BACHELOR OF TECHNOLOGY

Information Technology

COURSE STRUCTURE & SYLLABUS

(Batches admitted from the Academic Year 2018 -2019)

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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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	1800HS01	English	2	0	0	2	30	70
2	1800BS01	Mathematics – I	3	1	0	4	30	70
3	1800BS07	Engineering Chemistry	3	1	0	4	30	70
4	1802ES01	Basic Electrical Engineering	3	0	0	3	30	70
5	1803ES02	Engineering Workshop	1	0	3	2.5	30	70
6	1800HS02	English Language & Communication Skills Lab	0	0	2	1	30	70
7	1800BS08	Engineering Chemistry Lab	0	0	3	1.5	30	70
8	1802ES61	Basic Electrical Engineering Lab	0	0	2	1	30	70
		Induction Programme						
		TOTAL	12	2	10	19	240	560

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

S. No	Subject Code	Subject	L	T	P	C	Max. Marks INT	Max. Marks EXT
1	1800BS05	Applied Physics	3	1	0	4	30	70
2	1800BS02	Mathematics – II	3	1	0	4	30	70
3	1805ES01	Programming for Problem Solving	3	1	0	4	30	70
4	1803ES02	Engineering Graphics	1	0	4	3	30	70
5	1800BS06	Applied Physics Lab	0	0	3	1.5	30	70
6	1805ES61	Programming for Problem Solving Lab	-	0	3	1.5	30	70
7	1800MC01	Environmental Science	3	0	0	0	100	0
		TOTAL	13	3	10	18	280	420

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	1800BS04	Probability and Statistics	3	1	0	4	30	70
2	1804ES01	Analog Electronic Circuits	3	1	0	4	30	70
3	1805PC01	Data Structures & Algorithms	3	0	0	3	30	70
4	1805PC02	Operating Systems	3	0	0	3	30	70
5	1805PC03	Discrete Mathematics	3	0	0	3	30	70
6	1805PC61	Data Structures & Algorithms Lab	0	0	3	1.5	30	70
7	1805PC62	Operating Systems Lab	0	0	3	1.5	30	70
8	1800MC02	Human Values and Professional Ethics	2	0	0	0	100	0
		TOTAL	17	2	6	20	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	1800HS04	Managerial Economics and Financial Analysis	3	0	0	3	30	70
2	1804ES02	Digital Electronics	3	1	0	4	30	70
3	1805PC04	Computer Organization	3	1	0	4	30	70
4	1805PC05	Object Oriented Programming	3	0	0	3	30	70
5	1805PC06	Database Management Systems	3	0	0	3	30	70
6	1805PC63	Object Oriented Programming Lab	0	0	3	1.5	30	70
7	1805PC64	Database Management Systems Lab	0	0	3	1.5	30	70
8	1800MC03	Foreign Language - French*	2	0	0	0	100	0
		TOTAL	17	2	6	20	310	490

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	1800HS05	Management Science	3	0	0	3	30	70
2	1805PC07	Formal Language & Automata Theory	3	0	0	3	30	70
3	1805PC08	Design and Analysis of Algorithms	3	0	0	3	30	70
4	1805PC09	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	1805PC65	Design and Analysis of Algorithms Lab	0	0	3	1.5	30	70
8	1805PC66	Computer Networks Lab	0	0	3	1.5	30	70
9	1800MC05	Technical 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	1800HS06	Professional English	3	0	0	3	30	70
2	1812PC01	Compiler Design	3	0	0	3	30	70
3	1812PC02	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	1812PC61	Compiler Design Lab	0	0	3	1.5	30	70
8	1812PC62	Web Technologies Lab	0	0	3	1.5	30	70
9	1800MC04	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
Industry Oriented Mini Project/ Internship - During Summer Vacation-Evaluation in IV-I

IV   **Year B. Tech – I Semester (VII Semester)**

S.No	Subject Code	Subject	L	T	P	C	Max. Marks INT	Max. Marks EXT
1	1812PC03	Linux Programming	3	1	0	4	30	70
2	1812OC04	Mobile Application & Development	3	0	0	3	30	70
3		Professional Elective -4	3	0	0	3	30	70
4		Open Electives-3	3	0	0	3	30	70
5	1812PC63	Linux Programming Lab	0	0	3	1.5	30	70
6	1812PC64	Mobile Application Development Lab	0	0	3	1.5	30	70
7	1812PR01	Industry Oriented Project/Internship	0	0	0	2	30	70
8	1812PR02	Project-I	0	0	8	4	30	70
9	1800MC06	Indian Traditional Knowledge	2	0	0	0	100	0
		TOTAL	**14**	**1**	**14**	**22**	**340**	**560**

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

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

S. No	Subject Code	Subject	L	T	P	C	Max. Marks INT	Max. Marks 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	1812PR03	Technical Seminar	0	0	0	2	100	0
5	1812PR04	Project-II	0	0	18	8	30	70
		TOTAL	**9**	**0**	**18**	**19**	**220**	**280**

Semester	I-I	I-II	II-I	II-II	III-I	III-II	IV-I	IV-II	TOTAL
Credits	19	18	20	20	21	21	22	19	160

TOTAL: 160 Credits

PROFESSIONAL ELECTIVES					
Professional Elective -I		**Professional Elective -II**		**Professional Elective -III**	
1805PE01	Neural Networks	**1812PE13**	Computational Intelligence	**1805PE03**	Artificial Intelligence
1812PE01	Software Engineering	**1812PE02**	Object Oriented Analysis and Design	**1804PE12**	Embedded Systems
1805PE02	Computer Graphics	**1805PE04**	Image Processing	**1805PE06**	Cloud Computing
Professional Elective -IV		**Professional Elective -V**		**Professional Elective –VI**	
1805PE09	Big Data Analytics	**1805PE12**	Internet of Things	**1805PE11**	Distributing Trust and Block Chain Technology
1812PE03	Distributed Systems	**1812PE04**	Adhoc & Sensor Networks	**1812PE06**	**Programming Essentials in Python Programming**
1805PE08	Mobile Computing	**1812PE05**	Information Retrieval System	**1812PE07**	Natural Language Processing

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LIST OF OPEN ELECTIVES OFFERED BY VARIOUS DEPARTMENTS FOR B.Tech. III & IV YEAR

S.No	Name of the Department Offering Open Electives	Open Electives	Open Elective –II (Semester –VI)	Open Elective –III (Semester –VII)	Open Elective –IV (Semester –VIII)
1	**Electronics & Communication Engineering**	**1804OE01:** Principles of Electronic Communications **1804OE02:** Introduction to Signals Systems	**1804OE03 :** Principles of Computer Communications & Networks **1804OE04:** Fundamentals of Digital Signal Processing	**1804OE05:**Microprocessor andInterfacing **1804OE06:**Speech Processing	**1804OE07:**Principles of Wireless Communications & Networks **1804OE08:** Image Processing and Applications
2	**Computer Science & Engineering**	**1805OE01:**Java Programming **1805OE02:** Data& Knowledge Mining	**1805OE03:** Operating Systems Principles **1805OE04:**Software Testing Methodologies	**1805OE05:**Fundamentals of Database Management Systems **1805OE06:**Information Security	**1805OE07:**Fundamentalsof DataAnalytics **1805OE08:**Computer Forensics
3	**Information Technology**	**1812OE01:** Python Programming **1812OE02:** Software Engineering Principles	**1812OE03:**Web Design **1812OE04:**Design Patterns	**1812OE05:** Introduction to Linux **1812OE06:** Cryptography and Network Security	**1812OE07:**R-Programming **1812OE08:**Scripting Languages
4	**Electrical & Electronics Engineering**	**1802OE01:**Fundamentals of Electrical Engineering **1802OE02:**Elements of Electrical Engineering	**1802OE03:**Principles of Power SystemEngineering **1802OE04:**Utilization of Solar Energy	**1802OE05:**Renewable Energy Systems **1802OE06:**Basics Control System Engineering	**1802OE07:**Energy storage Systems **1802OE08:**Illumination Engineering

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1800HS01) ENGLISH

B.Tech. I YearISem   **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 Writingskills.
b) Equip students to study academic subjects more effectively and critically using the theoretical and practical components of English syllabus.
c) Develop study skills and communication skills in formal and informalsituations.

Course Outcomes: Students should be able to
a) Use English Language effectively in spoken and writtenforms.
b) Comprehend the given texts and respond appropriately.
c) Communicate confidently in various contexts and differentcultures.
d) Acquire basic proficiency in English including reading andlistening comprehension, writing and speakingskills.

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: Synonyms and Antonyms – Idioms and phrases.
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: 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 Misplaced Modifiers and Tenses.
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 andpractices.

UNIT –IV
'What Should You Be Eating' from the prescribed textbook 'English for Engineers' published by Cambridge University Press.
Vocabulary: Standard Abbreviations in English
Grammar: 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: One word substitution 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.

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

REFERENCES:
1. Swan, M. (2016). Practical English Usage. Oxford University Press.
2. Kumar, S and Lata, P.(2018). Communication Skills. Oxford University Press.
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 University Press.
6. Exercises in Spoken English. Parts I –III. CIEFL, Hyderabad. Oxford University Press.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1800BS01) MATHEMATICS – I

B.Tech. I YearISem   LTPC
                                                                             31 0 4

Course Objectives:
- To learn Types of matrices and theirproperties.
- Concept of a rank of the matrix and applying this concept to know the consistency and solving the system of linearequations.
- Concept of Eigen values and eigenvectors and to reduce the quadratic form to canonicalform.
- Concept ofSequence.
- Concept of nature of theseries.
- Geometrical approach to the mean value theorems and their application to the mathematical problems Evaluation of surface areas and volumes of revolutions of curves.
- 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.

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 Eigenvectors
- Reduce the quadratic form to canonical form using orthogonal transformations.
- Analyse the nature of sequence and series.
- Solve the applications on the mean value theorems
- Evaluate the improper integrals using Beta and Gamma functions
- Find the extreme values of functions of two variables with/ without constraints.

UNIT-I: Matrices

Matrices: Types of Matrices, Symmetric; Hermitian; Skew-symmetric; 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

Linear Transformation and Orthogonal Transformation: 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; Quadratic forms and Nature of the Quadratic Forms; Reduction of Quadratic form to canonical forms by Orthogonal Transformation.

UNIT-III: Sequences &Series

Sequence: Definition of a Sequence, limit; Convergent, Divergent and Oscillatory sequences. Series: Convergent, Divergent and Oscillatory Series; Series of positive terms; Comparison test, p-test, D-Alembert's ratio test; Raabe's test; Cauchy's Integral test; Cauchy's root test; logarithmic test. Alternating series: Leibnitz test; Alternating Convergent series: Absolute and Conditionally Convergence.

UNIT-IV: Calculus

Mean value theorems: Rolle's theorem, Lagrange's Mean value theorem with their Geometrical Interpretation and applications, Cauchy's Mean value Theorem. Taylor's Series. Applications of definite integrals to evaluate surface areas and volumes of revolutions of curves (Only in Cartesian coordinates), Definiton of Improper Integral: Beta and Gamma functions and their applications.

UNIT-V: Multivariable calculus (Partial Differentiation and applications)

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.

TEXTBOOKS:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition,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, 9th Edition,Pearson, Reprint,   2002.

REFERENCES:

1. N.P. Bali and Manish Goyal, A text book of Engineering Mathematics, Laxmi Publications,Reprint,2008.
2. Ramana B.V., Higher Engineering Mathematics, Tata McGraw Hill New Delhi, 11thReprint.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1800BS07) ENGINEERING CHEMISTRY

B.Tech. I Year I Sem   LTPC
                                                                           31 0 4

Course Objectives:
- To bring adaptability to the concepts of chemistry and to acquire the required skills to become a perfect engineer.
- To impart the basic knowledge of atomic, molecular and electronic modifications which makes the student to understand the technology based onthem.
- To acquire the knowledge of electrochemistry, corrosion and water treatment which are essential for the Engineers and inindustry.
- To acquire the skills pertaining to spectroscopy and to apply them for medical and other fields.
- To impart the knowledge of stereochemistry and synthetic aspects useful for understanding reaction pathways

Course Outcomes: The basic concepts included in this course will help the student to gain:
- The knowledge of atomic, molecular and electronic changes, band theory related to conductivity.
- The required principles and concepts of electrochemistry, corrosion and in understanding the problem of water and its treatments.
- The required skills to get clear concepts on basic spectroscopy and application to medical and other fields.
- The knowledge of configurationally and conformational analysis of molecules and reaction mechanisms.

UNIT - I:
Molecular structure and Theories of Bonding: Atomic and Molecular orbitals. Linear Combination of Atomic Orbitals (LCAO), molecular orbitals of diatomic molecules, molecular orbital energy level diagrams of N2, O2 and F2 molecules. π molecular orbitals of butadiene and benzene.
Crystal Field Theory (CFT): Salient Features of CFT – Crystal Field Splitting of transition metal ion d- orbitals in Tetrahedral, Octahedral and square planar geometries. Band structure of solids and effect of doping on conductance.

UNIT - II:
Water and its treatment: Introduction – hardness of water – Causes of hardness - Types of hardness: temporary and permanent – expression and units of hardness – Estimation of hardness of water by complexometric method.

Potable water and its specifications. Boiler troubles: Scales and Sludges, Priming and Foaming, Caustic Embrittlement. Steps involved in treatment of water – Disinfection of water by chlorination and ozonization. Boiler feed water and its treatment – Calgon conditioning, Phosphate conditioning and Colloidal conditioning. External treatment of water – Ion exchange process. Desalination of water – Reverse osmosis. Numerical problems.

UNIT - III:

Electrochemistry and corrosion: Electro chemical cells – electrode potential, standard electrode potential, types of electrodes – Calomel, Quinhydrone and Glass electrode. Nernst equation, Determination of pH of a solution by using quinhydrone and glass electrode. Electrochemical series and its applications. Numerical problems. Potentiometric titrations. Batteries – Primary: Lithium cell , secondary batteries : Lead – acid storage battery and Lithium ion battery, Fuel cells: H_2-O_2 Fuel cell, CH_3OH-O_2 Fuel cell.

Causes and effects of corrosion – theories of chemical and electrochemical corrosion – mechanism of electrochemical corrosion, Types of corrosion: Galvanic, water-line and pitting corrosion. Factors affecting rate of corrosion, Corrosion control methods- Cathodic protection – Sacrificial anode and impressed current cathodic methods. Surface coatings – metallic coatings – methods of application: Galavanising , Tinning , Metal Cladding, Electro - deposition, Electroless plating of Nickel.

UNIT - IV:

Stereochemistry, Reaction Mechanism and synthesis of drug molecules: Introduction to representation of 3-dimensional structures, Structural and stereoisomers, configurations, symmetry and chirality. Enantiomers, diastereomers, optical activity and Absolute configuration. Conformationalanalysis of n- butane.

Substitution reactions: Nucleophilic substitution reactions: Mechanism of SN1, SN2 reactions.

Electrophilic and nucleophilic addition reactions: Addition of HBr to propene. Markownikoff and anti Markownikoff's additions. Grignard additions on carbonyl compounds. Elimination reactions: Dehydro halogenation of alkylhalides. Saytzeff rule. Oxidation reactions: Oxidation of alcohols using KMnO4 and chromic acid. Reduction reactions: Reduction of carbonyl compounds using LiAlH4 & NaBH4.Hydroboration of olefins. Structure, synthesis and pharmaceutical applications of Paracetamol andAspirin.

UNIT – V:

Spectroscopic techniques and applications: Principles of electronic spectroscopy: Beer Lamberts law, Numerical problems, types of electronic excitations , applications of UV – Visible spectroscopy. IR Spectroscopy: Principle, Modes of vibrations, selection rules, Force Constant ,Some common organic functional groups Wave number regions (C-H, NH_2, OH, - COOH, C=O, C≡ N, C=C, C≡ C), applications of IR Spectroscopy, ^{1}H-NMR(NMR Spectroscopy), Principles of NMR spectroscopy, chemical shift, Chemical shifts of some organic protons , Introduction to Magnetic resonance imaging.

TEXT BOOKS:

1. Physical Chemistry, by P.W.Atkins
2. Engineering Chemistry by P.C.Jain&M.Jain; Dhanpat Rai Publishing Company (P) Ltd., NewDelhi.
3. Fundamentals of Molecular Spectroscopy, by C.N.Banwell
4. Organic Chemistry: Structure and Function by K.P.C. Volhardt and N.E.Schore, 5th Edition.
5. University Chemistry, by B.M. Mahan, Pearson IVEdition.
6. Engineering Chemistry (NPTEL Web-book), by B.L. Tembe, Kamaluddin and M.S. Krishnan

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1802ES01)BASIC ELECTRICAL ENGINEERING

B.Tech. I YearISem   **LTPC**
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Course Objectiv es:
- To introduce the concepts of electrical circuits and its components
- To understand magnetic circuits, DC circuits and AC single phase & three phase circuits
- To study and understand the different types of DC/AC machines and Transformers.
- To import the knowledge of various electrical installations.
- To introduce the concept of power, power factor and its improvement.

Course Outcomes:
- To analyze and solve electrical circuits using network laws and theorems.
- To understand and analyze basic Electric and Magnetic circuits
- To study the working principles of Electrical Machines
- 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 McGrawHill.
2. D.C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill,2009.
3. L.S. Bobrow, Fundamentals of Electrical Engineering", Oxford University Press,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
(1803ES02)ENGINEERING WORKSHOP

B.Tech. I Year I Sem   **LTPC**
                                                                       1032 5

Course Objectives:
- To Study of different hand operated power tools, uses and their demonstration.
- To gain a good basic working knowledge required for the production of various engineering products.
- To provide hands on experience about use of different engineering materials, tools, equipments and processes those are common in the engineering field.
- To develop a right attitude, team working, precision and safety at workplace.
- It explains the construction, function, use and application of different working tools, equipment and machines.
- To study commonly used carpentry joints.
- To have practical exposure to various welding and joining processes.
- Identify and use marking out tools, hand tools, measuring equipment and to work to prescribed tolerances.

Course Outcomes: At the end of the course, the student will be able to:
- Study and practice on machine tools and their operations
- Practice on manufacturing of components using workshop trades including pluming, fitting, carpentry, foundry, house wiring and welding.
- Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.
- Apply basic electrical engineering knowledge for house wiring practice.

1. TRADES FOREXERCISES:
At least two exercises from each trade:
i)   Carpentry – (T-Lap Joint, Dovetail Joint, Mortise & TenonJoint)
ii) Fitting – (V-Fit, Dovetail Fit & Semi-circularfit)
iii) Tin-Smithy – (Square Tin, Rectangular Tray & ConicalFunnel)
iv) Foundry – (Preparation of Green Sand Mould using Single Piece and SplitPattern)
v)   Welding Practice – (Arc Welding & GasWelding)
vi) House-wiring – (Parallel & Series, Two-way Switch and TubeLight)
vii) Black Smithy – (Round to Square, Fan Hook andS-Hook)

2. TRADES FOR DEMONSTRATION &EXPOSURE:
Plumbing, Machine Shop, Metal Cutting (Water Plasma), Power tools in construction and Wood Working

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Experiments beyond the Syllabus:

Machine Shop-(lathe machine, drilling machine**} TEXT BOOKS:**

1. Workshop Practice /B. L. Juneja /Cengage
2. Workshop Manual / K. Venugopal /Anuradha.

REFERENCE BOOKS:

1. Work shop Manual - P. Kannaiah/ K. L. Narayana/SciTech
2. Workshop Manual / Venkat Reddy/BSP

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1800HS02)ENGLISH LANGUAGE AND COMMUNICATION SKILLS LAB

B.Tech. I Year I Sem   **LTPC**
                                                                                            0021

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:
- To facilitate computer-assisted multi-media instruction enabling individualized and independent language learning
- To sensitize students to the nuances of English speech sounds, word accent, intonation and rhythm
- To bring about a consistent accent and intelligibility in students' pronunciation of English by providing an opportunity for practice in speaking
- To improve the fluency of students in spoken English and neutralize their mother tongue influence
- To train students to use language appropriately for public speakingand interviews
- Better understanding of nuances of English language through audio-visual
- experience and group activities
- Neutralization of accent for intelligibility
- Speaking skills with clarity and confidence which in turn enhances theiremployability skills

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 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 Etiquette.

Exercise - III CALL Lab:

Understand: Intonation-Errors in Pronunciation-the Influence of Mother Tongue (MTI). *Practice:* Exercises on practicing intonation reading a paragraph/ dialogue for right pauses, tone etc. Common Indian Variants in Pronunciation – Differences in British and American Pronunciation.

ICS Lab:

Understand: How to make Formal Presentations.
Practice: Formal Presentations.

Exercise – IV CALL Lab:

Understand: Consonant Clusters, Plural and Past tense Markers Practice: Words often Miss pelt – 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 studies on Group Discussions *and Mock* Interviews.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1800BS08) ENGINEERING CHEMISTRY LAB

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

Course Objectives: The course consists of experiments related to the principles of chemistry required for engineering student. The student will learn:
- Estimation of hardness and chloride content in water to check its suitability for drinking purpose.
- To determine the rate constant of reactions from concentrations as an function of time.
- The measurement of physical properties like adsorption and viscosity.
- To synthesize the drug molecules and check the purity of organic molecules by thin layer chromatographic (TLC) technique.

Course Outcomes: The experiments will make the student gain skills on:
- Determination of parameters like hardness and chloride content in water.
- Estimation of rate constant of a reaction from concentration – time relationships.
- Determination of physical properties like adsorption and viscosity.
- Calculation of R_f values of some organic molecules by TLCtechnique.

List of Experiments:
1. Determination of total hardness of water by complex metric method using EDTA
2. Determination of chloride content of water by Argentometry
3. Estimation of an HCl by Conductometrictitrations
4. Estimation of Acetic acid by Conductometrictitrations
5. Estimation of HCl by Potentiometrictitrations
6. Estimation of Fe_{2+} by Potentiometry usingKMnO$_4$
7. Determination of rate constant of acid catalysed hydrolysis of methylacetate
8. Synthesis of Aspirin andParacetamol
9. Thin layer chromatography calculation of R_f values. eg ortho and para nitrophenols
10. Determination of acid value of coconutoil
11. Verification of freundlich adsorption isotherm-adsorption of acetic acid oncharcoal
12. Determination of viscosity of castor oil and ground nut oil by using Ostwald's viscometer.
13. Determination of partition coefficient of acetic acid between n-butanol andwater.
14. Determination of surface tension of a give liquid usingstalagmometer.

Experiments beyond syllabus:

1. Preparation of Nylon-6:6.
2. Estimation of Fe+2 byDichrometry.

References

1. Senior practical physical chemistry, B.D. Khosla, A. Gulati and V. Garg (R. Chand& Co.,Delhi)
2. An introduction to practical chemistry, K.K. Sharma and D. S. Sharma (Vikas publishing, N.Delhi)
3. Vogel's text book of practical organic chemistry 5th edition
4. Text book on Experiments and calculations in Engineering chemistry – S.S.Dara

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1802ES02) BASIC ELECTRICAL ENGINEERING LAB

B.Tech. I YearISem   **LTPC**
                                                                                       0021

Course Objectives:
- To analyze a given network by applying various electrical laws and network theorems
- To know the response of electrical circuits for different excitations
- To calculate, measure and know the relation between basic electrical parameters.
- To analyze the performance characteristics of DC and AC electrical machines

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

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 DCexcitation
5. Resonance in series RLCcircuit
6. Calculations and Verification of Impedance and Current of RL, RC and RLCseries circuits
7. Measurement of Voltage, Current and Real Power in primary and SecondaryCircuits 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
(1800BS05) APPLIED PHYSICS

B.Tech. I YearISem   **LTPC**
                                                                                  31 0 4

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

Course Outcomes: Upon graduation:
- The student would be able to learn the fundamental concepts on Quantum behavior of matter in its microstate.
- The knowledge of fundamentals of Semiconductor physics, Optoelectronics,Lasers andfibre 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 be exposed to the phenomena of electromagnetism and also to have exposure on magnetic materials and dielectric materials.

UNIT-I: Quantum Mechanics
Introduction to quantum physics, Black body radiation, Planck's law, Photoelectric effect, Compton effect, 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 bandgap

semiconductors, p-n junction diode: energy band diagram for open and closed circuits, Zener diode and their V-I Characteristics.

UNIT-III: Optoelectronics

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

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, 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, 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 magneticmaterials.

TEXT BOOKS:
1. Engineering Physics, B.K. Pandey, S. Chaturvedi - CengageLearing.
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, QuantumMechanics
2. J. Singh, Semiconductor Optoelectronics: Physics and Technology, Mc Graw-Hill inc. (1995).
3. Online Course: "Optoelectronic Materials and Devices" by Monica Katiyar andDeepak Guptha onNPTEL

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
1800BS02: MATHEMATICS – II

B.Tech. I Year IISem   **LTPC**
                                                                              31 0 4

Course Objectives:
- To learn Methods of solving the differential equations of first and higherorder
- Evaluation of multiple integrals and their applications
- The physical quantities involved in engineering field related to vector valued functions
- The basic properties of vector valued functions and their applications to line, surface and volume integrals

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 rectangularparallelepiped
- Evaluate the line, surface and volume integrals and converting them from one to another

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 parallelopiped).

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, 36th Edition,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., Wiley India,1984.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
1805ES61: PROGRAMMING FOR PROBLEM SOLVING

B.Tech. I Year IISem   LTPC
                                                                                            31 0 4

Course Objectives:
- To learn the fundamentals ofcomputers.
- To understand the various steps in program development.
- To learn the syntax and semantics of C programming language.
- To learn the usage of structured programming approach in solving problems.

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

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 to functions
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.
Storage classes (auto, extern, static and register).
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, Cengage Learning.
2. Programming in C. P. Dey and M Ghosh , Second Edition, Oxford University Press.

Reference Books:

1. The C Programming Language, B.W. Kernighan and Dennis M. Ritchie, Second Edition, Pearson education.
2. Programmingwith C, B. Gottfried, 3rd edition, Schaum's outlines, McGraw Hill Education (India) Pvt Ltd.
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, CambridgeUniversity Press

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1803ES01) ENGINEERIG GRAPHICS

B.Tech. I Year IISem   LTPC
                                                                                                            1043

Course objectives:
- To provide basic concepts in engineering drawing.
- To impart knowledge about standard principles of orthographic projection ofobjects.
- To draw sectional views and pictorial views of solids.

Course Outcomes: At the end of the course, the student will be able to:
- Preparing working drawings to communicate the ideas and information.
- Read, understand and interpret engineering drawings.

UNIT – I
Introduction to Engineering Drawing: Principles of Engineering Graphics and their Significance, Conic Sections including the Rectangular Hyperbola – General method only.
Cycloid, Epicycloid and Hypocycloid, Scales – Plain & Diagonal.

UNIT- II
Orthographic Projections: Principles of Orthographic Projections – Conventions – Projections of Points and Lines, Projections of Plane regular geometric figures. - Auxiliary Planes.

UNIT – III
Projections of Regular Solids – Auxiliary Views - Sections or Sectional views of Right Regular Solids – Prism, Cylinder, Pyramid, Cone – Auxiliary views – Sections of Sphere.

UNIT – IV
Development of Surfaces of Right Regular Solids – Prism, Cylinder, Pyramid and Cone, Intersection of Solids: Intersection of – Prism vs Prism- Cylinder Vs Cylinder.

UNIT – V
Isometric Projections: Principles of Isometric Projection – Isometric Scale – Isometric Views –Conventions – Isometric Views of Lines, Plane Figures, Simple and Compound Solids – Isometric Projection of objects having non- isometric lines. Isometric Projection of Spherical Parts. Conversion of Isometric Views to Orthographic Views and Vice-versa – Conventions

Introduction to CAD: (For Internal Evaluation Weightage only):
Introduction to CAD Software Package Commands.- Free Hand Sketches of 2D-Creation of 2D Sketches by CAD Package.

TEXTBOOKS:
1. Engineering Drawing N.D. Bhatt /Charotar
2. Engineering Drawing / N. S. Parthasarathy and Vela Murali/Oxford

REFERENCE BOOKS:
1. Engineering Drawing / Basant Agrawal and McAgrawal/ McGrawHill
2. Engineering Drawing/ M. B. Shah, B.C. Rane /Pearson.
3. Computer Aided Engineering Drawing – K Balaveera Reddy et al – CBSPublishers

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1800BS06)APPLIED PHYSICS LAB

B.Tech. I Year IISem (ECE)   **LTPC**
                                                                                        0031.5

List of Experiments:

(Any 8 experiments are mandatory)

1. Energy gap of P-N junction diode-To determine the energy gap of a semiconductor diode.
2. Solar Cell-To study the V-I Characteristics of solar cell.
3. Light emitting diode-Plot V-I and P-I characteristics of light emitting diode.
4. Stewart – Gee's experiment-Determination of magnetic field along the axis of a currentcarrying coil.
5. Hall effect-To determine Hall co-efficient of a given semiconductor.
6. Optical fibre-To determine the Numerical Aperture of given Opticfibre.
7. LASER-To study the characteristics of LASERsources.
8. Optical fibre-To determine the bending losses of Opticalfibre.
9. LCR Circuit-To determine the Quality factor of LCRCircuit.
10. R-C Circuit-To determine the time constant of R-Ccircuit.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1805ES02) PROGRAMMING FOR PROBLEM SOLVING LAB

B.Tech. I Year IISem   **LTPC**
                                                                          0031.5

Course Objectives: The students will learn the following:
- To work with an IDE to create, edit, compile, run and debug programs
- To analyze the various steps in program development.
- To develop programs to solve basic problems by understanding basic concepts in C like operators, control statementsetc.
- 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 binaryfiles

Course Outcomes: The candidate is expected to be able to:
- formulate the algorithms for simple problems
- translate given algorithms to a working and correct program
- correct syntax errors as reported by the compilers
- identify and correct logical errors encountered during execution
- represent and manipulate data with arrays, strings and structures
- use pointers of different types
- create, read and write to and from simple text and binary files
- modularize the code with functions so that they can be reused

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 standard input.

Simple numeric problems:
a) Write a program for fiend the max and min from the three numbers.
b) Write the program for the simple, compound interest.
c) Write program that declares Class awarded for a given percentage of marks, where mark <40%= Failed, 40% to <60% = Second class, 60% to <70%=First class, >= 70% = Distinction. Read percentage from standard input.
d) Write a program that prints a multiplication table for a given number and the number of rows in the table.

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

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 formula $s = ut+(1/2)at^2$ 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 Switch Statement)

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

iv) Write a C program to find the sum of individual digits of a positive integerand test given number is palindrome.

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 the sequence.

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

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

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) Write a C program to read in two numbers, x and n, and then compute the sum of this geometric progression: $1+x+x^2+x^3+............... +x^n$. For example: if n is 3 and x is 5, 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 of integers.

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

c) Write a C program that uses functions to perform the following:
i. Addition of Two Matrices
ii. Multiplication of Two Matrices
iii. Transpose of a matrix with memory dynamically allocated for the new matrix as row and column counts may not besame.

d) Write C programs that use both recursive and non-recursive functions
   i)   To find the factorial of a giveninteger.
   ii) To find the GCD (greatest common divisor) of two givenintegers.
   iii) 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 using pointer.
g) Write a program through pointer variable to sum of n elements from array.

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 Roman equivalent
c) Write a C program that uses functions to perform the following operations:
   • To insert a sub-string in to a given main string from a given position.
   • To delete n Characters from a given position in a given string.
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 containch.
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 using Structure
   • Reading a complex number
   • Writing ComplexNumber
   • Addition of 2 ComplexNumbers
   • Multiplication of two complex numbers
b) Write a C program to store information of 5 students using structures.
c) Write a C program to Access all structures members using pointer structure variable.
d) Write a C program to access members of union?

Files
a) Write a C program to display the contents of a file to standard output device.
b) Write a C program which copies one file to another, replacing all lowercase characters with their uppercase equivalents.

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 line arguments.

d) Write a C program that does the following:

e) It should first create a binary file and store 10 integers, where the file name and 10 values are given in the command line. (hint: convert the strings using atoi function) Now the 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 is entered.

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 search method.

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 search method.

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

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 of names

Suggested Reference Books for solving the problems:

i.   Byron Gottfried, Schaum's Outline of Programming with C,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
(1800MC01)ENVIRONMENTAL STUDIES

B.Tech. I Year IISem   LTPC
                                                                                                                                 3000

Course Objectives:

- Understanding the importance of ecological balance for sustainable development.
- Understanding the impacts of developmental activities and mitigation measures.
- Understanding the environmental policies and regulations

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 sustainable development.

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-GoI initiatives.

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 life style.

TEXT BOOKS:

1. Textbook of Environmental Studies for Undergraduate Courses by ErachBharucha for University GrantsCommission.
2. Environmental Studies by R. Rajagopalan, Oxford UniversityPress.

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 Learning Pvt.Ltd.
3. Environmental Science by Daniel B. Botkin & Edward A. Keller, Wiley INDIAedition.
4. Environmental Studies by Anubha Kaushik, 4th Edition, New age international publishers.
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
(1800BS04) PROBABILITY AND STATISTICS

B.Tech. II Year I Sem   **LTPC**
                                                                                 310 4

Course Objectives:

- Understand a random variable that describes randomness or an uncertainty in certain realistic situation. It can be of either discrete or continuous type.
- 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 industrial applications.
- Most of the random situations are described as functions of many single random variables.
- 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 of engineering.
- 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'stheorem(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. TestofEqualityofmeansoftwosamplesequalityofsamplemeanandpopulationmean(cases of known variance & unknown variance, equal and unequal variances)

ii. Tests of significance difference between sample proportion and population proportion & difference between two sample proportions.

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 ans Statistics for Engineers and Scientists by Sheldon M.Ross, Academic Press

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.Krishna GandhiEt
3. Fundamentals of Mathematical Statistics by S C Gupta andV.K.Kapoor
4. O.neil by P&S only applications
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
(1804ES01) ANALOG ELECTRONICS CIRCUITS

B.Tech. II YearISem   **LTPC**

                                                                    3104

Course Objectives:

- To familiarize the student with the principle of operation, analysis and designof Junction diode, BJT and FET amplifier circuits, transistors and field effect transistors.
- To understand diode asrectifier.
- To study basic principle of filter circuits and varioustypes.

Course Outcomes:

- Understand and Analyse the different types of diodes, operation andits characteristics.
- Design and analyse the DC bias circuitry of BJT andFET.
- Design biasing circuits using diodes andtransistors.
- To analyze and design diode application circuits, amplifier circuits and oscillators employing BJT, FETdevices.

UNIT -I

Junction Diode: P-N Junction as a Diode, Diode Equation, Volt- Ampere Characteristics, Temperature dependence of VI characteristic, Ideal versus Practical – Resistance levels (Static and Dynamic), Transition and Diffusion Capacitances, Diode Equivalent Circuits, Load Line Analysis, Breakdown Mechanisms in Semiconductor Diodes, Zener Diode Characteristics.

UNIT -II

Rectifiers and Filters : The P-N junction as a Rectifier, Half wave Rectifier, Full wave Rectifier, Bridge Rectifier, Harmonic components in a Rectifier Circuit, Inductor Filters, Capacitor Filters, L- Section Filters, π- Section Filters, Comparison of Filters, Voltage Regulation using Zener Diode.

UNIT -III

Bipolar Junction Transistor: The Junction Transistor, Transistor Current Components, Transistor as an Amplifier, Transistor Construction, BJT Operation, BJT Symbol, Common Base, Common Emitter and Common Collector Configurations , BJT Specifications, BJT Hybrid Model, Comparison of CB, CE, and CC Amplifier Configurations.

UNIT -IV

Transistor Biasing and Stabilization: Operating Point, The DC and AC Load lines,

Need for Biasing, Fixed Bias, Collector Feedback Bias, Emitter Feedback Bias, Collector - Emitter Feedback Bias, Voltage Divider Bias, Bias Stability, Stabilization Factors, Stabilization against variations in V_{BE} and β, Bias Compensation using Diodes and Transistors, Thermal Runaway, Thermal Stability, Analysis of a Transistor Amplifier Circuit using h- Parameters.

UNIT -V

Field Effect Transistor: The Junction Field Effect Transistor (Construction, principle of operation, symbol) – Pinch-off Voltage - Volt-Ampere characteristics, The JFET Small Signal Model, MOSFET (Construction, principle of operation, symbol), MOSFET Characteristics in Enhancement and Depletionmodes, Comparison of BJT and FET.

TEXT BOOKS:

1. Millman's Electronic Devices and Circuits – J. Millman, C.C.Halkias, andSatyabrata Jit, 2 Ed.,1998, TMH
2. Electronic Devices and Circuits – David A. Bell, 5Ed,Oxford.

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,2ndEd., 2008,TMH.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1805PC01) DATA STRUCTURES AND ALGORITHMS

B.Tech. II YearISem   **LTPC**

                                                                                   3003

Objectives:
- To impart the basic concepts of data structures and algorithms.
- To understand concepts about searching and sorting techniques
- To understand basic concepts about stacks, queues, lists trees and graphs.
- 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 the correctness.
- 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 computation complexity.
- 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.
- Student will able to implement Graph search and traversal algorithms and determine the time and computation complexity.

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 Lists:** 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 traversalalgorithms &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
(1805PC02) OPERATING SYSTEMS

B.Tech. II YearISem   **LTPC**
                                                                                  3003

Course Objectives:

Students will be able:

1. To learn the mechanisms of OS to handle processes and threads and their communication
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 agreement protocols
4. To know the components and management aspects of concurrency management

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 and Recovery.

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 and performance.
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
(1805PC03) DISCRETE MATHEMATICS

B.Tech. II YearISem   LTPC
                                                                                  3004

Course Objectives:
- Use mathematically correct terminology andnotation.
- Construct correct direct and indirect proofs.
- Use division into cases in aproof.
- Use counterexamples.
- 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 logicalconnectives
- For a given a problem, derive the solution using deductive logic and prove the solution based on logical inference
- 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 graph theory.

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.

Proof Techniques: Some Terminology, Proof Methods and Strategies, Forward Proof, Proof by Contradiction, Proof by Contraposition, Proof of Necessity andSufficiency.

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, Cantor's diagonal argument and The Power Set theorem, Schroeder-Bernstein theorem.

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 of BooleanFunction.

UNIT-IV

Basic counting techniques-inclusion and exclusion, pigeon-hole principle, permutation and combination.

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, Shortest distances.

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 Publishing Co.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", TMG Edition,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
(1805PC61) DATA STRUCTURES & ALGORITHMS LAB

B.Tech. II YearISem   **LTPC**
                                                          0031.5

Course Objectives:
• To make the student learn a object oriented way of solving problems.
• To make the student write ADTS for all data structures.

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 the correctness.
• 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 computation complexity.
• 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) Linear search   ii) Binary Search.

Week2: Write C programs to implement
i) Bubble sort   ii) Selection sort
iii) quick sort   iv) Insertion sort

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 intoa list.   b) Delete an element fromlist
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) Stack ADT   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) Merge sort   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 aB-tree

Week 11: Write a C program to perform the following operation
a) Insertion into anAVL-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,Dreamtech Press.
- Data structures using C, A.K.Sharma, 2nd edition,Pearson.
- Data Structures using C, R.Thareja, Oxford UniversityPress.
- 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
(1805PC62) OPERATING SYSTEMS LAB

B.Tech. II YearISem   **LTPC**
                                                                     0031.5

Course Objectives:
- To understand the functionalities of various layers of OSImodel
- To explain the difference between hardware, software; operating systems, programs andfiles.
- 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) Sequentialb)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)Twolevelc) Hierarchical d)DAG.

Week 6: Simulate Bankers Algorithm for Dead LockAvoidance.

Week 7: Simulate Bankers Algorithm for Dead LockPrevention.

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

Week 9: Simulate all page replacementalgorithmsa)FIFOb)LRUc)LFU

Week 10: Simulate Paging Technique of memory management.

Week 11: 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
(1800MC02) HUMAN VALUES AND PROFESSIONAL ETHICS

B.Tech. II YearISem   **LTPC**
                                                                                 2000

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, Obligations and Moral Values in Professional Ethics, Professional codes of 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 HumanValues and ProfessionalEthics.
2. Professional Ethics: R. Subramanian, Oxford University Press,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, Cengage learning,2015.
4. Business Ethics concepts & Cases: Manuel G Velasquez, 6e, PHI,2008.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1800HS04)MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS

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

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 analyse and interpret the financial statements through ratioanalysis.

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) - ManagerialSignificance.

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 Organisation: Sole Proprietorship, Partnership, Joint Stock Company, Public Enterprises and their types, New Economic Environment: Changing Business Environment in Post-liberalization scenario.

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 Profitability ratios.

TEXT BOOKS:

1. Varshney &Maheswari: Managerial Economics, Sultan Chand,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 University Press,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, University Press,2012.
10. Aryasri: Managerial Economics and Financial Analysis, TMH,2012.
11. Vijay Kumar &Appa Rao, Managerial Economics & Financial Analysis, Cengage 2011.
12. J.V. Prabhakar Rao & P.V. Rao, Managerial Economics & Financial Analysis, Maruthi Publishers, 2011.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1804ES02) DIGITAL ELECTRONICS

B.Tech. II YearII Sem   LTPC
                                                                              3104

Course Objectives:

- 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 desired functionality.
- To understand the design of memory and how register transfer takes place using micro operations.

Course Outcomes:

- Upon successful completion of this course, the student will be ableto:
- Perform arithmetic operations on different number systems and to apply the principles of Boolean algebra to minimize logic expressions.
- Use K-map method to minimize and optimize two-level logic functions up to five variables.
- 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 andPROMs.
- Understanding about the micro operations such as arithmetic, logical and shift instructions.

UNIT - I

Digital Systems, Binary Numbers, Number base conversions, Octal, Hexadecimal and other base numbers, complements, signed binary numbers, Floating point number representation, binary codes, Error detection and correction, binary logic, Boolean algebra and digital logic gates, Basic theorems and properties of Boolean Algebra, Boolean functions, canonical and standard forms.

UNIT - II

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

UNIT - III

Combinational Circuits (CC), Analysis procedure, Design Procedure, Combinational circuit for different code converters, Binary Adder-Subtractor, Decimal Adder, Binary Multiplier, Decoders, Encoders, Multiplexers,De-multiplexers.

UNIT - IV

Synchronous Sequential Circuits, Latches, Flip-flops, analysis of clocked sequential circuits, Registers, Shift registers, Ripple counters, Synchronous counters. Asynchronous Sequential Circuits -Introduction, Analysis procedure, Circuits with latches.

UNIT - V

Memory: Introduction, Random-Access memory, Memory decoding, ROM, Programmable Logic Array, Programmable Array Logic, Sequential programmable devices. Register Transfer and Micro operations - Register Transfer Language, Register Transfer, Bus and Memory Transfers, Arithmetic Micro operations, Logic Micro operations, Shift Micro operations, Arithmetic Logic Shift Unit.

TEXT BOOKS:

1. M. Morris Mano, Michael D. Ciletti (2008), Digital Design, 4th edition, Pearson Education/PHI,India.
2. Thomas L. Floyd (2006), Digital fundamentals, 9th edition, Pearson Education International.

REFERENCE BOOKS:

1. Zvi. Kohavi (2004), Switching and Finite Automata Theory, Tata McGraw Hill,India.
2. C.V.S. Rao (2009), Switching and Logic Design, 3rd edition, Pearson Education,India.
3. Donald D.Givone (2002), Digital Principles and Design, Tata McGraw Hill,India.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1805PC04) COMPUTER ORGANIZATION

B.Tech. II YearII Sem   LTPC
                                                                            3104

Course Objectives: To expose the students to the following:
1. How Computer Systems work & the basic principles
2. Instruction Level Architecture and Instruction Execution
3. The current state of art in memory system design
4. How I/O devices are accessed and its principles.
5. To provide the knowledge on Instruction Level Parallelism
6. To impart the knowledge on microprogramming
7. Concepts of advanced pipelining techniques.

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 digital systems.
- An ability to identify, formulate, and solve 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 shift unit.
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, microprogram example, design of CU. Micro Programmed Control.

UNIT IV
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 tapes etc

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/SoftwareInterface",5thEditionby David A. Patterson and John L. Hennessy,Elsevier.
2. "Computer Organization and Embedded Systems", 6th Edition by carlHamacher,McGraw Hill HigherEducation.

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

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1805PC05) OBJECT ORIENTED PROGRAMMING

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

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 solving problems.
- To understand the principles of inheritance and polymorphism and demonstrate how they relate to the design of abstract classes.
- To understand the implementation of packages and interfaces.
- To understand the concepts of exception handling, multithreading and collection classes.
- To understand the design of Graphical User Interface using applets and swing controls.

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 their requirements;
- 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 importanceof good documentation to the finished programs.
- 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 Java program.
- Be able to make use of members of classes found in the Java API.
- 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 asolution 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 and Lifetime of variables, Operators, Type conversion and casting, Enumeration, Control flow- 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–
Inheritancehierarchy,superkeyword,preventinginheritance:finalclasses   and methods, the Object class and itsmethods**.**
Polymorphism – dynamic binding, Constructor and method overloading, method overriding, abstract classes**.**
Interfaces-InterfacesVsAbstractclasses,defininganinterface,implementingint erfaces,
accessingimplementationsthroughinterfacereferences,extendinginterface,inn erclass.
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,threadpriorities,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, GridLayoutandGridbagLayout.

Event Handling-Events, Event sources, Event classes, Event Listeners, Delegation event model,Handling Mouse and Key events, Adapter classes.

TEXT BOOKS:

1. JavaFundamentals–AComprehensiveIntroduction,HerbertSchildt and Dale Skrien,TMH.
2. UnderstandingObject-OrientedProgrammingwithJava,updated   edition, T. Budd, PearsonEducation

REFERENCE BOOKS:

1. JavaforProgrammers,P.J.DeitelandH.M.Deitel,PEA(or)Java:Howto   Program , P.J.Deitel andH.M.Deitel,PHI
2. ObjectOrientedProgrammingthroughJava,P.RadhaKrishna,Universities Press.
3. Thinking in Java, BruceEckel,PE
4. ProgramminginJava,S.MalhotraandS.Choudhary,OxfordUni   versities Press.
5. DesignPatternsErichGamma,RichardHelm,RalphJohnsonandJohn Vlissides

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1805PC06)DATABASE MANAGEMENT SYSTEMS

B.Tech. II YearII Sem   LTPC
                                                                                             3003

Course Objectives:
- To understand the basic concepts and the applications of database systems.
- To master the basics of SQL and construct queries usingSQL.
- To understand the relational database design principles.
- To become familiar with the basic issues of transaction processing and concurrency control.
- To become familiar with database storage structures and access techniques.

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

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 andViews.

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 of UNIT-I,UNIT-IV)

REFERENCE BOOKS:

1. Database Systems, 6th edition, R Elmasri, ShamkantB.Navathe, PearsonEducation.
2. Database System Concepts, Peter Rob & Carlos Coronel, CengageLearning.
3. Introduction to Database Management, M. L. Gillenson and others, Wiley StudentEdition.
4. 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
(1805PC63) OBJECT ORIENTED PROGRAMMING LAB

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

Course Objectives:

- To prepare students to become familiar with the Standard Java technologies of J2SE
- To prepare students to excel in Object Oriented programming and to succeed as a Java Developer through global rigorous education.
- 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,JavaScript
- To train Students with good OOP programming breadth so as to comprehend, analyze, design and create novel products and solutions for the real life problems.
- To inculcate in students professional and ethical attitude, multidisciplinary approach and an ability to relate java programming issues to broader application context.
- To provide student with an academic environment aware of excellence, written ethical codes and guidelines and lifelong learning needed for a successful professional career.

Course Outcomes:

- Able to analyze the necessity for Object Oriented Programming paradigm and over structured programming and become familiar with the fundamental concepts in OOP.
- 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 and specifications.
- Demonstrate an ability to visualize and work on laboratory and multidisciplinary tasks like console and windows applications both for standalone and Applets program

Week 1: a) Write a java program to find the Fibonacci series using recursive and non recursive functions.
　　　　b) 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 threethreads.

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 using hashtable.

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 theresult.

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 and H.M.Deitel,PHI

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1805PC64) 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 professional development.
- To engage themselves in lifelong learning of Database management systems theories and technologies this enables them to purse higherstudies.
- To interact professionally with colleagues or clients located abroad and the ability to overcome challenges that arises from geographic distance , cultural differences,andmultiplelanguagesinthecontextofcomputing.
- Developteamspirit,effectiveworkhabits,andprofessionalattitudeinwrittena nd 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 the database.
- In converting the entity-relationship diagrams into relational tables.
- To develop appropriate Databases to a given problem that integrates ethical, social, legal, and economic concerns.

A. Practice on SQL Queries to acquire knowledge onRDBMS.

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:

- Reservations andTicketing
- Cancellations
- Reservations &Cancellation:

Reservations are directly handled by booking office. Reservations can be made 30 days inadvanceandticketsissuedtopassenger.OnePassenger/personcanbookmanytickets (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 toretrieve the data from the database.

The above Process involves many steps like 1. Analyzing the problem and identifying the Entitites 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, ifany.

Example:

Entities:

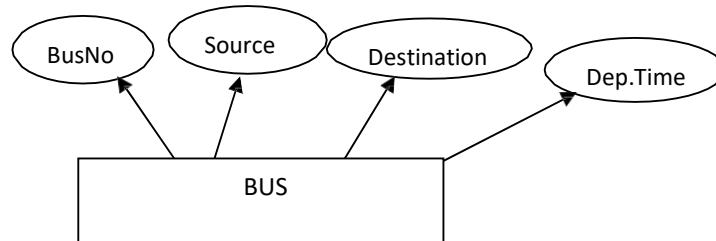1. BUS
2. Ticket
3. Passenger

Relationships:

1. Reservation
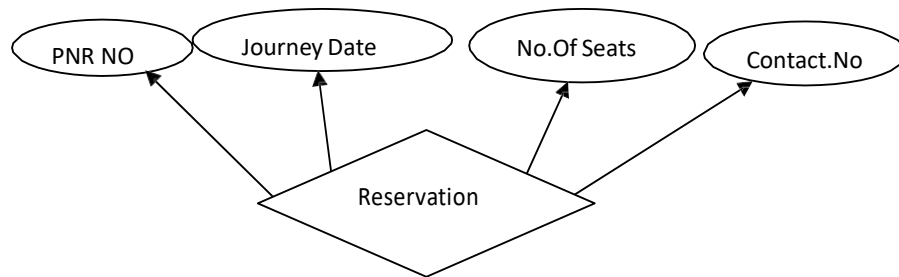2. Cancellation

PRIMARY KEY ATTRIBUTES:

1. Ticket ID (Ticket Entity)
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

Installation of 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) Not NULL,

       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-deletesallrecordsfroma 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
Inthisweekyouaregoingtopracticequeries(alongwithsubqueries)using ANY, ALL, IN, Exists, NOT EXISTS, UNION, INTERSECT,Constraintsetc.

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 ofViews.
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 HAVING CLAUSES.
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 reserved boat103
• Find the name and the age of the youngestsailor
• Find the names and ratings of sailor whose rating is better than some sailor calledHoratio
• Find the names of sailors who have reserved allboats

Experiment 6: VIEWS and JOIN

Inthisweek,wearegoingtoimplementviewsandalsoperformvarious   operations   like alter, update and deletecommands.

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).Fulljoin

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 updcheck 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 ofdataintegrity. 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 instance only.

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_idTicket_id

_____

Youcandothesecondandthirdnormalformsifrequired.AnyhowNormalizedtables are given at theend.

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 ofmarks?

• Write a PL/SQL procedure to find the factorial of anumber?

• Write a PL/SQL code to calculate tax for an employee of an organization – XYZandtodisplayhis/hername&tax,by creating table under employee database asbelow.

   Employee_salary   Emp_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, savepoint, 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. Developaquerytograntallprivilegesofemployeestableintodepartments   table
2. Developaquerytograntsomeprivilegesofemployeestableintodepartments   table
3. Developaquerytorevokeallprivilegesofemployeestablefromdepartments   table
4. Developaquerytorevokesomeprivilegesofemployeestablefrom departments table
5. Write a query to implement the save point
6. Writeaquerytoimplementthe commit
7. Write a query to implementrollback

Reference Books:

1. Introduction to SQL,RickF.VanderLans,Pearsoneducation..

2. OraclePLISQL,B.RosenzweigandE.Silvestrova,Pearsoneducation.

3. Oracle   PLISQL   Programming,StevenFeuerstein,SPD.

4. SQL& PLISQL for Oracle lOg,B lack Book, Dr.P.S.Deshpande, Dream Tech

5. Oracle Database llg PLI SQL Programming,M.   McLaughlin,TMH

6. SQL Fundamentals, j.j.Patrick,Pearson Education

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1800MC03) FRENCH LANGUAGE

B.Tech. II YearII Sem   **LTPC**
                                                                  2000

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 French language.
- To hone the basic sentence constructions in day to day expressions for communication in their vocation.

Course Outcomes

- The students will be able to communicate in French at A1level.
- The student will have an advantage in the competitive job market.
- This course benefits the graduates when pursuing study *opportunities* in the countries where French is the official language.

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 short message
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 thepresent

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 Saraswati House,2015
2. A propos, A1, Langers International,2010
3. Easy French Step-by-step by Myrna BellRochester
4. Ultimate French Beginner-Intermediate (Coursebook) By LividLanguage
5. Ã L'Aventure: An Introduction to French Language and Francophone Culturesby Evelyne Charvier-Berman, Anne C.Cummings.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1800HS05) MANAGEMENT SCIENCE

B.Tech. III Year I Sem	LTPC
	3003

Objectives:

This course is intended to familiarise the students with the framework for the managers and leaders available for understanding and making decisions relating to issues related origination structure, production operations, marketing, Human resource Management, product management and strategy.

Outcomes:

By the end of the course, the student will be in a position to
- Planned organizational structure for a given context in the organisation carry out production operations through Work study.
- carry out production operations through Work study.
- understand the markets, customers and competition better and price the given products appropriately.
- ensure quality for a given product or service.
- plan and control the HR function better.
- plan, schedule and control projects through PERT and CPM.
- evolve a strategy for a business or service organisation.

UNIT - I:

Introduction to Management and Organization: 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 Organisation - Departmentation and Decentralization,

UNIT - II:

Operations and Marketing Management: Principles and Types of Plant Layout-Methods 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, 2012.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1805PC07)FORMAL LANGUAGES AND AUTOMATA THEORY

B.Tech. III Year I Sem   **LTPC**
                                                                                                             3003

Objectives:

- 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 ofFSM.

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, Derivations Using a Grammar, Leftmost and Rightmost Derivations, the Language of a Grammar, Sentential Forms, ParseTrees, Minimization of Context-Free Grammar, Ambiguity in Grammars and Languages.

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
(1805PC08)**DESIGN AND ANALYSIS OF ALGORITHMS**

B.Tech. III Year I Sem   **LTPC**
                                                                                  3003

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.

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 MatrixMultiplication.

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. Rajasekharan, UniversitiesPress.
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, PearsonEducation.
4. Foundations of Algorithms,, R. Neapolitan and K. Naimipour, 4thedition, Jones and Bartlett Studentedition.
5. Introduction to Algorithms, 3rdEdition, T. H. Cormen, C. E. Leiserson, R. L. Rivest, and C. Stein,PHI

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1805PC09) **COMPUTER NETWORKS**

B.Tech. III Year I Sem   **LTPC**
                                                                                 3003

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. He/She will be in a position to understand the World Wide Webconcepts.
- Students will be in a position to administrate a network and flow of informationfurther 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, 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 (1805PE01)NEURAL NETWORKS
B.Tech. III Year I Sem   **LTPC**
                                                                                                   3003

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.

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 ofadaptive multi-layer network architecture, recurrent network, feed-forword networks, radial- basis-function (RBF) networks.

Unit – III
Unsupervised learning: Winner-takes-all networks, Hamming networks, maxnet, simple competitivelearning vector-quantization, counter-propagation network, adaptive resonance theory, Kohonen's selforganizing 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 ELECTIVE- 1 (1812PE01)SOFTWARE
ENGINEERING

B.Tech. III Year I Sem   **LTPC**
                                                                                           3003

COURSE OBJECTIVES:
- To comprehend the various software process models.
- To understand the types of software requirements and SRS document.
- To know the different software design and architectural styles.
- To learn the software testing approaches and metrics used in software development.
- To know about quality control and risk management.

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 an application.
- To develop and maintain efficient, reliable and cost-effective software solutions.
- To critically think and evaluate assumptions and arguments of the client.

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, Architectural Design.

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. McGrawHillInternationalEdition.
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, OxfordUniversityPress.
4. SoftwareEngineering1:Abstractionandmodeling,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, SpringerInternationalEdition.
8. Introduction to Software Engineering, R. J. Leach,CRCPress.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective – 1

(1805PE02)Computer Graphics

B.Tech. III Year I Sem   LTPC
                                                                    3003

Course Objectives:
The student should be made to:
- Understand the two dimensional and three dimensional graphics and their transformations.
- Gain knowledge about graphics hardware devices and software used.
- Learn illumination and color models.
- Understand the three dimensional graphics and their transformations.
- Learn clipping techniques.
- Understand Animation methodology

Course Outcomes
At the end of the course, the student should be able to:
•Design two dimensional graphics.
•Apply two dimensional transformations.
•Design three dimensional graphics.
•Apply Illumination and color models.
•Apply three dimensional transformations.
•Apply clipping techniques to graphics.
•Design animation sequences.

UNIT I:
Introduction: Application areas of Computer Graphics, overview of graphics systems, video-display devices, raster-scan systems, random scan systems, graphics monitors and work stations and input devices.
Output primitives: Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms. Filled area primitives: Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms.

UNIT II:
2-D Geometrical transforms: Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.
2-D Viewing : The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm.

UNIT III:
3-D Object representation: Polygon surfaces, quadric surfaces, spline representation, Hermite curve, Bezier curve and B-spline curves, Bezier and B-spline surfaces. Basic illumination models, polygon rendering methods.

3-D Geometric transformations: Translation, rotation, scaling, reflection and shear transformations, composite transformations, 3-D viewing: Viewing pipeline, viewing coordinates, view volume and general projection transforms and clipping.

UNIT IV:

Visible surface detection methods: Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSP-tree methods, area sub-division and octree methods

Illumination and Color Model: 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.

UNIT V:

Computer animation: Design of animation sequence, general computer animation functions, raster animation, computer animation languages, key frame systems, motion specifications

TEXT BOOKS:

1. "Computer Graphics C version", Donald Hearn and M. Pauline Baker, Pearson education.
2. "Computer Graphics Principles & practice", second edition in C, Foley, VanDam, Feiner and Hughes, Pearson Education.

REFERENCE BOOKS:

1. "Computer Graphics Second edition", Zhigandxiang, Roy Plastock, Schaum's outlines, Tata Mc Graw hill edition.
2. "Procedural elements for Computer Graphics", David F Rogers, Tata Mc Graw hill, 2nd edition.
3. "Principles of Interactive Computer Graphics", Neuman and Sproul, TMH.
4. "Principles of Computer Graphics", Shalini, Govil-Pai, Springer.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1805PC65)DESIGN AND ANALYSIS OF ALGORITHMS LAB

B.Tech. III Year I Sem   **LTPC**

0031.5

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.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1805PC66)COMPUTER NETWORKS LAB

B.Tech. III Year I Sem   **LTPC**

                                                                                                    0031.5

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.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1800MC05)Technical and Soft Skills

B.Tech. III Year I Sem   **LTPC**
                                                                                           2000

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 mockinterviews.

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.

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
(1800HS06)PROFESSIONAL ENGLISH

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

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 letterformats.
5. Understand the steps of writing 'Reports andAbstract'.

SYLLABUS
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 – prefixand 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 phrasesvarieties 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 - transcoding 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
(18012PC01) Compiler Design

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

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.

Outcomes:
By the end of the semester, the student will be able to:
- Understand the necessity and types of different language translators in use.
- 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. Syntax Analysis (Parsing) :Functions of a parser, Classification of parsers. Context free grammars in syntax specification, benefits and usage in compilers.

UNIT – II:
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 compiler compiler..

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 basedSTs.

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 UniversityPress.

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, WileyDreatech

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1812PC02) Web Technologies

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

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

Course Outcomes:
- Able to design web pages using HTML and CSS
- Gain knowledge of client side scripting, validation of forms and AJAX programming
- Have understanding of what is XML and how to parse and use XML Data with Java
- Gain knowledge Server side programming with Java Servlets and JSP
- Have understanding of server side scripting with PHP language

UNIT – I
Introduction to the Web – History of HTML and W3C, Client-Server paradigm, HyperText Transfer Protocol (HTTP), HyperText Markup Language (HTML), HTML Basics - Elements, Attributes and Tags, Basic Tags, Advanced Tags, Frames, Images, meta tag, multimedia content frames, Cascading Style Sheet (CCS) – types, page layout and selectors.

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

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 2nd 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.
6. Internet and World Wide Web – How to program, Dietel and Nieto, Pearson.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective-2
(1812PE13) Computational Intelligence

B.Tech. III Year II Sem   LTPC
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COURSE OBJECTIVES:
- To provide a strong foundation on fundamental concepts in Computational Intelligence.
- To enable Problem-solving through various searching techniques.
- To apply these techniques in applications which involve perception, reasoning and learning.
- To apply Computational Intelligence techniques for information retrieval
- To apply Computational Intelligence techniques primarily for machine learning.

COURSE OUTCOMES:
Upon completion of the course, the students will be able to
- Provide a basic exposition to the goals and methods of Computational Intelligence.
- Study of the design of intelligent computational techniques.
- Apply the Intelligent techniques for problem solving
- Improve problem solving skills using the acquired knowledge in the areas of, reasoning, natural language understanding, computer vision, automatic programming and machine learning.

UNIT I   INTRODUCTION
Introduction to Artificial Intelligence-Search-Heuristic Search-A* algorithm-Game Playing- Alpha-Beta Pruning-Expert systems-Inference-Rules-Forward Chaining and Backward Chaining- Genetic Algorithms.

UNIT II   KNOWLEDGE REPRESENTATION AND REASONING
Proposition Logic - First Order Predicate Logic – Unification – Forward Chaining - Backward Chaining -Resolution – Knowledge Representation - Ontological Engineering - Categories and Objects – Events- Mental Events and Mental Objects - Reasoning Systems for Categories - Reasoning with DefaultInformation - Prolog Programming.

UNIT III   UNCERTAINTY
Non monotonic reasoning-Fuzzy Logic-Fuzzy rules-fuzzy inference-Temporal Logic-Temporal - Reasoning-Neural Networks-Neuro-fuzzy Inference.

UNIT IV   LEARNING
Probability basics - Bayes Rule and its Applications - Bayesian Networks – Exact and ApproximateInference in Bayesian Networks - Hidden Markov Models - Forms of Learning - Supervised Learning -Learning Decision Trees – Regression and Classification with Linear Models - Artificial NeuralNetworks – Nonparametric Models - Support Vector Machines - Statistical Learning - Learning withComplete Data - Learning with Hidden Variables- The EM Algorithm – Reinforcement Learning

UNIT V   INTELLIGENCE AND APPLICATIONS

Natural language processing-Morphological Analysis-Syntax analysis-Semantic Analysis-Ailapplications – Language Models - Information Retrieval – Information Extraction – MachineTranslation – Machine Learning - Symbol-Based – Machine Learning: Connectionist – MachineLearning.

TEXT BOOKS:
1. Stuart Russell, Peter Norvig, —Artificial Intelligence: A Modern Approach‖, Third Edition, PearsonEducation / Prentice Hall of India, 2010.
2. Elaine Rich and Kevin Knight, —Artificial Intelligence‖, Third Edition, Tata McGraw-Hill, 2010.

REFERENCES:
1. Patrick H. Winston. "Artificial Intelligence", Third edition, Pearson Edition, 2006.
2. Dan W.Patterson, —Introduction to Artificial Intelligence and Expert Systems‖, PHI, 2006.
3. Nils J. Nilsson, —Artificial Intelligence: A new Synthesis‖, Harcourt Asia Pvt. Ltd., 2000.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective-2 (1812PE02)OBJECT ORIENTED ANALYSIS AND DESIGN

B.Tech. III Year II Sem   **LTPC**
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COURSE OBJECTIVES:
- Concisely define the following key terms: class, object, state, behavior, object class, class diagram, object diagram, operation, encapsulation, constructor operation, query operation, update operation, scope operation, association, association role, multiplicity, association class, abstract class, concrete class, class-scope attribute, abstract operation, method, polymorphic, overriding, multiple classification, aggregation, and composition.
- Describe the activities in the different phases of the object-oriented development life cycle. State the advantages of object-oriented modeling vis-a-vis structured approaches. Compare and contrast the object-oriented model with the E-R and EER models.
- Model a real-world application by using a UML class diagram.
- Provide a snapshot of the detailed state of a system at a point in time using a UML (Unified Modeling Language) object diagram.
- Recognizewhentousegeneralization,aggregation and composition relationships.
- Specify different types of business rules in a class diagram.

COURSE OUTCOMES:
- Graduate can able to take up the case studies and model in it. different views with respect user requirement such as use case, logical, component and deployment and etc, and preparation of document of the project for the unified Library application.

UNIT I: **Introduction to UML**: Importance of modeling, Principles of modeling, Object oriented modeling, Conceptual model of the UML, Architecture, Software Development Life cycle.

UNIT II: **Basic Structural Modeling**: Classes, Relationships, Common Mechanisms and diagrams.
Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.
Class and Object Diagrams: Terms Concepts, Modeling techniques for Class and Object Diagrams

UNIT III: **Basic Behavioral Modeling-I**: Interactions, Interaction diagrams,
Basic Behavioral Modeling-II: Use cases, Use case Diagrams, Activity Diagrams

UNIT VI: **Advanced Behavioral Modeling:** Events and Signals, State Machines, Processes and Threads, Time and Space, State Chart Diagrams.
Architectural Modeling: Component, Deployment, Component Diagrams and Deployment Diagrams.

UNIT V: Patterns and frameworks, Artifact Diagrams, Case Study: The Unified Library application.

TEXT BOOKS:
1. Grady Booch, James Rumbaugh, Ivar Jacobson: The Unified Modeling Language User Guide, Pearson Education 2nd Edition
2. Hans-Erik Eriksson, Magnus Penker, Brain Lyons. David Fado: UML 2 Toolkit, WILEY- Dreamtech India Pvt.Ltd

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective-2
(1805PE04)IMAGE PROCESSING

B.Tech. III Year II Sem   **LTPC**
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Course Overview:

Visual information plays an important role in many aspects of our life. Much of this information is represented by digital images. Digital image processing is ubiquitous, with applications including television, tomography, photography, printing, robot perception, and remote sensing. It is an introductory course to the fundamentals of digital image processing. It emphasizes general principles of image processing, rather than specific applications. We expect to cover the following topics: image acquisition and display, color representations, image sampling and quantization, point operations, linear image filtering and correlation, image transforms and sub-band decompositions, contrast and color enhancement, image restoration, and image compression.
Prerequisite(s): 1. Signal and systems 2. Digital signal processing

Course Outcomes
- An ability to apply knowledge of mathematics, science, and engineering
- An ability to design and conduct experiments, as well as to analyze and interpret data
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health care and safety, manufacturability, and sustainability
- An ability to function on multidisciplinary teams
- An ability to identify, formulate, and solve engineering problems
- An understanding of professional and ethical responsibility
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- Knowledge of contemporary issues
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

UNIT - I

DIGITAL IMAGE FUNDAMENTALS: Fundamental Steps in Digital Image Processing, Components of an Image Processing System, A Simple Image Formation Model, Image Sampling and Quantization, Relationships Between Pixels, Imaging Geometry.

UNIT - II

IMAGE TRANSFORMS: 2-D Fourier Transform, Properties, FFT, Walsh Transform, Hadamard Transform, Discrete Cosine Transform, Haar transform, Slant transform, Hotelling transform.

UNIT - III

IMAGE ENHANCEMENT IN THE SPATIAL DOMAIN: Introduction, Gray Level Transformations, Histogram Processing, Arithmetic and Logic Operations, Basics of Spatial Filtering, Smoothing Spatial Filters, Sharpening Spatial Filters. IMAGE ENHANCEMENT IN FREQUENCY-DOMAIN: Smoothing Frequency-Domain Filters, Sharpening Frequency-Domain Filters, Homomorphic Filtering.

UNIT - IV

IMAGE RESTORATION: Image Degradation/Restoration Process, Noise Models, Restoration in the Presence of Noise Only-Spatial Filtering, Periodic Noise Reduction by Frequency Domain Filtering, Inverse Filtering, Minimum Mean Square Error (Wiener) Filtering, Constrained Least Squares Filters.

UNIT – V

IMAGE COMPRESSION: Fundamentals, Image Compression Models, Elements of information Theory, Error Free Compression, Lossy Compression. IMAGE SEGMENTATION: Detection of Discontinuities, Edge Linking and Boundary Detection, Thresholding, Region-Based Segmentation, Segmentation by Morphological Watersheds

TEXT BOOKS:
1. R. C. Gonzalez, R. E. Woods (2002), Digital Image processing, 3rd edition, Addison Wesley/ Pearson education, New Delhi, India.

REFERENCE BOOKS:
1. K. Jain (1997), Fundamentals of Digital Image processing, Prentice Hall of India, New Delhi.
2. Rafael C. Gonzalez (2004), Digital Image processing using MATLAB, Richard E. Woods and Steven Low price Edition, Pearson Education Asia, India.
3. William K. Pratt, (2004), Digital Image Processing, 3rd edition, John Wiley & Sons, New Delhi, India.
4. Arthur R.Weeks, Jr. (1996), Fundamentals of Electronic Image Processing, SPIE Optical Engineering Press, New Delhi, India

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective-3
(1805PE03) Artificial Intelligence

B.Tech. III Year II Sem   LTPC
                                                                               3003

COURSE OBJECTIVES:
- To Learn the significance of intelligence systems.
- To understand the concepts of heuristic search techniques &logicprogramming.
- To know the various knowledge representation techniques.
- To understand the applications of artificial intelligence i.e Expert systems,game playing , Machine learning and natural language processing.

COURSE OUTCOMES:
1. Ability to analyze & select a search algorithm for a problem.
2. Formalize a given problem using a suitable AI representation.
3. Ability to apply AI techniques to solve problems of expert systems , game playing , machine learning &neural networks.

UNIT-I

Introduction, History, Intelligent Systems, Foundations of AI, Sub areas of AI, Applications. Problem Solving – State-Space Search and Control Strategies: Introduction, General Problem Solving, Characteristics of Problem, Exhaustive Searches, Heuristic Search Techniques, Iterative-Deepening A*, Constraint Satisfaction. Game Playing, Bounded Look-ahead Strategy and use of Evaluation Functions, Alpha-Beta Pruning

UNIT-II

Logic Concepts and Logic Programming: Introduction, Propositional Calculus, Propositional Logic, Resolution Refutation in Propositional Logic, Predicate Logic, Logic Programming. Knowledge Representation: Introduction, Approaches to Knowledge Representation, Knowledge Representation using Semantic Network, Extended Semantic Networks for KR, Knowledge Representation using Frames.

UNIT-III

Expert System and Applications: Introduction, Phases in Building Expert Systems, Expert System Architecture, Expert Systems Vs Traditional Systems, Truth Maintenance Systems, Application of Expert Systems, List of Shells and Tools. Uncertainty Measure – Probability Theory: Introduction, Probability Theory, Bayesian Belief Networks, Certainty Factor Theory, Dempster-Shafer Theory.

UNIT-IV

Machine-Learning Paradigms: Introduction. Machine Learning Systems .Supervised and

Unsupervised Learning. Inductive Learning. Learning Decision Trees (Text Book 2), Deductive Learning. Clustering, Support Vector Machines. Artificial Neural Networks: Introduction, Artificial Neural Networks, Single- Layer Feed-Forward Networks, Multi-Layer Feed-Forward Networks, Design Issues of Artificial NeuralNetworks.

UNIT-V

Natural Language Processing: Introduction, Sentence Analysis Phases, Grammars and Parsers, Types of Parsers, Semantic Analysis, Universal Networking Knowledge, Semantic web.

TEXT BOOKS:

1. Saroj Kaushik. Artificial Intelligence. Cengage Learning.2011
2. Russell, Norvig: Artificial intelligence, A Modern Approach, Pearson Education, Second Edition.2004

REFERENCE BOOK:

1. Rich, Knight, Nair: Artificial intelligence, Tata McGraw Hill, Third Edition2009.
2. Introduction to Artificial Intelligence by Eugene Charniak,Pearson.
3. Introduction to Artificial Intelligence and expert systems Dan W.Patterson.PHI.
4. Artificial Intelligence by George Flugerrearsonfifthedition.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective-3 (1804PE12)EMBEDDED SYSTEMS

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

COURSE OBJECTIVES:
For embedded systems, the course will enable the students to:
- To understand the basics of microprocessors and microcontrollers architecture and its functionalities
- Understand the core of an embedded system
- To learn the design process of embedded system applications.
- To understands the RTOS and inter-process communication.

COURSE OUTCOMES:
After going through this course the student will be able to
- The student will learn the internal organization of popular 8086/8051 microprocessors/microcontrollers.
- Understand and design the Embedded systems
- Understand Embedded Firmware design approaches
- Learn the basics ofRTOS

UNIT-I:
INTRODUCTION TO MICROPROCESSORS AND MICROCONTROLLERS: 8086 Microprocessor:Architecture of 8086, Register Organization, Programming Model, Memory Segmentation, Signal descriptions of 8086, Addressing modes, Instruction Set.8051 Microcontroller: 8051 Architecture, I/O Ports, Memory Organization, Instruction set of 8051.

UNIT-II:
INTRODUCTION TO EMBEDDED SYSTEMS:
History of embedded systems, Classification of embedded systems based on generation and complexity, Purpose of embedded systems, Applications of embedded systems, and characteristics of embedded systems, Operational and Non-operational attributes of embedded systems.

UNIT-III:
TYPICAL EMBEDDED SYSTEM
Core of the embedded system, Sensors and actuators, Onboard communication interfaces- I2C, SPI, parallel interface; External communication interfaces-RS232, USB, infrared, Bluetooth, Wi-Fi, ZigBee, GPRS.

UNIT-IV:
EMBEDDED FIRMWARE DESIGN AND DEVELOPMENT: Embedded firmware design approaches-super loop based approach, operating system based approach; embedded firmware development languages-assembly language based development, high level language based development.

UNIT-V :
EMBEDDED PROGRAMMING CONCEPTS
Data types, Structures, Modifiers, Loops and Pointers, Macros and Functions, object oriented Programming, Embedded Programming in C++ &JAVA

TEXT BOOKS:
1.Embedded Systems, Raj Kamal, Second EditionTMH.
2.Kenneth. J. Ayala, The 8051 Microcontroller , 3rd Ed., CengageLearning
3.Introduction to Embedded Systems - shibu k v, Mc Graw HillEducation.

REFERENCE BOOKS:
1.Advanced Microprocessors and Peripherals – A. K. Ray and K.M. Bhurchandi, TMH, 2nd Edition2006
2.Embedded Systems- An integrated approach - Lyla B Das, Pearson education2012.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

Professional Elective-3
(1805PE06)Cloud Computing

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

**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 computing, Mobile Computing, Quantum Computing, Optical Computing, Nano computing.

UNIT - II
Cloud Computing Fundamentals: Motivation for Cloud Computing, The Need for Cloud Computing, Defining Cloud Computing, Definition of Cloud computing, Cloud Computing Is a Service, Cloud Computing Is a Platform, Principles of Cloud computing, Five Essential 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, Managing the Cloud, Managing the Cloud Infrastructure Managing the Cloud application, Migrating 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 Platform, Cloud Storage, Google Cloud Connect, Google Cloud Print, Google App Engine, Amazon 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
(1812PC61)Compiler Design Lab

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

                                                                                                                      0031.5

Course Objectives:

• To provide an Understanding of the language translation peculiarities by designing complete translator for an abstract mini language whose syntax by BNF notation in following lines.

Course Outcomes:

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

• Understand the practical approach of how a compiler is designed.

• Apply the techniques used in compiler construction.

• Construct components(few phase) of the compiler for the mini language

SOURCE (MINI) LANGUAGE (A Case Study)

Consider the following mini language, a simple procedural High Level Language, operating on integer data with a syntax looking vaguely like a simple C crossed with Pascal. The syntax of the language is defined by the following BNF grammar:

<program> ::=<block>

<block> ::= { <variable definition><slist> }

| { <slist> }

<variable definition> ::= int <vardeflist> ;

<vardeflist> ::=<vardec> | <vardec>, <vardeflist>

<vardec> ::=<identifier> | <identifier> [<constant>]

<slist> ::=<statement> |<statement> ; <slist>

<statement> ::=<assignment> | <ifstatement> | <whilestatement> | <block>

| <printstatement> |<empty>

<assignment> ::=< identifier> =<expression>

| <identifier> [<expression>] = [<expression>

<ifstatement> ::= if <bexpression> then <slist> else <slist> endif

| if<bexpression> then <slist> endif

<whilestatement> ::= while <bexpression> do <slist>enddo

<printstatement> ::= print{ <expression> }

<expression> ::=<expression><addingop><term> | <term> | <addingop><term>

<bexpression>   ::=<expression><relop><expression>

<relop> ::=< | <= | = = | >= | > |!=

<addingop> ::= + | -

<term> ::=<term><multop><factor> | <factor>

<multop> ::= * | /

<factor> ::=<constant> | <identifier> |<identifier> [<expression>

| (<expression>)

<constant> ::=<digit> | <digit><constant>

<identifier> ::=<identifier><letterordigit> | <letter>

<letterordigit> ::=a|b|c|....|y|z

<digit> ::= 0|1|2|3|...|8|9

<empty> ::= has the obvious meaning

Comments : zero or more characters enclosed between the standard C/Java style comment brockets /*...*/. The language has the rudimentary support for 1-Dimensional arrays. Ex: int a[3] declares a as an array of 3 elements, referenced as a[0],a[1],a[2].

Sample Program written in this language is :

```
{
int a[3],t1,t2; t1=2;
a[0]=1; a[1]=2; a[t1]=3;
t2= -(a[2]+t1*6) / a[2]-t1);
if t2>5 then print(t2); else
{
int t3; t3=99; t2=25;
print(-11+t2*t3); /* this is not a comment on two lines */
}
endif
}
```

1. Write a C Program to scan and count the number of characters, words, and line of a file.
2. Write a program for implementation of NFAs that recognize identifiers, constants, and operators of the minilanguage.
3. Write a program for the implementation of DFAs that recognize identifiers, constants, and operators of the minilanguage.
4. Design a Lexical analyzer for the above language. The lexical analyzer should ignore redundant spaces, tabs and newlines. It should also ignore comments. Although the syntax specification states that identifiers can be arbitrarily long, you may restrict the length to some reasonable value.
5. Implement the lexical analyzer using JLex, flex, flex or lex or other lexical analyzer generating tools.
6. Design Predictive parser for the given language.
7. Design LALR bottom up parser for the above language.
8. Convert the BNF rules into Yacc form and write code to generate abstract syntax tree or Three Address code.
9. Write program to generate machine code from the abstract syntax tree generated by the parser. The following instruction set may be considered as targetcode.

The following is a simple register-based machine, supporting a total of 17 instructions. It has three distinct internal storage areas. The first is the set of 8 registers, used by the

individual instructions as detailed below, the second is an area used for the storage of variables and the third is an area used for the storage of program. The instructions can be preceded by a label. This consists of an integer in the range 1 to 9999 and the label is followed by a colon to separate it from the rest of the instruction. The numerical label can be used as the argument to a jump instruction, as detailed below.

In the description of the individual instructions below, instruction argument types are specified as follows:

R specifies a register in the form R0, R1, R2, R3, R4, R5, R6 or R7 (or r0, r1, etc). L specifies a numerical label (in the range 1 to 9999).

V specifies a "variable location" (a variable number, or a variable location pointed to by a register - see below).

A specifies a constant value, a variable location, a register or a variable location pointed to by a register (an indirect address). Constant values are specified as an integer value, optionally preceded by a minus sign, preceded by a # symbol. An indirect address is specified by an @ followed by a register.

So, for example an A-type argument could have the form 4 (variable number 4), #4 (the constant value 4), r4 (register 4) or @r4 (the contents of register 4 identifies the variable location to be accessed).

The instruction set is defined as follows:
LOAD A, R   : Loads the integer value specified by A into register R. STORE R, V   : Stores the value in register R to variableV.
OUT R : Outputs the value in register R. NEG R : Negates the value in register R.
ADD A, R : Adds the value specified by A to register R, leaving the result in register R.
SUB A, R : Subtracts the value specified by A from register R, leaving the result in register R.
MUL A, R : Multiplies the value specified by A by register R, leaving the result in register
R. DIV A, R : Divides register R by the value specified by A, leaving the result in register
R. JMP L: Causes an unconditional jump to the instruction with the labelL.
JEQ R, L   : Jumps to the instruction with the label L if the value in register R is zero.
JNER, L   : Jumps to the instruction with the label L if the value in register R is notzero.
JGE R, L   : Jumps to the instruction with the label L if the value in register R is greater than or equal tozero.
JGT R, L : Jumps to the instruction with the label L if the value in register R is greater than zero.
JLE R, L : Jumps to the instruction with the label L if the value in register R is less than or equal to zero.

JLT R, L : Jumps to the instruction with the label L if the value in register R is less than zero.

NOP: Is an instruction with no effect. It can be tagged by alabel.

STOP: Stops execution of the machine. All programs should terminate by executing a STOP instruction.

RECOMMENDED SYSTEM / SOFTWARE REQUIREMENTS:

1.Intel based desktop PC with minimum of 166MHz or faster processor with at least 64 MB RAM and 100 MB free diskspace.

2. C ++ Compiler and JDK kit, Lex or Flex and YACC tools (Unix/Linux utilities)

USEFUL TEXT BOOKS / REFERENCES / WEBSITES :

1.Modern compiler implementation in C, Andrew w.Appel, Revised Edn, Cambridge UniversityPress

2.Principles of Compiler Design. – A.V Aho, J.D Ullman ;PearsonEducation.

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

4.Compiler Construction,-LOUDEN,Thomson.

5.Engineering a compiler – Cooper&Linda,Elsevier

6.Modern Compiler Design – Dick Grune,HenryE.Bal, Cariel TH Jacobs, WileyDreamtech

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1812PC62)Web Technologies Lab

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

                                                                                                              0031.5

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
(1800MC04)Indian Constitution

B.Tech. III Year II Sem   **LTPC**
                                                                                          2000

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 Election Commission.

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

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

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), Government Publication.
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 and Avasti

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1812PC03) LINUX PROGRAMMING

B.Tech. IV YearISem   **L T PC**
                                                                                          3 1 04

Course Objectives:
- To understand and make effective use of Linux utilities and Shell scripting language (bash) to solve Problems.
- To implement in C some standard Linux utilities such as ls, mv, cp etc. using systemcalls.
- To develop the skills necessary for systems programming including file system programming, process and signal management, and interprocess communication.
- To develop the basic skills required to write network programs using Sockets.

Course Outcomes:
- Work confidently in Linux environment.
- Work with shell script to automate different tasks as Linux administration.

UNIT I:
Linux Utilities: File handling utilities, Security by file permissions, Process utilities, Disk utilities, Networking commands, Filters, Text processing utilities and Backup utilities, sed –scripts, operation, addresses, commands, applications, awk –execution, fields and records, scripts, operation, patterns, actions, system commands in awk, Applications.

Shell Programming with Bourne again shell(bash): Introduction, shell responsibilities, pipes and Redirection, here documents, running a shell script, the shell as a programming language, shell meta characters, file name substitution, shell variables, command substitution, shell commands, the environment, quoting, test command, control structures, arithmetic in shell, shell script examples, interrupt processing, functions, debugging shellscripts.

UNIT II:
Files and Directories: File Concept, File System Structure, File metadata- Inodes, kernel support for files, System calls, Kernel support for files, System calls for File I/O Operations-open, creat, read, write , close, lseek, dup2file, filestatus information- stat family, File and record locking-fcntl function, File permissions chmod, fchmod, file ownership-chown, lchown, fchown, links- softlinks and hard links- Symlink, Link, Unlink

Directories: Creating, removing and changing directories- mkdir, rmdir, chdir, obtaining current working directory-getcwd, Directory contents, Scanning Directories- Opendir, readdir, closedir, rewinddir functions

UNIT III:
Process and Signals: Process concept, Layout of a C program image in main memory, process attributes,Kernel support for process, process identification. process control - process creation, replacing a process image, waiting for a process, process termination, zombie process, orphan process, System call interface for Process management- fork, vfork, exit, wait, waitpid, exec family, Process groups, Sessions and controlling Terminal, diff b/n threads and process

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Signals: Introduction to signals, Signal generation and handling, Kernel support for signals, Signal function, unreliable signals, reliable signals, kill, raise , alarm, pause, abort, sleep functions.

UNIT IV:

Inter process Communication: Introduction to IPC, Pipes, FIFOs, Introduction to three types of IPC-message queues, semaphores and shared memory. Message Queues- Kernel support for messages, Unix system V APIs for messages, client/server example. Semaphores- Kernel support for semaphores, Unix system V APIs for semaphores. Shared Memory- Kernel support for shared memory, Unix system V APIs for shared memory, semaphore and shared memory example.

UNIT V:

Sockets – Introduction to Berkeley Sockets, IPC over a network, Client-Server model, Socket address structures (Unix domain and internet domain), Socket system calls for connection oriented protocol and connectionless protocol, example-client/server programs-Single Server-Client connection, Multiple simultaneous Clients, Socket options and fcntl system calls, Comparison of IPC mechanisms

Text Books:
1. T.Chan, "UNIX System Programming using C++",PHI.
2. Sumitabha Das, "UNIX Concepts and Applications", 4e, TMH,2006.
3. N.Matthew, R.Stones, Wrox, "Beginning Linux Programming", 4e, Wiley IndiaEdition.

Reference:
1. Robert Love, "Linux System Programming",O'Reilly.
2. W.R.Stevens, "UNIX Network Programming",PHI.
3. Graham Glass, King Ables, "UNIX for programmers and users", 3e, Pearson Education,2003.
4. W.R.Stevens, "Advanced Programming in the Unix environment", 2e, PHI, Pearson Education.
5. A.Hoover, "System Programming with C and UNIX",Pearson.
6. Kumar Saurabh,"Unix Programming", 1e, Wiley India pvtLtd.
7. B.A.Forouzan and R.F.Gilberg, "UNIX and Shell programming", CengageLearning.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1812PC04)Mobile Application Development

B.Tech. IV Year I Sem   **LTPC**
                                                                                   3003

COURSE OBJECTIVES
- Mobile Application Development course exposes the students to essentials of mobileappsdevelopment.
- The core modules of this subject include designing, developing, testing, signing, packaging and distributing high qualitymobileapps.
- ThiscourseaimstoteachmobileappdevelopmentusingAndroidasthedevelopment platform.

COURSE OUTCOMES
- Ability to evaluate and select appropriate solutions to the mobile computing platform.
- Ability to develop the user interface.
- Ability design a simple mobile phone game.

UNIT- I
Introduction to Mobile A brief history of Mobile, The Mobile Ecosystem, Why Mobile?, Types of Mobile Applications, Mobile Information Architecture, Mobile Design, Mobile 2.0, Mobile Web development, Small Computing Device Requirements.
J2ME: Overview The World of Java, Inside J2ME, J2ME Architecture, MIDlet Programming, J2ME Wireless Toolkit, Hello World J2ME Style, Multiple MIDlets in a MIDlet Suite

UNIT-II
Introduction to Android: History of Android, Introduction to   Android, Operating Systems, Android Development Tools, Android Architecture.

UNIT- III
Development Tools: Installing and using Eclipse with ADT plug-in, Installing Virtual machine for Android sandwich/Jelly bean (Emulator), configuring the installed tools, creating a android project –Hello Word, run on emulator, Deploy it on USB-connected Android device

UNIT-IV
User Interface Architecture: Application context, intents, Activity life cycle, multiple screen sizes
User Interface Design: Form widgets, Text Fields, Layouts, Button control, toggle buttons, Spinners(Combo boxes),Images, Menu, Dialog.

UNIT-V

Database: Understanding of SQLite database, connecting with the database

TEXT BOOKS

1. J2ME:TheCompleteReference,JamesKeogh,TataMcGrawHill

2. Android application development for java programmers. By James C. Sheusi. Publisher: CengageLearning,2013.

3. Lauren   Darcey   and   Shane   Conder,   Android   Wireless   Application Development, Pearson Education, 2nded.(2011)

REFERENCE BOOKS

1. RetoMeier,―ProfessionalAndroid2ApplicationDevelopment,WileyIndiaPvt Ltd

2. MarkLMurphy,―BeginningAndroid,WileyIndiaPvtLtd

3. Sayed Y Hashimi and Satya Komatineni, ―Pro Android , Wiley India Pvt Ltd. Developer android.com(web)

4. AndroidApplicationDevelopmentAllinoneforDummiesbyBarryBurd,Ed:I

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective –IV
(1805PE09) Big Data Analytics

B.Tech. IV Year I Sem   LTPC
                                                                     3003

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 AnalyticsTools

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 –IV
(1812PE03) Distributed Systems

B.Tech. IV Year I Sem   **LTPC**
                                                                                       3003

Course Objectives:
- To learn the principles, architectures, algorithms and programming models used in distribute systems.
- To examine state-of-the-art distributed systems, such as Google File System.
- To design and implement sample distributed systems.

Course Outcomes:
- Students will identify the core concepts of distributed systems: the way in which several machines orchestrate to correctly solve problems in an efficient, reliable and scalableway.
- Students will examine how existing systems have applied the concepts of distributed systems in designing large systems, and will additionally apply these concepts to develop sample systems.

UNIT I
Characterization of Distributed Systems: Introduction, Examples of Distributed systems, Resource sharing and web, challenges.
System models: Introduction, Architectural and Fundamental models, networking and Internetworking.

UNIT II
Time and Global States: Introduction, Clocks, events and Process states, Synchronizing physical clocks, logical time and logical clocks, global States.
Coordination and Agreement: Introduction, Distributed mutual exclusion, Elections, Multicast communication, consensus and related problems.

UNIT III
Inter process Communication: Introduction ,The API for the Internet Protocols, External Data Representation and Marshalling, Client –Server Communication, Group Communication, Case Study: IPC in UNIX.
Distributed Objects and Remote Invocation: Introduction, Communication between distributed objects, Remote Procedure Call, Events and Notifications, Case Study: JAVA RMI

UNIT IV

Distributed File Systems: Introduction, File Service Architecture, Case Study: Sun Network File System

Name Services: Name Services: Introduction, Name Services and the Domain Name System, Case study of the Global Name Service

Distributed Shared Memory: Introduction, Design and Implementation issues, Sequential consistency, Release consistency , Other consistency models.

UNIT V

Transactions and Concurrency control: Introduction, Transactions, Nested Transactions, Locks, optimistic concurrency control, Timestamp ordering, Comparison of methods for concurrency control.

Distributed Transactions: Distributed Transactions: Introduction, Flat and Nested Distributed Transactions, Atomic commit protocols, Concurrency control in distributed transactions, Distributed deadlocks, Transaction recovery.

TEXT BOOKS:

1. Distributed Systems Concepts and Design, G Coulouris, J Dollimore and T Kindberg, Fourth Edition, Pearson Education. 2009.

REFERENCES:

1. Distributed Systems, Principles and paradigms, Andrew S.Tanenbaum, Maarten Van Steen, Second Edition,PHI.
2. Distributed Systems, An Algorithm Approach, Sikumar Ghosh, Chapman & Hall/CRC, Taylor &Fransis Group,2007.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective –IV (1805PE08)
MOBILE COMPUTING

B.Tech. IV Year I Sem   **LTPC**
                                                                                   3003

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 1: 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 -Infra red vs radio transmission - Infrastructure and ad-hoc network 205-IEEE 802.11-HIPER LAN- Bluetooth Nobile Network Layer - Mobile IP- Dynamic host 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. Jochen Schiller, "Mobile Communications", Addison-Wesley, Second Edition, 2004.
2. Stojmenovic and Cacute, "Handbook of Wireless Networks and Mobile Computing",Wiley, 2002, ISBN 0471419028.
3. 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 –IV (1812PC63)
Linux Programming Lab

B.Tech. IV Year I Sem   LTPC

                                                              0031.5

Course Objectives:
- To write shell scripts to solve problems
- To implement some standard Linux utilities such as ls, cp etc using system calls.
- To develop network-based applications using .

Course Outcomes:
- Ability to understand the Linux environment
- Ability to perform the file management and multiple tasks using shell scripts in Linux environment.

Week 1:
Practice File handling utilities, Process utilities, Disk utilities, Networking commands, Filters, Text processing utilities and Backup utilities.

Week 2:
a) Write a shell script that receives any number of file names as arguments checks if every argument supplied is a file or directory and reports accordingly. Whenever the argument is a file it reports no of lines present init.
b) Write a shell script that accepts a list of file names as its arguments, counts and reports the occurrence of each word that is present in the first argument file on other argument files.

Week 3:
a) Write a shell script to list all of the directory files in a directory
b) Write a shell script that deletes all lines containing the specified word in one or more files supplied as arguments to it.
c) Write a shell script to find factorial of a given number.

Week 4:
Write an awk script to count number of lines in a file that does not contain vowels
Write an awk script to find the no of characters ,words and lines in a file

Week 5:
Implement in c language the following Unix commands using system calls
a)cat b) ls c) Scanning Directories (Ex: opendir(),readdir(),etc.)

Week 6:

Write a C program that takes one or more file/directory names as command line input and reports following information

A) File Type B) Number Of Links

C) Time of last Access D) Read, write and execute permissions

Week 7:

a) Write a C program to implement kill(), raise() and sleep()functions.

b) Write a C program to implement alarm(), pause() and abort()functions.

Week 8:

a) Write a C program to create child process and allow parent process to display "parent" and the child to display "child" on the screen

b) Write a C program to create zombieprocess

c) Write a C program to illustrate how an orphan process iscreated

Week 9:

a) Write a C program that illustrate communication between two process using unnamed pipes

b) Write a C program that illustrates communication between two process using named pipes orFIFO.

Week 10:

a) Write a C program for FileLocking.

b) Write a C program that receives a message from message queue and display them.

Week 11:

Write a C program that illustrates two processes communicating using Shared memory.

Week 12:

Write client server programs using c for interaction between server and client process using sockets

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective –IV
(1812PC64) Mobile Application Development Lab

B.Tech. IV Year I Sem   **LTPC**

0031.5

COURSE OBJECTIVES:
- The student should be made to:
- Know the components and structure of mobile application development frameworks for Android and windows OS based mobiles.
- Understand how to work with various mobile application development frameworks.
- Learn the basic and important design concepts and issues of development of mobile applications.
- Understand the capabilities and limitations of mobile devices.

COURSE OUTCOMES:
- At the end of the course, the student should be able to:
- Design and Implement various mobile applications using emulators.
- Deploy applications to hand-held devices

LIST OF EXPERIMENTS
1. Installation of JavaWirelessToolkit(J2ME)
2. Development Of Hello WorldApplication
3. Development of MenuCreationApplication
4. Generation of Menu EventsHandlingApplication
5. Development of SlideShowApplication
6. Generation of Image SlideShow
7. Development of Quiz &RMSApplication
8. Application forInputChecking
9. Generation ofBarGraph
10. Generation ofPieChart
11. Client Server App usingDatagram
12. Login usingHttpConnection

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
(1805MC06) Indian Traditional Knowledge

B.Tech. IV Year I Sem   **LTPC**
                                                                                          2000

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 Forest Rights) Act, 2006, Plant Varieties Protection and Farmer's Rights Act, 2001 (PPVFR Act);

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 knowledgeprotection, 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.

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 Mohanta   and 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
Professional Elective –V
(1805PE12)Internet of Things

B.Tech. IV Year II Sem   LTPC
                                                                                                3003

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:

1. Explain the importance and usage of IOT.
2. Describe the various IOT levels and protocols.
3. Develop programs in Python.
4. Illustrate the functioning of IOT devices.
5. 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, 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

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective –V (1812PE04)
Adhoc and Sensor Networks

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

Course Objectives
- To understand the concepts of sensor networks
- To understand the MAC and transport protocols for ad-hoc networks
- To understand the security of sensor networks
- To understand the applications of ad-hoc and sensor networks

Course Outcomes
- Ability to understand the concept of ad-hoc and sensor networks, their applications and typical node and network architectures.
- Ability to design a protocol for wireless sensor networks
- Ability to evaluate measurements of protocol performance in wireless sensor networks.

UNIT – I   Introduction to Ad Hoc Wireless Networks:
Characteristics of MANETS, Applications of MANETS, Challenges Routing In MANETS: Topology based versus position based approaches, Topology based routing protocols, and position based routing, other routing protocols

UNIT – II   Data Transmission In MANETS:
The broadcast storm, Multicasting, Geocasting.TCP Over Ad Hoc Networks: TCP protocol overview, TCP and MANETS, Solutions for TCP over Ad Hoc

UNIT – III   Basics Of Wireless Sensors And Applications:
The Mica Mote, Sensing and Communication Range, Design Issues, Energy Consumption, Clustering of Sensors, Applications.
Data Retrieval In Sensor Networks: Classification of WSNs, MAC Layer, Routing Layer, High-Level Application Layer Support, Adapting to the Inherent Dynamic Nature of WSNs.

UNIT – IV   Security:
Security in Ad Hoc Wireless Networks, Key Management, Secure Routing, Cooperation in MANETs, Intrusion Detection Systems
Sensor Network Platforms and Tools: Sensor network Hardware, Sensor Network Programming Challenges, and Node-Level Software Platforms.

UNIT – V   Operating System-Tiny OS:

Imperative Language: nesC, Data flow style language: TinyGALS, Node- Level Simulators, NS-2 and its sensors network extension, TOSSIM.

Text Books:

1. Ad Hoc and Sensor Networks: Theory and Applications, Carlos de Morais Cordeiro and Dharma PrakashAgrawal, World Scientific Publications / Cambridge University Press,2006.
2. Wireless Sensor Networks: An Information Processing Approach, Feng Zhao, Leonidas Guibas, Elsevier Science Imprint, Morgan Kauffman Publishers, 2005.

References:

1. Ad Hoc Wireless Networks: Architectures and Protocols, C. Siva Ram Murthy and B. S. Manoj, Pearson Education, 2004.
2. Guide to Wireless Ad Hoc Networks, Sudip Misra, Isaac Woungang, and Subhas Chandra Misra, Springer International Edition, 2011.
3. Guide to Wireless Sensor Networks, Sudip Misra, Isaac Woungang, and Subhas Chandra Misra, Springer International Edition, 2012.
4. Wireless Mesh Networking, Thomas Krag and SebastinBuettrich, O'Reilly Publishers,2007.
5. Wireless Sensor Networks – Principles and Practice, Fei Hu, Xiaojun Cao, An Auerbach book, CRC Press, Taylor & Francis Group, 2010.
6. Wireless Ad hoc Mobile Wireless Networks-Principles, Protocols and Applications, Subir Kumar Sarkar, et al., Auerbach Publications, Taylor & Francis Group, 2008.
7. Wireless Ad hoc Networking, Shih-Lin Wu, Yu-Chee Tseng, Auerbach Publications, Taylor & Francis Group, 2007
8. Wireless Ad hoc and Sensor Networks–Protocols, Performance and Control, Jagannathan Sarangapani, CRC Press, Taylor & Francis Group, 2007, rp2010.
9. Security in Ad hoc and Sensor Networks, Raheem Beyah, et al., World Scientific Publications /Cambridge University Press, 2010

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective –V (1812PE65)
Information Retrieval System

B.Tech. IV Year II Sem   LTPC
                                                                3003

COURSE OBJECTIVES:
- To learn the important concepts and algorithms in IRS
- To understand the data/file structures that are necessary to design, and implement information retrieval (IR) systems

Course Outcomes:
- Ability to apply IR principles to locate relevant information large collections of data
- Ability to design different document clustering algorithms
- Implement retrieval systems for web search tasks.
- Design an Information Retrieval System for web search tasks.

UNIT –I   Introduction to Information Retrieval Systems:
Definition of Information Retrieval System, Objectives of Information Retrieval Systems, Functional Overview, Relationship to Database Management Systems, Digital Libraries and Data Warehouses Information Retrieval System Capabilities: Search Capabilities, Browse Capabilities, Miscellaneous Capabilities

UNIT –II   Cataloging and Indexing:
History and Objectives of Indexing, Indexing Process, Automatic Indexing, Information Extraction Data Structure: Introduction to Data Structure, Stemming Algorithms, Inverted File Structure, N-Gram Data Structures, PAT Data Structure, Signature File Structure, Hypertext and XML Data Structures, Hidden Markov Models

UNIT –III   Automatic Indexing:
Classes of Automatic Indexing, Statistical Indexing, Natural Language, Concept Indexing, Hypertext Linkages Document and Term Clustering: Introduction to Clustering, Thesaurus Generation, Item Clustering, Hierarchy of Clusters

UNIT –IV   User Search Techniques:
Search Statements and Binding, Similarity Measures and Ranking, Relevance Feedback, Selective Dissemination of Information Search, Weighted Searches of Boolean Systems, Searching the INTERNET and Hypertext
Information Visualization: Introduction to Information Visualization, Cognition and Perception, Information Visualization Technologies

UNIT –V   Text Search Algorithms:

Introduction to Text Search Techniques, Software Text Search Algorithms, Hardware Text Search Systems Multimedia Information Retrieval: Spoken Language Audio Retrieval, Non-Speech Audio Retrieval, Graph Retrieval, Imagery Retrieval, Video Retrieval

TEXT BOOK:

1. Information Storage and Retrieval Systems –Theory and Implementation, Second Edition, Gerald J. Kowalski, MarkT. Maybury, Springer

REFERENCES:

1.Frakes, W.B., Ricardo Baeza-Yates: Information Retrieval Data Structures and Algorithms, Prentice Hall, 1992.
2.Information Storage & Retrieval By Robert Korfhage –John Wiley & Sons.
3.Modern Information Retrieval ByYates and Neto Pearson Education.

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective –VI
(1805PE11) Distributed Trust and Block Chain Technology

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

COURSE OBJECTIVES
- Understand how blockchain systems (mainly Bitcoin and Ethereum)work,
- To securely interact withthem,
- Design, build, and deploy smart contracts and distributed applications,
- Integrate ideas from blockchain technology into their own projects.

COURSE OUTCOMES
- Explain design principles of Bitcoin and Ethereum.
- Explain Nakamoto consensus.
- 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 reading transactions.
- 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-Crypto currency Exchange, Black Market and Global Economy.
Applications: Cloud Computing, Medical Record Management System, Domain Name Service and future of Block chain.

Text Book
1. Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller and Steven Goldfeder, Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction, Princeton University Press (July 19, 2016).

Reference Books
1. Antonopoulos, Mastering Bitcoin: Unlocking DigitalCryptocurrencies
2. Satoshi Nakamoto, Bitcoin: A Peer-to-Peer Electronic CashSystem
3. DR. Gavin Wood, "ETHEREUM: A Secure Decentralized Transaction Ledger,"Yellow paper.2014.
4. Nicola Atzei, Massimo Bartoletti, and TizianaCimoli, A survey of attacks on Ethereum smartcontracts

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN
Professional Elective –VI (1812PE06)

PROGRAMMING ESSENTIALS IN PYTHON PROGRAMMING

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

Course Objectives:

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

Course Outcomes:

The students should be able to
- Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
- Demonstrate proficiency in handling Strings and File Systems.
- Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.
- Interpret the concepts of Object-Oriented Programming as used in Python.
- 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 to Variables

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 Slicing with -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 Vs Dictionary 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 and Splitting 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 Pointer Position
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,

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
Professional Elective –VI (1812PE07)
Natural Language Processing

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

COURSE OBJECTIVES:
1. To learn the fundamentals of natural language processing
2. To understand the use of CFG and PCFG in NLP
3. To understand the role of semantics of sentences and pragmatics
4. To apply the NLP techniques to IR applications

COURSE OUTCOMES:
Upon completion of the course, the students will be able to:
1. To tag a given text with basic Language features
2. To design an innovative application using NLP components
3. To implement a rule based system to tackle morphology/syntax of a language
4. To design a tag set to be used for statistical processing for real-time applications
5. To compare and contrast the use of different statistical approaches for different types of NLP applications.

UNIT I   INTRODUCTION
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.