:

• To develop an understanding and awareness how issues such as content, information architecture, motion, sound, design, and technology merge to form effective and compelling interactive experiences for a wide range of audiences and end users.

• To become familiar with various software programs used in the creation and implementation of multi- media

• To appreciate the importance of technical ability and creativity within design practice.

• To gain knowledge about graphics hardware devices and software used.

• To understand the two-dimensional graphics and their transformations.

• To understand the three-dimensional graphics and their transformations.

• To appreciate illumination and color models

• To become familiar with understand clipping techniques

• To become familiar with Blender Graphics

UNIT I   ILLUMINATION AND COLOR MODELS

Light sources - basic illumination models – halftone patterns and dithering techniques; Properties of light - Standard primaries and chromaticity diagram; Intuitive colour concepts - RGB colour model - YIQ colour model - CMY colour model - HSV colour model - HLS colour model; Colour

selection. Output primitives – points and lines, line drawing algorithms, loading the frame buffer, line function; circle and ellipse generating algorithms; Pixel addressing and object geometry, filled area primitives.

## UNIT II	TWO-DIMENSIONAL GRAPHICS

Two dimensional geometric transformations – Matrix representations and homogeneous coordinates, composite transformations; Two dimensional viewing – viewing pipeline, viewing coordinate reference frame; window-to-viewport coordinate transformation, Two dimensional viewing functions; clipping operations – point, line, and polygon clipping algorithms.

## UNIT III	THREE-DIMENSIONAL GRAPHICS

Three dimensional concepts; Three dimensional object representations – Polygon surfaces- Polygon tables- Plane equations - Polygon meshes; Curved Lines and surfaces, Quadratic surfaces; Blobby objects; Spline representations – Bezier curves and surfaces -B-Spline curves and surfaces. TRANSFORMATION AND VIEWING: Three dimensional geometric and modeling transformations – Translation, Rotation, Scaling, composite transformations; Three dimensional viewing – viewing pipeline, viewing coordinates, Projections, Clipping; Visible surface detection methods.

## UNIT IV	MULTIMEDIA SYSTEM DESIGN & MULTIMEDIA FILE HANDLING

Multimedia basics − Multimedia applications − Multimedia system architecture − Evolving technologies for multimedia − Defining objects for multimedia systems − Multimedia data interface standards − Multimedia databases. Compression and decompression − Data and file format standards − Multimedia I/O technologies − Digital voice and audio − Video image and animation − Full motion video − Storage and retrieval technologies.

## UNIT V	HYPERMEDIA

Multimedia authoring and user interface - Hypermedia messaging -Mobile messaging − Hypermedia message component − Creating hypermedia message − Integrated multimedia message standards − Integrated document management − Distributed multimedia systems. CASE STUDY: BLENDER GRAPHICS Blender Fundamentals – Drawing Basic Shapes – Modelling – Shading & Textures

TEXT BOOKS:

1. Donald Hearn and Pauline Baker M, ―Computer Graphics", Prentice Hall, New Delhi, 2007 [UNIT I – III]

2. Andleigh, P. K and Kiran Thakrar, ―Multimedia Systems and Design‖, PHI, 2003. [UNIT IV,V]

REFERENCES:

1.Judith Jeffcoate, ―Multimedia in practice: Technology and Applications‖, PHI, 1998.

2. Foley, Vandam, Feiner and Hughes, ―Computer Graphics: Principles and Practice‖, 2nd Edition, Pearson Education, 2003.

3. Jeffrey McConnell, ―Computer Graphics: Theory into Practice‖, Jones and Bartlett Publishers,2006.

4.Hill F S Jr., "Computer Graphics", Maxwell Macmillan , 1990.

5. Peter Shirley, Michael Ashikhmin, Michael Gleicher, Stephen R Marschner, Erik Reinhard, Kel-vinSung, and AK Peters, ―Fundamentals of Computer Graphics‖, CRC Press, 2010.

6. William M. Newman and Robert F.Sproull, ―Principles of Interactive Computer Graphics‖ Mc Graw Hill 1978.

https://www.blender.org/support/tutorials/

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC65) DESIGN AND ANALYSIS OF ALGORITHMS LAB
B.Tech. III Year I Sem

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Course Objectives:

□ To write programs in java to solve problems using divide and conquer strategy. □

□ To write programs in java to solve problems using backtracking strategy. □

□ To write programs in java to solve problems using greedy and dynamic programming techniques. □

Course Outcomes:

□ Ability to write programs in java to solve problems using algorithm design techniques such as Divide and Conquer, Greedy, Dynamic programming, and Backtracking. □

List of Experiment

1. Write a java program to implement Quick sort algorithm for sorting a list of integers in ascending order

2. Write a java program to implement Merge sort algorithm for sorting a list of integers in ascending order.

3. Write a java program to implement the dfs algorithm for a graph.

4. Write a. java program to implement the bfs algorithm for a graph.

5. Write a java programs to implement backtracking algorithm for the N-queens problem.

6. Write a java program to implement the backtracking algorithm for the sum of subsets problem.

7. Write a java program to implement the backtracking algorithm for the Hamiltonian Circuits problem.

8. Write a java program to implement greedy algorithm for job sequencing with deadlines.

9. Write a java program to implement Dijkstra's algorithm for the Single source shortest path problem.

10. Write a java program that implements Prim's algorithm to generate minimum cost spanning tree.

11. Write a java program that implements Kruskal's algorithm to generate minimum cost spanning tree

12. Write a java program to implement Floyd's algorithm for the all pairs shortest path problem.

13. Write a java program to implement Dynamic Programming algorithm for the 0/1 Knapsack problem.

TEXT BOOKS:

1. Fundamentals of Computer Algorithms, 2nd Edition, Ellis Horowitz, Sartaj Sahni and S. Rajasekharan, Universities Press.

2. Design and Analysis of Algorithms, P. H. Dave, H. B. Dave, 2nd edition, Pearson Education.

3. Java: The Complete Reference, Eleventh Edition, 11th Edition by Herbert Schildt Publisher(s): McGraw-Hill

REFERENCE BOOKS:

1. Levitin A, "Introduction to the Design And Analysis of Algorithms", Pearson Education, 2008.
2. Goodrich M.T.,R Tomassia, "Algorithm Design foundations Analysis and Internet Examples", John Wileyn and Sons, 2006.
3. Base Sara, Allen Van Gelder ," Computer Algorithms Introduction to Design and Analysis", Pearson, 3 rd Edition, 1999

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC66) COMPUTER NETWORKS LAB
B.Tech. III Year I Sem

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Course Objectives:
- To understand the functionalities of various layers of OSI model
- To understand the operating System functionalities

Course Outcomes:
- Ability to understand the encryption and decryption concepts in Linux environment
- Ability to understand the mechanism of Noiseless channel.
- Ability to apply appropriate algorithm for the finding of shortest route.
- Ability to configure the routing table and Routing protocol

System/ Software Requirement
Intel based desktop PCs LAN CONNECTED with minimum of 166 MHZ or faster processor with at least 64 MB RAM and 100 MB free disk space

Computer Networks Lab:
1. Implement the data link layer framing methods such as character, character stuffing, and bit stuffing.
2. Implement on a data set of characters the three CRC polynomials – CRC 12, CRC 16 and CRC.
3. Implement Stop and wait protocol.
4. Implement Dijkstra's algorithm to compute the Shortest path through a graph.
5. Take an example subnet graph with weights indicating delay between nodes. Now obtain Routing table art each node using distance vector routing algorithm
6. To implement Open Shortest Path First (OSPF) Routing Protocol
7. Take a 64 bit playing text and encrypt the same using DES algorithm
8. Using RSA algorithm encrypts a text data and Decrypt the same.

REFERENCES:
1. Data Communications and Networking – Behrouz A. Forouzan, 4th Edition McGraw Hill Education, 2006.
2. Computer Networking: A Top-Down Approach Featuring the Internet, James F. Kurose, K. W. Ross, 3rd Edition, Pearson Education.
3. Data communication and Networks – Bhusan Trivedi, Oxford University Press 2016.
4. An Engineering Approach to Computer Networks-S.Keshav, 2nd Edition, Pearson Education.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000MC05) TECHNICAL COMMUNICATIONS AND SOFT SKILLS
B.Tech. III Year I Sem

L T P C
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Introduction:

Technical Communication and Soft skills focuses on enhancing students' communication. A thorough drill in grammar exercises is given. Various technical writing styles and skills are developed. The future placement needs of the students are met by giving them an exposure to group discussions and mock interviews.

The students hone these skills under the guidance of instructor whose constant evaluation helps in the professional development. This course fulfills the need of the aspirants in acquiring and improving the skills required for placements and professional success.

Course Objectives:

• To make the students recognize the role of Technical English in their academic and professional fields.

• To improve language proficiency and develop the required professional skills.

• To equip students with tools to organize, comprehend, draft short and long forms of technical work.

Course Outcomes:

• The students will be able to understand information which assists in completion of the assigned job tasks more successfully.

• Students will be able to communicate their ideas by writing projects, reports, instructions, diagrams and many other forms of professional writing.

• Students will also be able to adhere to ethical norms of scientific communication.

• Students will be able to strengthen their individual and collaborative work strategies

UNIT I – Personal Evaluation

Self-Assessment and Self- Awareness - Self-Esteem - Perception and Attitudes - Values and Beliefs - Time Management- Concord

UNIT 2 - Professional Communication

Extempore - Oral Presentations – Presentation Aids- Email Writing, Business Letter Writing - Memo Writing - Transformation of Sentences

UNIT 3 – Career Planning

Group Discussion, Interviews - Leadership Skills & Team Building - Personal Goal Setting and Career Planning - Complex Problem Solving - Creativity - Role and Responsibilities of an Engineer - Tenses

UNIT 4 - Technical Writing

Principles of Effective Writing - Editing Strategies to Achieve Appropriate Technical Style – Technical Report Writing - Voice

UNIT 5 - Ethics and Responsibilities

Personality Development in Social and Office Settings – Netiquettes - Work Culture and Cubicle Etiquettes - Correction of Sentences

TEXT BOOKS:

1. David F. Beer and David Mc Murrey, Guide to writing as an Engineer, John Willey. New York,2004

2. Diane Hacker, Pocket Style Manual, Bedford Publication, New York, 2003. (ISBN

0312406843)
3. Shiv Khera, You Can Win, Macmillan Books, New York, 2003.

REFERENCES:

1. Raman Sharma, Technical Communications, Oxford Publication, London, 2004.
2. Meenakshi Raman, Prakash Singh, Business communication, Oxford Publication, New Delhi2012.
3. Dale Jung k, Applied Writing for Technicians, McGraw Hill, New York, 2004. (ISBN: 07828357-4)
4. Sharma, R. and Mohan, K. Business Correspondence and Report Writing, TMH New Delhi2002.
5. Xebec, Presentation Book, TMH New Delhi, 2000. (ISBN0402213)

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000HS02) PROFESSIONAL ENGLISH
B.Tech. III Year II Sem

L T P C
3 0 0 3

Introduction:
English is a tool for global communication and is the dominant language which is sweeping almost all the fields in the world. It has become a necessity for people to speak in English comfortably, if they want to enter the global workforce. Hence, the course is designed to help the students to meet the global standards. Each unit focuses on English skill-set to improve: Interview skills, giving presentations and professional etiquette.

Course Objectives:
1. To enrich students to express themselves appropriately and fluently in professional contexts.
2. To enhance their employability through regular participation in group discussions and interview skills.
3. To lay foundation with writing strategies for the future workplace needs.
4. To acquaint students with different components of professional presentation skills.
5. To equip students with necessary training in listening to comprehend dialects of English language.

Course Outcomes:
Students will be able to:
1. Draft coherent and unified paragraphs with adequate supporting details.
2. Demonstrate problem solving skills, decision-making skills, analytical skills.
3. Comprehend and apply the pre-interview preparation techniques for successful interview.
4. Achieve expertise in writing resume and cover letter formats.
5. Understand the steps of writing 'Reports and Abstract'.

UNIT I- FOCUS ON LANGUAGE

Parts of speech - nominal compounds, noun phrases - relative pronoun - adjective - numerical, comparison and contrast, collocation and word combinations - verb - preposition and relative - conjunction- connectives, expressions of purpose and function, cause and effect - articles - adjectives - sentence pattern - tenses - voice - rewriting the sentences in impersonal/abbreviated passive grammatical structures - concord - sentence level verb noun agreement - gerund - rewriting infinitive into gerund - imperative - rewriting imperative into recommendation using should - word formation - varied grammatical function of the same word - affixes – prefix and suffix, number prefix, negative prefix - reported speech - editing strategies - conditional structures - real, unreal, no possibility, zero condition. Writing formal definition - abbreviation and acronym - idioms and phrases varieties of English - British versus American.

UNIT II -LISTENING SKILLS

Comprehension practice - vocabulary development - familiarity to varied types of spoken English and accents - developing ability to understand audio and video media - aiming at overcoming barriers to listening - listening to documentaries, radio news broadcasts, TV news telecasts - active listening in discussions and to lectures - taking notes while listening - extracting information from listening.

UNIT III -SPEAKING SKILLS

Oral practice - role play - interplay - seminar – trans coding visual into oral - participating in short and longer conversation - voice record, replay, correction of intonation, pronunciation and flow of speech - phonemes - vowels, consonants, stress, rhythm, intonation - group

discussion - participative learning - acquiring proficiency, fluency, accuracy in oral communication - speaking practice - developing confidence - extempore speech - learning professional/conversational etiquette – Oral presentation skills.

UNIT IV- READING SKILLS

Vocabulary extension - improving vocabulary - intensive reading - reading strategies - identifying topic sentence - guessing meaning from content - picking out specific information - professional reading - reading practice - predicting the content, critical and analytical reading - reading articles in English newspapers, sports magazines, encyclopedias - reading aloud, use of stress and intonation - reading and comprehending technical materials - cloze reading.

UNIT V- WRITING SKILLS

Discourse cohesion - improving writing skills, avoiding common grammatical errors in academic writing - extending the hints - writing shorter sentences - punctuation - dialogue writing - paragraph writing, problems and solutions, achieving coherence, transition words, sequence words - essays of descriptive and argumentative - writing instructions, use of imperatives - jumbled sentences into sequential paragraph using linguistic clues - report writing - technical reports, industry visit reports, events reports - writing recommendations - letter writing - formal and informal letters, e-mail writing - job application and resume, permission for in-plant training, business correspondence letters, calling for quotation, placing order, lodging complaint, persuasive letters - assignment writing - mini-project – telephonic etiquette- transcoding - transferring of information from text to pictorial/graphical representation and vice versa.

TEXT BOOKS:

1. Practical English Usage. Michael Swan. OUP.1995.
2. Remedial English Grammar. F.T. Wood.Macmillan.2007
3. On Writing Well. William Zinsser. Harper Resource Book.2001

REFERENCE BOOKS:

1. Study Writing. Liz Hamp-Lyons and Ben Heasly. Cambridge University Press.2006.
2. Communication Skills. Sanjay Kumar and PushpLata. Oxford University Press.2011.
3. Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford UniversityPress

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2012PC01) DATA WAREHOUSING AND DATA MINING
B.Tech. III Year II Sem

L T P C
3 0 0 3

Course Objectives:
• Study data warehouse principles and its working learn data mining concepts.
• To understand association rules mining.
• Discuss classification algorithms.
• Learn how data is grouped using clustering techniques.

Course Outcomes:
• Student should be able to understand why the data warehouse in addition to database systems.
• Ability to perform the pre-processing of data and apply mining techniques on it.
• Ability to identify the association rules, classification and clusters in large datasets.
• Ability to solve real world problems in business and scientific information using data mining

UNIT-I
Data Warehouse: Introduction to Data warehouse, Difference between operational database systems and data warehouses, Data warehouse Characteristics, Data warehouse Architecture and its Components, Extraction- Transformation-Loading, Logical(Multi- Dimensional), Data Modeling, Schema Design, Star and Snow-Flake Schema, Fact Constellation, Fact Table, Fully Addictive, Semi-Addictive, Non Addictive Measures; Fact- Less-Facts, Dimension Table Characteristics; OLAP Cube, OLAP Operations, OLAP Server Architecture- ROLAP, MOLAP and HOLAP.

UNIT-II
Introduction: Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Data Mining Task Primitives, Integration of a Data Mining System with a Database or Data Warehouse System, Major issues in DataMining.
Data Preprocessing: Need for Preprocessing the Data, Data Cleaning, Data Integration &Transformation, Data Reduction, Discretization and Concept Hierarchy Generation**.**

UNIT-III
Association Rules: Problem Definition, Frequent Item Set Generation, The APRIORI Principle, Support and Confidence Measures, Association Rule Generation; APRIOIRI Algorithm, The Partition Algorithms, FP-Growth

Algorithms, Compact Representation of Frequent Item Set- Maximal Frequent Item Set, Closed Frequent Item Set.

UNIT-IV
Classification: Problem Definition, General Approaches to solving a classification problem, Evaluation of Classifiers , Classification techniques, Decision Trees- Decision tree Construction, Methods for Expressing attribute test conditions, Measures for Selecting the Best Split, Algorithm for Decision tree Induction ; Naive-Bayes Classifier, Bayesian Belief Networks; K- Nearest neighbor classification- Algorithm and Characteristics.
Prediction: Accuracy and Error measures. Evaluating the accuracy of a Classifier or a

Predictor, Ensemble Methods.

UNIT-V

Cluster Analysis: Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Hierarchical Methods, Density-Based Methods, Grid-Based Methods, and Model based Clustering Methods, Outlier Analysis.

TEXT BOOKS:

1) Data Mining- Concepts and -1.chniques- Jiawei Han, Micheline Kamber, Morgan Kaufmann Publishers, Elsevier, 2Edition,2006.
2) Introduction to Data Mining, Psng-Ning Tan, Vipin Kumar, Michael Steinbanch, Pearson Educator.

REFERENCE BOOKS:

1) Data Mining Techniques, Arun KPujari, 3rd Edition, Universities Press.
2) Data Warehousing Fundament's, Pualraj Ponnaiah, Wiley Student Edition.
3) The Data Warehouse Life CycleToolkit — Ralph Kimball, Wiley Student Edition.
4) Data Mining, VikaramPudi, P Rddha Krishna, Oxford UniversityPress

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2012PC02) WEB TECHNOLOGIES
B.Tech. III Year II Sem

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Course Objectives:
- To introduce PHP language for server side scripting
- To introduce XML and processing of XML Data with Java
- To introduce Server side programming with Java Servlets and JSP
- To introduce Client side scripting with Javascript and AJAX.

Course Outcomes:
- Gain knowledge of client side scripting, validation of forms and AJAX programming
- have understanding of server side scripting with PHP language
- have understanding of what is XML and how to parse and use XML Data with Java
- To introduce Server side programming with Java Servlets and JSP

UNIT- I
Introduction to the Web - Concept of Internet- History of Internet, Protocols of Internet, World Wide Web, URL, Web Server, Web Browser. Hyper Text Markup Language (HTML), HTML Elements, Attributes and Tags, Basic Tags, Advanced Tags – Tables, Forms, Frames, Images, Cascading Style Sheet (CCS)

UNIT – II
Client side Scripting: Introduction to Javascript: Javascript language - declaring variables, scope of variables, functions, event handlers (onclick, onsubmit etc.), Form validation, Simple AJAX Application. XML: Introduction to XML, XML DTD, W3C XML Schema, Parsing XML, XPath, XML Transformation, Document Object Model, XHTML

UNIT - III
Introduction to Servlets: Common Gateway Interface (CGI), Lifecycle of a Servlet, deploying a servlet, The Servlet API, Reading Servlet parameters, Reading Initialization parameters, Handling Http Request & Responses, Using Cookies and Sessions, connecting to a database using JDBC.

UNIT – IV
Introduction to JSP: The Anatomy of a JSP Page, JSP Processing, Declarations, Directives, Expressions, Code Snippets, implicit objects, Using Beans in JSP Pages, Using Cookies and session for session tracking, connecting to database in JSP.

UNIT- V
Introduction to PHP: Declaring variables, data types, arrays, strings, operators, expressions, control structures, functions, Reading data from web form controls like text boxes, radio buttons, lists etc., Handling File Uploads, Connecting to database (MySQL as reference), executing simple queries, handling results, Handling sessions and cookies..
FILE HANDLING IN PHP: File operations like opening, closing, reading, writing, appending, deleting etc. on text and binary files, listing directories.

TEXT BOOKS
1. Web Technologies, Uttam K Roy, Oxford University Press
2. The Complete Reference PHP — Steven Holzner, Tata McGraw-Hill
REFERENCE BOOKS
1. Web Programming, building internet applications, Chris Bates 2″ edition, Wiley Dreamtech
2. Java Server Pages —Hans Bergsten, SPD O'Reilly,
3. Java Script, D.Flanagan, O'Reilly,SPD.
4. Beginning Web Programming-Jon Duckett WROX.
5. Programming world wide web, R.W.Sebesta, Fourth Edition, Pearson.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE –II
(2005PE03) Principles Natural language Processing
B.Tech. III Year II Sem

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Course Objectives:

· To learn the fundamentals of natural language processing

· To understand the use of CFG and PCFG in NLP

· To understand the role of semantics of sentences and pragmatics

· To apply the NLP techniques to IR applications

Course Outcomes:

Upon completion of this course, students should be able to:

· To tag a given text with basic Language features

· To design an innovative application using NLP components

· To implement a rule based system to tackle morphology/syntax of a language

· To design a tag set to be used for statistical processing for real-time applications

· To compare and contrast the use of different statistical approaches for different types of NLP applications.

UNIT I

Origins and challenges of NLP − Language Modeling: Grammar-based LM, Statistical LM − Regular Expressions, Finite-State Automata − English Morphology, Transducers for lexicon and rules, Tokenization, Detecting and Correcting Spelling Errors, Minimum Edit Distance

UNIT II WORD LEVEL ANALYSIS

Unsmoothed N-grams, Evaluating N-grams, Smoothing, Interpolation and Backoff − Word Classes, Part-of-Speech Tagging, Rule-based, Stochastic and Transformation-based tagging, Issues in PoS tagging − Hidden Markov and Maximum Entropy models.

UNIT III SYNTACTIC ANALYSIS

Context-Free Grammars, Grammar rules for English, Treebanks, Normal Forms for grammar − Dependency Grammar − Syntactic Parsing, Ambiguity, Dynamic Programming parsing − Shallow parsing − Probabilistic CFG, Probabilistic CYK, Probabilistic Lexicalized CFGs − Feature structures, Unification of feature structures.

UNIT IV SEMANTICS AND PRAGMATICS

Requirements for representation, First-Order Logic, Description Logics − Syntax Driven Semantic analysis, Semantic attachments − Word Senses, Relations between Senses, Thematic Roles, selectional restrictions − Word Sense Disambiguation, WSD using Supervised, Dictionary & Thesaurus, Bootstrapping methods − Word Similarity using Thesaurus and Distributional methods.

UNIT V DISCOURSE ANALYSIS AND LEXICAL RESOURCES

Discourse segmentation, Coherence – Reference Phenomena, Anaphora Resolution using Hobbs and Centering Algorithm – Coreference Resolution

Resources: Porter Stemmer, Lemmatizer, Penn Treebank, Brill's Tagger, WordNet, PropBank, FrameNet, Brown Corpus, British National Corpus (BNC).

TEXT BOOKS:

1. Daniel Jurafsky, James H. Martin—Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech, Pearson Publication, 2014.
2. Steven Bird, Ewan Klein and Edward Loper, —Natural Language Processing with Python, First Edition, OReilly Media, 2009.

REFERENCES:

1. Breck Baldwin, —Language Processing with Java and LingPipe Cookbook, Atlantic Publisher, 2015.
2. Richard M Reese, —Natural Language Processing with Java, OReilly Media, 2015.
3. Nitin Indurkhya and Fred J. Damerau, —Handbook of Natural Language Processing, Second Edition, Chapman and Hall/CRC Press, 2010.
4. Tanveer Siddiqui, U.S. Tiwary, —Natural Language Processing and Information Retrieval, Oxford University Press, 2008.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE –II
(2012PE02) Social Network Analytics
B.Tech. III Year II Sem

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Course Objectives:
The learning objective of the course Social Network Analytics is to provide students with essential knowledge of network analysis applicable to real world data

Course Outcomes:
- After the completion of the course, student will be able to Demonstrate social network analysis and measures.
- Analyze random graph models and navigate social networks data

UNIT - I
Introduction: Social Networks: Preliminaries and properties, Homophily, Triadic Closure and Clustering Coefficient, Dynamics of Network Formation, Power-Law Degree Distributions, Measures of Centrality and Prestige, Degree Centrality, Closeness Centrality, Betweenness Centrality, Rank Centrality

UNIT –II
Community Discovery in Social Networks: Introduction, Communities in Context, Core Methods, Quality Functions. The Kernighan-Lin(KL) algorithm, Agglomerative/Divisive Algorithms, Spectral Algorithms, Multi-level Graph Partitioning, Markov Clustering

UNIT –III
 Link Prediction in Social Networks: Introduction, Feature based Link Prediction, Feature Set Construction, Classification Models, Bayesian Probabilistic Models, Link Prediction by Local Probabilistic Models, Network Evolution based Probabilistic Model, Hierarchical Probabilistic Model, Probabilistic Relational Models, Relational Bayesian Network, Relational Markov Network, Linear Algebraic Methods

UNIT- IV
Social Influence Analysis : Introduction, Influence Related Statistics, Edge Measures, Node Measures, Social Similarity and Influence, Homophily, Existential Test for Social Influence, Influence and Actions, Influence and Interaction, Influence Maximization in Viral Marketing, Influence Maximization

UNIT –V
 Opinion mining and Sentiment Analysis: The Problem of Opinion Mining, Document Sentiment Classification, Sentence Subjectivity and Sentiment Classification, Opinion Lexicon Expansion, AspectBased Sentiment Analysis, Mining Comparative Opinions

Text Books:
1. Social Network Data Analytics, Charu C. Aggarwal, Springer, 2011
2. Data mining The Text book, 1st Edition, Charu C Aggarwal , Springer Publications, 2015
3. Mining Text Data, Charu C. Aggarwal, Cheng Xiang Zhai , Springer Publications, 2012

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE –II
(2005PE04) MOBILE COMPUTING
B.Tech. III Year II Sem

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Course Objectives

To make the student understand the concept of mobile computing paradigm, its novel applications and limitations.

• To understand the typical mobile networking infrastructure through a popular GSM protocol

• To understand the issues and solutions of various layers of mobile networks, namely MAC layer, Network Layer & Transport Layer

• To understand the database issues in mobile environments & data delivery models.

• To understand the ad hoc networks and related concepts.

• To understand the platforms and protocols used in mobile environment.

Course Outcomes:

• Able to think and develop new mobile application.

• Able to take any new technical issue related to this new paradigm and come up with a solution(s).

• Able to develop new ad hoc network applications and/or algorithms/protocols.

• Able to understand & develop any existing or new protocol related to mobile environment

UNIT I:WIRELESS COMMUNICATION

Introduction - Frequencies and Regulations - Signals - Antennas - Propagation Ranges and Effects – Multipath Propagation - Effects of Mobility - Multiplexing - Modulation and Shift Keying - Spread Spectrum - Frequency Hopping and Direct Sequence- Medium Access Control – Specialized MAC –SDMF-FDMA-TDMA-CDMA- Mobile Computing – Paradigm, Promises/Novel Applications and Impediments and Architecture; Mobile and Handheld Devices, Limitations of Mobile and Handheld Devices.

UNIT II: TELECOMMUNICATION SYSTEMS

GSM – Services, System Architecture, Radio Interfaces, Protocols, Localization, Calling, Handover, Security, New Data Services, GPRS, CSHSD, DECT- - UMTS and IMT- 2000- Architecture, User Equipment, RNS, UTRAN, Node B, RNC functions - W- CDMA - HSPA+, HSUPA, HSDPA+ - Satellite systems – History- Applications- Basics- Routing-Localization-Handover-Examples

UNIT III: Wireless LAN and Mobile Network Layer

Wireless LAN -Infrared vs radio transmission - Infrastructure and ad-hoc network 205- IEEE 802.11-HIPER LAN-Bluetooth Mobile Network Layer- Mobile IP- Dynamic host

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configuration protocol- Mobile ad-hoc networks-

UNIT IV: Mobile Transport Layer & Database issues:

Mobile Transport Layer: Conventional TCP/IP Protocols, Indirect TCP, Snooping TCP, Mobile TCP, Other Transport Layer Protocols for Mobile Networks.

Data Base Issues: Database Hoarding & Caching Techniques, Client-Server Computing & Adaptation, Transactional Models, Query processing, Data Recovery Process & QoS Issues.

UNIT V: Mobile Application Development:

File Systems- World wide web- Wireless application protocol (version 1.x)- i-mode-SyncML- WAP 2.0- Mobile Platform- Palm OS, Windows CE, Symbian OS, Linux for Mobile Devices, Android.

TEXT BOOKS:

1. Jochen Schiller, "Mobile Communications", Addison-Wesley, Second Edition, 2009.

2. Raj Kamal, "Mobile Computing", Oxford University Press, 2007, ISBN: 0195686772.

REFERENCE BOOKS:

1. Stojmenovic and Cacute, "Handbook of Wireless Networks and Mobile Computing", Wiley, 2002, ISBN 0471419028.

2. Reza Behravanfar, "Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML", ISBN: 0521817331, Cambridge University Press, Oct 2004.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE -III
(2005PE05) Pattern Recognition
B.Tech. III Year II Sem

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Course Objectives:
- To implement pattern recognition and machine learning theories
- To design and implement certain important pattern recognition techniques
- To apply the pattern recognition theories to applications of interest
- To implement the entropy minimization, clustering transformation and feature ordering

Course Outcomes:
- Design systems and algorithms for pattern recognition (signal classification), with focus on sequences of patterns that are analyzed using, e.g., hidden Markov models (HMM)
- Analyze classification problems probabilistically and estimate classifier performance
- Understand and analyze methods for automatic training of classification systems
- Apply Maximum-likelihood parameter estimation in relatively complex probabilistic models, such as mixture density models and hidden Markov models
- Understand the principles of Bayesian parameter estimation and apply them in relatively simple probabilistic models

UNIT- I
Introduction - Basic concepts, Applications, Fundamental problems in pattern Recognition system design, Design concepts and methodologies, Examples of Automatic Pattern recognition systems, Simple pattern recognition model, Decision and Distance Functions - Linear and generalized decision functions, Pattern space and weight space, Geometrical properties, implementations of decision functions, Minimum-distance pattern classifications.

UNIT-II
Probability-Probability of events, Random variables, Joint distributions and densities, Movements of random variables, Estimation of parameter from samples, Statistical Decision Making - Introduction, Baye's theorem, Multiple features, Conditionally independent features, Decision boundaries, Unequal cost of error, estimation of error rates, the leaving-one-outtechniques, characteristic curves, estimating the composition of populations. Baye's classifier for normal patterns.

UNIT-III
Non Parametric Decision Making - Introduction, histogram, kernel and window estimation, nearest neighbor classification techniques. Adaptive decision boundaries, adaptive discriminate functions, Minimum squared error Discriminate functions, choosing a decision making techniques.

UNIT-IV
Clustering and Partitioning - Hierarchical Clustering: Introduction, agglomerative clustering algorithm, the single-linkage, complete-linkage and average-linkage algorithm. Ward's method Partition clustering-Forg's algorithm, K-means's algorithm, Isodata algorithm.

UNIT-V
Pattern Preprocessing and Feature Selection: Introduction, distance measures, clustering transformation and feature ordering, clustering in feature selection through entropy minimization,

features selection through orthogonal expansion, binary feature selection.
Application of pattern recognition techniques in bio-metric, facial recognition, IRIS scan, Finger prints, etc.

Text Books:

1. Gose. Johnsonbaugh. Jost. " Pattern recognition and Image Analysis",PHI. Tou. Rafael. Gonzalez. "Pattern Recognition Principle", PearsonEducation

Reference Book:

1. Richard duda, Hart., David Strok, "Pattern Classification", John Wiley.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE-III
(2012PE03) WEB MINING
B.Tech. III Year II Sem

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Course Objectives:

- To describe web mining and understand the need for web mining
- To differentiate between Web mining and data mining
- To understand the different application areas for web mining
- To understand the different methods to introduce structure to web-based data
- To describe Web mining, its objectives, and its benefits
- To understand the methods of Web usage mining

UNIT – I :

Introduction to Web Data Mining and Data Mining Foundations, Introduction – World Wide Web (WWW), A Brief History of the Web and the Internet, Web Data Mining-Data Mining, Web Mining. Data Mining Foundations – Association Rules and Sequential Patterns – Basic Concepts of Association Rules, Apriori Algorithm- Frequent Itemset Generation, Association Rule Generation, Data Formats for Association Rule Mining, Mining with multiple minimum supports – Extended Model, Mining Algorithm, Rule Generation, Mining Class Association Rules, Basic Concepts of Sequential Patterns, Mining Sequential Patterns on GSP, Mining Sequential Patterns on PrefixSpan, Generating Rules from Sequential Patterns.

UNIT – II :

Information Retrieval and Web Search: Basic Concepts of Information Retrieval, Information Retrieval Methods – Boolean Model, Vector Space Model and Statistical Language Model, Relevance Feedback, Evaluation Measures,

UNIT – III :

Text and Web Page Preprocessing – Stopword Removal, Stemming, Web Page Preprocessing, Duplicate Detection, Inverted Index and Its Compression – Inverted Index, Search using Inverted Index, Index Construction, Index Compression, Latent Semantic Indexing – Singular Value Decomposition, Query and Retrieval, Web Search, Meta Search, Web Spamming.

UNIT – IV :

Link Analysis and Web Crawling: Link Analysis – Social Network Analysis, Co-Citation and Bibliographic Coupling, Page Rank Algorithm, HITS Algorithm.

Web Crawling – A Basic Crawler Algorithm- Breadth First Crawlers, Preferential Crawlers, Implementation Issues – Fetching, Parsing, Stopword Removal, Link Extraction, Spider Traps, Page

Repository, Universal Crawlers, Focused Crawlers, Topical Crawlers, Crawler Ethics and Conflicts.

UNIT – V:

Opinion Mining and Web Usage Mining

Opinion Mining – Sentiment Classification – Classification based on Sentiment Phrases, Classification Using Text Classification Methods, Feature based Opinion Mining and Summarization – Problem Definition, Object feature extraction, Feature Extraction from Pros and Cons of Formrat1, Feature Extraction from Reviews of Format 2 and 3, Comparative Sentence and Relation Mining, Opinion Search and Opinion Spam.

Web Usage Mining – Data Collection and Preprocessing- Sources and Types of Data, Key Elements of Web usage Data Preprocessing, Data Modeling for Web Usage Mining, Discovery and Analysis of Web usage Patterns -Session and Visitor Analysis, Cluster Analysis and Visitor Segmentation, Association and Correlation Analysis, Analysis of Sequential and Navigation Patterns.

TEXT BOOK:

- Web Data Mining: Exploring Hyperlinks, Contents, and Usage Data by Bing Liu (Springer Publications)

REFERENCES BOOKS:

- Data Mining: Concepts and Techniques, Second Edition Jiawei Han, Micheline Kamber (Elsevier Publications)
- Web Mining:: Applications and Techniques by Anthony Scime
- Mining the Web: Discovering Knowledge from Hypertext Data by Soumen Chakrabarti

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

PROFESSIONAL ELECTIVE-III
(2005PE06)   REAL TIME SYSTEMS
B.Tech. III Year II Sem

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Course Objectives:

· To provide broad understanding of the requirements of Real Time Operating Systems.

· To make the student understand, applications of these Real Time features using case studies.

Course Outcomes:

· Be able to explain real-time concepts such as preemptive multitasking, task priorities, priority inversions, mutual exclusion, context switching, and synchronization, interrupt latency and response time, and semaphores.

· Able describe how a real-time operating system kernel is implemented.

· Able explain how tasks are managed.

· Explain how the real-time operating system implements time management.

· Discuss how tasks can communicate using semaphores, mailboxes, and queues.

· Be able to implement a real-time system on an embedded processor.

· Be able to work with real time operating systems like RT Linux, Vx Works, MicroC /OSII, Tiny Os

UNIT – I
Introduction: Introduction to UNIX/LINUX, Overview of Commands, File I/O,(open, create, close, lseek, read, write), Process Control (fork, vfork, exit, wait, waitpid, exec).

UNIT - II
Real Time Operating Systems: Brief History of OS, Defining RTOS, The Scheduler, Objects, Services, Characteristics of RTOS, Defining a Task, asks States and Scheduling, Task Operations, Structure, Synchronization, Communication and Concurrency. Defining Semaphores, Operations and Use, Defining Message Queue, States, Content, Storage, Operations and Use

UNIT - III
Objects, Services and I/O: Pipes, Event Registers, Signals, Other Building Blocks, Component Configuration, Basic I/O Concepts, I/O Subsystem

UNIT - IV
Exceptions, Interrupts and Timers: Exceptions, Interrupts, Applications, Processing of Exceptions and Spurious Interrupts, Real Time Clocks, Programmable Timers, Timer Interrupt Service Routines (ISR), Soft Timers, Operations.

UNIT - V
Case Studies of RTOS: RT Linux, MicroC/OS-II, Vx Works, Embedded Linux, and Tiny OS.

TEXT BOOK:
1. Real Time Concepts for Embedded Systems – Qing Li, Elsevier, 2011

REFERENCE BOOKS:
1. Embedded Systems- Architecture, Programming and Design by Rajkamal, 2007, TMH.
2. Advanced UNIX Programming, Richard Stevens
3. Embedded Linux: Hardware, Software and Interfacing – Dr. Craig Hollabaugh

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2012PC61) DATA WAREHOUSING AND DATA MINING LAB
B.Tech. III Year II Sem

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Course Objectives:

Learn how to build a data warehouse and query it (using open source tools like Pentaho Data Integration and Pentaho Business Analytics), Learn to perform data mining tasks using a data mining toolkit (such as open source WEKA), Understand the data sets and data preprocessing, Demonstrate the working of algorithms for data mining tasks such association rule mining, classification, clustering and regression, Exercise the data mining techniques with varied input values for different parameters.

Course Outcomes:

After the completion of this laboratory, the students will able to perform

- How to use WEKA, Pentoaho integration tool for dataset creation
- How to Preprocess the data
- To Design multidimensional data models
- To implement different algorithms on dataset
- To perform data analysis and predictive modeling

UNIT-I. Build Data Warehouse and Explore WEKA:

A. Build a Data Warehouse/Data Mart (using open source tools like Pentaho Data Integration tool, Pentoaho Business Analytics; or other data warehouse tools like Microsoft-SSIS, Informatica, Business Objects,etc.).

Identify source tables and populate sample data

Design multi-dimensional data models namely Star, snowflake and Fact constellation schemas for any one enterprise (ex. Banking, Insurance, Finance, Healthcare, Manufacturing, Automobile, etc.).

Write ETL scripts and implement using data warehouse tools

Perform various CLAP operations such slice, dice, roll up, drill up and pivot Explore visualization features of the tool for analysis like identifying trends etc.

B. Explore WEKA Data Mining/Machine Learning Toolkit Downloading and/or installation of WEKA data mining toolkit,Understand the features of WEKA toolkit such as Explorer, Knowledge Flow interface, Experimenter, command- line interface.

Navigate the options available in the WEKA (ex. Select attributes panel, Preprocess panel, Classify panel, Cluster panel, Associate panel and Visualize panel)

Study the arff file format Explore the available data sets in WEKA.

Load a data set (ex. Weather dataset, Iris dataset, etc.) Load each dataset and observe the following

List the attribute names and they types Number of records in each dataset Identify the class attribute (if any)

Plot Histogram

Determine the number of records for each class.

Visualize the data in various dimensions

Unit 2 Perform data preprocessing tasks and Demonstrate performing association rule mining on data sets

A.Explore various options available in Weka for preprocessing data and apply (like DiscretizatiOfl Filters, Resample filter, etc.) on each dataset

B.Load each dataset into Weka and run Apron algorithm with different support and confidence values. Study the rules generated.

C. Apply different discretization filters on numerical attributes and run the Apriori

association rule algorithm. Study the rules generated. Derive interesting insights and observe the effect of discretization in the rule generation process.

Unit 3 Demonstrate performing classification on datasets

A. Load each dataset into Weka and run 1d3, J48 classification algorithm. Study the classifier output. Compute entropy values, Kappastatistic.

B. Extract if-then rules from the decision tree generated by the classifier, observe the confusion matrix and derive Accuracy, F-measure, TPrate, FPrate, Precision and Recall values. Apply cross-validation strategy with various fold levels and compare the accuracy results.

C. Load each dataset into Weka and perform Naïve-bayes classification and k- Nearest Neighbor classification. Interpret the results obtained.

D. Plot RoCCurves

E. Compare classification results of 1D3, J48, Naïve-Bayes and k-NN classifiers for each dataset, and deduce whlch classifier is performing best and poor for each dataset and justify.

Unit 4 Demonstrate performing clustering Ofl data sets

A. Load each dataset into Weka and run simple k-means clustering algorithm with different values of k (number of desired clusters). Study the clusters formed. Observe the sum of squared errors and centroids, and deriveinsights.

B. Explore other clustering techniques available in Weka.

C. Explore visualization features of Weka to visualize the clusters. Derive interesting insights and explain.

Unit 5 Demonstrate performing Regression on data sets

A. Load each dataset into Weka and build Linear Regression model. Study the clusters formed. Use Training set option. Interpret the regression model and derive patterns and conclusions from the regression results.

B. Use options cross-validation and Percentage split and repeat running the Linear Regression Model. Observe the results and derive meaningful results.

Explore Simple linear regression technique that only looks at one variable.

RESOURCE SITES:

1. http://www.pentaho.com/
2. http://www.cs.waikato.ac.nz/ml/weka/

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2012PC62)WEB TECHNOLOGIES LAB
B.Tech. III Year II Sem

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Course Objectives:

• To enable the student to program web applications using the following technologies HTML, Javascript , AJAX, Servlets, JSP and PHP

Course Outcomes:

• Use XAMPP Stack for web applications

• Use Tomcat Server for Servlets and JSPs

• Write simple applications with Technologies like HTML, Javascript, AJAX, PHP, Servlets and JSPs

• Connect to Database and get results

Note:

i. Use XAMPP Stack (Cross Platform, Apache, MariaDB, PHP and Perl) for the Lab Experiments. Though not mandatory, encourage the use of Eclipse platform wherever applicable

ii. The list suggests the minimum program set. Hence, the concerned staff is requested to add more problems to the list as needed.

1. Install the following on the local machine

• Apache Web Server (if not installed)

• Tomcat Application Server locally

• Install MariaDB (formerly called as MySQL if not installed)

• Install PHP and configure it to work with Apache web server and MySQL (if not already configured)

2. Design a simple online shopping website with different web pages. (Note: Use frames, hyperlinks, Images, tables etc...)

3. Re-design the above the website applying CSS.

4. Design login page, registration page and apply the client side validations using JavaScript.

5. Create an XML document that contains 10 users information. Write a Java program, which takes User Id as input and returns the user details by taking the user information from the XML document using (a) DOM Parser and (b) SAX parserImplement the following web applications using (a) PHP, (b) Servlets and (c) JSP:

6. A user validation web application, where the user submits the login name and password to the server. The name and password are checked against the data already available in Database and if the data matches, a successful login page is returned. Otherwise a failure message is shown to the user.

7. Modify the above program to use AJAX to show the result on the same page below the submit button.

8. A simple calculator web application that takes two numbers and an operator (+, -, /, * and %) from an HTML page and returns the result page with the operation performed on the operands.

9. A web application takes a name as input and on submit it shows a hello <name> page where <name> is taken from the request. It shows the start time at the right top corner of the page and provides a logout button. On clicking this button, it should show a logout page with Thank You <name> message with the duration of usage (hint: Use session to store name and time).

10. A web application that takes name and age from an HTML page. If the age is less than

18, it should send a page with "Hello <name>, you are not authorized to visit this site" message, where <name> should be replaced with the entered name. Otherwise it should send "Welcome <name> to this site" message.

11. A web application for implementation:

The user is first served a login page which takes user's name and password. After submitting the details the server checks these values against the data from a database and takes the following decisions.

If name and password matches, serves a welcome page with user's full name.

If name matches and password doesn't match, then serves "password mismatch" page

If name is not found in the database, serves a registration page, where user's full name is asked and on submitting the full name, it stores, the login name, password and full name in the database (hint: use session for storing the submitted login name and password)

12. A web application that lists all cookies stored in the browser on clicking "List Cookies" button. Add cookies if necessary.

REFERENCE BOOKS:

1. The Complete Reference PHP – Steven Holzner, Tata McGraw-Hill
2. Web Programming, building internet applications, Chris Bates 2nd edition, Wiley Dreamtech
3. Java Server Pages –Hans Bergsten, SPD O'Reilly
4. Java Script, D.Flanagan, O'Reilly, SPD.
5. Internet and World Wide Web – How to program, Dietel and Nieto, Pearson

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2000MC06) INDIAN TRADITIONAL KNOWLEDGE
B.Tech. III Year II Sem

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Course Objectives:
• To facilitate the students with the concepts of Indian traditional knowledge and to make them understand the Importance of roots of knowledge system.

Course Outcomes:
After completion of the course, students will be able to:
1. Upon completion of the course, the students are expected to:
2. Understand the concept of Traditional knowledge and its importance
3. Know the need and importance of protecting traditional knowledge.
4. Know the various enactments related to the protection of traditional knowledge.
5. Understand the concepts of Intellectual property to protect the traditional knowledge.

UNIT I: Introduction to traditional knowledge:
Define traditional knowledge, nature and characteristics, scope and importance, kinds of traditional knowledge, the physical and social contexts in which traditional knowledge develop, the historical impact of social change on traditional knowledge systems. Indigenous Knowledge (IK), characteristics, traditional knowledge vis-à-vis indigenous knowledge, traditional knowledge Vs western knowledge traditional knowledge vis-à-vis formal knowledge

UNIT II: Protection of traditional knowledge:
the need for protecting traditional knowledge Significance of TK Protection, value of TK in global economy, Role of Government to harness TK.

UNIT III: Legal frame work and TK:
A: The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of ForestRights) Act, 2006, Plant Varieties Protection and Farmer's Rights Act, 2001 (PPVFRAct);
B: The Biological Diversity Act 2002 and Rules 2004, the protection of traditional knowledge bill, 2016. Geographical indicators act 2003.

UNIT IV: Traditional knowledge and intellectual property:
Systems of traditional knowledge protection, Legal concepts for the protection of traditional knowledge, Certain non IPR mechanisms of traditional knowledge protection, Patents and traditional knowledge, Strategies to increase protection of traditional knowledge, global legal FORA for increasing protection of Indian Traditional Knowledge.

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UNIT V: Traditional knowledge in different sectors:
Traditional knowledge and engineering, Traditional medicine system, TK and biotechnology, TK in agriculture, Traditional societies depend on it for their food and healthcare needs, Importance of conservation and sustainable development of environment, Management of biodiversity, Food security of the country and protection of TK.

Text Books:
1. Traditional Knowledge System in India, by Amit Jha, 2009.
2. Traditional Knowledge System and Technology in India by Basanta Kumar Mohantaand Vipin Kumar Singh, Pratibha Prakashan 2012.

Reference Books:
1. Traditional Knowledge System in India by Amit Jha Atlantic publishers, 2002
2. "Knowledge Traditions and Practices of India" Kapil Kapoor1, Michel Danino2

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC12) Machine Learning
B.Tech. IV Year I Sem

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Course Objectives:
• To be able to formulate machine learning problems corresponding to different applications.
• To understand a range of machine learning algorithms along with their strengths and weaknesses.
• To understand the basic theory underlying machine learning.

Course outcomes:
At the end of the course students should be able to
• Explain theory underlying machine learning
• Construct algorithms to learn linear and non-linear models
• Implement data clustering algorithms
• Construct algorithms to learn tree and rule-based models
• Apply reinforcement learning techniques.

UNIT I
FOUNDATIONS OF LEARNING
Components of learning – learning models – geometric models – probabilistic models – logic models – grouping and grading – learning versus design – types of learning – supervised – unsupervised – reinforcement – theory of learning – feasibility of learning – error and noise– training versus testing – theory of generalization – generalization bound – approximation generalization trade off – bias and variance – learning curve

UNIT II
INTRODUCTION TO TECHNOLOGY LANDSCAPE
Linear classification – univariate linear regression – multivariate linear regression – regularized regression – Logistic regression – perceptron's – multilayer neural networks – learning neural networks structures – support vector machines – soft margin SVM – going beyond linearity – generalization and overfitting – regularization – validation.

UNIT III
DISTANCE-BASED MODELS
Nearest neighbor models – K-means – clustering around medoids – silhouttes – hierarchical clustering – k-d trees – locality sensitive hashing – non-parametric regression – ensemble learning – bagging and random forests – boosting – meta learning

UNIT IV
TREE AND RULE MODELS
Decision trees – learning decision trees – ranking and probability estimation trees – regression trees – clustering trees – learning ordered rule lists – learning unordered rule lists– descriptive rule learning – association rule mining – first-order rulelearning

UNIT V
REINFORCEMENT LEARNING
Passive reinforcement learning – direct utility estimation – adaptive dynamic programming– temporal-difference learning – active reinforcement learning – exploration – learning an action utility function – Generalization in reinforcement learning – policy search – applications in game playing – applications in robot control.

TEXT BOOKS:
1. P. Flach, "Machine Learning: The art and science of algorithms that make sense of data", Cambridge University Press, 2012. (UNIT-I to IV)

2. M. Mohri, A. Rostamizadeh, and A. Talwalkar, "Foundations of Machine Learning", MIT Press, 2012. (UNITV)

REFERENCE BOOKS:

1.Y. S. Abu-Mostafa, M. Magdon-Ismail, and H.-T. Lin, "Learning from Data", AMLBook Publishers,2012.
2.K. P. Murphy, "Machine Learning: A probabilistic perspective", MIT Press,2012.
3.C. M. Bishop, "Pattern Recognition and Machine Learning", Springer,2007.
4.T. M. Mitchell, "Machine Learning", McGraw Hill,1997.
5.S. Russel and P. Norvig, "Artificial Intelligence: A Modern Approach", Third Edition, Prentice Hall,2009.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC13) INFORMATION SECURITY
B.Tech. IV Year I Sem

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Prerequisites
   1. A Course on "Computer Networks and a course on Mathematics

Course Objectives
   1. To understand the fundamentals ofCryptography
   2. To understand various key distribution and managementschemes
   3. To understand how to deploy encryption techniques to secure data in transit across data networks
   4. To apply algorithms used for secure transactions in real worldapplications

Course Outcomes
   1. Demonstrate the knowledge of cryptography, network security concepts andapplications.
   2. Ability to apply security principles in systemdesign.
   3. Abilitytoidentifyandinvestigatevulnerabilitiesandsecuritythreatsandmechanismstocounter them.

UNIT - I
Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security.
Classical Encryption Techniques, DES, Strength of DES, Differential and Linear Cryptanalysis, Block Cipher Design Principles and Modes of operation, Blowfish, Placement of Encryption Function, Traffic Confidentiality, key Distribution, Random Number Generation.

UNIT - II
Public key Cryptography Principles, RSA algorithm, Key Management, Diffie-Hellman Key Exchange, Elliptic Curve Cryptography.
Message authentication and Hash Functions, Authentication Requirements and Functions, Message Authentication, Hash Functions and MACs Hash and MAC Algorithms SHA-512, HMAC.

UNIT - III

 Digital Signatures, Authentication Protocols, Digital signature Standard, Authentication Applications, Kerberos, X.509 Directory Authentication Service.
Email Security: Pretty Good Privacy (PGP) and S/MIME.

UNIT - IV

IP Security:
Overview, IP Security Architecture, Authentication Header, Encapsulating Security
Payload, Combining Security Associations and Key Management.
Web Security: Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer
Security (TLS), Secure Electronic Transaction (SET).

UNIT - V

Intruders, Viruses and Worms Intruders, Viruses and related threats Firewalls: Firewall Design Principles, Trusted Systems, Intrusion Detection Systems.

Text Book:

1. Cryptography and Network Security (principles and approaches) by William Stallings Pearson Education, 4th Edition.

Reference Books:
1. Network Security Essentials (Applications and Standards) by William Stallings Pearson Education.
2. Principles of Information Security, Whitman,Thomson.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE –IV
(2005PE07) Computer Vision
B.Tech. IV Year I Sem

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Course Objective:

To Recognize and describe both the theoretical and practical aspects of computing with images and to Connect issues from Computer Vision to Human Vision

Course Outcomes:

1. Provide an introduction to computer vision including fundamentals of image formation
2 Enumerate the concepts of Feature detection and Matching
3. Discuss about Image Segmentation Techniques
4. Discuss applications of Feature based alignment like pose estimation
5. Discuss different recognition techniques.

UNIT-I

Introduction: What is computer vision, A brief history, Image Formation, Geometric primitives and transformations, Photometric image formation, The digital camera.

UNIT-II

Feature detection and matching:Points and patches, Feature detectors, Feature descriptors, Feature matching, Feature tracking, Application: Performance-driven animation, Edges, Application: Edge editing and enhancement, Lines, Application: Rectangle detection.

UNIT-III

Segmentation:Active contours, Split and merge, Mean shift and mode finding, Normalized cuts, Graph cuts and energy-based methods, Application: Medical image segmentation.

UNIT-IV

Feature-based alignment: 2D and 3D feature-based alignment, Pose estimation, Geometric intrinsic calibration, Calibration patterns, Vanishing points, Application: Single view metrology, Rotational motion, Radial distortion.

UNIT-V

Recognition:Objectdetection,Face detection, Pedestrian detection, Face recognition,Eigenfaces, Active appearance and 3D shape models, Application: Personal photo collections, Instance recognition, Category recognition, Context and scene understanding.

Text Books:

1. RichardSzeliski,"ComputerVision:Algorithmsand Applications",Springer,2010. 2. Rafael C. Gonzalez "Digital Image Processing", Pearson Education; Fourth edition (2018)

ReferenceBooks:

1. orsyth/Ponce,"ComputerVision:AModernApproach",PearsonEducationIndia;2ndedition(2015) 2. S.Nagabhushana,"ComputerVisionandImageProcessing", NewAgeInternationalPvtLtd.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE-IV
(2012PE04) BUSINESS ANALYTICS
B.Tech. IV Year I Sem

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Course Objectives

- To explore the fundamental concepts of data analytics.
- To learn the principles and methods of statistical analysis
- Discover interesting patterns, analyze supervised and unsupervised models and estimate the accuracy of the algorithms.
- To understand the various search methods and visualization techniques.

Course Outcomes

After completion of this course students will be able to

- Understand the impact of data analytics for business decisions and strategy
- Carry out data analysis/statistical analysis
- To carry out standard data visualization and formal inference procedures
- Design Data Architecture
- Understand various Data Sources

UNIT – I

Data Management: Design Data Architecture and manage the data for analysis, understand various sources of Data like Sensors/Signals/GPS etc. Data Management, Data Quality (noise, outliers, missing values, duplicate data) and Data Processing & Processing.

UNIT – II

Data Analytics: Introduction to Analytics, Introduction to Tools and Environment, Application of Modeling in Business, Databases & Types of Data and variables, Data Modeling Techniques, Missing Imputations etc. Need for Business Modeling.

UNIT – III

Regression – Concepts, Blue property assumptions, Least Square Estimation, Variable Rationalization, and Model Building etc.

Logistic Regression: Model Theory, Model fit Statistics, Model Construction, Analytics applications to various Business Domains etc.

UNIT – IV

Object Segmentation: Regression Vs Segmentation – Supervised and Unsupervised Learning, Tree Building – Regression, Classification, Overfitting, Pruning and Complexity, Multiple

Decision Trees etc. Time Series Methods: Arima, Measures of Forecast Accuracy, STL approach, Extract features from generated model as Height, Average Energy etc and Analyze for prediction

UNIT – V

Data Visualization: Pixel-Oriented Visualization Techniques, Geometric Projection Visualization Techniques, Icon-Based Visualization Techniques, Hierarchical Visualization Techniques, Visualizing Complex Data and Relations.

TEXT BOOKS

1.Student's Handbook for Associate Analytics – II, III.

2.Data Mining Concepts and Techniques, Han, Kamber, 3rd Edition, Morgan Kaufmann Publishers.

REFERENCE BOOKS

1.Introduction to Data Mining, Tan, Steinbach and Kumar, Addision Wisley, 2006.

2.Data Mining Analysis and Concepts, M. Zaki and W. Meira

3.Mining of Massive Datasets, Jure Leskovec Stanford Univ. Anand Rajaraman Milliway Labs Jeffrey D Ullman Stanford Univ.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE-IV
(2005PE08)CLOUD COMPUTING
B.Tech. IV Year I Sem

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Course Objectives:
• This course provides an insight into cloud computing
• Topics covered include- distributed system models, different cloud service models, service-oriented architectures, cloud programming and software environments, resource management.

Course Outcomes:
• Ability to understand various service delivery models of a cloud computing architecture.
• Ability to understand the ways in which the cloud can be programmed and deployed.
• Understanding cloud service providers.

UNIT - I
Computing Paradigms: High-Performance Computing, Parallel Computing, Distributed Computing, Cluster Computing, Grid Computing, Cloud Computing, Bio compu-ting,Mobile
Coputing, Quantum Computing, Optical Computing, Nano computing.

UNIT - II
loud Computing Fundamentals: Motivation for Cloud Computing, The Need for Cloud Computing, Defining Cloud Computing, Definition of Cloud computing, Cloud Compu-ting
Is a Service, Cloud Computing Is a Platform, Principles of Cloud computing, Five Essen-tial
Characteristics, Four Cloud Deployment Models

UNIT - III
Cloud Computing Architecture and Management: Cloud architecture, Layer, Anatomy of the
Cloud, Network Connectivity in Cloud Computing, Applications, on the Cloud, Manag-ing
the Cloud, Managing the Cloud Infrastructure Managing the Cloud application, Migrat-ing
Application to Cloud, Phases of Cloud Migration Approaches for Cloud Migration.

UNIT – IV
Cloud Service Models: Infrastructure as a Service, Characteristics of IaaS. Suitability of IaaS, Pros and Cons of IaaS, Summary of IaaS Providers, Platform as a Service. Characteristics of PaaS, Suitability of PaaS, Pros and Cons of PaaS, Summary of PaaS Providers, Software as a Service, Characteristics of SaaS, Suitability of SaaS, Pros and Cons
of SaaS, Summary of SaaS Providers, Other Cloud Service Models.

UNIT - V
Cloud Service Providers: EMC, EMC IT, Captiva Cloud Toolkit, Google, Cloud Pla-form,
Cloud Storage, Google Cloud Connect, Google Cloud Print, Google App Engine, Ama-zon

Web Services, Amazon Elastic Compute Cloud, Amazon Simple Storage Service, Amazon

Simple Queue ,service, Microsoft, Windows Azure, Microsoft Assessment and Planning Toolkit, SharePoint, IBM, Cloud Models, IBM Smart Cloud, SAP Labs, SAP HANA Cloud

Platform, Virtualization Services Provided by SAP, Sales force, Sales Cloud, Service Cloud:

Knowledge as a Service, Rack space, VMware, Manjra soft, Aneka Platform

TEXT BOOKS:

1. Essentials of cloud Computing: K. Chandrasekhran, CRC press, 2014

REFERENCE BOOKS:

1. Cloud Computing: Principles and Paradigms by Rajkumar Buyya, James Broberg and Andrzej M. Goscinski, Wiley, 2011.

2. Distributed and Cloud Computing, Kai Hwang, Geoffery C. Fox, Jack J. Dongarra, Elsevier, 2012.

3. Cloud Security and Privacy: An Enterprise Perspective on Risks and Compliance, Tim Mather, Subra Kumaraswamy, Shahed Latif, O'Reilly, SPD, rp2011.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC67) MACHINE LEARNING LAB
B.Tech. IV Year I Sem

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Course Objective:
1. The objective of this lab is to get an overview of the various machine learning
2. This lab is to learn the machine learning techniques and can able to demonstrate those using python.

Course Outcomes: After the completion of the "**Machine Learning**" lab, the student can able to:
1. Understand complexity of Machine Learning algorithms and their limitations;
2. Understand modern notions in data analysis-oriented computing;
3. Be capable of confidently applying common Machine Learning algorithms in practice and implementing their own;
4. Be capable of performing experiments in Machine Learning using real-world data.

List of Experiments
1. The probability that it is Friday and that a student is absent is 3 %. Since there are 5 school days in a week, the probability that it is Friday is 20 %. What is theprobability that a student is absent given that today is Friday? Apply Baye's rule in python to get the result. (Ans:15%)
2. Extract the data from database usingpython
3. Implement k-nearest neighbours classification usingpython
4. Given the following data, which specify classifications for nine combinations of VAR1 and VAR2 predict a classification for a case where VAR1=0.906 and VAR2=0.606, using the result of k-means clustering with 3 means (i.e., 3centroids)

VAR1	VAR2	CLASS
1.713	1.586	0
0.180	1.786	1
0.353	1.240	1
0.940	1.566	0
1.486	0.759	1
1.266	1.106	0
1.540	0.419	1
0.459	1.799	1
0.773	0.186	1

5. The following training examples map descriptions of individuals onto high, medium and low credit-worthiness.

   medium   skiing   design   single   twenties   no   ->highRiskhigh   golf   trading married   forties
   yes ->lowRisk
   low   speedway transport   married   thirties   yes ->medRisk medium footballbanking   single   thirties
   yes ->lowRisk high   flying media   married   fifties
   yes ->highRisk
   low   footballsecurity single twenties no ->medRisk
   medium golf   media   single thirties yes ->medRisk
   medium golf   transport   married   forties   yes   ->lowRisk high skiing banking   single   thirties
   yes ->highRisk low   golf   unemployed   married
   forties yes ->highRisk

Input attributes are (from left to right) income, recreation, job, status, age-group, home-owner. Find the unconditional probability of `golf' and the conditional probability of `single' given `medRisk' in the dataset?

6. Implement linear regression usingpython.
7. Implement Naïve Bayes theorem to classify the Englishtext
8. Implement an algorithm to demonstrate the significance of geneticalgorithm
9. Implement the finite words classification system using Back-propagationalgorithm

Text Books:
1. Machine Learning – Tom M. Mitchell,MGH
2. Fundamentals of Speech Recognition By Lawrence Rabiner and Biing – HwangJuang.

Reference Book:
1. Machine Learning: An Algorithmic Perspective, Stephen Marsland, Taylor & Francis

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(2005PC68) INFORMATION SECURITY LAB
B.Tech. IV Year I Sem

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Course Objective: The student should be made to:

To learn different cipher techniques

To implement the algorithms DES, RSA,MD5,SHA-1

To use network security tools and vulnerability assessment tools

Course Outcomes: After the completion of the "**Information Security**" lab, the student can able to:

Develop code for classical Encryption Techniques to solve the problems.

Build cryptosystems by applying symmetric and public key encryption algorithms.

Construct code for authentication algorithms.

Develop a signature scheme using Digital signature standard.

Demonstrate the network security system using open source tools

LIST OF EXPERIMENTS:

1. Perform encryption, decryption using the following substitution techniques

    i. Ceaser cipher

    ii. Playfair cipher

    iii. Hill Cipher

    iv. Vigenere cipher

2. Perform encryption and decryption using following transposition techniques

    Rail fence - Row & Column Transformation

3. Apply DES algorithm for practical applications.

4. Apply AES algorithm for practical applications

5. Implement RSA Algorithm using HTML and JavaScript

6. Implement the Diffie-Hellman Key Exchange algorithm for a given problem.

7. Calculate the message digest of a text using the SHA-1 algorithm

8. Implement the SIGNATURE SCHEME - Digital Signature Standard.

9. Demonstrate intrusion detection system (ids) using any tool eg. Snort or any other s/w.

10. Automated Attack and Penetration Tools Exploring N-Stalker, a Vulnerability Assessment Tool

11. Defeating Malware - Building Trojans, Rootkit Hunter

Text Book:

1. Cryptography and Network Security (principles and approaches) by William Stallings Pearson Education, 4th Edition.

Reference Books:
1. Network Security Essentials (Applications and Standards) by William Stallings Pearson Education.
2. Principles of Information Security, Whitman,Thomson.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE –V
(2005PE09) DEEP LEARNING
B.Tech. IV Year II Sem

L T P C
3 0 0 3

Course Objectives:
By the end of the course, students will be able to:
- understand complexity of Deep Learning algorithms and their limitations
- understand modern notions in data analysis oriented computing;
- be capable of confidently applying common Deep Learning algorithms in practice and implementing their own;
- be capable of performing distributed computations;
- be capable of performing experiments in Deep Learning using real-world data.

Course Outcomes:
By the end of this deep learning course with TensorFlow, the student will be able to:
- Understand the concepts of TensorFlow, its main functions, operations and the execution pipeline
- Implement deep learning algorithms, understand neural networks and traverse the layers of data abstraction which will empower the student to understand data more precisely.
- Learn topics such as convolutional neural networks, recurrent neural networks, training deep networks and high-level interfaces
- Build deep learning models in TensorFlow and interpret the results
- Understand the language and fundamental concepts of artificial neural networks
- Troubleshoot and improve deep learning models
- Build own deep learning project
- Differentiate between machine learning, deep learning and artificial intelligence

UNIT 1:
Introduction to TensorFlow :Computational Graph, Key highlights, Creating a Graph, Regression example, Gradient Descent, TensorBoard, Modularity, Sharing Variables,Keras
Perceptrons: What is a Perceptron, XOR Gate

UNIT 2:
Activation Functions :Sigmoid, ReLU, Hyperbolic Fns,SoftmaxArtificial Neural Networks : Introduction, Perceptron Training Rule, Gradient Descent Rule

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UNIT 3:
Gradient Descent and Backpropagation: Gradient Descent, Stochastic Gradient Descent, Backpropagation, Some problems in ANNOptimization and Regularization :Overfitting and Capacity, Cross Validation, Feature Selection, Regularization, Hyperparameters

UNIT 4:
Introduction to Convolutional Neural Networks: Introduction to CNNs, Kernel filter ,Principles behind CNNs, Multiple Filters, CNN applications.
Introduction to Recurrent Neural Networks: Introduction to RNNs, Unfolded

RNNs,Seq2Seq RNNs, LSTM, RNN applications

UNIT 5:

Deep Learning applications: Image Processing, Natural Language Processing, Speech Recognition, Video Analytics

TEXT BOOK

1. Goodfellow, I., Bengio,Y., and Courville, A., Deep Learning, MIT Press, 2016.

REFERENCES

1. Bishop, C. ,M., Pattern Recognition and Machine Learning, Springer, 2006.
2. Yegnanarayana, B., Artificial Neural Networks PHI Learning Pvt. Ltd, 2009.
3. Golub, G.,H., and Van Loan,C.,F., Matrix Computations, JHU Press,2013.
4. Satish Kumar, Neural Networks: A Classroom Approach, Tata McGraw-Hill Education,2004.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE –V
(2012PE05) BIG-DATA ANALYTICS
B.Tech. IV Year II Sem

LT P C
3 0 0 3

Course Objectives:
- To understand about big data
- To learn the analytics of Big Data
- To Understand the MapReduce fundamentals

Course Outcomes:
- Preparing for data summarization, query, and analysis.
- Applying data modeling techniques to large data sets
- Creating applications for Big Data analytics
- Building a complete business data analytic solution

UNIT-I
INTRODUCTION TO BIG DATA AND ANALYTICS
Classification of Digital Data, Structured and Unstructured Data - Introduction to Big Data: Characteristics – Evolution – Definition - Challenges with Big Data - Other Characteristics of Data - Why Big Data - Traditional Business Intelligence versus Big Data - Data Warehouse and Hadoop Environment Big Data Analytics: Classification of Analytics – Challenges - Big Data Analytics important - Data Science - Data Scientist - Terminologies used in Big Data Environments - Basically Available Soft State Eventual Consistency - Top Analytics Tools

UNIT II
INTRODUCTION TO TECHNOLOGY LANDSCAPE
NoSQL, Comparison of SQL and NoSQL, Hadoop -RDBMS Versus Hadoop - Distributed Computing Challenges – Hadoop Overview - Hadoop Distributed File System - Processing Data with Hadoop - Managing Resources and Applications with Hadoop YARN - Interacting with Hadoop Ecosystem

UNIT III
INTRODUCTION TO MONGODB AND CASSANDRA
MongoDB: Why Mongo DB - Terms used in RDBMS and Mongo DB - Data Types - MongoDB Query Language Cassandra: Features - CQL Data Types – CQLSH – Keyspaces - CRUD Operations –Collections - Using a Counter - Time to Live - Alter Commands - Import and Export - Querying System Tables

UNIT IV
INTRODUCTION TO MAPREDUCE PROGRAMMING AND HIVE
MapReduce: Mapper – Reducer – Combiner – Partitioner – Searching – Sorting – Compression Hive: Introduction – Architecture - Data Types - File Formats - Hive Query Language Statements – Partitions – Bucketing – Views - Sub- Query – Joins – Aggregations – Group by and Having - RCFile Implementation - Hive User Defined Function - Serialization and Deserialization - Hive Analytic Functions

UNIT V

INTRODUCTION TO PIG & JASPERREPORTS

Pig: Introduction - Anatomy – Features – Philosophy - Use Case for Pig - Pig Latin Overview - Pig Primitive Data Types - Running Pig - Execution Modes of Pig – HDFS Commands - Relational Operators – Eval Function - Complex Data Types - Piggy Bank - User-Defined

Functions – Parameter Substitution - Diagnostic Operator - Word Count Example using Pig - Pig at Yahoo! – Pig Versus Hive - JasperReport using Jaspersoft.

TEXT BOOK:

1. Seema Acharya, SubhashiniChellappan, "Big Data and Analytics", Wiley Publications, First Edition,2015

REFERENCE BOOKS:

1. Judith Huruwitz, Alan Nugent, Fern Halper, Marcia Kaufman, "Big data for dummies", John Wiley & Sons, Inc.(2013)
2. Tom White, "Hadoop The Definitive Guide", O'Reilly Publications, Fourth Edition, 2015
3. Dirk Deroos, Paul C.Zikopoulos, Roman B.Melnky, Bruce Brown, Rafael Coss, "Hadoop For Dummies", Wiley Publications,2014
4. Robert D.Schneider, "Hadoop For Dummies", John Wiley & Sons, Inc.(2012)
5. Paul Zikopoulos, "Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data, McGraw Hill, 2012 Chuck Lam, "Hadoop In Action", Dreamtech Publications,2010

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE–V
(2005PE10) SOFT COMPUTING
B.Tech. IV Year II Sem

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Course Objectives:
- To give the students an overall knowledge of soft computing theories and fundamentals.
- To give an understanding on the fundamentals of non-traditional technologies and approaches to solving hard real-world problems. Fundamentals of artificial neural networks, fuzzy sets and fuzzy logic and genetic algorithms. Use of ANN, Fuzzy sets to solve hard real- world problems. An overview of Genetic algorithms and machine learning techniques to solving hard real-world problems.

Course Outcomes:
- Student can able to building intelligent systems through soft computing techniques.
- Student should be able to understand the concept of artificial neural networks, fuzzy arithmetic and fuzzy logic with their day to day applications.

UNIT I -Evolution of Computing:
Soft Computing Constituents - From Conventional AI to Computational Intelligence, Heuristic Search Techniques-Generate and Test, Hill Climbing ,Best First Search Problem reduction, Constraint Satisfaction and Means End Analysis. Approaches to Knowledge Representation-Using Predicate Logic and Rules.

UNIT II- Artificial Neural Networks:
Introduction, Basic models of ANN, important terminologies, Supervised Learning Networks, Perceptron Networks, Adaptive Linear Neuron, Back propagation Network, Associative Memory Networks. Training Algorithms for pattern association, BAM and Hopfield Networks.

UNIT III- Unsupervised Learning Network:
Introduction, Fixed Weight Competitive Nets, Maxnet, Hamming Network, Kohonen Self-Organizing Feature Maps, Learning Vector Quantization, Counter Propagation Networks, Adaptive Resonance Theory Networks. Special Networks - Introduction to various networks.

UNIT IV- Fuzzy Sets:
Introduction to Classical Sets (crisp Sets) and Fuzzy Sets, Operations and Fuzzy sets. Classical Relations and Fuzzy Relations - Cardinality, Operations, Properties and composition. Tolerance and equivalence relations. Membership functions- Features, Fuzzification, membership value assignments, Defuzzification.

UNIT V-Fuzzy Logic:
Fuzzy Arithmetic and Fuzzy Measures, Fuzzy Rule Base and Approximate Reasoning Fuzzy Decision making.Fuzzy Logic Control Systems, Genetic Algorithm- Introduction and basic operators and terminology, Applications: Optimization of TSP, Internet Search Technique.

TEXT BOOKS:
1. Principles of Soft Computing- S N Sivanandam, S N Deepa, Wiley India,2007.
2. Soft Computing and Intelligent System Design -Fakhreddine O Karray, Clarence D Silva, Pearson Edition,2004

REFERENCE BOOKS:

1. Artificial Intelligence and Soft Computing- Behavioural and Cognitive Modeling of the Human Brain Amit Konar, CRC press, Taylor and Francis Group.
2. Artificial Intelligence – Elaine Rich and Kevin Knight, TMH, 1991, rp2008.
3. Artificial Intelligence–Patric Henry Winston – Third Edition, Pearson Education.
4. A first course in Fuzzy Logic-Hung T Nguyen and Elbert A Walker, CRC. Press Taylor and Francis Group.
5. Artificial Intelligence and Intelligent Systems, N.P.Padhy, Oxford Univ. Press

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE –VI
(2005PE11) WEB SERVICES
B.Tech. IV Year II Sem

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Course Objectives:
At the end of the course, the students will be able to:

· To understand the details of web services technologies like WSDL,UDDI, SOAP

· To learn how to implement and deploy web service client and server

· To explore interoperability between different frameworks

Course Objectives:
After completing this course the student must demonstrate the knowledge and ability to:

· Employ the publish, find, bind architecture for Web services and to use the corresponding standards, in particular, WSDL, SOAP, UDDI

· Perform matchmaking on Web services using SOAP.

· Develop registration and discovery techniques for Web services

· Implement WS client and server with interoperable systems

UNIT- I

Evolution and Emergence of Web Services – Evolution of distributed computing, Core distributed computing technologies – client/server, CORBA, JAVA RMI, Microsoft DCOM, MOM, Challenges in Distributed Computing, role of J2EE and XML in distributed computing, emergence of Web Services and Service Oriented Architecture (SOA).

Introduction to Web Services – The definition of web services, basic operational model of web services, tools and technologies enabling web services, benefits and challenges of using web services.

Web Services Architecture – Web services Architecture and its characteristics, core building blocks of web services, standards and technologies available for implementing web services, web services communication models, basic steps of implementing web services.

UNIT-II

Fundamentals of SOAP – SOAP Message Structure, SOAP encoding, Encoding of different data types, SOAP message exchange models, SOAP communication and messaging, Java and Axis, limitations of SOAP.

UNIT- III

Describing Web Services – WSDL – WSDL in the world of Web Services, Web Services life cycle, anatomy of WSDL definition document, WSDL bindings, WSDL Tools, limitations of WSDL.

UNIT- IV

Discovering Web Services – Service discovery, role of service discovery in a SQA, service discovery mechanisms, UDDI – UDDI registries, uses of UDDI Registry,

Programming with UDDI, UDDI data structures, Publishing API, Publishing, searching and deleting information in a UDDI Registry, limitations of UDD1.

UNIT- V

Web Services Interoperability− Means of ensuring Interoperability, Overview of .NET, Creating a .NET client for an Axis Web Service, creating Java client for a Web service, Challenges in Web Services Interoperability.

Web Services Security− XML security frame work, Goals of Cryptography, Digital signature, Digital Certificate, XML Encryption.

TEXT BOOK

1. Developing Java Web Services, R. Nagappan, R. Skoczylas, R.P. Sriganesh, Wiley India.

REFERENCE BOOKS

1. Java Web Service Architecture, James McGovern, Sameer Tyagi etal., Elsevier
2. Building Web Services with Java, 2 Edition, S. Graham and others, Pearson Edn.
3. Java Web Services, D.A. Chappell & T. Jewell, O'Reilly,SPD.
4. Web Services, G. Alonso, F. Casati and others, Springer. Outcomes
5. Basic details of WSDL, UDDI, SOAP
6. Implement WS client and server with interoperable systems.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE –VI
(2012PE06) DISTRIBUTED TRUST AND BLOCK CHAIN TECHNOLOGY
B.Tech. IV Year II Sem

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Course Objectives:
- Understand how block chain systems (mainly Bitcoin and Ethereum)work,
- To securely interact with them,
- Design, build, and deploy smart contracts and distributed applications,
- Integrate ideas from block chain technology into their own projects.

Course Outcomes:
- Explain design principles of Bitcoin and Ethereum.
- Explain Nakamotoconsensus.
- Explain the Simplified Payment Verification protocol.
- List and describe differences between proof-of-work and proof-of-stake consensus.
- Interact with a blockchain system by sending and readingtransactions.
- Design, build, and deploy a distributed application.
- Evaluate security, privacy, and efficiency of a given blockchain system.

UNIT I: BASICS:
Distributed Database, Two General Problem, Byzantine General problem and Fault Tolerance, Hadoop Distributed File System, Distributed Hash Table, ASIC resistance, Turing Complete. - Cryptography: Hash function, Digital Signature - ECDSA, Memory Hard Algorithm, Zero Knowledge Proof.

UNIT II: BLOCKCHAIN:
Introduction, Advantage over conventional distributed database, Blockchain Network, Mining Mechanism, Distributed Consensus, Merkle Patricia Tree, Gas Limit, Transactions and Fee, Anonymity, Reward, Chain Policy, Life of Blockchain application, Soft & Hard Fork, Private and Public blockchain**.**

UNIT III: DISTRIBUTED CONSENSUS:
Nakamoto consensus, Proof of Work, Proof of Stake, Proof of Burn, Difficulty Level, Sybil Attack, Energy utilization and alternate.

UNIT IV: CRYPTOCURRENCY:
History, Distributed Ledger, Bitcoin protocols - Mining strategy and rewards, Ethereum - Construction, DAO, Smart Contract, GHOST, Vulnerability, Attacks, Sidechain, Namecoin

UNIT V: CRYPTOCURRENCY REGULATION:
Stakeholders, Roots of Bit coin, Legal Aspects-Cryptocurrency Exchange, Black Market and Global Economy.
Applications: Cloud Computing, Medical Record Management System, Domain Name Service and future of Blockchain.

TEXT BOOKS:
1. Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller and Steven Goldfeder, Bitcoin and Crypto currency Technologies: A Comprehensive Introduction, Princeton University Press (July 19, 2016).
2. The Block chain for Beginners –Guide to Block chain and Leveraging Block chain

Programming by Josh Thompsons , create space Independent Publishing platform,2017.

REFERENCE BOOKS:

1. Antonopoulos, Mastering Bitcoin: Unlocking Digital Cryptocurrencies
2. Block Chain Technology, Crypto currency and Applications. By S.Shukla, M.Dhawan, S.Sharma, S.Venkatesan , Oxford University Press 2019.
3. Satoshi Nakamoto, Bitcoin: A Peer-to-Peer Electronic Cash System
4. DR. Gavin Wood, "ETHEREUM: A Secure Decentralized Transaction Ledger," Yellow paper.2014.
5. Nicola Atzei, Massimo Bartoletti, and Tiziana Cimoli, A survey of attacks on Ethereum Smartcontracts

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
PROFESSIONAL ELECTIVE –VI
(2005PE12) INTERNET OF THINGS
B.Tech. IV Year II Sem

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Course Objectives:
- To introduce the terminology, technology and its applications.
- To explain the concept of M2M (machine to machine) with necessary protocols
- To introduce the Python Scripting Language which is used in many IoT devices
- To elucidate the Raspberry PI platform, that is widely used in IoT applications
- To explain the implementation of web based services on IoT devices

Course Outcomes:
Upon completion of this course, students should be able to:
- Explain the importance and usage of IoT.
- Describe the various IoT levels and protocols.
- Develop programs in Python.
- Illustrate the functioning of IOT devices.
- Relate IOT to cloud computing and web applications.

UNIT I
Introduction to Internet of Things –Definition and Characteristics of IoT,
Physical Design of IoT – IoT Protocols, IoT communication models, Iot Communication
APIs IoT enabaled Technologies – Wireless Sensor Networks, Cloud Computing, Big
data analytics, Communication protocols, Embedded Systems, IoT Levels and Templates
Domain Specific IoTs – Home, City, Environment, Energy, Retail, Logistics,
Agriculture, Industry, health andLifestyle

UNIT II
IoT and M2M – Software defined networks, network function virtualization, difference
between SDN and NFV for IoT
Basics of IoT System Management with NETCOZF, YANG- NETCONF, YANG,
SNMP NETOPEER

UNIT III
Introduction to Python - Language features of Python, Data types, data structures,
Control of flow, functions, modules, packaging, file handling, data/time operations,
classes, Exception handling
Python packages - JSON, XML, HTTPLib, URLLib, SMTPLib

UNIT IV
IoT Physical Devices and Endpoints - Introduction to Raspberry PI-Interfaces (serial,
SPI, I2C) Programming – Python program with Raspberry PI with focus of interfacing
external gadgets, controlling output and reading input from pins.

UNIT V
IoT Physical Servers and Cloud Offerings – Introduction to Cloud Storage models and
communication APIs
Webserver – Web server for IoT, Cloud for IoT, Python web application framework
Designing a RESTful web API.

TEXT BOOK:
1. Internet of Things - A Hands-on Approach, ArshdeepBahga and Vijay Madisetti, Universities Press, 2015, ISBN: 9788173719547
2. Getting Started with Raspberry Pi, Matt Richardson & Shawn Wallace, O'Reilly (SPD), 2014,ISBN: 9789350239759