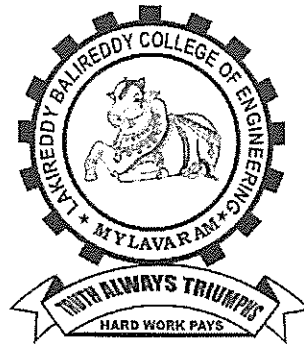


**LAKIREDDY BALIREDDY  
COLLEGE OF ENGINEERING  
(AUTONOMOUS)**

(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 batches admitted from 2011-12)

**INFORMATION TECHNOLOGY**



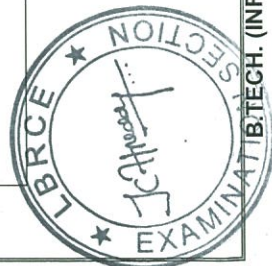
L.B.Reddy Nagar :: Mylavaram – 521 230 :: Krishna District  
ANDHRA PRADESH STATE

**COURSE STRUCTURE(2011-2012 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	5
T197	English-I	4	--	--	25	75	100	3
T264	Numerical Methods	4	1	--	25	75	100	4
T199	Environmental Studies	3	--	---	25	75	100	3
P806	C Programming Lab	--	--	3	25	75	100	2
P829	Engineering Drawing through Autocad Lab.	-	-	3	25	75	100	2
P831	Engineering Workshop	--	--	3	25	75	100	2
<b>TOTAL</b>		<b>19</b>	<b>3</b>	<b>9</b>	<b>200</b>	<b>600</b>	<b>800</b>	<b>25</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
T191	Engineering Chemistry	4	1	-	25	75	100	3
T154	Data structures Using C++	4	1	-	25	75	100	5
T195	Engineering Physics	4	1	-	25	75	100	4
P832	English Language Communication Skills Lab.	--	--	3	25	75	100	2
P830	Engineering Physics and Chemistry Lab.	-	-	3	25	75	100	2
P816	Data structures Using C++ Lab	-	-	3	25	75	100	2
P856	Mini Project - I	--	--	3	25	25	50	2
<b>TOTAL</b>		<b>20</b>	<b>04</b>	<b>12</b>	<b>225</b>	<b>625</b>	<b>850</b>	<b>27</b>

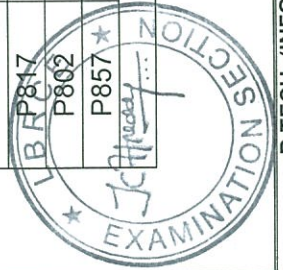


## III - SEMESTER

Code No.	Name of the Course	Scheme of Instruction			Scheme of Examination		Total	credits
		Periods per Week			Maximum Marks			
		Lectures	Tutorial	Lab.	Internal	External		
T188	Electronic Devices & Circuits	4	1	-	25	75	100	4
T127	Basic Electrical Engineering	4	1	-	25	75	100	4
T162	Digital Logic Design	4	1	-	25	75	100	4
T103	Advanced Data Structures through Java	4	1	-	25	75	100	5
T334	Unix Programming	4	1	-	25	75	100	4
P827	Electronic Devices & Circuits using LabVIEW	-	-	3	25	75	100	2
P801	Advanced Data Structures through Java Lab	-	-	3	25	75	100	2
P880	Unix Programming 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
T285	Probability and Statistics	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*	Mini project - II	-	-	3	25	25	50	2
TOTAL		24	06	9	225	625	850	30



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## V – SEMESTER

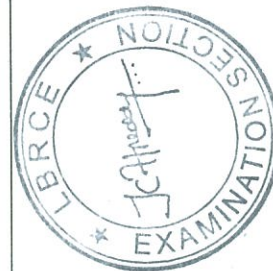
Code No.	Name of the Course	Scheme of Instruction			Scheme of Examination		Total	credits
		Periods per Week			Maximum Marks			
		Lectures	Tutorial	Lab.	Internal	External		
T156	Design and Analysis of Algorithms	4	1	-	25	75	100	5
T323	Theory of Computations	4	1	-	25	75	100	4
T267	Operating Systems	4	1	-	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>



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## 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
T312	<b>ELECTIVE - I</b>							
T144	Software Requirements and Estimations	4	1	-	25	75	100	4
T258	Computer Graphics							
T122	Mobile Communications							
T122	Artificial Intelligence							
T245	Managerial Economics and Financial Analysis	4	1	-	25	75	100	4
P881	Web Technologies Lab	-	-	3	25	75	100	2
P813	Computer Networks and OOAD Lab	-	-	3	25	75	100	2
P810	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>



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 Mylavaram, AP, 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>



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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>ELECTIVE -III</b> Software Project Management	3	1	-	25	75	100	3	
T129	Biometrics								
T227	Internet Protocols								
T214	Human Computer Interaction								
T309	<b>ELECTIVE -IV</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>									



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**I-SEMESTER**

  
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**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>

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**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



  
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**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>: 5</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
- C/C++ for Engineers and Scientists, Harry H.Cheng ,McGrawHill,

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## T197 - ENGLISH - I

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

**UNIT - II**

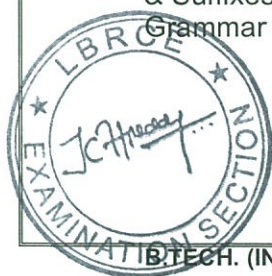
Chapter – 2: “Travel” from Step by Step (*Pearson*)  
Extensive Reading - Masterminds– The World of Figures and Physics – **Chandra SekharaVenkata Raman** (*Orient Longman*)

**UNIT - III**

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

**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



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## UNIT - V

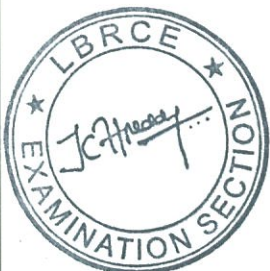
Analytical Writing – Sentence Construction – Types of sentences, Exercises with scrambled words & Jumbled sentences, Paragraph writing, Dialogue writing (Formal & Informal), Letter Writing (Formal & Informal), Resume writing, Expansion (of a given topic), Abstract Writing (Summarizing / Synopsis), Decision-making,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



  
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**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>

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**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.



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## T199 – ENVIRONMENTAL STUDIES

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



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