

**LAKIREDDY BALIREDDY  
COLLEGE OF ENGINEERING  
(AUTONOMOUS)**

(Approved by AICTE, Affiliated to JNTUK, Accredited by NBA,  
ISO 9001 : 2008 Certified & Accredited by **NAAC with "A" Grade**)

**B.TECH. FOUR YEAR DEGREE COURSE**  
(Applicable for the batch admitted 2010-11)

**INFORMATION TECHNOLOGY**



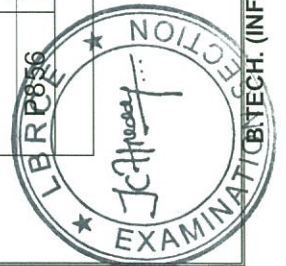
L.B.Reddy Nagar :: Mylavaram – 521 230 :: Krishna District  
ANDHRA PRADESH STATE

**COURSE STRUCTURE(2010-2011 Admitted Batch)****I - SEMESTER**

Code No.	Name of the Course	Scheme of Instruction			Scheme of Examination		Total	credits
		Periods per Week			Maximum Marks			
		Lectures	Tutorial	Lab.	Internal	External		
T118	Applied Mathematics-I	4	1	--	25	75	100	4
T131	C Programming	4	1	--	25	75	100	4
T197	English-I	4	--	--	25	75	100	3
T191	Engineering Chemistry	4	--	--	25	75	100	3
T195	Engineering Physics - I	4	1	---	25	75	100	4
P806	C Programming Lab	--	--	3	25	75	100	2
P830	Engineering Physics & Chemistry Lab.	--	--	3	25	75	100	2
P831	Engineering Workshop	--	--	3	25	75	100	2
	<b>TOTAL</b>	<b>20</b>	<b>03</b>	<b>09</b>	<b>200</b>	<b>600</b>	<b>800</b>	<b>24</b>

**II - SEMESTER**

Code No.	Name of the Course	Scheme of Instruction			Scheme of Examination		Total	credits
		Periods per Week			Maximum Marks			
		Lectures	Tutorial	Lab.	Internal	External		
T119	Applied Mathematics- II	4	1	-	25	75	100	4
T198	English -II	4	-	-	25	75	100	3
T264	Numerical Methods	4	1	-	25	75	100	4
T154	Data structures Using C++	4	1	-	25	75	100	4
T188	Electronic Devices and Circuits	4	1	-	25	75	100	4
P816	Data structures Using C++ Lab	-	-	3	25	75	100	2
P829	Engineering Drawing Through Auto CAD Lab	-	-	3	25	75	100	2
P827	Electronic Devices and Circuits using LabVIEW	-	-	3	25	75	100	2
P856	Mini Project - I	--	--	3	-	50	50	2
	<b>TOTAL</b>	<b>20</b>	<b>04</b>	<b>12</b>	<b>200</b>	<b>650</b>	<b>850</b>	<b>27</b>



Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.

## III - SEMESTER

Code No.	Name of the Course	Scheme of Instruction			Scheme of Examination			Total	credits
		Periods per Week			Maximum Marks				
		Lectures	Tutorial	Lab.	Internal	External			
T127	Basic Electrical Engineering	4	1	-	25	75	100	4	
T285	Probability and Statistics	4	1	-	25	75	100	4	
T162	Digital Logic Design	4	1	-	25	75	100	5	
T103	Advanced Data Structures through Java	4	1	-	25	75	100	4	
T334	Unix Programming	4	1	-	25	75	100	4	
P801	Advanced Data Structures through Java Lab	-	-	3	25	75	100	2	
P880	Unix Programming Lab	-	-	3	25	75	100	2	
P832	English language communication Skills Lab	-	-	3	25	75	100	2	
P870	Seminar - I	-	-	3	50	-	50	1	
	TOTAL	20	05	12	250	600	850	28	

## IV - SEMESTER

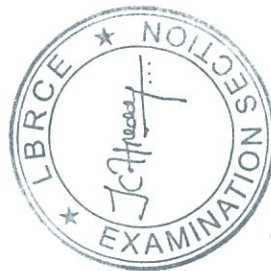
Code No.	Name of the Course	Scheme of Instruction			Scheme of Examination			Total	credits
		Periods per Week			Maximum Marks				
		Lectures	Tutorial	Lab.	Internal	External			
T155	Database Management Systems	4	1	-	25	75	100	4	
T146	Computer Organization	4	1	-	25	75	100	4	
T166	Discrete Mathematical Structures	4	1	-	25	75	100	4	
T105	Advanced Java Programming	4	1	-	25	75	100	5	
T199	Environmental Studies	4	1	-	25	75	100	4	
T290	Professional Ethics	4	1	-	25	75	100	3	
P817	Database Management Systems Lab	-	-	3	25	75	100	2	
P802	Advanced Java Programming Lab	-	-	3	25	75	100	2	
P857 E	Mini project - II	-	-	3	25	25	50	2	
	TOTAL	24	06	09	225	625	850	30	



*[Signature]*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521 230, Krishna Dt., A.P., INDIA.

## V – SEMESTER

Code No.	Name of the Course	Scheme of Instruction			Scheme of Examination		Total	credits
		Periods per Week			Maximum Marks			
		Lectures	Tutorial	Lab.	Internal	External		
T156	Design and Analysis of Algorithms	4	1	-	25	75	100	5
T323	Theory of Computations	4	1	-	25	75	100	4
T267	Operating Systems	4	1	-	25	75	100	4
T308	Software Engineering	4	1	-	25	75	100	4
T254	Microprocessor and Interfacing	4	1	-	25	75	100	4
P862	Operating Systems Lab	-	-	3	25	75	100	2
P854	Micro Processors Lab	-	-	3	25	75	100	2
P818	Design and Analysis of Algorithms Lab	-	-	3	25	75	100	2
P871	Seminar – II	-	-	3	50	-	50	1
<b>TOTAL</b>		<b>20</b>	<b>05</b>	<b>12</b>	<b>250</b>	<b>600</b>	<b>850</b>	<b>28</b>

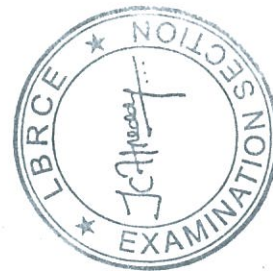



*(Handwritten Signature)*

**Head of the Department**  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

## VI - SEMESTER

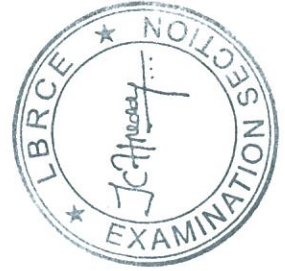
Code No.	Name of the Course	Scheme of Instruction			Scheme of Examination		Total	credits
		Periods per Week			Maximum Marks			
		Lectures	Tutorial	Lab.	Internal	External		
T145	Computer Networks	4	1	-	25	75	100	4
T265	Object Oriented Analysis and Design	4	1	-	25	75	100	4
T340	Web Technologies	4	1	-	25	75	100	4
T152	Data Mining and Data Warehousing	4	1	-	25	75	100	4
T245	Managerial Economics and Financial Analysis	4	1	-	25	75	100	4
T312	<b>ELECTIVE - I</b>							
T144	Software Requirements and Estimations	4	1	-	25	75	100	4
T258	Computer Graphics							
T122	Mobile Communications							
P881	Artificial Intelligence							
P813	Web Technologies Lab	-	-	3	25	75	100	2
P810	Computer Networks and OOAD Lab	-	-	3	25	75	100	2
	Comprehensive Viva-Voce - I	-	-	3	100	-	100	2
	<b>TOTAL</b>	<b>24</b>	<b>06</b>	<b>09</b>	<b>300</b>	<b>600</b>	<b>900</b>	<b>30</b>



  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.

**VII - SEMESTER**

Code No.	Name of the Course	Scheme of Instruction			Scheme of Examination			Total	credits
		Periods per Week			Maximum Marks				
		Lectures	Tutorial	Lab.	Internal	External			
T223	Information Security	4	1	-	25	75	100	4	
T138	Cloud Computing	4	1	-	25	75	100	5	
T303	Sensor Networks	4	1	-	25	75	100	4	
T314	Software Testing Methodologies	4	1	-	25	75	100	4	
T101	Advanced Computer Architecture	4	1	-	25	75	100	4	
<b>T307</b>	<b>ELECTIVE-II</b>								
<b>T413</b>	Software Design Methodologies	4	1	-	25	75	100	4	
<b>T137</b>	Image Processing								
<b>T190</b>	Client Server Technologies Embedded Systems								
P838	Information Security Lab	-	-	3	25	75	100	2	
P808	Cloud Computing Lab	-	-	3	25	75	100	2	
P843	Internship	-	-	3	50	-	50	2	
P878	Term Paper	-	-	3	25	25	50	2	
	<b>TOTAL</b>	<b>24</b>	<b>06</b>	<b>12</b>	<b>275</b>	<b>625</b>	<b>900</b>	<b>33</b>	



*[Handwritten Signature]*

**Head of the Department**  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

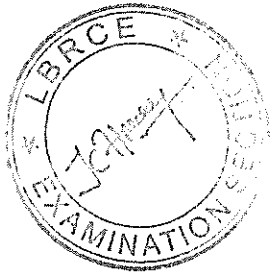
**VIII - SEMESTER**

Code No.	Name of the Course	Scheme of Instruction			Scheme of Examination		Total	credits	
		Periods per Week			Maximum Marks				
		Lectures	Tutorial	Lab.	Internal	External			
T221	Industrial Management	4	1	-	25	75	100	4	
T310	<b><u>ELECTIVE -III</u></b> Software Project Management	3	1	-	25	75	100	3	
T129	Biometrics								
T227	Internet Protocols								
T214	Human Computer Interaction								
T309	<b><u>ELECTIVE -IV</u></b> Software Metrics	3	1	-	25	75	100	3	
T343	Pattern Recognition								
T339	Web Services								
T167	Distributed Systems								
P811	Comprehensive Viva-Voce – II	-	-	-	100	-	100	2	
P867	Project Work	-	-	6	60	140	200	8	
	<b>TOTAL</b>	<b>10</b>	<b>03</b>	<b>06</b>	<b>235</b>	<b>365</b>	<b>600</b>	<b>20</b>	
<b>TOTAL CREDITS : 220</b>									



  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Balli Reddy College of Engineering  
 Mylavaram-521 230, Krishna Dt., A.P., INDIA.

**I-SEMESTER**





**T118 – APPLIED MATHEMATICS – I**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

Differential equations of first order and first degree – exact, linear and Bernoulli. Applications to Newton's Law of cooling, Law of natural growth and decay, orthogonal trajectories.

**UNIT - II**

Linear differential equations of second and higher order with constant coefficients and with variable coefficients, method of variation of parameters and their simple applications to Simple Harmonic Motion and Electrical Circuits.

**UNIT - III**

Generalized Mean Value theorems (without proof), Functions of several variables, Maxima and Minima of functions of two variables with constraints and without constraints. Lagrangian Multiplier method.

**UNIT - IV**

Curve tracing – Cartesian curves. Applications of Integration to Lengths, Volumes and Surface areas of revolution in Cartesian Coordinates. Multiple integrals - double and triple integrals (Cartesian Coordinates only) – Changing of order of Integration. (Cartesian Coordinates only)

**UNIT - V**

Vector Differentiation: Gradient- Divergence - Curl and their related properties of sums-products - Laplacian and second order operators. Vector Integration - Line integral – work done – Potential function – area - surface and volume integrals Vector integral theorems: Greens, Stokes and Gauss Divergence Theorems (Without proof) and related problems.

**TEXT BOOKS**

1. Higher Engineering Mathematics by Dr. B.S. Grewal
2. Higher Engineering Mathematics by Dr. B. V. Ramana – TMGH

**REFERENCES**

1. Advanced Engineering Mathematics by M. D. Greenberg – TMGH
2. Advanced Engineering Mathematics by Erwin Krezig - John Wiley & sons
3. Elementary Differential equations by W. E. Boyce and R. C. DiPrima - John Wiley & sons
4. Advanced Engineering Mathematics by Peter V. O. Neil - Thomson



*[Signature]*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.**

**T131 – C - PROGRAMMING**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

**UNIT - I**

Algorithm / pseudo code, flowchart, program development steps, structure of C program, A Simple C program, identifiers, basic data types and sizes, Constants, variables, arithmetic, relational and logical operators, increment and decrement operators, conditional operator, bit-wise operators, assignment operators, expressions, type conversions, conditional expressions, precedence and order of evaluation.

Input-output statements, statements and blocks, if and switch statements, loops- while, do-while and for statements, break, continue, goto and labels, programming examples.

**UNIT - II**

Designing structured programs, Functions, basics, parameter passing, storage classes-extern, auto, register, static, scope rules, block structure, user defined functions, standard library functions, recursive functions, header files, C preprocessor, example c programs.

**UNIT - III**

Arrays- concepts, declaration, definition, accessing elements, storing elements, arrays and functions, two dimensional and multi-dimensional arrays, applications of arrays. pointers-concepts, initialization of pointer variables, pointers and function arguments, address arithmetic, Character pointers and functions, pointers to pointers, pointers and multidimensional arrays, dynamic memory managements functions, command line arguments, c program examples.

**UNIT - IV**

Derived types- structures- declaration, definition and initialization of structures, accessing structures, nested structures, arrays of structures, structures and functions, pointers to structures, self referential structures, unions, typedef, bitfields, C program examples.

**UNIT - V**

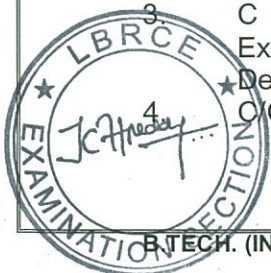
Input and output – concept of a file, text files and binary files, streams, standard I/o, Formatted I/o, file I/o operations, error handling, C program examples.

**TEXT BOOKS**

1. Computer science, A structured programming approach using C, B.A. Forouzan and R.F. Gilberg, Third edition, Thomson.
2. The C Programming Language, B.W. Kernighan, Dennis M.Ritchie, PHI/Pearson Education

**REFERENCES**

1. C Programming with problem solving, J.A. Jones & K. Harrow, Dreamtech Press
2. Programming in C – Stephen G. Kochan, III Edition, Pearson Eductaion
3. C and Data Structures:A Snap Shot Oriented Treatise Using Live Engineering Examples by Prof. N.B.Venkateswarlu and, Prof.E.V.Prasad, S Chand & Co, New Delhi
4. C/C++ for Engineers and Scientists, Harry H.Cheng ,McGrawHill



*Head of the Department*  
**Department of Information Technology**  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521 230, Krishna Dt.,A.P.,INDIA.

## T197 - ENGLISH - I

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
		<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 3</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

English Language continues to be regarded as an important tool for global communication and employability. Hence, it is imperative that students need to acquire communicative competence besides their core skills. The syllabus has been designed to develop linguistic and communicative competence of Engineering students with special emphasis on professional and functional aspects of English language i.e., on Listening, Speaking, Reading and Writing (LSRW Skills).

**OBJECTIVES**

- To improve the language proficiency of the students in English with emphasis on LSRW skills.
- To develop the study skills and Communication skills of the students in both formal and informal situations.
- To enable the students to face the academic and professional challenges of the present day scenario.
- To help students acquire the ability to speak effectively in English in the real life situations.
- To inculcate reading as a habit and to develop reading skills among students.
- To train students to improve their active and passive vocabulary.
- To familiarize the students with different rhetorical functions of Technical English.
- To enable the students write letters and reports effectively in formal and professional situations.

**UNIT - I**

Chapter – 1: “Read & Proceed” from Step by Step (*Pearson*)  
 Extensive Reading - Masterminds– The Trailblazers – **Jagadis Chandra Bose**(*Orient Longman*)

**UNIT - II**

Chapter – 2: “Travel” from Step by Step (*Pearson*)  
 Extensive Reading - Masterminds– The World of Figures and Physics – **Chandra SekharaVenkata Raman** (*Orient Longman*)

**UNIT - III**

Chapter – 3: “Gender” from Step by Step (*Pearson*)  
 Extensive Reading - Masterminds–The Institution Builders– **Shanti SwarupBhatnagar** (*Orient Longman*)



*[Signature]*  
**Head of the Department**  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

#### UNIT - IV

Vocabulary – Synonyms, Antonyms, Words often Confused, Gerunds & Infinitives, Prefixes & Suffixes, Word plurals, Analogy

Grammar – Parts of Speech, Sentence Completion, Question Tags, Tense and Aspect

#### UNIT - V

Analytical Writing – Sentence Construction – Types of sentences, Exercises with scrambled words & Jumbled sentences, Paragraph writing, Dialogue writing (Formal & Informal), Letter Writing (Formal & Informal), Resume writing, Expansion (of a given topic), Abstract Writing (Summarizing / Synopsis), Decision-making, Drafting E-Mails & Memo writing, Essay writing.


#### TEXT BOOKS

- Step by Step (Pearson)
- Masterminds by Enakshi Chatterjee (Orient Longman)

#### REFERENCES

1. Andrea J Rutherford. *Basic Communication Skills for Technology*: Pearson Education, New Delhi, 2009.
2. Murphy. *English Grammar with CD*: Cambridge University Press, New Delhi, 2004
3. Rizvi, M Ashraf. *Effective Technical Communication*: Tata McGraw Hill, New Delhi, 2008.
4. Blum Rosen. *Word Power*: Cambridge University Press, New Delhi, 2009.



  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.

## T191 - ENGINEERING CHEMISTRY

Lecture	: 3 Periods/week	Internal Marks	: 25
		External Marks	: 75
Credits	: 3	External Examination	: 3 Hrs

**UNIT - I**

**WATER TECHNOLOGY:** Introduction, Hardness of Water - Temporary and Permanent hardness. Units and inter conversions of Units. Problems on Temporary and Permanent hardness. Boiler troubles – scale & sludge formation, Caustic embrittlement, Corrosion, priming & foaming, softening of water Methods of Treatment of Water for Domestic Purposes - Sedimentation, Coagulation, Filtration, Disinfection – Sterilization, Chlorination, Break point chlorination, Ozonization.

Water Treatment: Internal Treatment - Colloidal, Phosphate, Calgon, Carbonate, Sodium aluminates Conditioning of Water. External Treatment - Lime-Soda Process, Zeolite Process, Ion- Exchange Process.

**UNIT - II**

**FUELS AND COMBUSTION:** Definition and classification of Fuels- conventional fuels (solid, liquid, gaseous), Solid fuels- coal - analysis, Proximate and ultimate analyses of coal – significances, Liquid Fuels – primary- petroleum- refining of petroleum- cracking, knocking, synthetic petrol – Bergius and Fischer Tropsech's process; Gaseous fuels- octane number – cetane number,– water gas, producer gas CNG, and biogas - gross and net calorific values – (definition only) – flue gas analysis – Orsat's apparatus.

**UNIT - III**

**CORROSION:** Definition, Examples, Types of Corrosion: Theories of Corrosion and Mechanism - Dry Corrosion (Direct Chemical corrosion), Wet Corrosion (Electro Chemical corrosion) Principles of Corrosion, Galvanic Series, Galvanic Corrosion, Concentration Cell Corrosion, Mechanism of Wet and Chemical Corrosion - Hydrogen evolution type, Oxygen absorption type. Factors Influencing Corrosion. Control of Corrosion - Proper Design, Use of pure metal and metal alloys, Passivity, Cathodic Protection - Sacrificial anode and Impressed Current, Modifying the Environment and use of Inhibitors.

**UNIT - IV**

**Polymer Science and Technology:** Types of polymerization, Mechanism (Chain growth & step growth), Plastics –Thermosetting and Thermoplastic resins – preparation, properties and engineering applications of Polyethylene, PVC, Polystyrene, Teflon, Bakelite, Nylon, Conducting polymers: polyacetylene, polyaniline, conduction, doping, application. Characteristics and uses Rubber - Natural Rubber, Vulcanization and significance, Elastomers – Buna S, Buna N, Thiokol, Fibers- Polyester, fiber reinforced plastics (FRP), applications.



*Handwritten signature*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.

## UNIT - V

**1. REFRACTORIES & INSULATORS:** Definition, Classification with Examples, Criteria of a Good Refractory Material, Causes for the failure of a Refractory Material, Insulators – Definition and Classification with Examples. Characteristics of Insulating Materials, Thermal Insulators, Electrical Insulators - Their Characteristics and Engineering Applications.

**2. LUBRICANTS:** Introduction to Lubricants, Principles and function of lubricants - Types of Lubrication and Mechanism - Thick Film or Hydrodynamic Lubrication, Thin Film or Boundary Lubrication, Extreme Pressure Lubrication. Classification and properties of lubricants-Viscosity, flash and fire point, cloud and pour point, aniline point, Neutralization Number and mechanical strength, Selection of lubricants.


## TEXT BOOKS

1. A text book of Engineering Chemistry by Jain & Jain, Dhanpat Rai Publishing Company, New Delhi (15<sup>th</sup> Edition) (2006).
2. A Text book of Engineering Chemistry by Dr. Y. Bharathi Kumari and Dr. Jyotsna Cherukuri, VGS Publications, First Edition, 2009.

## REFERENCES

1. A Text book of Engineering Chemistry by Shashi Chawla, Dhanpat Rai Publishing Company, First Edition, 2002.
2. Advanced Engineering Chemistry by Dr. M. R. Senapati, University Science Press (Impart from Laxmi Publications), 3<sup>rd</sup> Edition 2009.
3. N. Krishnamurthy, P. Vallinayagam and D. Madhavan, Engineering Chemistry, 2nd Edition. PHI Learning PVT., LTD, New Delhi, 2008.
4. A Text book of Engineering Chemistry by S. S. Dara, S CHAND Publications.



  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

**T195 - ENGINEERING PHYSICS**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

**INTERFERENCE:** Superposition of waves-double slit interference- Young's double slit experiment- Coherence – Interference from thin films- Newton's rings.

**DIFFRACTION:** Diffraction and wave theory of light (Fresnel and Fraunhofer diffractions) - single slit Diffraction, Intensity in single- slit diffraction, Calculating the intensity– Double slit interference and diffraction combined.

**GRATINGS AND SPECTRA** - Multiple slits-width of the maxima, Diffraction gratings, Grating spectrum – Dispersion and Resolving power.

**POLARIZATION:** Polarization by reflection Brewster's law - Double refraction -Polarization by scattering - Retarders -Optical Activity.

**UNIT - II**

**CRYSTAL STRUCTURES:** Introduction –periodic arrays of atoms-Lattice translation vectors, Basis and crystal structure, Primitive cell, fundamental types of lattices-three dimension lattice types, Crystal systems- Structure and packing fractions of Simple cubic-Body centered cubic- Face centered cubic crystals.

**X-RAY DIFFRACTION:** Directions and planes in crystals – Miller indices – separation between successive ( h k l ) planes- Diffraction of X- rays by crystal planes – Braggs law- Laue method- powder method.

**UNIT - III**

**LASERS:** Introduction – Characteristics of Lasers- Principle of laser (Absorption, Spontaneous and stimulated emission of Radiation), Einstein Coefficients- Population Inversion - Helium Neon Laser, Semiconductor laser, Applications of Lasers.

**FIBER OPTICS:** Introduction- Principle of optical Fiber- Acceptance angle and Acceptance cone- Numerical aperture - refractive index profile-Application of optical fibers.

**UNIT - IV**

**SUPER CONDUCTIVITY** :Phenomenon, Meissner effect, critical parameters, Type I, Type II Super conductors, BCS theory of super conductivity, Applications of Super conductors.

**UNIT - V**

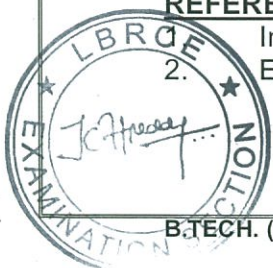
**NON-DESTRUCTIVE TESTING USING ULTRASONICS:** Characteristics Production and detection of ultrasonics-Piezoelectric and magnetostirictionmethods,Ultrasonic Testing - Basic Principle –Transducer – Couplant and inspection Standards – Inspection Methods – Pulse echo Testing Technique – Flaw detector- Different Types of Scans – Applications.

**TEXT BOOKS**

1. Fundamentals of physics Resinic, Halliday and Krane, John Wiley 2003
2. Engineering Physics by V RAJENDRAN TataMcGrahill

**REFERENCES**

1. Introduction to solid state physics, C. Kittel, John wiley, 1999.
2. Engineering physics by H K MALIK AK SINGH TATA McGRAHILL



**P806 – C - PROGRAMMING LAB**

<b>Lab/Practicals : 3 Period/Week</b>	<b>Internal Marks : 25</b>
<b>Credits : 2</b>	<b>External Marks : 75</b>
	<b>External Examination : 3 Hrs</b>

---

1. Write a programme in 'C' language to cover the following problems.
  - a) Roots of Quadratic Equation.
  - b) Example program which shows the usage of various Operators available in C Language.
  - c) Example program which shows the usage of various preliminary Data types available in C Language.
  - d) Example programs to illustrate the *order of evaluation*.

**II) WRITE EXAMPLE PROGRAMS**

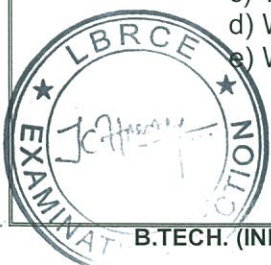
- a) To check whether the given year is leap year (or) not
- b) Converting given two digit number into words using switch statement
- c) To illustrate the usage of 'goto' statement.
- d) Finding smallest & biggest number from the given set of 4 numbers using 'if' statement.
- e) Calculate the student grade in the examination – assume suitable constraints.
- f) Prepare electricity bill for the consumed units – assume suitable constraints.

**III) EXAMPLE PROGRAMS**

- a) To Display first N natural numbers
- b) To find whether the given number is Armstrong (or) not
- c) To find reverse of the given number and to check whether it is palindrome (or) not.
- d) To find whether given number is strong number (or) not.
- e) To check whether given number is Prime (or) not
- f) To display prime numbers with in the given range(Nesting of Loops).
- g) To display the following structure(Nesting of Loops)

i)	1	ii) 5	4	3	2
	1		4	3	2
	1	2	3	2	1
	1	2	3	4	2
	1	2	3	4	5
					1

- IV) Write example programs in C Language:
  - a) To find factorial of a given number using functions.
  - b) Swap two numbers using functions.
  - c) To find GCD of two numbers using recursion
  - d) Write a recursive function to solve Towers of Honai problem.
  - e) Write an example program to illustrate use of external & static storage classes.




*Handwritten signature*  
**Head of the Department**  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521-230, Krishna Dt., A.P., INDIA.



- V) Write example programs in C Language to perform following operations:
- a) Finding the sum and average of given numbers using Arrays.
  - b) To display elements of array in reverse order
  - c) To search whether the given element is in the array (or) not using linear search & binary search.
  - d) Write a C program to perform the following operations
    - i) Addition, subtraction and multiplication of Matrices
    - ii) Transpose of given matrix (The above operations are to be exercised using functions also by passing arguments)
  - e) Write a C program to find whether the given string is palindrome (or) not.
  - f) To accept line of text and find the number of characters, number of vowels and number of blank spaces in it.
  - g) Write an example program to illustrate the use of any 5 string handling functions.
- VI) a) Example program to bring clarity on pointer declaration & initialization and Pointer arithmetic.  
b) Write an example program to describe the usage of call by reference.  
c) Write a program to find sum of the elements of the array using functions.  
d) Write an example program to illustrate the usage of command line arguments.  
e) Program to illustrate the usage of dynamic memory management functions.
- VII) a) Write an example program using structures to process the student record. Assume suitable fields for student structures ( Different kinds of initialization of structure variables are to be exercised)  
b) Write a program to read records of 10 employees and find their average salary ( exercise array of structures & Nested structures concepts through this program).  
c) Write a program to handle a structure variable using pointers and implement self referential structure(i.e. A structure variable having a pointer to itself)
- VIII) Write an example program on file to perform following operations:  
a) Accessing content from files and writing content in to it. (Exercise different file operation modes)  
b) Copy the contents of one file into another (Exercise different file operation modes)



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**

**P830 - ENGINEERING PHYSICS AND CHEMISTRY LAB**

	<b>Internal Marks</b>	<b>: 25</b>
<b>Lab/Practicals : 3 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits : 2</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

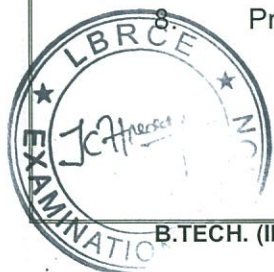
**ENGINEERING PHYSICS LABORATORY**  
(Any 5 experiments)

**LIST OF EXPERIMENTS**

1. LCR Resonance circuit
2. Newton's Rings – Determination of Radius of curvature of plano convex lens
3. Verification of laws by using sonometer
4. Meldy's experiment
5. Wedge shaped film
6. Volume Resonator
7. Refractive index of light
8. Diffraction Grating – Normal incidence method
9. Rigidity modulus of a given wire
10. Frequency of AC supply – Sonometer

**ENGINEERING CHEMISTRY LABORATORY**  
(Any 5 experiments)

1. Estimation of total Hardness of water by EDTA method
2. Determination of Temporary and permanent hardness of water.
3. Iodometric Titration of  $K_2Cr_2O_7$  v/s  $Na_2S_2O_3$  to determine the percentage purity of  $K_2Cr_2O_7$  sample.
4. Preparation of Stanard Potassium Dichromate and Estimation of Copper by Iodometry.
5. Determine the amount of Oxalic acid and Sulphuric acid in 1 liter solution by using given standard Sodium Hydroxide and Potassium Permanganate solution
6. Determination of alkalinity of water sample.
7. Determination of Dissolved Oxygen (DO) content by Winkler's method.
8. Preparation of Urea formaldehyde resin.



*[Signature]*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**

**P831 - ENGINEERING WORKSHOP**

Lab/Practicals : 3 Period/Week	Internal Marks	: 25
Credits : 2	External Marks	: 75
	External Examination	: 3 Hrs

---

**TRADES FOR EXERCISES: (Common to EEE, ECE, CSE, EIE & IT)**

At least three exercise from each trade :

1. Carpentry
2. Fitting
3. House – Wiring
4. Plumbing

**TRADES FOR EXERCISES : ( MECHCHANICAL ENGINEERING)**


At least two exercise from each trade :

1. Carpentry
2. Fitting
3. Tin - Smithy
4. Black - Smithy
5. House - Wiring
6. Plumbing

**TEXT BOOK**

Workshop manual / P. Kannaiah / K.L. Narayana Scitech Publications, India Pvt Ltd, Chennai.



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.**

**II-SEMESTER**



**T119 - APPLIED MATHEMATICS – II**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

Laplace transforms of standard functions –Shifting Theorems, Transforms of derivatives and integrals – Unit step function –Dirac’s delta function. Inverse Laplace transforms– Convolution theorem - Applications of Laplace transforms to ordinary differential equations

**UNIT - II**

Fourier Series: Determination of Fourier coefficients – Fourier series – even and odd functions – Fourier series in an arbitrary interval– Half-range sine and cosine series.

**UNIT - III**

Fourier integral theorem (only statement) – Fourier sine and cosine integrals – Fourier transform – sine and cosine transforms – properties – inverse transforms – Finite Fourier transforms.

**UNIT - IV**

Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation. Method of Separation of Variables - Applications to wave equation one dimensional, heat equation and Laplace Equation.

**UNIT - V**

Z-transform – properties – Damping rule – Shifting rule – Initial and final value theorems - Inverse z-transform -Convolution theorem – Solution of difference equation by z-transforms.

**TEXT BOOKS**

1. Higher Engineering Mathematics by Dr. B.S. Grewal
2. Higher Engineering Mathematics by Dr. B. V. Ramana – TMGH

**REFERNCES**

1. Advanced Engineering Mathematics by Michael D. Greenberg – TMGH
2. Advanced Engineering Mathematics by Erwin Krezig - John Wiley & sons



*[Signature]*  
**Head of the Department**  
 Department of Information Technology  
 akireddy Bali Reddy College of Engineering  
 YLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

## T198 - ENGLISH-II

Lecture	: 4 Periods/week	Internal Marks	: 25
		External Marks	: 75
Credits	: 3	External Examination	: 3 Hrs

English Language continues to be regarded as an important tool for global communication and employability. Hence, it is imperative that students need to acquire communicative competence besides their core skills. The syllabus has been designed to develop linguistic and communicative competence of Engineering students with special emphasis on professional and functional aspects of English language i.e., on Listening, Speaking, Reading and Writing (LSRW Skills).

**OBJECTIVES**

- To improve the language proficiency of the students in English with emphasis on LSRW skills.
- To develop the study skills and Communication skills of the students in both formal and informal situations.
- To enable the students to face the academic and professional challenges of the present day scenario.
- To help students acquire the ability to speak effectively in English in the real life situations.
- To inculcate reading as a habit and to develop reading skills among students.
- To train students to improve their active and passive vocabulary.
- To familiarize the students with different rhetorical functions of Technical English.
- To enable the students write letters and reports effectively in formal and professional situations.

**UNIT - I**

**Chapter 4: "Disaster Management"** from *Step by Step* (Pearson)

**Extensive reading** – *Masterminds* - The institution builders - **MeghanadSaha** (Orient Longman)

**UNIT - II**

**Chapter 5: "Health"** from *Step by Step* (Pearson)

**Extensive reading** – *Masterminds*- The New Age – **HomiJehangirBhabha** (Orient Longman)

**UNIT - III**

**Chapter 6: "Sports"** from *Step by Step* (Pearson)

**Extensive reading** – *Masterminds* - The New Age – **Vikram Sarabhai** (Orient Longman)

**UNIT - IV**

**Grammar** – Articles, Prepositions, Voice, Speech, Concord, Correction of Sentences

**Vocabulary** – Phrasal verbs, Gerunds, Infinitives, One word Substitutes.



*[Signature]*  
**Head of the Department**  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521 230, Krishna Dt., A.P., INDIA.

**UNIT - V**

Analytical writing – Comprehension, Technical dialogue writing,  
Presentation skills - Note making, Information transfer / Data interpretation (Tables, Pie-charts, Bar graphs, Tree diagrams, Pictograms, etc.), Report writing


**TEXTBOOK**

***Step by Step, Pearson Education, New Delhi 2010.***  
***Master Minds, (Orient Longman).***

**REFERENCES**

1. Koneru Aruna. *Professional Communication: Tata McGraw-Hill, New Delhi, 2007.*
2. *Effective Technical Communication, Rizvi, Tata McGraw-Hills, New Delhi, 2009.*
3. *Basic Communication Skills for Technology, Andrea J. Rutherford, Pearson Education.*
4. *GRE and TOEFL, Kaplan and Baron's, Latest editions.*



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.**

**T264 - NUMERICAL METHODS**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

Linear systems of equations: Rank-Echelon form, Normal form – Solution of Linear Systems - Direct Methods- Gauss Elimination - Gauss Jordan and Gauss Seidal Methods. Eigen values – Eigen Vectors – Properties – Cayley Hamilton Theorem – Inverse and Powers of a matrix by using Cayley Hamilton Theorem.

**UNIT - II**

Quadratic forms – Reduction to Canonical form – Rank and Nature of Quadratic form. Solution of Algebraic and Transcendental Equations: Introduction – The Method of False Position – Newton-Raphson Method.

**UNIT - III**

Interpolation: Introduction- Errors in Polynomial Interpolation – Finite differences- Forward Differences- Backward differences –Central differences – Symbolic relations and separation of symbols-Differences of a polynomial- Newton's formulae for interpolation – Lagrange's Interpolation formula.

**UNIT - IV**

Numerical Differentiation and Integration – Differentiation using finite differences – Trapezoidal rule – Simpson's 1/3 Rule –Simpson's 3/8 Rule.

**UNIT - V**

Numerical solution of Ordinary Differential equations: Solution by Taylor's series-Picard's Method of successive Approximations-Euler's Method-Runge- Kutta Methods –Predictor-Corrector Methods- Milne's Method. Curve fitting: Fitting a straight line –Second degree curve-exponential curve by method of least squares.

**TEXT BOOKS**

1. Higher Engineering Mathematics by Dr. B.S. Grewal
2. Higher Engineering Mathematics by Dr. B. V. Ramana – TMGH

**REFERENCES**

1. Introductory Methods of Numerical Analysis by S. S. Sastry – PHI
2. Numerical Methods for Engineers with programming and software application by Steven .C. Chopra and Ra. P. Canale – TMGH
3. Numerical Methods for scientific and engineering by M. K. Jain, S. R. K. Iyengar – New Age International Ltd.



*(Signature)*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**Mylavaram-521 230, Krishna Dt., A.P., INDIA.**



## T154 – DATA STRUCTURES USING C++

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

**UNIT - I**

**Object** –Structured Versus Object Oriented Development, Elements of Object Oriented Programming (OOP)-object, class, Data encapsulation and Abstraction, Inheritance, polymorphism, message communication.

Classes and Objects-Class Specification, Class Objects, Accessing Class Members, Defining Member Functions, Outside Member Functions as inline, Accessing Member functions within the Class, Data Hiding, New and Delete operators, This pointer, Object Initialization and clean up-constructor, Destructor, constructor overloading, Function overloading, Stream I/O.

**UNIT - II**

**Inheritance**-Introduction, Derived Class Declaration, Forms of Inheritance, Inheritance and Member Accessibility, Constructors in Derived Classes, Destructors in Derived Classes, Abstract Classes, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Multipath Inheritance and Virtual Base Classes, Hybrid Inheritance.

**Polymorphism**- Operator Overloading- Unary Operator Overloading, Binary Operator Overloading, Overloading with Friend Functions, Virtual Functions, Pointer to Derived Class Objects, Pure Virtual Functions, class template and function templates.

**UNIT - III**

**Searching** - Introduction, Linear Search, Binary Search.

**Sorting**-Introduction, Bubble Sort, Insertion Sort, Selection Sort, Merge Sort, Quick sort.

**UNIT - IV**

**Stacks**-Introduction, Stack Operations-push- pop, Applications-Infix to prefix conversion, Postfix Evaluation.

**Queues**-Introduction, Operations on Queues-insert -delete, Circular queues, Dequeue.

**UNIT - V**

**Linked Lists**-Introduction, Singly linked lists, Circularly Linked lists, doubly linked lists.

**Trees** –Introduction, Representation of Trees, Binary tree, Binary Tree Traversal-Inorder, Preorder, Postorder.

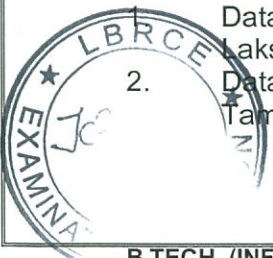
**Graphs**-Introduction, Representation of Graphs, Graph Traversals-BFS (Breath First Search), DFS (Depth First Search).

**TEXT BOOKS**

1. Mastering C++,K.R.Venu Gopal,Rajkumar,T.Ravi Shankar, Tata McGraw-Hill.
2. Data Structures, Algorithms and Applications in C++,Sahni, MC Graw-Hill.

**REFERENCES**

1. Data Structures and Algorithms-Concepts, Techniques and Applications, A Vijaya Lakshmi Pai,TMH.
2. Data Structures and Algorithms in C++,Michael T.Good Rich, Roberto Tamassia,David Mart,Wiley Student Edition.



*Head of the Department*  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521 230, Krishna Dt., A.P., INDIA.

## T188 – ELECTRONIC DEVICES AND CIRCUITS

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

---

**UNIT - I**

**JUNCTION DIODE CHARACTERISTICS** : Review of semi conductor Physics – n and p –type semi conductors, Mass Action Law, Continuity Equation, Hall Effect, Fermi level of semiconductors, Energy band diagram of PN diode, PN diode-biasing, The current components, Diode equation, V-I characteristics, Temperature dependence of VI characteristic, Transition and Diffusion capacitances, Breakdown Mechanisms in p-n Diode, Zener diode, Tunnel Diode, Varactor Diode, LED, LCD. And photo diode

**UNIT - II**

**RECTIFIERS AND FILTERS** : Half wave rectifier, ripple factor, full wave rectifier, Harmonic components in a rectifier circuit, Inductor filter, Capacitor filter, L- section filter, II- section filter, Multiple L- section and Multiple IIsection filter, and comparison of various filter circuits? in terms of ripple factors, basics of regulators.

**UNIT - III**

**TRANSISTOR and FET CHARACTERISTICS** : Junction transistor, Transistor current components, Transistor as an amplifier, Transistor construction, Current components in a transistor, Input and Output characteristics of transistor in Common Base, Common Emitter, and Common collector configurations, Relation between Alpha, Beta and gamma, FET- JFET characteristics, Small signal model of JFET, MOSFET characteristics (Enhancement and depletion mode), Comparison of Transistors, Introduction to SCR and UJT.

**UNIT - IV**

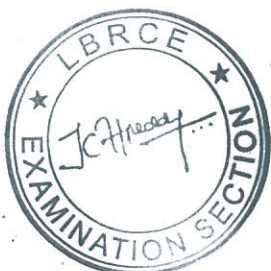
**BIASING AND STABILISATION** : BJT biasing, DC equivalent model, criteria for fixing operating point, Fixed bias, Collector to base bias, Self bias techniques for stabilization, Stabilization factors, (S, S', S''), Compensation techniques, (Compensation against variation in  $V_{BE}$ ,  $I_{CO}$ .) Thermal run away, Thermal stability.

**UNIT - V**

**AMPLIFIERS:** Small signal low frequency transistor amplifier circuits: h-parameter representation of a transistor, Analysis of single stage transistor amplifier using h-parameters: voltage gain, current gain, Input impedance and Output impedance. Comparison of transistor configurations in terms of  $A_i$ ,  $R_i$ ,  $A_v$ ,  $R_o$ , Introduction to feedback Amplifier and Oscillators.

**TEXT BOOK**

Electronic Devices and Circuits – J.Millman, C.C.Halkias, and Satyabratha Jit Tata McGraw Hill, 2<sup>nd</sup> Ed., 2007.




*[Signature]*  
 Head of the Department  
 Department of Information Technology  
 akireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt., A.P., INDIA

## REFERENCES

1. Electronic Devices and Circuits – R.L. Boylestad and Louis Nashelsky, Pearson/Prentice Hall, 9th Edition, 2006.
2. Electronic Devices and Circuits – S Salivahanan, N.Suresh Kumar and A Vallavaraj, McGraw Hill, 5<sup>th</sup> edition, 2010.
3. Electronic Devices and Circuits – T.F. Bogart Jr., J.S. Beasley and G.Rico, Pearson Education, 6th edition, 2004.
4. Principles of Electronic Circuits – S.G. Burns and P.R. Bond, Galgotia Publications, 2nd Edn., 1998.
5. Microelectronics – Millman and Grabel, Tata McGraw Hill, 1988.
6. Electronic Devices and Circuits – Dr. K. Lal Kishore, B.S. Publications, 2<sup>nd</sup> Edition, 2005.
7. Electronic Devices and Circuits- Prof GS N Raju I K International Publishing House Pvt. Ltd 2006.



  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.

**P816 – DATA STRUCTURES USING C++ LAB.**

<b>Lab/Practicals : 3 Period/Week</b>	<b>Internal Marks : 25</b>
<b>Credits : 2</b>	<b>External Marks : 75</b>
	<b>External Examination : 3 Hrs</b>

**WEEK - 1**

- (a) Write a C++ program to calculate standard deviation.
- (b) Write a C++ program for finding sum of prime numbers between 1 and N.

**WEEK - 2**

- (a) Write a C++ program for designing employee information using class concept.
- (b) Write a C++ program for constructor overloading.

**WEEK - 3**

- (a) Write a C++ program by using friend functions.
- (b) Write a C++ program for implementing dynamic allocation and deallocation.
- (c) Write a C++ program for implementing multiple Inheritance

**WEEK - 4**

- (a) Write a C++ program implementing Runtime Polymorphism
- (b) Write a C++ program to implement Encapsulation.
- (c) Write a C++ program for operator overloading.

**WEEK - 5**

- (a) Write a C++ programs to perform linear search & binary search
- (b) Write a C++ programs to implement insertion sort & bubble sort
- (c) Write a C++ programs to implement selection sort, quick sort & merge sort

**WEEK - 6**

- (a) Write a C++ program for implementing stack using array.
- (b) Write a C++ program for Queue using array.

**WEEK - 7**

- (a) C++ program for implementing stack using linked list
- (b) C++ program for implementing Queue using linked list

**WEEK - 8**

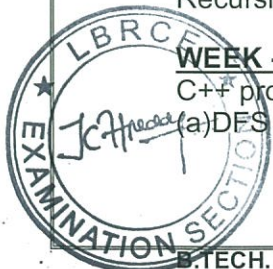
- (a) C++ program for implementing Circular Queue using arrays
- (b) C++ program for implementing Circular linked list.

**WEEK - 9**

C++ program to perform traversal techniques preorder, Postorder and inorder using Recursive

**WEEK - 10**

C++ program for Graph Traversals  
(a) DFS (b) BFS



*W. S. Rao*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt., A.P., INDIA,**

**P829 - ENGINEERING DRAWING THROUGH AUTO CAD LAB**

	<b>Internal Marks</b>	<b>: 25</b>
<b>Lab/Practicals : 3 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits : 2</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

Introduction to Engineering Drawing and its importance -Introduction to Computer Aided Drafting, Auto CAD commands, Setup Commands, Drawing Commands, Editing Commands, Dimensioning Commands -Theory of Projection – Elements of projection, planes of projection, and methods of projection.

Orthographic Projection - Lines used in general engineering drawing, types of surfaces, invisible lines, precedence of lines, selection of views, principles of multi view drawing, steps to draw orthographic views, orthographic projection of different objects.

**UNIT - II**

Isometric Drawing- Theory of isometric projection-Isometric view and Isometric projection Isometric projection from Orthographic views for simple objects.

**UNIT - III**

Projections of points - Projection of straight Lines –Various positions of straight lines w.r.t reference planes, inclined to both planes.

**UNIT - IV**

Projections of Planes –Introduction, Planes parallel to reference planes, inclined to one reference plane and perpendicular to other, planes perpendicular to both reference planes, planes inclined to both reference planes.

**UNIT - V**

Projections of Solids –Types of solids, Polyhedra, solids of revolution, Projection of solids in simple position, projection of solids with axis inclined to one reference plane and parallel to other.

**TEXT BOOKS**

1. Engineering Graphics with AutoCAD by Bethune PHI Learning Private Limited, New Delhi, 2009.
2. Engineering Graphics with AutoCAD by M. Kulkarni, A.P Rastogi, and A.K. Sarkar; PHI Learning Private Limited, New Delhi, 2009
3. Engineering Drawing by N.D. Bhatt, Charitor publications.



*[Signature]*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.**


**P827 – ELECTRONIC DEVICES AND CIRCUITS USING LabVIEW**

<b>Lab/ Practicals</b> : 3 Period/Week	<b>Internal Marks</b> : 25
<b>Credits</b> : 2	<b>External Marks</b> : 75
	<b>External Examination</b> : 3 Hrs

---

1. Identification, Specifications, Testing of R,LC Components (Colour Codes), and basic Electronic Instruments.
2. PN junction diode characteristics
3. Zener diode characteristics
4. Full wave Rectifier without & with filters
5. Transistor CB characteristics
6. Transistor CE characteristics
7. FET characteristics
8. CE Amplifier
9. CC Amplifier
10. FET Amplifier



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**

**III-SEMESTER**



**T127 – BASIC ELECTRICAL ENGINEERING**

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

---

**UNIT - I**

## Electrical Circuits

Basic Definitions, Types of elements, Ohms law, Resistive networks, Kirchhoff's laws, Inductive networks, Capacitive networks, series and parallel circuits and star-delta and delta star transformations

**UNIT - II**

## Magnetic Circuits

Definition of mmf, flux and reluctance, leakage flux, fringing, magnetic materials and B-H relationship. Problems involving simple series-parallel magnetic circuits. Analysis of linear and non-linear magnetic circuits. Energy storage, AC excitation. Eddy currents and hysteresis losses. Coupled circuits (Dot rule), self and mutual inductances, coefficient of coupling.

**UNIT - III**

## Synchronous Machine and 3 phase Induction motor

Principle of operation of alternators – regulation by synchronous impedance method – MMF and zero power factor methods. Principle of operation of Synchronous machine- Principle of operation of three-phase induction motors – Slip ring and Squirrel cage motors – Slip-Torque characteristics

**UNIT - IV**

## Transformers

Principle of operation of single phase transformers, Ideal Transformer, Practical transformer, phasor diagram, emf equation, losses, efficiency and regulation.

**UNIT - V**

Electrical And Electronics Measuring Instruments Electrical Instruments: Basic principle of indicating instruments, permanent magnet moving coil and moving iron instruments.

Electronic Instruments: Principles of CRT (Cathode Ray Tube), Deflection, sensitivity, Electrostatic and magnetic deflection, Applications of CRO, Voltage, Current and frequency instruments.

**TEXT BOOKS**

1. Basic Electrical Engineering - T.K. Nagasarkar and M.S. Sukhija, Oxford University Press, 2005
2. Introduction to Electrical Engineering – M.S Naidu and S. Kamakshiah, TMH Publ.
3. William H. Kayt Jr. Jack, E. Kemmerly, Steven M. Durbin, "Engineering circuit analysis" 6<sup>th</sup> edition, Tata Mc Graw-Hill 2006 Edition




*(Signature)*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521 230, Krishna Dt., A.P., INDIA.



**REFERENCES**

1. Theory and Problems of basic electrical engineering - I.J. Nagarath and D.P Kothari, PHI Publications
2. Principles of Electrical Engineering - V.K Mehta, S.Chand Publications
3. Network Analysis by Vanvalkenburg, PHI
4. Network Theory by N.C.Jagan & C.Lakshminarayana, B.s Publication.



  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
Mylavaram-521 230, Krishna Dt., A.P., INDIA.

**T285 – PROBABILITY AND STATISTICS**

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/week	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

**UNIT - I**

Probability: Sample space and events – Probability – The axioms of probability – Some Elementary theorems - Conditional probability – Baye's theorem.

**UNIT - II**

Random variables – Discrete and continuous distributions - Distribution function. Binomial, Poisson, normal distribution – related properties. Moment generating function, Moments of standard distributions, Evaluation of mean, standard, variance, kurtosis and skewness.

**UNIT - III**

Population and samples. Sampling distribution of mean (with known and unknown variance), proportion, variances. - Sampling distribution of sums and differences. Point and interval estimators for mean, variance and proportions.

**UNIT - IV**

Statistical Hypothesis – Errors of Type I and Type II errors and calculation. One tail and two-tailed tests. Testing of hypothesis concerning means, proportions and their differences using Z-test.

Tests of hypothesis using Student's t-test, F-test and  $\chi^2$  test. Applications of decision making using the above tests.

**UNIT - V**

Simple Correlation and Regression.

Queuing Theory: Pure Birth and Death Process M/M/1 Model and Simple Problems related to the evaluation of waiting time, length of the queue etc. ,

**TEXT BOOK**

Probability and Statistics for Engineers, Miller ,John E. Freund, PHI

**REFERENCES**

1. Probability and Statistics, Gupta & Kapoor
2. Probability, Statistics and Queuing theory applications for Comp. Sciences, 2/e, Trivedy, John Wiley



*Handwritten signature*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.

## T162 – DIGITAL LOGIC DESIGN

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 5	External Examination	: 3 Hrs

**UNIT - I**

**Binary Systems:** Digital Computers and Digital Systems, Binary Numbers, Number base Conversion, Octal and Hexadecimal Numbers, Complements, Binary Codes, Binary Storage and Registers, Binary Logic, Integrated Circuits. **Boolean Algebra And Logic Gates:** Basic Definitions, Axiomatic definition of Boolean Algebra, Basic theorems and Properties of Boolean Algebra, Boolean functions, Canonical and Standard Forms, Other operations, Digital Logic Gates.

**UNIT - II**

**Simplification Of Boolean Expressions:** Formulation of simplification problem, Prime Implicants and irredundant disjunctive and conjunctive expression, Karnaugh Maps, Minimal Expressions for complete and incomplete Boolean functions. Five and Six Variable K-Maps, Quine-McCluskey Method, Prime Implicants and Implicate tables and irredundant expressions, and Table reductions.

**UNIT - III**

**Combinational Logic:** Design Procedure, Adders, Subtractors, Code Conversion, Analysis Procedure, multilevel NAND and NOR circuits. Combinational Logic with MSI And LSI: Binary Parallel Adder, Decimal Adder, Magnitude Comparator, Decoders, Multiplexers.

**UNIT- IV**

**Sequential Logic:** Flip Flops, Triggering of Flip-Flops, Analysis of Clocked Sequential Circuits, State Reduction and Assignment, Flip-Flop Excitation tables, Design Procedure, Design of Counters, Design with state equations Registers, Counters and Memory : Registers. Shift registers, Ripple Counters, Synchronous Counters, Timing sequences, the memory unit.

**UNIT - V**

**Programmable Logic:** Read – Only Memory (ROM), PROM, Programmable Logic Device (PLD), Programmable Logic Array (PLA), Programmable Array Logic (PAL).

**TEXT BOOK**

M.Morris Mano, 'Digital Logic and Computer Design', PHI.

**REFERENCES**

1. M.Morris Mano, 'Computer Engineering Hardware Design', PHI
2. Donald e Givone, Digital principles and Design, TMH (Unit II and V)



*[Signature]*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

## T103 – ADVANCED DATA STRUCTURES THROUGH JAVA

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

---

**UNIT - I**

**Introduction:** History of Java, data types, arrays, type conversion and casting, compiling and running of simple Java program, introducing methods, constructors, usage of static with data and methods, usage of final with data, access control, this key word, garbage collection, overloading methods and constructors, parameter passing - call by value, recursion, nested classes and inner classes, Exploring the String class.

**UNIT - II**

**Inheritance and Interfaces:** Basic concepts, method overriding, abstract classes, dynamic method dispatch, using final with inheritance, the Object class. Differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces.

**Exception Handling:** Concepts of Exception handling, types of exceptions, usage of try, catch, throw, throws and finally keywords, Built in exceptions.

**UNIT - III**

**Multithreading:** Concepts of Multithreading, differences between process and thread, creating multiple threads using Thread class, Runnable interface, Synchronization, thread priorities, inter thread communication, daemon threads, deadlocks, thread groups.

**Applets :** Concepts of Applets, differences between applets and applications, life cycle of an applet, types of applets, creating applets, passing parameters to applets.

**UNIT-IV**

**Hash Tables:** tables and records, An ADT for Maps, hash tables, Linear probing, rehashing, Other collision resolution algorithms, separate chaining, the java.util.HashMap Class.

Heaps and priority algorithms: Heaps, Heaps algorithms, priority queues.

**UNIT-V**

**Binary Trees:** Definitions, properties, counting binary trees, Binary tree traversal algorithm, expression trees, complete binary trees, forests.

**Searches Trees:** binary search tree, AVL Tree, Red Black tree, B tree, B+ tree.

**TEXT BOOKS**

1. The Complete Reference Java J2SE 5th Edition, Herbert Schildt, TMH Publishing Company Ltd, NewDelhi.
2. Data Structures with JAVA ,John R. Hubbard and Anita Huray.

**REFERENCES**

1. Java How to Program, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI
2. Core Java 2, Vol 1, Fundamentals, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.
- Core Java 2, Vol 2, Advanced Features, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.
- Beginning in Java 2, Iver Horton, Wrox Publications.



*Handwritten signature*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**

## T334 – UNIX PROGRAMMING

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

---

**UNIT - I**

**Introduction to Unix:-** The Unix Operating system, Architecture of Unix, Features of Unix  
**Unix Commands** – PATH, man, echo, printf, script, passwd, uname, who, date, stty, telnet,ftp.

**Introduction to Unix file system :** The File System Hierarchy, The Unix File System, Unix File System Commands: pwd,cd,mkdir,rmdir,ls,cp,mv,rm,cat,more,wc,lp,od,tar,gzip,zip. File Attributes- ls, File permissions: chmod, umask, File Systems and Inodes. In file owner ship.

**UNIT-II**

**Introduction to Shell :**The shell as process command, pattern matching,Escaping,Quoting, Redirection, Pipes, Tee, Command Substitution.

**Shell Programming :**vi editor, Shell variables, Shell scripts : read , exit Conditional Statements : if, test, case,expr ,sleep & wait Looping Statements : While and until looping- Examples

**UNIT-III**

**The Process:** Process basics- init , ps, The process creation mechanism, Process attributes, signals Running jobs control.- at ,batch, cron and crontab.

**Filters: Simple Filters-**pr, cmp, comm,diff, head, tail, cut, paste, sort, uniq, tr

**UNIT-IV**

**Filters using Regular Expressions :**Sample Database, grep, egrep, fgrep , Sed -line addressing, context addressing , text editing, substitution

**UNIT - V**

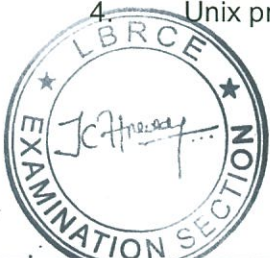
**Programming with awk:** awk Preliminaries, print & printf statements, numbering processing,Variables and Expressions,Comparisons and logical operators,Begin and End Sections, Positional Parameters, Arrays, Built-in Variables, Decision and Looping statements, Functions

**TEXT BOOK**

Your Unix The Ultimate Guide: Sumitabha Das. TMH, 2001

**REFERENCES**

1. Unix and Shell Programming , Sumitabha Das
2. Unix and shell Programming, Behrouz A. Forouzan, Richard F. Gilberg.Thomson
3. Unix for programmers and users, 3rd edition, Graham Glass, King Ables, Pearson Education.
4. Unix programming environment, Kernighan and Pike, PHI. / Pearson Education



*Handwritten signature*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

**P801 – ADVANCED DATA STRUCTURES THROUGH JAVA LAB**

	<b>Internal Marks</b>	<b>: 25</b>
<b>Lab/ Practicals : 3 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits : 2</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**WEEK 1**

- (a) Write the programs using the concept of nested for loops to generate following patterns:

```

* * * * *      *
* * * *      * *
* * *        * * *
* *          * * * *
*            * * * * *
*            * * * * *

```

- (b) Write a program that prints Fibonacci series using Recursion & Non-Recursion.  
(c) Write a program that reverses a number.

**WEEK 2**

- (a) Write the program to perform factorial of a number using the concept of command line argument.  
(b) Write a program to perform multiplication of two matrices.  
(c) Write a program for implementing static, final access specifies.  
(d) Write a program for implementing the usage of this keyword.

**WEEK 3**

- (a) Write a program to perform sum of tokens using String Tokenizer class.  
(b) Write a program that converts all characters of a string in capital letters. (Use String Buffer to store a string).  
(c) Write a java program that checks whether a given string is a palindrome or not (Use String to store a string).  
(d) Write a java program for sorting a given list of name in ascending order.

**WEEK 4**

- (a) Write a program for implementing method overloading.  
(b) Write a program for implementing Dynamic Dispatch method.  
(c) Create an abstract class Shape and derived classes Rectangle and Circle from Shape class implement abstract method of shape class in Rectangle and Circle class. (Use Inheritance, overloading and overriding concept)

**WEEK 5:**

- (a) Write a program to perform inheritance with Super and Final keywords.  
(b) Write a program to perform multiple inheritance concepts using Interface.  
(c) Write a program for handling various types of Exceptions Arithmetic, IndexOutOfBounds and etc.  
(d) Write a program to show an implementation of Package and Subpackage.



*[Signature]*  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
Mylavaram-521 230, Krishna Dt., A.P., INDIA.

**WEEK 6**

- (a) Write a java program that reads a file and displays the file on the screen with a line number before each line.
- (b) Write a java program that displays the number of characters, lines and words in a text file
- (c) Write a java program that reads a filename from user then displays information from User then displays information about whether the file exists, whether file is readable, whether file is writable the type of file and length of file in bytes.

**WEEK 7**

- (a) Write a java program for implementing multithreading concept.
- (b) Write a java program that correctly implements producer consumer problem using the Concept of inter thread communication.
- (c) Write a java program for implementing Daemon Thread.

**WEEK 8**

- (a) Develop an applet that displays a simple message with different foreground and Background colors.
- (b) Write a java program that allows the user to draw&fill lines, rectangles and ovals with different colors.

**WEEK 9**

Write a program to implement binary search tree operations.

**WEEK 10**

Write a program to implement AVL tree operations.


**WEEK 11**

Write a program to implement Red-Black tree operations.

**WEEK 12**

Write a program to implement Hash table linear probing operations.



  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

**P880 – UNIX PROGRAMMING LAB**

	<b>Internal Marks</b>	<b>: 25</b>
<b>Lab/ Practicals : 3 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits : 2</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

**CYCLE - 1**

## Session-1

- Log into the system
- Use vi editor to create a file called myfile.txt which contains some text.
- correct typing errors during creation.
- Save the file
- logout of the system

## Session-2

- Log into the system
- open the file created in session 1
- Add some text
- Change some text
- Delete some text
- Save the Changes
- Logout of the system

## Session-3

Practicing the commands PATH, man, echo, printf, script, passwd, uname, who, date, stty, pwd, cd, mkdir, rmdir, ls, cp, mv, rm, cat, more, wc, lp, od, tar, gzip and other commands.

**CYCLE - 2**

## Session-1

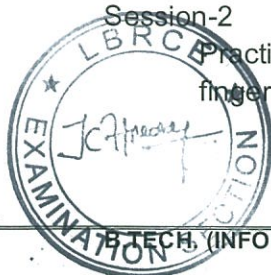
- Log into the system
- Use the cat command to create a file containing the following data. Call it mytable use tabs to separate the fields.
 

1425	Ravi	15.65
4320	Ramu	26.27
6830	Sita	36.15
1450	Raju	21.86
- Use the cat command to display the file, mytable.
- Use the vi command to correct any errors in the file, mytable.
- Use the sort command to sort the file mytable according to the first field. Call the sorted file my table (same name)
- Print the file mytable
- Use the cut and paste commands to swap fields 2 and 3 of mytable. Call it my table (same name)
- Print the new file, mytable
- Logout of the system.

## Session-2

Practicing the commands unlink, du, df, mount, umount, find, unmask, ulimit, ps, w, finger, arp, ftp, telnet, rlogin

*(Signature)*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dist., A.P., INDIA.





**CYCLE - 3**

## Session-1

Practicing the commands

tail, head, nl, uniq, tee, pg, comm, cmp, diff, tr, cpio.

## Session-2

- 1)
  - a) Login to the system
  - b) Use the appropriate command to determine your login shell
  - c) Use the /etc/passwd file to verify the result of step b.
  - d) Use the who command and redirect the result to a file called myfile1. Use the more command to see the contents of myfile1.
  - e) Use the date and who commands in sequence (in one line) such that the output of date will display on the screen and the output of who will be redirected to a file called myfile2. Use the more command to check the contents of myfile2.
- 2) Pipe your /etc/passwd file to awk, and print out the home directory of each user.

**CYCLE - 4**

- a) Develop an interactive grep script that asks for a word and a file name and then tells how many lines contain that word
- b) Write a sed command that deletes the first character in each line in a file.
- c) Write a sed command that deletes the character before the last character in each line in a file.
- d) Write a sed command that swaps the first and second words in each line in a file.

**CYCLE - 5**

- a) Write a shell script that takes a command -line argument and reports on whether it is directory, a file, or something else.
- b) Write a shell script that accepts one or more file name as arguments and converts all of them to uppercase, provided they exist in the current directory.


**CYCLE - 6**

- a) Write a shell script that determines the period for which a specified user is working on the system
- b) Write a shell script that accepts a file name starting and ending line numbers as arguments and displays all the lines between the given line numbers.

**CYCLE - 7**

- a) Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.
- b) Write a shell script that computes the gross salary of an employee according to the following rules:
  - i) If basic salary is  $< 1500$  then HRA = 10% of the basic and DA = 90% of the basic.
  - ii) If basic salary is  $\geq 1500$  then HRA = Rs500 and DA = 98% of the basic
 The basic salary is entered interactively through the key board.



  
**Head of the Department**  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521230, Krishna Dt., A.P., INDIA

**CYCLE - 8**

- a) Write a shell script that accepts two integers as its arguments and computes the value of first number raised to the power of the second number.
- b) Write an interactive file-handling shell program. Let it offer the user the choice of copying, removing, renaming, or linking files. Once the user has made a choice, have the program ask the user for the necessary information, such as the file name, new name and so on.


**CYCLE - 9**

- a) Write shell script that takes a login name as command – line argument and reports when that person logs in
- b) Write a shell script which receives two file names as arguments. It should check whether the two file contents are same or not. If they are same then second file should be deleted.

**CYCLE - 10**

- a) Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.
- b) Develop an interactive script that ask for a word and a file name and then tells how many times that word occurred in the file.
- c) Write a shell script to perform the following string operations:
  - i) To extract a sub-string from a given string.
  - ii) To find the length of a given string.



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**

**P832 – ENGLISH LANGUAGE COMMUNICATION SKILLS LAB**

	<b>Internal Marks</b>	<b>: 25</b>
<b>Lab/ Practicals : 3 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits : 2</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

The English Language Communications Skills Lab focuses on practice of sounds of language and familiarizes the students with the use of English in everyday situations and contexts. It aims at improving the communicative competence of students and to enrich their power of expression, articulation and persuasiveness. The thrust is on developing competences, both linguistic as well as communicative, in order to improve employability potential.

**OBJECTIVES**

1. To expose the students to a variety of self-instructional, learner-friendly modes of English language learning and stimulate intellectual and attitudinal exercise.
2. To provide students with the required facility and practice to face computer-based Competitive exams such as GRE, TOEFL , IELTS etc.
3. To enable them to learn better pronunciation through emphasis on word accent, intonation and rhythm.
4. To train them to use language effectively to face interviews, group discussions, public Speaking.
5. To develop necessary attitudes and behaviors so as to improve their employability quotient.

**SYLLABUS**

The following course content is prescribed for the English Language Communication Skills Laboratory sessions:

1. Dimensions of Phonetics: Phonetic Transcription, Sounds, Stress, Intonation, Rhythm, Varieties of Spoken English: Indian, British and American
2. Oral Presentations – Prepared and Extempore -- JAM
3. Role Play
4. Describing Objects / Situations / People
5. Information Transfer
6. Debates
7. Group Discussions

**SUGGESTED SOFTWARE**

- Digital Mentor: Globarena,Hyderabad,2005
- Sky Pronunciation Suite: Young India Films, Chennai, 2009
- Mastering English in Vocabulary, Grammar, Spelling, Composition, Dorling Kindersley,USA,2001
- Dorling Kindersley Series of Grammar, Punctuation, Composition, Dorling Kindersley,USA,2001
- Oxford Talking Dictionary, The Learning Company, USA, 2002
- Learning to Speak English - 4 CDs. The Learning Company,USA,2002
- Cambridge Advanced Learners English Dictionary (with CD). Cambridge University Press, New Delhi, 2008



*(Signature)*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**

**IV-SEMESTER**



**T155 – DATABASE MANAGEMENT SYSTEMS**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

**Introduction:** An overview of database management system, database system Vs file system, Database system concepts and architecture, data models schema and instances, data independence and data base language and interfaces, Data definitions language, DML, Overall Database Structure.

**Data modeling using the Entity Relationship Model:** ER model concepts, notation for ER diagram, mapping constraints, keys, Concepts of Super Key, candidate key, primary key, Generalization, aggregation, reduction of an ER diagrams to tables, extended ER model, relationships of higher degree.

**UNIT - II**

**Relational data Model and Language:** Relational data model concepts, integrity constraints: entity integrity, referential integrity, Keys constraints, Domain constraints, relational algebra.

**Introduction to SQL:** Characteristics of SQL, Advantage of SQL. SQL data types and literals. Types of SQL commands. SQL operators and their procedure. Tables, views and indexes. Queries and sub queries. Aggregate functions. Insert, update and delete operations. Joins, Unions, Intersection, Minus, Cursors in SQL.

**UNIT - III**

**Normalization:** Functional dependencies, normal forms, first, second, third normal forms, BCNF, inclusion dependences, loss less join decompositions, normalization using FD, MVD, and JDs, alternative approaches to database design.

**UNIT - IV**

**Transaction Processing Concepts:** Transaction system, Testing of serializability, Serializability of schedules, conflict & view serializable schedule, recoverability, Recovery from transaction failures, log based recovery, checkpoints, deadlock handling.

**UNIT - V**

**Concurrency Control Techniques:** Concurrency control, locking Techniques for concurrency control, Time stamping protocols for concurrency control, validation based protocol, multiple granularity, Multi version schemes, Recovery with concurrent transaction.

**TEXT BOOK**

1. Korth, Silbertz, Sudarshan, "Database Concepts", McGraw Hill

**REFERENCES**

1. Elmasri, Navathe, "Fundamentals Of Database Systems", Addison Wesley
2. Ragu Ramakrishnan, "Database Management System", McGraw Hill
3. Maheshwari Jain, "DBMS: Complete Practical Approach", Firewall Media, New Delhi.
4. Date C J, "An Introduction To Database System", Addison Wesley



*Head of the Department*  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram - 521 230, Krishna Dt., A.P., INDIA.

## T146 – COMPUTER ORGANIZATION

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

**UNIT - I**

**Register Transfer Language And Microoperations:** Register Transfer language, register Transfer Bus and memory transfers, Arithmetic Microoperations, logic micro operations, shift micro operations, Arithmetic logic shift unit.

**Basic Computer Organization And Design:** Instruction codes. Computer Registers ,Computer instructions– Instruction cycle. Memory – Reference Instructions. Input – Output and Interrupt.

**UNIT - II**

**Micro Programmed Control:** Control memory, Address sequencing, microprogram example, design of control unit Hard wired control. Micro programmed control

**Central Processing Unit:** STACK organization. Instruction formats. Addressing modes. DATA Transfer and manipulation. Program control. Reduced Instruction set computer.

**UNIT - III**

**Pipelining And Vector Processing:** parallel processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, RISC pipeline, Vector Processing

**Computer Arithmetic :** Data Representation. Fixed Point Representation. Floating – Point Representation ,Addition and subtraction, multiplication Algorithms, Division Algorithms, Floating – point Arithmetic operations. Decimal Arithmetic unit Decimal Arithmetic operations

**UNIT - IV**

**Memory Organization:** Memory Hierarchy, Main Memory, Auxiliary Memory. Associative Memory Cache Memory, Virtual Memory

**UNIT - V**

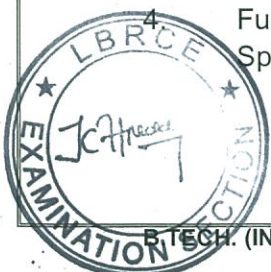
**INPUT-OUTPUT ORGANIZATION :** Peripheral Devices, Input-Output Interface, Asynchronous data transfer Modes of Transfer, Priority Interrupt, Direct memory Access, Input –Output Processor (IOP) Serial communication

**TEXT BOOK**

Computer Systems Architecture – M.Moris Mano, 3rd Edition, Pearson/PHI

**REFERENCES**

1. Computer Organization – Carl Hamacher, Zvonks Vranesic, SafeaZaky, Vth Edition, McGraw Hill.
  2. Computer Organization and Architecture – William Stallings Sixth Edition, Pearson / PHI
  3. Structured Computer Organization – Andrew S. Tanenbaum, 4th Edition PHI / Pearson
- Fundamentals or Computer Organization and Design, - Sivaraama Dandamudi Springer Int.Edition.



## T166 – DISCRETE MATHEMATICAL STRUCTURES

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

**UNIT - I****Mathematical Logic :**

Propositional Calculus: Statements and Notations, Connectives, Truth Tables, Tautologies, Equivalence of Formulas, Duality law, Tautological Implications, Normal Forms, Theory of Inference for Statement Calculus, **Consistency of Premises, Indirect Method of Proof. Predicate calculus:** Predicative Logic, Statement Functions, Variables and Quantifiers, Free & Bound Variables, Inference theory for predicate calculus.

**UNIT - II****Set Theory:**

Introduction, Operations on Binary Sets.

Relations: Properties of Binary Relations, Relation Matrix and Digraph, Operations on Relations, Partition and Covering, Transitive Closure, Equivalence, Compatibility and Partial Ordering Relations, Hasse Diagrams. **Functions:** Bijective Functions, Composition of Functions, Inverse Functions, Permutation Functions, Recursive Functions

**UNIT - III****Graph Theory:**

Basic Concepts of Graphs, Sub graphs, Matrix Representation of Graphs: Adjacency Matrices, Incidence Matrices, Isomorphic Graphs, Eulerian and Hamiltonian Graphs, Multigraphs, Graph Theory II: Planar Graphs, Euler's Formula, Graph Coloring, Chromatic Number, Trees, Spanning Trees: Properties, Algorithms for Spanning trees and Minimum Spanning Trees.

**UNIT - IV**

**Algebraic Structures:** Algebraic Systems with one Binary Operation, Properties of Binary operations, Semi groups and Monoids: Homomorphism of Semi groups and Monoids, Groups: Abelian Group, Cosets, Subgroups ( Definitions and Examples of all Structures), **Combinatorics:** Basic of Counting, Permutations, Permutations with Repetition of Objects, Restricted Permutations, Combinations, Restricted Combinations, Pigeonhole Principle and its Application, Binomial Theorem, Binomial and Multinomial Coefficients.

**UNIT - V**

**Recurrence Relation:** Generating Function of Sequences, Calculating Coefficient of Generating Functions, Recurrence Relations, Formulation as Recurrence Relations, Solving linear homogeneous recurrence Relations by substitution, generating functions and The Method of Characteristic Roots. Solving Inhomogeneous Recurrence Relations



*[Signature]*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521 230, Krishna Dt., A.P., INDIA

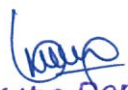
**TEXT BOOKS**

1. Discrete Mathematical Structures with Applications to Computer Science, Tremblay, Manohar, TMH
2. Discrete Mathematics for Computer Scientists & Mathematicians, 2/e, Mott, Kandel, Baker, PHI

**REFERENCES**

1. Discrete Mathematics, S.Santha, Cengage
2. Discrete Mathematics with Applications, Thomas Koshy, Elsevier
3. Discrete Mathematics, 2/e, JK Sharma, Macmillan
4. Discrete Mathematics, Chandrasekaran, Umaparvathi, 2010, PHI
5. Discrete and Combinational Mathematics, 5/e, Ralph. P.Grimaldi, Ramana, Pearson
6. Elements of Discrete Mathematics, CL Liu, Mahapatra, TMH



  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.



**T105 – ADVANCED JAVA PROGRAMMING**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 5</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I****JAVA FUNDAMENTALS**

**Java I/O streaming** – Filter and pipe streams – Byte Code interpretation - reflection, **AWT class hierarchy**, User interface components, Layout Manager, **Event Handling** : Events, Event sources, Event classes, Event Listeners, Delegation event model, Java Native Interfaces- Swing

**UNIT - II****NETWORK PROGRAMMING IN JAVA**

Sockets – secure sockets – custom sockets – UDP datagrams – multicast sockets – URL classes – Reading Data from the server – writing data – configuring the connection – Reading the header – telnet application – Java Messaging services

**UNIT - III****APPLICATIONS IN DISTRIBUTED ENVIRONMENT**

Remote method Invocation – activation models – RMI custom sockets – Object Serialization – RMI – IIOP implementation – CORBA – IDL technology – Naming Services – CORBA programming Models - JAR file creation

**UNIT - IV****MULTI-TIER APPLICATION DEVELOPMENT**

Server side programming – servlets – Java Server Pages - Applet to Applet communication – applet to Servlet communication - JDBC – Using BLOB and CLOB objects – storing Multimedia data into databases – Multimedia streaming applications – Java Media Framework.

**UNIT - V****ENTERPRISE APPLICATIONS**

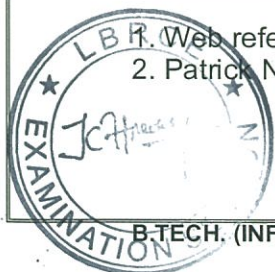
Server Side Component Architecture – Introduction to J2EE – Session Beans – Entity Beans – Persistent Entity Beans – Transactions.

**TEXT BOOKS**

1. Elliotte Rusty Harold, "Java Network Programming", O'Reilly publishers, 2000 (Unit II)
2. Ed Roman, "Mastering Enterprise Java Beans", John Wiley & Sons Inc., 1999. (UNIT III and UNIT V)
3. Hortsman & Cornell, "CORE JAVA 2 ADVANCED FEATURES, VOL II", Pearson Education, 2002. (UNIT I and UNIT IV)
4. Java; the complete reference, 7<sup>th</sup> Edition, Herbert schildt, TMH.

**REFERENCES**

1. Web reference: <http://java.sun.com>.
2. Patrick Naughton, "COMPLETE REFERENCE: JAVA2", Tata McGraw-Hill, 2003.



*(Signature)*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna D.A.P., INDIA**

## T199 – ENVIRONMENTAL STUDIES

Lecture	: 3 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

**UNIT - I**

**Multidisciplinary nature of Environmental Studies:** Definition, Scope and Importance – Need for Public Awareness.

**Natural Resources :** Renewable and non-renewable resources – Natural resources and associated problems – Forest resources – Use and over – exploitation, deforestation, case studies – Timber extraction – Mining, dams and other effects on forest and tribal people – Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems -Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. - Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources. Case studies. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles. **[11 Lectures]**

**UNIT – II**

**Ecosystems :** Concept of an ecosystem. - Structure and function of an ecosystem.- Producers, consumers and decomposers. - Energy flow in the ecosystem – Ecological succession. - Food chains, food webs and ecological pyramids.

**Biodiversity and its conservation:** Introduction - Definition: genetic, species And ecosystem diversity. - Bio-geographical classification of India - Value of Biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. - India as a mega diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. - Endangered and endemic species of India – Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

**[11 Lectures]****UNIT – III**

**Environmental Pollution:** Definition, Types, Cause, effects and control measures of:

- Air pollution
- Water pollution
- Soil pollution
- Marine pollution
- Noise pollution
- Thermal pollution
- Nuclear hazards

**Solid waste Management:** Causes, effects and control measures of urban and industrial wastes. - Role of an individual in prevention of pollution. - Pollution case studies. - Disaster management: floods, earthquake, cyclone and landslides. **[11 Lectures]**



*[Signature]*  
 Head of the Department  
 Department of Information Technology  
 akireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

#### UNIT – IV

**Social Issues and the Environment:** From Unsustainable to Sustainable development - Urban problems related to energy -Water conservation, rain water harvesting, watershed management -Resettlement and rehabilitation of people; its problems and concerns. Case Studies -Environmental ethics: Issues and possible solutions. -Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies. - Wasteland reclamation. – Consumerism and waste products. **[11 Lectures]**

#### UNIT – V

**Human Population and the Environment:** Population growth, variation among nations. Population explosion – Family Welfare Programme -Environment and human health. - Human Rights. -Value Education. HIV/AIDS. -Women and Child Welfare. -Role of information Technology in Environment and human health. –Case Studies. Environment Protection Act. -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act -Wildlife Protection Act -Forest Conservation Act -Issues involved in enforcement of environmental legislation. -Public awareness. **[11 Lectures]**


#### TEXT BOOKS

1. Textbook of Environmental Studies for Undergraduate Courses by Erach Bharucha for University Grants Commission.
2. Environmental Studies by R. Rajagopalan, Oxford University Press.

#### REFERENCES

Textbook of Environmental Sciences and Technology by M. Anji Reddy BS Publication.



  
**Head of the Department**  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
YLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

**T290 – PROFESSIONAL ETHICS**

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 3	External Examination	: 3 Hrs

**UNIT - I****ENGINEERING ETHICS**

Senses of 'Engineering Ethics' variety of moral issued types of inquiry moral dilemmas moral autonomy Kohlberg's theory Gilligan's theory consensus and controversy – Models of Professional Roles theories about right action Selfinterest customs and religion uses of ethical theories.

**UNIT - II****HUMAN VALUES**

Morals, Values and Ethics – Integrity – Work Ethic – Service Learning – Civic Virtue – Respect for Others – Living Peacefully – caring – Sharing – Honesty – Courage – Valuing Time – Cooperation – Commitment – Empathy – SelfConfidence – Character – Spirituality

**UNIT - III****ENGINEERING AS SOCIAL EXPERIMENTATION**

Engineering as experimentation engineers as responsible experimenters codes of ethics a balanced outlook on law the challenger case study

**UNIT - IV****SAFETY, RESPONSIBILITIES AND RIGHTS**

Safety and risk assessment of safety and risk risk benefit analysis and reducing risk the three mile island and chernobyl case studies. Collegiality and loyalty respect for authority collective bargaining confidentiality conflicts of interest occupational crime professional rights employee rights Intellectual Property Rights (IPR) discrimination.

**UNIT - V****GLOBAL ISSUES**

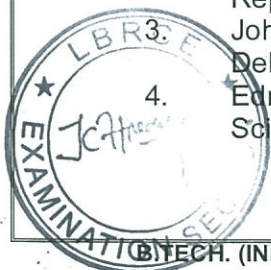
Multinational corporations Environmental ethics computer ethics weapons development engineers as managersconsulting engineersengineers as expert witnesses and advisors moral leadershipsample code of Ethics ( Specific to a particular Engineering Discipline ).

**TEXT BOOKS**

1. Mike Martin and Roland Schinzinger, "Ethics in engineering", McGraw Hill, New York 1996.
2. Govindarajan M, Natarajan S, Senthil Kumar V. S, " Engineering Ethics", Prentice Hall of India, New Delhi, 2004.

**REFERENCES**

1. Charles D. Fleddermann, "Engineering Ethics", Pearson Education/ Prentice Hall, New Jersey, 2004 ( Indian Reprint now available )
2. Charles E Harris, Michael S. Protchard and Michael J Rabins, " Engineering Ethics – Concepts and Cases", Wadsworth Thompson Leatning, United States, 2000 ( Indian Reprint now available )
3. John R Boatright, " Ethics and the Conduct of Business", Pearson Education, New Delhi, 2003.
4. Edmund G Seebauer and Robert L Barry, " Fundamentals of Ethics for Scientists and Engineers", Oxford University Press, Oxford, 2004.



Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
Mylavaram-521 230, Krishna Dt., A.P., INDIA.

## P817 – DATABASE MANAGEMENT SYSTEM LAB

	<b>Internal Marks</b>	<b>: 25</b>
<b>Lab/ Practicals : 3 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits : 2</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

1. Create a table named **STUDENT** with the following structure and set the validation rules while creating the structure:

FieldName	Data Type	Validation Rules/Constraints
Student#	AutoNumber	Primary Key
Name	Text(20)	
Qualification	Text(20)	MCA or MSC(CS) or BE or ME
Date of Birth	Date	Between 1 <sup>st</sup> January 1980 and 31 <sup>st</sup> March 1985

Enter data in the above table and do the following:

- Display the names of students whose names begin with 'S'.
- Display the details of students whose qualification is 'MCA'.
- Display the details of students whose age is greater than 24.

2. Create an **EMPLOYEE** table with the following details:

Employee#	Name	Basic	DA	HRA	GrossPay
-----------	------	-------	----	-----	----------

Assume all constraints, enter the data and calculate DA, HRA and Gross Pay.

3. Create a table called **StudentDetails** by importing the details of students from **MS-EXCEL** Worksheet.
4. Create the **CATALOG** table with the following fields:

ISBN	Title	Author Name	Publisher	Year	Price
------	-------	-------------	-----------	------	-------

Create queries as per the following specifications;

- Get the details of all the books whose price is between 1000 and 1500.
  - Get the details of all the books whose price is between 1000 and 1500 in the descending order of the prices.
  - Get the details of all the books whose stock level is zero.
5. Create a table named **PERSON** with Name and Age as attributes. Enter the data for 10 rows.
- Modify the structure of the table to add a new column "Address".
  - Make the name and address as the Primary Key for this table.
6. Create two tables **EMPLOYEE** and **DEPARTMENT** with the following details:

Employee#	Name	Job	HireDate	Salary	DeptNo
-----------	------	-----	----------	--------	--------

**DEPARTMENT**

DeptNo	Name	Location
--------	------	----------

- Make Employee # and DeptNo the primary keys for EMPLOYEE and DEPARTMENT tables respectively.
- Make DeptNo of Employees tables, the foreign key for the DEPARTMENT tables.



- c) Display the details of Employees, Whose salary is greater than rs.5000.  
 d) Display the names of places, where different employees are working.

7. Create the **CATALOG** table with the following fields:  
**CATALOG**

ISBN	Title	Author Name	Publisher	Year	Price
------	-------	-------------	-----------	------	-------

Create queries as per the following specifications:

- a) Get the details of all the books whose year of publishing is 2005.  
 b) Get the details of all the books whose year of publishing is 2002 or 2005.  
 c) Get the details of all the books whose year of publishing is between 2000 and 2005.  
 8. Create the table **EMPLOYEE** with the following details:

**EMPLOYEE**

Employee#	Name	Job	Hire Date	Salary	DeptNo
-----------	------	-----	-----------	--------	--------

Enter details of 10 employees and create queries as per the following specifications:

- a) Modifying the Job of all employees to '**MANAGER**'.  
 b) Enhance the salary of all employees by 10%.  
 c) Delete the details of all employees, Whose salary is less then Rs.5000/-  
 9. Illustrate the use of Append Query.

10. Consider the following tables:

**EMPLOYEES**

Employee#	Name	Job	Hire Date	Salary	DeptNo
-----------	------	-----	-----------	--------	--------

**DEPARTMENT**

DeptNo	Name	Location
--------	------	----------

Enter relevant data and Create queries as per the following specification:

- a) Display name and location of the department, where ALLEN is working.  
 b) Display number and name of all the employees, who earn more than 2600 in alphabetical order by name?  
 c) Write a query that will accept a given job title and displays all rows according to that title?

11. Consider the following tables:

**EMPLOYEES**

Employee#	Name	Job	Hire Date	Salary	DeptNo
-----------	------	-----	-----------	--------	--------

**DEPARTMENT**

DeptNo	Name	Location
--------	------	----------



*[Signature]*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

- a) Write a query to duplicate the EMPLOYEE table?  
 b) Calculate the department number where more then one clerk is working?  
 c) Find the department number where more than one clerk is working?
12. Create a database named **Recruitment**, with the tables **Application**, **Interview** and **Recruitment** .The structure of the tables is given below:

**Application**

FieldName	Data Type	Validation Rules/Constraints
Cand-Id	AutoNumber	Primary Key
Name	Text(20)	
Qualification	Text(20)	MCA or Msc(cs)or BE or ME
Appl-Date	Date	Between May 15* to June 30 <sup>th</sup> 2005
Date of Birth	Date	Between 1 <sup>st</sup> January 1980 And 31 <sup>st</sup> March 1985
Percentage	Number	Between 70 and 100

**Interview**

FieldName	Data Type	Validation Rules/Constraints
Intv-id	AutoNumber	
Cand-id	AutoNumber	Foreign key to Cand-Id of Application table
Intv-Marks	Number	Between 1 and 100

**Recruitment**

FieldName	Data Type	Validation Rules/Constraints
Recruit_Id	Text (7)	
Intv_id	Auto Number	
Join_Date	Date	>Current Date +1 month AND < Current Date +2 month
Post_recruited	Text	

Set the validation rules, while creating the table and enter data into it.

13. Using the tables from Question 12, perform the following operations:  
 Create a simple query named **Interview List** to select only the **cand\_Id** from the **Applications** table with the candidates having above 70% and with the qualification as MCA or Msc (cs).  
 From the **Interview** Table, select only the Intv\_Id having Intv\_Marks of more than 70, who are to be recruited for posts. Create a look up field for **Post\_Recruited** having the values Software Engineer, System Engineer, Support Incharge, Senior Manager.
14. Using the tables from question 12, Build a form with the details of candidates selected for Interview. The details are to be automatically update to the **Interview** table.
15. Using the tables from Question 12, build a form with the details of candidates who have been recruit to various posts, using the information from the **Recruitment** table.
16. Create the **CATALOG** table with the following fields:

ISBN	Title	Author Name	Publisher	Year	Price
------	-------	-------------	-----------	------	-------

Create queries as per the following specifications:

- a) Find the name of all the books that start with the letter 'C'.  
 b) Find the details of the books with the title "TechnoTrends"

*Handwritten signature*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.**

17. Illustrate the use of Make-tables Query.
18. Create the **CATALOG** table with the following fields:

ISBN	Title	Author Name	Publisher	Year	Price
------	-------	-------------	-----------	------	-------

Create queries as per the following specifications:

- a) Find the price of the book "Rapid Application Development".
- b) Change the price of the book "software Engineering" to Rs. 500/-.
- c) Delete the record for the book named "The Internet Applications".
19. Generate a Report based on the table **Stud\_Details**, **Marks\_Details**, **Group\_Mast\_Details**, and place it in the **Students Report**, using the **Report Wizard**.

**STUD\_DETAILS**

Stud_Id	Name	DOB	Address	Group_Id
---------	------	-----	---------	----------

**GROUP\_MAST\_DETAILS**

GroupId	Group_Name
---------	------------

**Marks\_Details**

Stud_Id	PCS	BE	MM	OA	TOTAL
---------	-----	----	----	----	-------



*[Signature]*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230 Krishna Dt.,A.P.,INDIA.




**P802 – ADVANCED JAVA PROGRAMMING LAB**

	<b>Internal Marks</b>	<b>: 25</b>
<b>Lab/ Practicals : 3 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits : 2</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

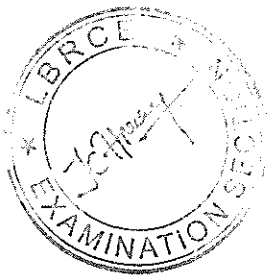
---

1. Write Java programs to demonstrate the use of various Layouts like Flow Layout, Border ,Grid, Grid bag layout and card layout.
2. Write a java program for dynamic color changing umbrella.
- 3 Implement Event handling mechanism using interface
4. Write a chatting program using TCP/IP.(Socket and server socket)
5. Write a simple client server application using RMI.
- 6 Write a program to pass parameter to a serve let
7. Implement the "Hello World!" program using JSP Struts Framework.



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**

**V-SEMESTER**



## T156 – DESIGN AND ANALYSIS OF ALGORITHMS

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 5	External Examination	: 3 Hrs

---

**UNIT - I**

**Introduction-** Algorithm, Performance Analysis-Space Complexity, Time Complexity, Asymptotic Notations-Big-Oh, Omega, Theta.**Divide and Conquer-** General Method, Binary Search, Finding Maximum and Minimum, Merge Sort.

**UNIT - II**

**The Greedy Method** - Knapsack Problem, Tree vertex splitting, Job sequencing, Minimum-cost spanning trees, Kruskal's algorithm, Optimal storage on tapes, Optimal merge pattern, Single source shortest paths.

**UNIT - III**

**Dynamic Programming** - General method, Multistage graph, All pairs shortest path, Single-source shortest path, Optimal Binary search trees, String Editing, 0/1 Knapsack, Reliability design, the traveling salesman problem, Flow shop scheduling.

**UNIT - IV**

**Basic traversal & search techniques** - Techniques for binary trees, techniques for graphs, connected components & spanning trees, Bi-connected components & DFS. **Back tracking** - The General Method, The 8-Queens Problem, Sum of subsets, Graph coloring, Hamiltonian cycle, Knapsack problem.

**UNIT - V**

**Branch and Bound** - The method, 0/1 Knapsack problem, Traveling salesperson, Efficiency considerations.**NP hard and NP Complete Problems** - Basic concepts, Cook's Theorem, NP-Hard Graph problems, NP-Hard Scheduling problem, some simplified NP-Hard problems.

**TEXT BOOK**

Ellis Horowitz, Sartaj Sahni, 'Fundamentals of Computer Algorithms', Galgotia Pubs.

**REFERENCES**

Aho, Hopcroft & Ullman, 'The Design and Analysis of Computer Algorithms', Addison Wesley.  
Thomas H.Corman et al, 'Introduction to Algorithms', PHI.



*[Signature]*  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
Mylavaram-521 230, Krishna Dt., A.P., INDIA.

## T323 – THEORY OF COMPUTATIONS

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

---

**UNIT - I**

**Fundamentals, Introduction to Finite Automata**, finite automaton model, acceptance of strings, and languages, deterministic finite automaton and non deterministic finite automaton, transition diagrams , NFA with  $\epsilon$ -transitions - Significance, acceptance of languages. Conversions and Equivalence: Equivalence between NFA with and without  $\epsilon$ -transitions, NFA to DFA conversion, minimization of FSM, equivalence between two FSM's, Finite Automata with output- Moore and Melay machines.

**UNIT - II**

**Regular Languages:** Regular sets, regular expressions, identity rules, Constructing finite Automata for a given regular expressions, Conversion of Finite Automata to Regular expressions. Pumping lemma of regular sets, closure properties of regular sets.

**UNIT - III**

**Grammar Formalism:** Regular grammars-right linear and left linear grammars, Context free grammar, derivation trees, Right most and leftmost derivation of strings, Ambiguity in context free grammars.

Minimization of Context Free Grammars.Chomsky normal form, Greiback normal form, Pumping Lemma for Context Free Languages. Enumeration of properties of CFL

**UNIT - IV**

**Push Down Automata:** Push down automata, definition, model, acceptance of CFL, Acceptance by final state and acceptance by empty state and its equivalence. Equivalence of CFL and PDA and Interco version.

**UNIT - V**

**Turing Machine:** Turing Machine, definition, model, design of TM, Computable functions, Techniques of Turing Machine Construction **Undesirability:** Properties of Recursive and Recursively Enumerable Languages; Universal Turing Machines (without any reference to undecidable problems), undesirability of posts. Correspondence problem, **The Chomsky Hierarchy:** Regular grammars, unrestricted grammars, Context sensitive languages.

**TEXT BOOKS**

1. "Introduction to Automata Theory Languages and Computation". Hopcroft H.E. and Ullman J. D. Pearson Education

2. "Introduction to Computer Theory, Daniel I.A. Cohen, John Wiley.




*(Signature)*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521 230, Krishna District, A.P. INDIA

**REFERENCES**

1. Introduction to languages and the Theory of Computation, John C Martin, TMH
2. "Elements of Theory of Computation", Lewis H.P. & Papadimitriou C.H. Pearson /PHI.
3. Theory of Computer Science – Automata languages and computation - Mishra and Chandrashekar, 2nd edition, PHI
4. Introduction to Theory of Computation –Sipser 2nd edition Thomson



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**

## T267 – OPERATING SYSTEMS

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

---

**UNIT - I**

**Introduction** Computer-System Organization, Computer-System Architecture, Operating-System Structure, Operating-System Operations, Process Management, Memory Management, Storage Management, Protection and Security, Distributed Systems, Special-Purpose Systems. **Operating-System Structures-** Operating-System Services, User Operating-System Interface, System Calls, Types of System Calls, System Programs, Operating-System Design and Implementation, Operating-System Structure, Virtual Machines, Operating-System Generation, System Boot.

**UNIT - II**

**Processes-Concept,** Process Scheduling, Operations on Processes, Inter-process Communication, Examples of IPC Systems, Communication in Client-Server Systems **Multithreaded Programming-** Multithreading Models, Thread Libraries, Threading Issues. **Process Scheduling-**Scheduling Criteria, Scheduling Algorithms, Multiple-Processor Scheduling.

**UNIT - III**

**Synchronization-**The Critical-Section Problem, Peterson's Solution, Synchronization Hardware, Semaphores, Classic Problems of Synchronization, Monitors, Synchronization Examples, and Atomic Transactions. **Deadlocks-** System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention. Deadlock Avoidance, Deadlock Detection. Recovery from deadlock.

**UNIT - IV**

**Memory Management Strategies-** Swapping, Contiguous Memory Allocation, Paging, Structure of the Page Table, Segmentation. **Virtual Memory Management-** Demand Paging, Page Replacement, Allocation of Frames, Thrashing, Memory-Mapped Files, Allocating Kernel Memory

**UNIT - V**

**File-System** - The Concept of a File, Access Methods, Directory Structure, File-System Mounting, File Sharing, Protection. **Implementing File system-** File-System Structure, File-System Implementation, Directory Implementation, Allocation Methods, Free-Space Management, Efficiency and Performance, Recovery

**TEXT BOOK**

Silberschatz & Galvin, 'Operating System Concepts', 7<sup>th</sup> edition, Wiley.

**REFERENCES**

- William Stallings-"Operating Systems"- 5<sup>th</sup> Edition - PHI  
 Charles Crowley, 'Operating Systems: A Design-Oriented Approach', Tata McGraw Hill Co., 1998 edition.  
 Andrew S.Tanenbaum, 'Modern Operating Systems', 2<sup>nd</sup> edition, 1995, PHI.



## T308 – SOFTWARE ENGINEERING

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

**UNIT - I**

**Introduction to software engineering** : The evolving role of Software, software, changing nature of software, legacy software, software myths

**Software process**: layered technology, process frame work, CMMI, process patterns, assessment, personal and team process models, process technology, product and process

**UNIT - II**

**Process models**: Prescriptive models, water fall model, incremental, evolutionary and specialized process models, unified process

Software engineering practice: communication practices, planning practices, modeling practices, construction practice and deployment.

**UNIT - III**

**Requirements Engineering** : A bridge to design and construction, RE tasks, initiating the RE process, Eliciting Requirements, developing use cases, building the analysis models, negotiating and validating requirements.

**Building the analysis model**: requirements analysis, analysis modeling approaches, data modeling concepts, OOA, scenario based modeling, flow rated modeling, class based modeling, creating a behavior model

**UNIT - IV**

**Design Engineering**: Design within the context of software engineering, design process and software quality, design concepts, design model, pattern based software design

**Creating an architectural design**: software architecture, data design, architectural styles and patterns, architectural design

**UNIT - V**

**Testing Strategies**: A strategic to software testing, strategic issues, test strategies for conventional software, object oriented software, validation testing, system testing, the art of debugging

Testing tactics : software testing fundamentals, white box testing: basis path testing, control structure testing. Black box testing, OO testing methods

**TEXTBOOK**

Roger S.Pressman, Software engineering- A practitioner's Approach, McGraw-Hill International Edition, 6<sup>th</sup> edition, 2005.

**REFERENCES**

1. Ian Sommerville, Software engineering, Pearson education, 8<sup>th</sup> edition, 2008.
2. Ali Behforooz and Frederick J Hudson, "Software Engineering Fundamentals", Oxford University Press, New Delhi, 1996.
- Stephan Schach, Software Engineering, Tata McGraw Hill, 2007
4. Pfleeger and Lawrence Software Engineering: Theory and Practice, Pearson education, second edition, 2001.



**T254 – MICROPROCESSOR AND INTERFACING**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT-I**

Architecture of 8086 Microprocessor, Special functions of General purpose registers. 8086 flag register and function of 8086 Flags, Addressing modes of 8086. Instruction set of 8086. Assembler directives, simple programs, procedures, and macros, Assembly language programs involving logical, Branch & Call instructions, sorting, evaluation of arithmetic expressions, string manipulation.

**UNIT-II**

Pin diagram of 8086-Minimum mode and maximum mode of operation, Timing diagram, Memory interfacing to 8086 (Static RAM & EPROM), Need for DMA. DMA data transfer Method, Interfacing with 8237/8257.

**UNIT-III**

8255 PPI – various modes of operation and interfacing to 8086, Interfacing Keyboard, Displays, 8279 Stepper Motor and actuators, D/A and A/D converter interfacing.

**UNIT-IV**

Interrupt structure of 8086. Vector interrupt table. Interrupt service routines. Introduction to DOS and BIOS interrupts, 8259 PIC Architecture and interfacing cascading of interrupt controller and its importance, Serial data transfer schemes. Asynchronous and Synchronous data transfer schemes, 8251 USART architecture and interfacing, TTL to RS 232C and RS232C to TTL conversion, Sample program of serial data transfer, Introduction to High-speed serial communications standards, USB.

**UNIT-V**

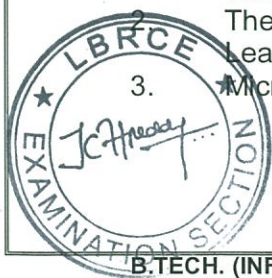
Introduction to 80286, Salient Features of 80386, Real and Protected Mode Segmentation & Paging, Salient Features of Pentium, Branch Prediction. 8051 Microcontroller Architecture, Register set of 8051, Modes of timer operation, Serial port operation, Interrupt structure of 8051, Memory and I/O interfacing of 8051.

**TEXT BOOKS**

1. Microprocessors and Interfacing 2<sup>nd</sup> revised edition – Douglas V. Hall, Tata Mc. Graw Hill.
2. The 8051 Microcontroller, 3<sup>rd</sup> Edition – Kenneta J. Ayala, Thomson Delmar learning.

**REFERENCES**

1. Advanced microprocessor and Peripherals, 2<sup>nd</sup> Edition - A.K.Ray, K.M.Bhurchandi, Tata Mc. Graw Hill.
2. The 8086/8088 family: Design Programming and Interfacing, John Uffenbeck, PHI Learning.
3. Micro Controllers: Theory and Applications Ajay V. Deshmukh, Tata Mc.Graw Hill



*Handwritten signature*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**Mylavaram-521 230, Krishna Dt., A.P., INDIA.**



**P862 – OPERATING SYSTEMS LAB**

<b>Lab/ Practicals : 3 Period/Week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Credits : 2</b>	<b>External Marks</b>	<b>: 75</b>
	<b>External Examination</b>	<b>:3 Hrs</b>

---

1. Simulate the following CPU scheduling algorithms  
a) Round Robin b) SJF C) FCFS D) Priority
2. Simulate all file allocation strategies  
a) Sequential b) Indexed c) Linked
3. Simulate MVT and MFT
4. Simulate all File Organization Techniques  
a) Single level directory b) Two level c) Hierarchical d) DAG
5. Simulate Bankers Algorithm for Dead Lock Avoidance
6. Simulate Bankers Algorithm for Dead Lock Prevention
7. Simulate all page replacement algorithms  
a) FIFO B) LRU C) LFU Etc.....
8. Simulate Paging Technique of memory management.



*(Signature)*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.**

**P854 – MICRO PROCESSORS LAB**

	<b>Internal Marks</b>	<b>: 25</b>
<b>Lab/ Practicals : 3 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits : 2</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**I. MICROPROCESSOR 8086**

1. Introduction to MASM/TASM.
2. Arithmetic operation – Multi byte Addition and Subtraction, Multiplication and Division – Signed and unsigned Arithmetic operation, ASCII – arithmetic operation.
3. Logic operations – Shift and rotate – Converting packed BCD to unpacked BCD, BCD to ASCII conversion.
4. By using string operation and Instruction prefix: Move Block, Reverse string, Sorting, Inserting, Deleting, Length of the string, String comparison.
5. DOS/BIOS programming: Reading keyboard (Buffered with and without echo) – Display characters, Strings.


**II. INTERFACING**

1. 8259 – Interrupt Controller : Generate an interrupt using 8259 timer.
2. 8279 – Keyboard Display : Write a small program to display a string of characters.
3. 8255 – PPI : Write ALP to generate sinusoidal wave using PPI.
4. 8251 – USART : Write a program in ALP to establish Communication between two processors.

**III. MICROCONTROLLER 8051**

1. Reading and Writing on a parallel port.
2. Timer in different modes.
3. Serial communication implementation.



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA**

**P818 – DESIGN AND ANALYSIS OF ALGORITHMS LAB**

Internal Marks	: 25
Lab/ Practicals : 3 Period/Week	External Marks : 75
Credits : 2	External Examination : 3 Hrs

---

**CYCLE -1**

Write a program and analyze Time Complexity and Space Complexity

- a) Merge Sort
- b) Binary Search

**CYCLE - 2**

Write a program and analyze Time Complexity and Space Complexity

- a) Knap sack problem
- b) Prim's algorithm
- c) Kruskal's problem

**CYCLE -3**

Write a program and analyze Time Complexity and Space Complexity

- a) All Pair Shortest Path problem
- b) Travelling Sales person problem

**CYCLE - 4**

Write a program and analyze Time Complexity and Space Complexity


- a) Graph Coloring
- b) 8 Queen Problem

**CYCLE - 5**

Write a program and analyze Time Complexity and Space Complexity

- a) NP-Hard Graph Problem



  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
MYLA 521 230, KURNOOR Dt.

**VI-SEMESTER**



**T145 – COMPUTER NETWORKS**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

Introduction: Use of Computer Networks- Network Hardware- Network software-Reference models Example Networks- Network Standardization. Physical Layer: The theoretical basis for Data communication- Guided Transmission Media.

**UNIT - II**

**Data link layer:** design issues- framing, error detection and correction, CRC, Elementary data link protocols- sliding window protocols. Medium Access Control Sub layer: Channel allocation problem- multiple access protocols- Ethernet- Data link layer switching.

**UNIT - III**

**Network layer:** Network layer design issues- Routing algorithms- congestion control algorithms-Quality of service- Internetworking- network layer in the Internet.

**UNIT - IV**

**Transport layer:** Transport service- Elements of transport protocols- Internet transport protocols: TCP & UDP.

**UNIT - V**

Application Layer: Domain Name System- Electronic Mail -the World Wide Web, Network Security.

**TEXT BOOK**

Andrews S. Tanenbaum; "Computer Networks"; Fourth Edition, PHI.

**REFERENCES**

1. William Stallings; "Data and Computer Communications"; seventh Edition, Pearson Education.
2. Behrouz A .Fourouzan; "TCP/IP Protocol Suite"; Fourth Edition, Tata McGraw-Hill.
3. James F.Kurose, Keith W.ROSS; "Computer Networking A Top-Down Approach featuring the Internet"; Pearson Education.



*[Signature]*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**

## T265 – OBJECT ORIENTED ANALYSIS AND DESIGN

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

---

**UNIT - I**

**Introduction to UML** : Importance of modelling, principles of modelling, object oriented modelling, conceptual model of the UML, Architecture, Software Development Life Cycle.

**UNIT - II**

**Basic Structural Modelling**: Classes, Relationships, common Mechanisms, and diagrams.  
**Advanced Structural Modelling**: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.

**UNIT - III**

**Class & Object Diagrams**: Terms, concepts, modelling techniques for Class & Object Diagrams.

**UNIT - IV**

**Basic Behavioural Modelling-I** :Interactions, Interaction diagrams Use cases, Use case Diagrams, Activity Diagrams

**UNIT - V**

**Advanced Behavioural Modelling**: Events and signals, state machines, processes and Threads, time and space, state chart diagrams.

**Architectural Modelling**: Component, Deployment, Component diagrams and Deployment diagrams.

**TEXT BOOK**

Grady Booch, James Rumbaugh, Ivar Jacobson : The Unified Modelling Language User Guide, Pearson Education.

**REFERENCES**

1. Meilir Page-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education.
2. Pascal Roques: Modeling Software Systems Using UML2, WILEY- Dreamtech India Pvt. Ltd.
3. Atul Kahate: Object Oriented Analysis & Design, The McGraw-Hil Companies.
4. Applying UML and Patterns: An introduction to Object – Oriented Analysis and Design and Unified Process, Craig Larman, Pearson Education.



*(Signature)*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

## T340 – WEB TECHNOLOGIES

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

**UNIT - I**

**HTML Common tags-** List, Tables, images, links, forms, Frames; Cascading Style sheets; Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script

**UNIT - II**

**XML:** Document type definition, XML Schemas, Document Object model, Presenting XML, Using XML Processors: DOM and SAX. **Java Beans:** Introduction to Java Beans, Advantages of Java Beans, Persistence, Java Beans API, Introduction to EJB's.

**UNIT - III**

**Servlets:** Introduction to Servlets: Lifecycle of a Servlet, The Servlet API, The javax.servelet Package, Servlet parameters, Initialization parameters. The javax.servelet HTTP package, Http Request & Responses, Cookies- Session Tracking, Security Issues.

**UNIT - IV**

**Introduction to JSP:** Introduction to JSP, Components of JSP, Implicit objects. Conditional Processing – Displaying Values Using an Expression to Set an Attribute, Declaring Variables and Methods Error Handling and Debugging Sharing Data between JSP.

**UNIT - V**

**Database Access:** Database Programming using JDBC, Javax.sql.\* package, Accessing a Database from a JSP Page, Application – Specific Database Actions, Deploying JAVA Beans in a JSP Page.

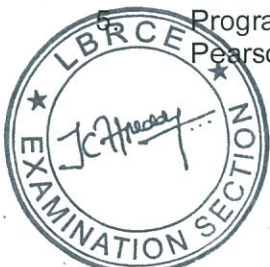
**Struts Framework:** Introduction to Struts, Overview of MVC Design Pattern, Struts main Components, Controller components (Action Servlet, Request Processor, Action, Action Mapping, Action Form Beans, Struts Configuration files.

**TEXT BOOK**

Web Programming, building internet applications, Chris Bates 2nd edition, WILEY  
Dreamtech.(UNITS-1,2,3,4)

**REFERENCES**

1. Jakarta Struts Cookbook , Bill Siggelkow, S P D O'Reilly (UNIT-5)
2. Programming world wide web-Sebesta, Pearson
3. Core SERVLETS ANDJAVASERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty - Hall and Larry Brown Pearson
4. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia.  
Programming world wide web-Sebesta,Pearson Java Server Pages, Pekowsky, Pearson.



*(Signature)*  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

**T152 – DATA MINING AND DATA WAREHOUSING**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT-I**

Introduction, Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Implementation, Further Development, Data Warehousing to Data Mining

**UNIT-II**

Why Preprocessing, Cleaning, Integration, Transformation, Reduction, Discretization, Concept Hierarchy Generation, Data Mining Primitives, Query Language, Graphical User Interfaces, Architectures, Concept Description, Data Generalization, Characterizations, Class Comparisons, Descriptive Statistical Measures

**UNIT-III**

Association Rule Mining, Single-Dimensional Boolean Association Rules from Transactional Databases, Multi-Level Association Rules from Transaction Databases

**UNIT-IV**

Classification and Prediction, Issues, Decision Tree Induction, Bayesian Classification, Association Rule Based, Other Classification Methods, Prediction, Classifier Accuracy, Cluster Analysis, Types of data, Categorisation of methods, Partitioning methods, Outlier Analysis.

**UNIT-V**

Multidimensional Analysis and Descriptive Mining of Complex Data Objects, Spatial Databases, Multimedia Databases, Time Series and Sequence Data, Text Databases, World Wide Web, Applications and Trends in Data Mining

**TEXTBOOK**

J. Han, M. Kamber, "Data Mining: Concepts and Techniques", Harcourt India / Morgan Kauffman, 2001.

**REFERENCES**

1. SamAnahory,DennisMurry, "DataWarehousing in the real world", Pearson Education 2003.
2. DavidHand,HeikkiManila,PadhraicSymth,"Principles of Data Mining", PHI 2004.
3. W.H.Inmon,"Building the Data Warehouse", 3rd Edition, Wiley, 2003.
4. Paulraj Ponniah, "Data Warehousing Fundamentals", Wiley-Interscience Publication, 2003.



*[Signature]*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM - 521 230, MYLAVARAM**



## T245 – MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

**UNIT - I**

**Introduction to Managerial Economics:** Definition, Nature and Scope of Managerial Economics–Demand Analysis: Demand Determinants, Law of Demand and its exceptions, Types of demand. Definition, Types Measurement and Significance & types of Elasticity of Demand. Demand Forecasting, Factors governing demand forecasting, methods of demand forecasting (survey methods, statistical methods, expert opinion method, test marketing, controlled experiments, judgmental approach to demand forecasting)

**UNIT - II**

**Theory of Production and Cost Analysis:** Production Function – Isoquants and Iso-costs, MRTS, Least Cost Combination of Inputs. Laws of Returns, Internal and External Economies of Scale.**Cost Analysis:** Cost concepts, Opportunity cost, Fixed vs. Variable costs, Explicit costs Vs. Implicit costs, Out of pocket costs vs. Imputed costs, accounting cost Vs economic cost , Past cost Vs future cost. Break-even Analysis (BEA)-Determination of Break-Even Point (simple problems)- Managerial Significance and limitations of BEA.

**UNIT - III**

**Introduction to Markets & Pricing Policies:**

**Market structures:** Types of competition, Features of Perfect competition, Monopoly and Monopolistic Competition. Price-Output Determination in case of Perfect Competition and Monopoly. **Objectives and Policies of Pricing- Methods of Pricing:** Cost Plus Pricing, Marginal Cost Pricing, Sealed Bid Pricing, Going Rate Pricing, Limit Pricing, Market Skimming Pricing, Penetration Pricing, Two-Part Pricing, Block Pricing, Bundling Pricing, Peak Load Pricing, Cross Subsidization. **Business Organizations:** Characteristic features of Business, Features of merits & demerits of Sole Proprietorship, Partnership, Joint Stock Company and Public Enterprises.

**UNIT - IV**

**Capital and Capital Budgeting:**Capital and its significance, Types of Capital, Estimation of Fixed and Working capital requirements, Components of working capital & Factors determining the need of working capital. Methods and sources of raising finance.Nature and scope of 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:** Double-Entry Book Keeping, Journal, Ledger, Trial Balance- Final Accounts with simple adjustments. **Financial Analysis through ratios:** Ratios, Importance, types (Current Ratio and quick ratio), Activity Ratios (Inventory turnover ratio and Debtor Turnover ratio), Capital structure Ratios (Debt- Equity ratio, Interest Coverage ratio), and Profitability ratios (Gross Profit Ratio, Net Profit ratio, Operating Ratio, P/E Ratio and EPS).



*(Handwritten Signature)*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521 230, Krishna Dt., A.P., INDIA.


**TEXT BOOK**

Aryasri: Managerial Economics and Financial Analysis, 2/e, TMH, 2005.

**REFERENCES**

1. Varshney & Maheswari: Managerial Economics, Sultan Chand, 2003.
2. Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi.
3. Lipey & Chrystel, Economics, Oxford university Press.
4. Domnick Salvatore: Managerial Economics in a Global Economy, 4<sup>th</sup> Edition, Thomson.



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt., A.P., INDIA**

**T312 – SOFTWARE REQUIREMENTS AND ESTIMATIONS**

<b>Lecture</b>	<b>: 3 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

**Introduction to Requirements Engineering:** Software Requirements Definition – Levels of Requirements – Requirement Engineering - Requirements Development and Management – When Bad Requirements happen to Nice People - Benefits from a High quality requirements process – Characteristics of Excellent Requirements– Functional and Nonfunctional Requirements –Good Practices for Requirements Engineering

**UNIT - II**

**Requirements Elicitation, Analysis and Documentation :** Requirements Elicitation Guidelines – Requirements Elicitation Techniques – Requirement Analysis – Requirement Analysis Models – Requirement Analysis and Negotiation – Requirements Documentation – Characteristics of Software Requirements Specification Document – Contents of SRS – Common Problems with SRS

**UNIT - III**

**Requirements Validation and Management :** Validation objectives –Review the Requirements – The Inspection Process – Requirements Review Challenges – Testing the Requirements – Defining Acceptance Criteria – Requirement Validation Guidelines  
Requirements Management – Requirement Traceability – Database to Manage Requirements – Change Management Policies – Software Requirements and Risk Management

**UNIT - IV**

**Software Size Estimation :** Software Estimation –Size Estimation – Two views of Sizing – Function Point Analysis – Mark II FPA – Full Function Points - LOC Estimation – Conversion between Size Measures

**UNIT - V**

**Effort – Schedule, Cost Estimation & Tools:** What is Productivity? – Estimation Factors – Approaches for Effort and Schedule Estimation – COCOMOII – Putnam Estimation Model – Algorithmic Models – Cost Estimation

**Tools:** Desirable Features of Requirements Management Tools – Some Requirements Management Tools Available –Desirable Features in Software Estimation Tools – Some Software Estimation Tools Available

**TEXT BOOKS**

1. Software Requirements, Karl E. Wiegers, Word Power Publishers, 2000
2. Software Requirements and Estimation, Rajesh Naik , Swapna Kishore, TMH




*[Signature]*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA**

**REFERENCES**

1. Requirements Engineering: A Good practice Guide, Ian Sommerville, Pete Sawyer, Pearson, 2004
2. Managing Software Requirements A Use Case Approach, 2/e, Dean, Don , Addison-Wesley, 2003
3. Requirements Engineering and Rapid Development, Ian Graham, Addison-Wesley, 1998
4. Mastering the Requirements Process. 2/e, S.Robertson, J.Robertson, Pearson, 2006



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
Mylavaram-521 230, Krishna Dt., A.P.

**T144 – COMPUTER GRAPHICS**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT-I**

**Introduction:** Usage of Graphics and their applications, Presentation Graphics-Computer Aided Design-Computer Art- Entertainment- Education and Training-Visualization- Image Processing- Graphical User Interfaces. Over view of Graphics systems: Video Display Devices- Raster Scan systems-random scan systems-Graphics monitors and workstations-Input devices.

**UNIT-II**

**Output primitives:** Points and Lines-Line Drawing Algorithms- Loading the Frame buffer-Line function- Circle- Generating Algorithms- Ellipse Generating Algorithms-Other Curves-Parallel Curve Algorithms-Curve Functions-Pixel Addressing- Filled Area Primitives-Filled Area Functions.

**UNIT-III**

**Two Dimensional Geometric Transformations:** Basic Transformations- Matrix Representations - Homogeneous Coordinates - Composite Transformations - Other Transformations-Transformations between Coordinate Systems - Affine Transformations-Transformation Functions- Raster methods for Transformation.

**UNIT-IV**

**Two Dimensional Viewing:** The viewing Pipeline-Viewing Coordinate Reference Frame-Window-to-Viewport Coordinate Transformation-Two Dimensional Viewing Functions-Clipping Operations-Point Clipping-Line Clipping-Polygon Clipping.

**UNIT - V**

**Three Dimensional Concepts and Object representations:** 3D display methods-3DGraphics-Polygon Surfaces- Curved Lines and Surfaces- Quadratic Surfaces, Three Dimensional Geometric and Modeling Transformations: Translation-Rotation-scaling-Other Transformations-Composite Transformations-3D Transformation Functions-Modeling and Coordinate Transformations.

**TEXT BOOK**

1. Donald Hearn & M. Pauline Baker, "Computer Graphics C Version", Pearson Education, New Delhi, 2004 (Chapters 1 to 12 except 10-9 to 10-22 of the Text book)

**REFERENCES**

1. David F. Rogers; "Procedural Elements for Computer Graphics"; TMH
2. J. D. Foley, S. K Feiner, A Van Dam F. H John; "Computer Graphics: Principles & Practice in C"; Pearson
3. Francis S Hill Jr; "Computer Graphics using Open GL"; Pearson Education, 2004.



*Handwritten signature*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**Mylavaram-521 230, Krishna Dt., A.P., INDIA.**

## T258 – MOBILE COMMUNICATIONS

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	:	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

---

UNIT - I

**The Cellular Concept:** Cellular Architecture, The First Generation Cellular Systems, Second Generation Cellular Systems, Third Generation Cellular Systems, Wireless Local Loop, IEEE 802.16

UNIT - II

**Ad Hoc Wireless Networks:** Introduction, Issues in Ad Hoc Wireless networks. **Medium Access Control:** Issues in MAC, Design Goals of MAC, Classification of MAC protocols. **Contention Based MAC Protocols:** MACAW, Floor Acquisition Multiple Access Protocol, Busy Tone Multiple Access protocols. **Reservation Mechanisms:** D-PRMA, CATA. **Scheduling Mechanisms:** DPS

UNIT - III

**Routing in Ad hoc Wireless networks:** Issues in Routing, Classification of Routing Protocols. **Table Driven:** DSDV, WRP, STAR. **On Demand:** AODV, DSR, LAR. **Hybrid Routing:** ZRP, CEDAR. **Hierarchical Routing:** HSR, FSR.

UNIT - IV

**Hybrid Wireless Networks:** Introduction. **Next Generation Hybrid Network Architectures:** MCN, HWN, iCAR, SOPRANO, TWILL, A-GSM, UCAN, Open Issues in Next Generation Hybrid Architectures, Pricing in Hybrid Wireless Networks.

UNIT - V

**Recent Advances:** Ultra Wide Band Radio Communication (UWB), Wireless Fidelity Systems, Optical Wireless Networks, Multimode 802.11.

TEXT BOOK

C. Siva Ram Murthy, B.S. Manoj, " Ad Hoc Wireless Networks: Architectures and Protocols", Pearson Education, 2004

REFERENCES

1. Stefano Basagni, Marco Conti, Silvia Giordano, Ivan Stojmenović, "Mobile ad hoc networking", IEEE Press, Wiley InterScience, 2004
2. Garg, "Wireless Networks Evolution: 2G to 3G", Pearson Education, 2002
3. Rappaport, " Wireless Communications: Principles and Practice" Second Edition, Pearson Education, 2009



*(Signature)*  
**Head of the Department**  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521 230, Krishna Dt., A.P., INDIA

**T122 – ARTIFICIAL INTELLIGENCE**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

**Introduction:** Overview of Artificial intelligence- Problems of AI, AI technique, Tic - Tac - Toe problem.

**Intelligent Agents:** Agents & environment, nature of environment, structure of agents, goal based agents, utility based agents, learning agents.

**Problem Solving:** Problems, Problem Space & search: Defining the problem as state space search, production system, problem characteristics, and issues in the design of search programs.

**UNIT - II**

**Search techniques:** Solving problems by searching: problem solving agents, searching for solutions; uniform search strategies: breadth first search, depth first search, depth limited search, bi-directional search, comparing uniform search strategies.

**Heuristic search strategies:** Greedy best-first search, A\* search, memory bounded heuristic search, local search algorithms & optimization problems, Hill climbing search, simulated annealing search, local beam search, genetic algorithms, constraint satisfaction problems, local search for constraint satisfaction problems.

**UNIT - III**

**Knowledge:** Knowledge representation issues, representation & mapping, approaches to knowledge representation, issues in knowledge representation.

**Using predicate logic:** Representing simple fact in logic, representing instant & ISA relationship, computable functions & predicates, resolution, natural deduction.

**UNIT - IV**

**Representing knowledge using rules:** Procedural verses declarative knowledge, logic programming, forward verses backward reasoning, matching, control knowledge.

**UNIT - V**

**Reasoning:** Probabilistic reasoning: Representing knowledge in an uncertain domain, the semantics of Bayesian networks, Dempster-Shafer theory, Fuzzy sets & fuzzy logics.

**TEXT BOOK**

Artificial Intelligence, Ritch & Knight, TMH

**REFERENCES**

1. Artificial Intelligence A Modern Approach, Stuart Russell & Peter Norvig Pearson
2. Introduction to Artificial Intelligence & Expert Systems, Patterson, PHI
3. Artificial Intelligence A new Synthesis, Neil J. Nilsson, Morgan Kaufman
4. Artificial Intelligence, John. F. Lugar, Pearson Ed.
5. Artificial Intelligence, Winston, Pearson Ed.



*(Signature)*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**Mylavaram-521 230, Krishna Dt., A.P., INDIA.**

## P881 – WEB TECHNOLOGIES LAB.

Lab.	: 3 Periods/week	Internal Marks	: 25
		External Marks	: 75
Credits	: 2	External Examination	: 3 Hrs

<u>S. No.</u>	<u>Program(s)</u>
1	Design the following static webpages required for an online book store website. Homepage Login Page Catalogue Page
2	Design the following static webpages required for an online book store website. Cart Page Registration Page
3	Design a webpage using CSS which includes the following styles. Using different font, styles Set a back ground image for both page and single elements on the page Control the background repetition of image with background repeat property Define styles for link as visited, active, hover & link Work with layers Add a customized cursor
4	Write a JavaScript to validate the fields of a registration page.
5	Create an XML document for maintaining a CD catalog Display XML document data using HTML Display XML data using XSL
6	Write a program to create a Java Bean for user login management component
7	Write program to Install Apache Tomcat Web Server and deploy a static website & Access it. Install Apache Tomcat Server on port number 8080 Deploy html pages in a webserver Access static website from a webserver
8	Write a program to create a Servlet to AUTHENTICATE user details
9	Write a program to implement session management concept in Servlets
10	Write a program to access a database using JDBC & Servlets
11	Write a Program to print multiplication table for any number upto required level using JSP

Write a program to display user credentials using useBean tag of JSP



*(Signature)*  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
Mylavaram-521 230, Krishna Dt., A.P., INDIA



**P813 – COMPUTER NETWORKS AND OOAD LAB**

	<b>Internal Marks</b>	<b>: 25</b>
<b>Lab/ Practicals : 3 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits : 2</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**COMPUTER NETWORKS**

1. Implement the data link layer framing methods such as character, character stuffing and bit stuffing.
2. Write a program for Hamming Code generation for error detection and correction.
3. Implement on a data set of characters the three CRC polynomials – CRC 12, CRC 16 and CRC CCIP .
4. Implement Dijkstra 's algorithm to compute the Shortest path thru a graph.
5. Take an example subnet graph with weights indicating delay between nodes. Now obtain Routing table at each node using distance vector routing algorithm
6. Take an example subnet of hosts . Obtain broadcast tree for it.
7. Write a program for frame sorting technique used in buffers.
8. Write a program for distance vector algorithm to find suitable path for transmission.
9. Write a program for congestion control using Leaky bucket algorithm.
10. Running a *Telnet* Session
11. Running an FTP Session
12. ifconfig
13. ping

**OOAD**

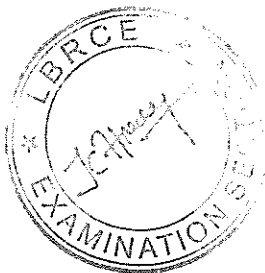
The student should take up the following case studies which are mentioned below, and Model it in different views i.e. Use case view, logical view, component view, Deployment view, Database design, forward and Reverse Engineering, and Generation of documentation of the project.

1. Unified Library application
2. Automatic Teller Machine(ATM)
3. Student Admission Procedure
4. Online Book Shopping
5. Hospital Management System
6. Cellular Network



*[Signature]*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**Mylavaram-521 230, Krishna Dt.,A.P.,INDIA**

**VII-SEMESTER**



**T223 – INFORMATION SECURITY**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security, Internet Standards and RFCs Conventional Encryption Principles, Conventional encryption algorithms(DES, Triple DES), cipher block modes of operation(CBC,CFB), location of encryption devices, key distribution Approaches of Message Authentication, Secure Hash Functions and HMAC.

**UNIT - II**

Public key cryptography principles, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management, Kerberos, X.509 Directory Authentication Service.

**UNIT - III**

Email privacy: Pretty Good Privacy (PGP) and S/MIME. IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations

**UNIT - IV**

Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET).

**UNIT - V**

Intruders, Viruses and related threats. Firewall Design principles, Trusted Systems


**TEXT BOOK**

Network Security Essentials (Applications and Standards) by William Stallings Pearson Education.

**REFERENCES**

1. Cryptography and network Security, Third edition, Stallings, PHI/Pearson
2. Principles of Information Security, Whitman, Thomson.
3. Network Security: The complete reference, Robert Bragg, Mark Rhodes, TMH
4. Introduction to Cryptography, Buchmann, Springer.



  
**Head of the Department**  
**Department of Information Technology**  
**akireddy Bali Reddy College of Engineering**  
**LAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**

## T138 – CLOUD COMPUTING

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 5	External Examination	: 3 Hrs

---

**UNIT - I**

**Foundations:** Introduction to Cloud Computing, Migrating into a Cloud Enriching the 'Integration as a Service' Paradigm for the Cloud Era, Cloud Computing for Enterprise Applications

**UNIT- II**

**Infrastructure as a Service (IaaS):** Virtual Machines Provisioning and Migration Services, On the Management of Virtual Machines for Cloud Infrastructures, Enhancing Cloud Computing Environments using a Cluster as a Service, Secure Distributed Data Storage in Cloud Computing

**UNIT - III**

**Platform and Software as a Service (Aphasias):** Aneka – Integration of Private and Public Clouds, Comet Cloud: An Autonomic Cloud Engine, T-Systems' Cloud-Based Solutions for Business Applications, Workflow Engine for Clouds, Understanding Scientific Applications for Cloud Environments, The Map Reduce Programming Model and Implementations

**UNIT - IV**

**Monitoring and Management:** An Architecture for Federated Cloud Computing, SLA Management in Cloud Computing: A Service Provider's Perspective, Performance Prediction for HPC on Clouds

**UNIT - V**

**Applications:** Architecting Applications for the Amazon Cloud, Massively Multiplayer Online Game Hosting on Cloud Resources, Building Content Delivery Networks Using Clouds, Resource Cloud Mashups

**TEXT BOOK**

"Cloud Computing: Principles and Paradigms", Raj Kumar Bunya, James Bromberg, Andrej Kosciusko, Wiley, New York, USA



*(Signature)*  
**Head of the Department**  
 Department of Information Technology  
 Lakireddy Bali Reddy  
 School of Engineering  
 MYLAVARAM-521 230, Krishna Dt., A.P., INDI

**T303 – SENSOR NETWORKS**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

**UNIT - I**

HIPERLAN: Protocol Architecture, Physical Layer, Channel Access Control Sub-layer, MAC Sub-layer, Information Bases and Networking. WLAN: Infrared vs. Radio Transmission, Infrastructure and Ad Hoc Networks, IEEE 802.11. Bluetooth: User Scenarios, Physical Layer, MAC layer, Networking, Security, Link Management. GSM: Mobile Services, System Architecture, Radio Interface, Protocols, Localization and calling, Handover, Security, and New Data Services. Mobile Computing (MC): Introduction to MC, Novel Applications, Limitations, and Architecture.

**UNIT - II**

Motivation for a Specialized MAC (Hidden and Exposed Terminals, Near and Far Terminals), SDMA, FDMA, TDMA, CDMA. MAC Protocols for GSM, Wireless LAN (IEEE802.11), Collision Avoidance (MACA, MACAW) Protocols.

**UNIT - III**

IP and Mobile IP Network Layers, Packet Delivery and Handover Management, Location Management, Registration, Tunneling and Encapsulation, Route Optimization, DHCP. Conventional TCP/IP Protocols, Indirect TCP, Snooping TCP, Mobile TCP, Other Transport Layer Protocols for Mobile Networks.

**UNIT - IV**

Basics of Wireless Sensors and Applications, The Mica Mote, Sensing and Communication Range, Design Issues, Energy consumption, Clustering of Sensors, Applications

**UNIT - V**

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.


**Text Books**

1. Mobile Communications, Jochen Schiller, Addison-Wesley, Second Edition, 2004 (units -1,2,3)
2. Ad Hoc and Sensor Networks, Theory and Applications, Carlos Corderio Dharma P. Aggarwal, World Scientific Publications / Cambridge University Press, March 2006 (unit-4 and Unit-5)

**REFERENCES**

1. Mobile Computing, Raj Kamal, Oxford University Press, 2007, ISBN: 0195686772
2. Adhoc Wireless Networks: Architectures and Protocols, C.Siva Ram Murthy, B.S.Murthy, Pearson Education, 2004



  
**Head of the Department**  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram, Krishna Dt., A.P., INDIA

## T314 – SOFTWARE TESTING METHODOLOGIES

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

---

**UNIT - I**

**Introduction:** Purpose of Testing Dichotomies, model for testing, consequences of bugs, Taxonomy of bugs

**UNIT - II**

**Flow Graphs and Path testing:** Basic concepts , Predicates, Path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing. **Transaction flow testing:** Transaction flows, transaction flow testing techniques. **Data flow testing:** Basics of Data flow testing, strategies in dataflow testing, application of dataflow testing

**UNIT - III**

**Domain Testing:** Domains and paths, Nice and ugly domains, domain testing, domains and interfaces testing, domains and testability

**UNIT - IV**

**Paths, path products and Regular expressions:** Path products & Path expression, reduction procedure, applications, regular expressions and flow anomaly detection. **Logic Based Testing:** Overview, decision tables, path expressions, kv charts, specifications

**UNIT - V**

**State, state graphs and Transition Testing:** State Graphs, good and bad state graphs, state testing, testability tips. **Graph matrices and Application:** Motivational overview, matrix of graph relations, power of a matrix, node, node reduction algorithm, building tools.

**TEXT BOOK**

Baris Beizer; "Software Testing Techniques"; International Thomson computer Press, Second edition.

**REFERENCES**

1. Brain Marick; "The Craft of Software Testing"; Prentice Hall Series in innovative technology.
  2. Renu Rajani Pradeep Oak; "Software Testing, Effective methods, Tools and Techniques"; TMHI
  3. Software Testing Tools – Dr.K.V.K.K.Prasad, Dreamtech.
  4. Software Testing in the Real World – Edward Kit, Pearson.
- Effective methods of Software Testing, Perry, John Wiley.



*(Signature)*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

**T101 – ADVANCED COMPUTER ARCHITECTURE**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>:</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT- I**

Fundamentals of computer design.-technology trends-cost-measuring and reporting Performance. Quantitative principles of computer design.

**UNIT - II**

Instruction set principles and examples- classifying instruction set- memory addressing- type and size of Operands- addressing modes for signal processing-operations in the instruction set- instructions for control Flow- encoding an instruction set.-the role of compiler

**UNIT- III**

Instruction level parallelism (ILP)- over coming data hazards- reducing branch costs -high performance instruction delivery- hardware based speculation- ILP software approach- compiler techniques- static branch protection - VLIW approach

**UNIT- IV**

Memory hierarchy design- cache performance- reducing cache misses penalty and miss rate - virtual memory- protection and examples of VM.

**UNIT- V**

Multiprocessors and thread level parallelism- symmetric shared memory architectures- distributed shared memory- Synchronization- multi threading.

**TEXT BOOK**

Computer Architecture A quantitative approach 3rd edition  
John L. Hennessy & David A. Patterson Morgan Kufmann (An Imprint of Elsevier)

**REFERENCES**

1. Advanced Computer Architectures, Dezso Sima, Terence Fountain, Peter Kacsuk, Pearson.
2. Parallel Computer Architecture, A Hardware / Software Approach, David E. Culler, Jaswinder Pal singh with Anoop Gupta, Elsevier
3. H. Stone.Advanced Computer Architecture, Addison Wesley, 1989.
4. H. J. Siegel.Interconnection Network for Large Scale Parallel Processing, McGraw Hill, 1990.
5. K. Hwang and F. A. Briggs.Computer Architecture and Parallel Processing, McGraw Hill, 1985



*[Signature]*  
Head of the Department  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
Mylavaram-521 230, Krishna Dt.,A.P.,INDIA

## T307 – SOFTWARE DESIGN METHODOLOGIES

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

**UNIT - I**

**Basic concepts of Design:** Introduction, Characteristics of design activities, Essential elements of designs.

**Design Quality:** Software quality models: Hierarchical models, Relational models The effect of design on software quality: efficiency, Correctness and reliability, Portability, Maintainability, Reusability, Interoperability Quality attributes of software design: Witt, Baker and Merritt's design objectives, Parnas and Weiss's requirements of good designs, Quality of development process.

**Design Principles:** Basic rules of software design: Causes of difficulties, Vehicles to overcome difficulties, Basic rules of software design. Design processes: The context of design in software development process, Generic design process: descriptive models. Structure of software design methods.

**UNIT - II**

**Software Architecture:** The notion of architecture: Architecture in the discipline of buildings, Architecture in the discipline of computer hardware, the general notion of architecture. The notion of software architecture: Prescriptive models, Descriptive models, Multiple view models, the roles of architecture in software design. Software architectural style: Introductory examples, the notion of software architectural style.

**Description of Software Architectures:** The visual notation: Active and passive elements, Data and control Relationships, Decomposition/Composition of architectural elements.

**UNIT - III**

**Typical Architectural Styles:** Data flow: The general data flow styles, the pipe- and filter sub-style, the batch sequential processing sub-style. Independent components: the general independent components style, the event-based implicit invocation systems sub-style Call and return: The general call and return style, the layered systems sub-style, data abstraction: the abstract data type and object-oriented sub-style Data-centered style, Virtual machine Architecture.


**Using Styles in Design:** Choices of styles, Combinations of styles: Hierarchical heterogeneous styles, simultaneously heterogeneous styles, locationally heterogeneous styles

**UNIT - IV**

**Architectural Design space:** Theory of design spaces: Structure of design spaces, solving design synthesis and analysis problems. Design space of architectural elements: Behavior features, static features, Static features. Design space of architectural styles: Characteristic features of architectural styles, Classification of styles.

**Scenario-Based Analysis and Evaluation:** The concept of scenario Scenarios for evaluating modifiability, Scenarios for evaluating Performance, Scenarios for evaluating reusability



  
**Head of the Department**  
**Department of Information Technology**  
**akireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**



## UNIT - V

**Analysis and Evaluation of Modifiability: SAAM Method:** The input and output, the process (Activities in SAAM Analysis)

**Quality Trade- Off Analysis: ATAM Method** ATAM analysis process, ATAM analysis activities

**Model-Based Analysis: HASARD Method,** Representation of quality models, construction of quality models.


## TEXT BOOK

Software Design Methodology: From Principles to Architectural Styles , Hong zhu, Elsevier,2009

## REFERENCES

1. Software Architecture: Perspectives on an Emerging discipline, Shaw, M.,Garlan, PEA, 2008.
2. Software Architecture in Practice, Bass, L., Clements P,Kazman, PEA,2003
3. Tutorial on Software Design Techniques, Freeman, Wasserman, A.I.(Es), IEEE, 1980



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**

## T413 – IMAGE PROCESSING

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

UNIT-I

**Introduction:** Examples of fields that use digital image processing, fundamental steps in digital image processing, components of image processing system.. Digital Image Fundamentals: A simple image formation model, image sampling and quantization, basic relationships between pixels

UNIT - II

**Image enhancement in the spatial domain:** Basic gray-level transformation, histogram processing, enhancement using arithmetic and logic operators, basic spatial filtering, smoothing and sharpening spatial filters, combining the spatial enhancement methods ( p.nos 76-141).

UNIT - III

**Image restoration:** A model of the image degradation/restoration process, noise models, restoration in the presence of noise–only spatial filtering, Weiner filtering, constrained least squares filtering,  
**Color Image Processing:** Color fundamentals, color models, pseudo color image processing, basics of full–color image processing, color transforms, smoothing and sharpening, color segmentation

UNIT - IV

**Morphological Image Processing:** Preliminaries, dilation, erosion, open and closing, hit or miss transformation, basic morphologic algorithms

**Image Segmentation:** Detection of discontinuous, edge linking and boundary detection, thresholding, region–based segmentation

UNIT - V

**Object Recognition :** Patterns and patterns classes, recognition based on decision–theoretic methods, matching, optimum statistical classifiers, neural networks, structural methods – matching shape numbers, string matching

TEXT BOOK

Digital Image Processing, Rafeal C.Gonzalez, Richard E.Woods, Second Edition, Pearson Education/PHI.

REFERENCES

1. Image Processing, Analysis, and Machine Vision, Milan Sonka, Vaclav Hlavac and Roger Boyle, Second Edition, Thomson Learning.
  2. Introduction to Digital Image Processing with Matlab, Alasdair McAndrew, Thomson Course Technology
  3. Computer Vision and Image Processing, Adrian Low, Second Edition, B.S.Publications
- Digital Image Processing, William K. Prat, Wily Third Edition



*[Signature]*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521 230, Krishna Dt.,A.P.,INDIA.

## T137 – CLIENT SERVER TECHNOLOGIES

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

---

UNIT-I

**Basic Concepts:** Characteristics - File Server - Database Server- Transaction Server – Groupware Server - Object Server – Middleware, Client /Server Building Blocks.

**Client Server Operating System:** Anatomy of server program - Server needs from OS – Server Scalability - Client Anatomy - Client need from OS, The OS Wars- Client OS trends - Server OS trends.

UNIT-II

**Client Server Middleware:** NOS Middleware – Transparency - Global Directory Services - Distributed Time Service - Distributed Security Service

**RPC, Messaging and Peer to Peer – Peer:** Peer to Peer Communication, RPC, Messaging and Queuing

MOM Vs RPC, NOS- NOS trends, Evolution of the NOS, DCE.

UNIT-III

**SQL Database Server:** Architecture, Stored Procedure, Triggers and Rules, Stored Procedures versus Static and Dynamic SQL, SQL Middleware.

**Data Warehouses:** Elements, Warehouse Hierarchies- Replication versus Direct Access, Mechanics Of Data Replication – Cleansing and Transforming the Raw Data -EIS/DSS.

UNIT-IV

**Client Server Transaction Processing:** ACID properties - Transaction Models.

**TP Monitor:** TP Monitors, Benefits, OTM, TP-Lite or TP-Heavy: TP-Lite versus TP-Heavy, TP Monitors: Trends, the Players.

**Client/Server Groupware:** What is Groupware, The Components of Groupware?

UNIT-V

**Client Server with Distributed Objects:** Distributed Objects and Components - From Distributed Objects to Components, 3-Tier Client/Server, Object-Style, CORBA -Distributed objects, The Intergalactic ORB, Object Services, Common Facilities, Business Objects, Next Generation

**Client Server and Internet-Web** Client Server interactive era– 3 Tier client Server web style, CGI Server side of the web.

TEXT BOOK

Robert Orfali, Dan Harkey and Jerri Edwards, “Essential Client Server Survival Guide”, John Wiley & Sons, Third edition, 2007.




*[Signature]*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.

**REFERENCES**

1. Goldman, James E Rawles, Philip T Mariga and Julie R, "Client Server Information Systems: A Business Oriented Approach", Wiley, 1999.
2. Eric Johnson, Susan McDermott, "The Complete Guide to Client Server Computing", Prentice Hall, 2001.
3. Smith and Steven L Guengerich, "Client Server Computing", Prentice-Hall of India, 2002.



  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**Mylavaram-521 230, Krishna Dt.,A.P.,INDIA.**

## T190 – EMBEDDED SYSTEMS

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 4	External Examination	: 3 Hrs

---

**UNIT - I**

**EMBEDDED SYSTEM INTRODUCTION:** Embedded systems overview, design challenge, processor technology, IC technology, Design Technology, Trade-offs. Single purpose processors RT-level combinational logic, sequential logic (RTlevel), custom single purpose processor design (RT-level), optimizing custom single purpose processors.

**UNIT - II**

**STATE MACHINE AND CONCURRENT PROCESS MODELS :** Introduction, models Vs. languages, finite state machines with data path model (FSMD), using state machines, program state machine model (PSM), concurrent process model, concurrent processes, communication among processes, synchronization among processes, Implementation, data flow model, real-time systems.

**UNIT - III**

**EMBEDDED / RTOS CONCEPTS :**Architecture of the Kernel, Tasks and Task scheduler, Interrupt service routines, Semaphores, Mutex, Mailboxes , Message Queues, Event Registers, Pipes, Signals, Timers, Memory Management, Priority inversion problem, Embedded operating systems Embedded Linux, Real-time operating systems, RT Linux, Handheld operating systems, Windows CE.

**UNIT - IV**

**HARDWARE–SOFTWARE CO-DESIGN IN AN EMBEDDED SYSTEM:** Embedded System Project Management Embedded System Design and Co-Design Issues in System Development Process.

**UNIT - V**

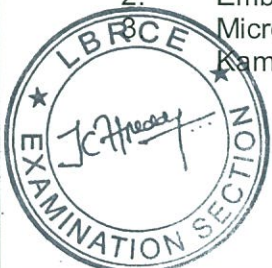
**DESIGN CYCLE IN THE DEVELOPMENT PHASE FOR AN EMBEDDED SYSTEM:** Use of Target Systems, use of Software Tools for Development of an Embedded System, use of Scopes and Logic Analysis for System, Hardware Tests. Issues in Embedded System Design.

**TEXT BOOK**

Embedded System Design – A Unified Hardware/Software Introduction - Frank Vahid, Tony D. Givargis, John Wiley, 2002.

**REFERENCES**

1. An Embedded Software Primer – David E. Simon, Pearson Ed., 2005.
2. Embedded / Real Time Systems – KVKK Prasad, Dreamtech Press, 2005.
3. Microcontrollers Architecture, Programming, Interfacing and System Design – Raj Kamal, Pearson Education, 2005



*[Signature]*  
**Head of the Department**  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 Mylavaram-521 230, Krishna Dt., A.P., INDIA.


**P838 – INFORMATION SECURITY LAB**

	<b>Internal Marks</b>	<b>: 25</b>
<b>Lab/ Practicals : 3 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits : 2</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

1. Caesar Technique Implementation
2. Mono Alphabetic Technique Implementation
3. Play Fair Technique Implementation
4. HillCipher Technique Implementation
5. Poly Alphabetic Technique
6. RailFence Transposition Technique Implementation
7. Complex RailFence Technique Implementation
8. Steganography Implementation
9. Simple D.E.S Implementation
10. R.S.A Implementation
11. Implementation of DES algorithm on 64 bit plain text
12. Digital signature generation using Java



  
**Head of the Department**  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

**P808 – CLOUD COMPUTING LAB**

	<b>Internal Marks</b>	<b>: 25</b>
<b>Lab/ Practicals : 3 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits : 2</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**1. Setting up the Cloud System**

1. Login to `hadoop.lbrce.ac.in` to set up Firefox for accessing the cloud management server.
2. Login to the Cloud management system and request a Cloud. Your Cloud should be provisioned in about 24 hours.
3. Take a screenshot of the cloud management system webpage detailing your Cloud and the IPs, and name it as "part1.jpg"

**2. Hadoop command line interface**

1. Once you have your cloud provisioned, login to the Master node as root.
2. Deploy Hadoop and start the required daemons on the Master node.
3. Run the PiEstimation example code provided in the Hadoop package.

**3. HDFS command line interface**

1. Configure the HDFS file system of your Cloud and learn the basic HDFS commands.
2. Practice adding files to your Cloud HDFS file system.

**4. Configuring Hadoop through eclipse**

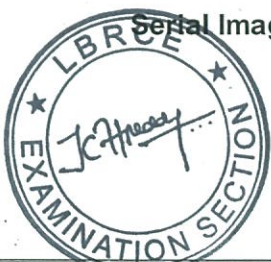
1. An eclipse environment is pre-installed on & launch the environment.
2. Follow the instructions to configure Eclipse to use hadoop and MapReduce plug-in.

**5. WordCount program as a single-threaded application:** Write a simple application in the language of your choice to count the number of times each word occurs in this document. Your program should output the time it takes to complete the task as well as the number of times each word occurs in the file.

**6. WordCount on Hadoop : .**

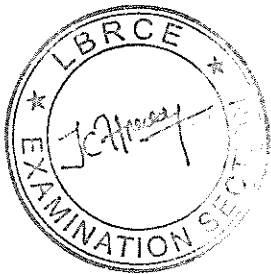
1. Now create an eclipse Hadoop project, copy the WordCount Hadoop example to your project and run this project on your Cloud to completion.

**Serial Image Processing Code :** Write a serial java application that takes each image generated and blurs the required area in each fra



*Head of the Department*  
Department of Information Technology  
Lakireddy Bali Reddy College of Engineering  
MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.

**VIII-SEMESTER**





**T221 – INDUSTRIAL MANAGEMENT**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 4</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**AIM**

To make the student to understand concepts and contributions of Management, types of Organizations and also prepare them to have knowledge of several types of managements conducted in Industrial Organizations.

**UNIT - I****Introduction**

Management- Definition, Nature, importance and Functions of Management-Taylor's Scientific Management Theory, Fayol's Principles of Management, Contribution of Elton Mayo, Maslow, Herzberg, Douglas Mc Gregor. Basic concepts of Organization – Authority, Responsibility, Delegation of Authority, Span of Control, Departmentation and Decentralization-Organization Structures (Line organization, Line and staff organization, functional organization, Committee organization, matrix organization)

**UNIT - II****Operations Management**

Plant Location, Factors influencing location, Principles and Types of Plant Layouts-Methods of production (Job, batch and Mass Production), Work Study -Basic procedure involved in Method Study and Work Measurement.

**UNIT - III****Quality and Materials Management**

Statistical Quality Control-Meaning, variables and attributes- X chart, R chart, C chart, P chart, (simple Problems), Acceptance Sampling, Sampling plans, Deming's contribution to quality. Materials Management-Objectives, Need for Inventory control, Purchase Procedure, Store records, EOQ, ABC Analysis, stock levels.

**UNIT - IV****Human Resource Management**

HRM : Concepts of HRM, Basic functions of HR Manager: Manpower planning, Recruitment, Selection, Training and Development, Placement, Wage and Salary Administration, Promotion, Transfer, Separation, Performance Appraisal, Job Evaluation and Merit Rating.

**UNIT - V****Project Management**

Early techniques in Project Management- 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, Project Crashing (simple problems)



*[Signature]*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**Mylavaram-521 230, Krishna Dt., A.P., INDIA.**

**TEXT BOOK**

Dr. Aryasri: Management Science, TMH, 4th edition, 2009.

**REFERENCES**

1. Koontz and Wehrich – Essentials of Management, TMH, 8th edition, 2010
2. Stoner, Freeman, Gilbert, Management, 6th Ed, Pearson Education, New Delhi, 2004
3. O.P.Khana, Industrial Engineering and Management
4. L.S. Srinath, PERT & CPM



A handwritten signature in blue ink, appearing to be "Zmy".

**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230 Mylavaram Dt.,A.P.,INDIA.**

## T310 – SOFTWARE PROJECT MANAGEMENT

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 3	External Examination	: 3 Hrs

UNIT - I

**Conventional Software Management:** The waterfall model, conventional software Management performance. **Evolution of Software Economics:** Software Economics, pragmatic software cost estimation. **Improving Software Economics:** Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections. **The old way and the new:** The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process.

UNIT - II

**Life cycle phases:** Engineering and production stages, inception, Elaboration, construction, transition phases. **Artifacts of the process:** The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts. **Model based software architectures:** A Management perspective and technical perspective.

UNIT - III

**Work Flows of the process:** Software process workflows, Iteration workflows.

**Checkpoints of the process:** Major mile stones, Minor Milestones, Periodic status assessments.

**Iterative Process Planning:** Work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning. Use of Software (Microsoft Project) to Assist in Project Planning Activities

UNIT - IV

**Project Organizations and Responsibilities:** Line-of-Business Organizations, Project Organizations, evolution of Organizations. **Process Automation:** Automation Building blocks, The Project Environment. **Project Control and Process instrumentation:** The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation.

UNIT - V

**Tailoring the Process:** Process discriminants. **Future Software Project Management:** Modern Project Profiles, Next generation Software economics, modern process transitions.

**Case Study:** The command Center Processing and Display system- Replacement (CCPDS)

TEXT BOOK

Software Project Management, Walker Royce: Pearson Education, 2009.

REFERENCES

1. Software Project Management, Bob Hughes and Mike Cotterell: Tata McGraw-Hill Edition.
2. Software Project Management, Joel Henry, Pearson Education.
3. Software Project Management in practice, PankajJalote, Pearson Education.2008.



*[Signature]*  
**Head of the Department**  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering

**T129 – BIOMETRICS**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 3</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

**UNIT - I**

Introduction – Benefits of biometric security – Verification and identification – Basic working of biometric matching – Accuracy – False match rate – False non-match rate – Failure to enroll rate – Derived metrics – Layered biometric solutions. Finger scan – Features – Components – Operation (Steps) – Competing finger Scan technologies – Strength and weakness. Types of algorithms used for interpretation.

**UNIT - II**

Facial Scan - Features – Components – Operation (Steps) – Competing facial Scan technologies – Strength and weakness.  
Iris Scan - Features – Components – Operation (Steps) – Competing iris Scan technologies – Strength and weakness.

**UNIT - III**

Voice Scan - Features – Components – Operation (Steps) – Competing voice Scan (facial) technologies – Strength and weakness.  
Other physiological biometrics – Hand scan – Retina scan – AFIS (Automatic Finger Print Identification Systems)

**UNIT - IV**

Behavioral Biometrics – Signature scan- keystroke scan.

**UNIT - V**

Biometrics Application – Biometric Solution Matrix – Bio privacy – Comparison of privacy factor in different biometrics technologies – Designing privacy sympathetic biometric systems. Biometric standards – (BioAPI , BAPI) – Biometric middleware Biometrics for Network Security. Statistical measures of Biometrics. Biometric Transactions.

**TEXT BOOKS**

1. Biometrics – Identity Verification in a Networked World – Samir Nanavati, Michael Thieme, Raj Nanavati, WILEY- Dream Tech
2. Biometrics for Network Security- Paul Reid, Pearson Education.

**REFERENCES**

Biometrics- The Ultimate Reference- John D. Woodward, Jr. Wiley Dreamtech.



*Zm*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
 Mylavaram, Dist. A.P., INDIA.

**T227 – INTERNET PROTOCOLS**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 3</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

Internet standards, internet administration, the OSI model, Layers I the OSI model, TCP/IP protocol suite, addressing, IP versions. IP addresses: Introduction, classful addressing, other issues, subnetting, and supernetting. Classless addressing: variable-length blocks, subnetting, address allocation.

**UNIT - II**

**Address Resolution Protocol (ARP):** Packet format, encapsulation, operation. Reverse Address resolution protocol (RARP): Packet format, encapsulation, operation, RARP server. Internet Protocol (IP): Datagram fragmentation, options, checksum and IP Package.

**UNIT - III**

**Internet Control Message Protocol (ICMP):** Types of messages, Message format, error reporting, query and checksum. Internet Group Management protocol (IGMP): IGMP messages, IGMP operation, Encapsulation and IGMP Package. User Datagram Protocol (UDP): Process to process communication, user datagram, checksum, UDP operation and use of UDP package.

**UNIT - IV**

**Transmission Control Protocol (TCP):** TCP services, TCP features, segment, TCP connection, flow control, error control and congestion control. Stream Control Transmission Protocol (SCTP): services, features, package format, an SCTP Association, flow control, error control, and congestion control. Multicasting and Multicast routing Protocols: Unicast, Multicast and Broadcast, Multicast application, Multicast routing, Multicast Link State routing (MOSPF), Multicast Distance Vector (DEMRP) and Core-Based Tree (CBT). Host configuration: BOOTP and DHCP.

**UNIT - V**

**Domain Name Systems (DNS):** Name space, Domain Name space, Distribution of Name space, DNS in the internet. File Transfer: FTP and TFTP. Electronic Mail: SMTP, POP and IMAP: Architecture, user agent, Message transfer agent: SMTP, Message access agent: POP and IMAP and Web-based Mail. World Wide Web: Architecture, web documents, HTTP. Mobile IP: Addressing, agents, three phases and Inefficiency in Mobile IP. Next generation: IPv6, and ICMPv6.

**TEXT BOOK**

TCP/IP protocol Suite– Behrouz A. Forouzan. Third Edition TMH.

**REFERENCES**

1. TCP/IP – Douglas E. Comer and DAVID L. Stevens. Volume -II PHI.
2. Data Communications and Networking – Behrouz A. Forouzan. Third Edition TMH.



*[Signature]*  
**Head of the Department**  
**Department of Information Technology**

## T214 – HUMAN COMPUTER INTERACTION

Lecture	: 3 Periods/week	Internal Marks	: 25
Tutorial	: 1	External Marks	: 75
Credits	: 3	External Examination	: 3 Hrs

---

**UNIT - I**

**Introduction:** Importance of user Interface – definition, importance of good design, benefits of good design. A brief history of Screen design.

**The graphical user interface** – popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Web user – Interface popularity, characteristics- Principles of user interface.

**UNIT – II**

**Design process** – Human interaction with computers, importance of human characteristics human consideration, Human interaction speeds, understanding business junctions.

**UNIT - III**

**Screen Designing** : Design goals – Screen planning and purpose, organizing screen elements, ordering of screen data and content – screen navigation and flow – Visually pleasing composition – amount of information – focus and emphasis – presentation information simply and meaningfully – information retrieval on web – statistical graphics – Technological consideration in interface design.

**UNIT - IV**

Windows – New and Navigation schemes selection of window, selection of devices based and screen based controls.

**UNIT - V**

Components – text and messages, Icons and images – Multimedia, colors – uses, problems with choosing colors.

Interaction Devices – Keyboard and function keys – pointing devices – speech recognition digitization and generation – image and video displays – drivers.

**TEXT BOOK**

The essential guide to user interface design, Wilbert O Galitz, Wiley DreamaTech.

**REFERENCES**

1. Designing the user interface. 3rd Edition Ben Shneidermann, Pearson Education Asia.
2. Human – Computer Interaction. ALAN DIX, JANET FINCAY, GRE GORYD, ABOWD, RUSSELL BEALG, PEARSON.



*[Handwritten Signature]*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.

## T309 – SOFTWARE METRICS

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 3	External Examination	: 3 Hrs

---

UNIT - I

**Introduction to software quality:** Quality: Popular Views & Professional Views, Software Quality, Total quality management

**Fundamentals of Measurement Theory:** Definition, Operational Definition and Measurement, Level of Measurement, Some Basic Measures, Reliability and Validity, Measurement Errors, Be Careful with Correlation, Criteria for Causality.

UNIT - II

**Software Quality Metrics Overview:** Product Quality Metrics, In-Process Quality Metrics, Metrics for Software Maintenance, Examples of Metrics Programs, Collecting Software Engineering Data.

UNIT - III

**Applying the Seven Basic Quality Tools in Software Development:** Ishikawa's Seven Basic Tools, Checklist, Pareto Diagram, Histogram, Run Charts, Scatter Diagram, Control Chart, Cause-and-Effect Diagram, Relations Diagram.

**Defect Removal Effectiveness:** A closer look at Defect Removal Effectiveness, Defect Removal Effectiveness and Quality Planning, Cost Effectiveness of Phase Defect Removal

UNIT - IV

**In-Process Metrics for Software Testing:** In-Process metrics for Software Testing, In-Process metrics and Quality Management, Possible Metrics for Acceptance Testing to evaluate Vendor Developed Software, How do you know Your Product is Good Enough to Ship?

**Complexity Metrics and Models:** Lines of Code, Halstead's Software Science, Cyclomatic Complexity, Syntactic Constructs, Structure Metrics, An Example of Module Design Metrics in Practice

UNIT - V

**Metrics and Lessons learned for Object-oriented projects:** Object - oriented Concepts and Constructs, Design and Complexity metrics, productivity metrics, Quality and quality management metrics, Lessons learned for OO projects

**Using Function Point Metrics to Measure Software Process Improvement:** Software Process Improvement Sequences, Process Improvement Economics, Measuring Process Improvements at Activity Levels

TEXT BOOK

Metrics and Models in Software Quality Engineering, Stephen H. Kan, Second Edition, Pearson Education Asia, 2003



*[Signature]*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt., A.P., INDIA.

**REFERENCES**

1. Software Engineering Measurement, John C. Munson Auerbach Publication, 2003
2. Estimating Software – intensive systems: projects, products and processes, Recharad D. Stutzke, Addison – Wesley 2005
3. Software Metrics: A guide to planning, analysis and application, C. Ravindranath Pandian, Auerbach Publication, 2003
4. Practical Implementation of Software Metrics, Paul Goodman, Mc.Graw Hill, 1993



A handwritten signature in blue ink, appearing to be "S. Srinivas" or similar, written in a cursive style.

**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.**



## T343 – PATTERN RECOGNITION

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 3	External Examination	: 3 Hrs

---

UNIT - I

**Introduction:** Machine perception, pattern recognition example, pattern recognition systems, the design cycle, learning and adaptation (Text book-1, p.nos: 1-17).

**Bayesian Decision Theory :** Introduction, continuous features – two categories classifications, minimum error-rate classification- zero-one loss function, classifiers, discriminant functions, and decision surfaces (Text book-1, p.nos: 20-27, 29-31).

UNIT - II

**Normal density:** Univariate and multivariate density, discriminant functions for the normal density different cases, Bayes decision theory – discrete features, compound Bayesian decision theory and context (Text

UNIT - III

**Maximum likelihood and Bayesian parameter estimation :** Introduction, maximum likelihood estimation, Bayesian estimation, Bayesian parameter estimation–Gaussian case Bayesian Parameter Estimation: General Theory, Sufficient Statistics ,Problems of Dimensionality

UNIT - IV

**Un-supervised learning and clustering :** Introduction, mixture densities and identifiability, maximum likelihood estimates, application to normal mixtures: Case 1: Unknown Mean Vectors, Case 2: All Parameters Unknown K-means clustering, \*Fuzzy k-means clustering. Data description and clustering – similarity measures, criteria function for clustering, Iterative Optimization, Hierarchical Clustering.

UNIT - V

**Component analyses :** Principal component analysis, non-linear component analysis; **Independent component analysis (ICA)**, Low dimensional representations and multi dimensional scaling (Text book-1, p.nos: 568-570, 573 – 576, 580-581)., Hidden Markov Models, First-order Markov models, First-order hidden Markov models, Hidden Markov Model Computation, Evaluation, Decoding Learning

TEXT BOOK

Pattern classifications, Richard O. Duda, Peter E. Hart, David G. Stroke. Wiley student edition, Second Edition.

REFERENCES

1. Pattern Recognition and Image Analysis – Earl Gose, Richard John baugh, Steve
2. Fundamentals of speech Recognition, Lawrence Rabiner, Bing – Hwang Juang Pearson education.



*[Signature]*  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering

## T339 – WEB SERVICES

Lecture	: 4 Periods/week	Internal Marks	: 25
Tutorial	: 1 Period/Week	External Marks	: 75
Credits	: 3	External Examination	: 3 Hrs

---

**UNIT-I**

**INTRODUCTION** : Role Of XML - XML and The Web - XML Language Basics - SOAP - Web Services - Revolutions Of XML - Service Oriented Architecture (SOA).

**UNIT - II**

**XML TECHNOLOGY** : XML - Name Spaces - Structuring With Schemas and DTD - Presentation Techniques - Transformation - XML Infrastructure.

**UNIT - III**

**SOAP** : Overview Of SOAP - HTTP - XML-RPC - SOAP: Protocol - Message Structure - Intermediaries - Actors - Design Patterns And Faults - SOAP With Attachments.

**UNIT - IV**

**WEB SERVICES** : Overview - Architecture - Key Technologies - UDDI - WSDL - ebXML - SOAP And Web Services In E-Com - Overview Of .NET And J2EE.

**UNIT - V**

**XML SECURITY** : Security Overview - Canonicalization - XML Security Framework - XML Encryption - XML Digital Signature - XKMS Structure - Guidelines For Signing XML Documents - XML In Practice.

**TEXT BOOK**

Frank. P. Coyle, XML, Web Services And The Data Revolution, Pearson Education, 2002.

**REFERENCES**

1. Ramesh Nagappan , Robert Skoczylas and Rima Patel Sriganesh, " Developing Java Web Services", Wiley Publishing Inc., 2004.
2. Sandeep Chatterjee, James Webber, "Developing Enterprise Web Services", Pearson Education, 2004.
3. McGovern, et al., "Java Web Services Architecture", Morgan Kaufmann Publishers,2005.



  
 Head of the Department  
 Department of Information Technology  
 Lakireddy Bali Reddy College of Engineering  
 MYLAVARAM-521 230, Krishna Dt.,A.P.,INDIA.

**T167 – DISTRIBUTED SYSTEMS**

<b>Lecture</b>	<b>: 4 Periods/week</b>	<b>Internal Marks</b>	<b>: 25</b>
<b>Tutorial</b>	<b>: 1 Period/Week</b>	<b>External Marks</b>	<b>: 75</b>
<b>Credits</b>	<b>: 3</b>	<b>External Examination</b>	<b>: 3 Hrs</b>

---

**UNIT - I**

Introduction: Introduction to Distributed systems - Examples of distributed systems, challenges - architectural models - fundamental models - Introduction to interprocess communications - external data representation and marshalling- client server communication - group communication - Case study: IPC in UNIX.

**UNIT - II**

Distributed objects and File system: Introduction - Communication between distributed objects - Remote procedure call - Events and notifications - Java RMI case Study - Introduction to DFS - File service architecture - Sun network file system - Introduction to Name Services- Name services and DNS - Directory and directory services.

**UNIT - III**

Distributed Operating system support : The operating system layer – Protection - Process and threads - Communication and invocation - Operating system architecture - Introduction to time and global states - Clocks, Events and Process states - Synchronizing physical clocks - Logical time and logical clocks - Global states - Distributed debugging – Distributed mutual exclusion.

**UNIT - IV**

Transaction and Concurrency Control-Distributed Transactions: Transactions – Nested transaction – Locks - Optimistic concurrency control - Timestamp ordering - Comparison of methods for concurrency control - Introduction to distributed transactions - Flat and nested distributed transactions - Atomic commit protocols - Concurrency control in distributed transactions - Distributed deadlocks - Transaction recovery.

**UNIT - V**

Security and Replication : Overview of security techniques - Cryptographic algorithms – Digital signatures - Cryptography pragmatics – Replication - System model and group communications – Fault tolerant services – Highly available services – Transactions with replicated data.

**TEXT BOOK**

Distributed Systems Concepts and Design by George Coulouris ,Jean Dollimore and Tim Kindberg.

**REFERENCES**

Distributed Systems By Andrew Tanenbaum



*[Signature]*  
**Head of the Department**  
**Department of Information Technology**  
**Lakireddy Bali Reddy College of Engineering**  
**Mylavaram-521 230, Krishna Dt., A.P., INDIA.**