G. PULLA REDDY ENGINEERING COLLEGE (Autonomous): KURNOOL

**Accredited by NBA of AICTE and NAAC of
UGC An ISO 9001:2008 Certified Institution
Affiliated to JNTUA, Anantapuramu.**

ADMINISTRATIVE BLOCK

First B. Tech Syllabus- Scheme 2013

(Common to all branches)

G. PULLA REDDY ENGINEERING COLLEGE (Autonomous): KURNOOL
Four year B. Tech Course (Scheme – 13)

Scheme of instruction and Examination
(Effective from 2013-14)

Proposed Course Structure for First & Second Semester for Scheme 2013

Course numbering Scheme:

M	E	1	0	5

ME - Code for the department offering the course CE,ME,EC,EE,CS,BS,HU

1 -Level of the course 1,2,3,4 for UG 8&9 for PG

05 -Specific code for the course

List of Courses common for all UG Programs

S. No	Course No	Course Title
Basic Science Core		
1	BS101	Engineering Mathematics-I
2	BS102	Engineering Mathematics-II
3	BS103	Applied Physics
4	BS104	Applied Physics Lab
5	BS105	Engineering Chemistry
6	BS106	Engineering Chemistry Lab
Engineering Science Core		
1	CS101	Computer Programming

2	CS102	Computer Programming Lab
3	ME101	Engineering Drawing
4	ME102	Engineering Workshop
5	CE101	Engineering Mechanics
6	EE101	Elements of Electrical Engineering
7	EC101	Basic Electronics Engineering
Humanities and Social Science Core		
1	HU101	Professional Communications and English
2	HU102	Phonetics & Communication Skills Lab
Mandatory Learning Courses		
1	ML101	Environmental Studies
2	ML102	Professional Ethics and Human Values

Scheme of instruction and Examination
(Effective from 2013-14)

FIRST / SECOND SEMESTER

S No	Course No	Course Title	Credits	Scheme of Instruction periods/week			Scheme of Examination		
				L	T	P	End Exam Marks	Internal Assessment Marks	Total Marks
1.	BS105	Engineering Chemistry	4	4	-	-	70	30	100
2.	BS101 / BS102	Engineering Mathematics-I / II	4	3	1	-	70	30	100
3.	BS103	Applied Physics	4	3	1	-	70	30	100
4.	EC101	Basic Electronics Engineering	4	3	1	-	70	30	100
5.	CE101	Engineering Mechanics	5	4	1	-	70	30	100
6.	ML102	Professional Ethics and Human Values	2	2	-	-	-	100	100
7	BS106	Engineering Chemistry Lab	2	-	-	2	70	30	100
8	BS104	Applied Physics Lab	2	-	-	2	70	30	100
9	ME102	Engineering Workshop	2	-	-	2	70	30	100
			29	19	4	6	560	340	900

FIRST / SECOND SEMESTER

S No	Course No	Course Title	Credits	Scheme of Instruction periods/week			Scheme of Examination		
				L	T	P	End Exam Marks	Internal Assessment Marks	Total Marks
1.	CS101	Computer Programming	4	4	-	-	70	30	100
2.	BS101 / BS102	Engineering Mathematics-I / II	4	3	1	-	70	30	100
3.	HU101	Professional Communications and English	4	4	-	-	70	30	100
4.	EE101	Elements of Electrical Engineering	4	3	1	-	70	30	100
5.	ME101	Engineering Drawing	5	2	3	-	70	30	100
6.	ML101	Environmental Studies	2	3	-	-	-	100	100
7.	CS102	Computer Programming Lab	2	-	-	3	70	30	100
8.	HU102	Phonetics & Communication Skills Lab	2	-	-	2	70	30	100
			27	19	5	5	490	310	800

BS101: Engineering Mathematics-I (EM1)
(Common for all branches of I B.Tech)

	L	T/D	P	C
	3	1	0	4

Scheme : 2013
Internal Assessment : 30
End Exam : 70
End Exam Duration : 3 Hrs

Course Outcomes:

At the end of the course, students will be able to

1. Specify standard methods for solving Differential Equations, identify different types of higher order differential equations and their applications
2. Find Laplace transform for a given function and solving differential equations using Laplace transform
3. Solve the Rolle's and Lagrange's theorems, represent a function in a series form using Taylor's series, apply partial derivatives to study maxima and minima
4. Evaluate double and triple integrals to find the area and volume of a given region
5. Evaluate gradient, divergent, curl also apply Green's, Stoke's and Gauss-divergence theorems to evaluate line integrals, surface integrals and volume integrals

Unit: 1
DIFFERENTIAL EQUATIONS
First order and first degree of differential equations: Exact, non-exact equations, linear and non- linear equations. Applications: Newton's law of cooling, law of natural growth and decay, L-R, C-R circuits.

Unit: 2
HIGHER ORDER DIFFERENTIAL EQUATIONS
Homogeneous linear differential equations of second and higher order with constant coefficients with RHS of the type $e^{ax}, sinax, x^n , e^{ax}$ v , v(x). General case: Applications to L-C-R circuits

Unit: 3
LAPLACE TRANSFORMS
 Laplace transform of standard functions, first shift theorem, periodic function. Transforms of derivatives and integrals, multiplication and division by t. Inverse Laplace transform. Convolution theorem. Application of Laplace transform to ordinary differential equations.

Unit: 4
DIFFERENTIAL CALCULUS
Rolle's theorem, Lagrange's mean value theorem. Taylor's and Maclaurin's series. Jacobian, maxima and minima of functions of two variables. Lagrangian method of multipliers with three variables only.

Unit: 5
MULTIPLE INTEGRALS
Double integrals, change of order of integration, change to polar coordinates. Area and volumes by double integration. Triple integrals: Volume by triple integrals.

Unit: 6
VECTOR CALCULUS

Divergence, Curl, Gradient. Solenoidal and irrotational vectors, repeated operations by del. Green's, Stoke's and Gauss - Divergence theorem (Statement only), Applications to theorems.

Text Books:

1. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 40th Edition, 2007
2. T.K.V.iyengar and others, A Text Book Of Engineering Mathematics, Vol. 1, S.Chand & Company, 12th Edition, 2012

Reference Books:

1. B.V. Ramana, Higher Engineering Mathematics ,TMH Publishers, 2nd Edition, 2006
2. N.P.Bali and others, A Text Book of Engineering Mathematics , Lakshmi publishers, 7th Edition, 2009
3. Erwyn Kreyszig, Advanced Engineering Mathematics , John Wiley, 8th Edition, 2006

NOTE:

End Exam: The question paper for end examination shall consist of One Compulsory question consisting of objective type, fill in the blanks etc for 10 marks and for the remaining 60 marks student has to answer any four questions out of 6 questions for 15 marks each.

Internal Assessment: The question paper for sessional examination shall have one *compulsory* question carrying 6 marks and five other conventional (descriptive or analytical type) questions carrying 8 marks each. The compulsory question consists of objective type questions like the multiple choice, fill in the blanks etc. Apart from the compulsory question, the student has to answer any 3 from the remaining 5 conventional questions.

BS102: Engineering Mathematics-II (EM2)
(Common for all branches of I B.Tech)

Scheme : 2013
Internal Assessment: 30
End Exam : 70
End Exam Duration : 3 Hrs

L	T/D	P	C
3	1	0	4

Course Outcomes:

At the end of the course, students will be able to

CO1   Find the rank, eigen values and eigen vectors of matrix and reduce the quadratic form to Canonical form
CO2   Utilize Numerical Methods and principles of least square methods in engineering problems
CO3   Understand the Fourier series and its expansion
CO4   Solve initial boundary value problems using Fourier Transforms
CO5   Apply Z-transform in solving the Difference equations
CO6   Use partial differential equations and method of separation of variables in solving one dimensional wave and one dimensional heat equations

Unit: 1
MATRICES

Rank of a matrix, Consistency of systems of linear equations, Rouche's theorem (Statement only). Eigen values and eigen vectors, diagonalisation of a matrix. Cayley-Hamilton theorem, finding inverse of a matrix. Quadratic form, reduction of a quadratic form to canonical form by orthogonal transformation.

Unit: 2
NUMERICAL METHODS

Solution of Algebraic and Transcendental Equations – Method of False Position, Iteration method, Newton – Raphson method. Solution of Simultaneous Equations – Gauss Seidel teration method. Curve Fitting – Least square curve fitting – Fitting a straight line $y = a + bx$, Non-linear curve fitting $y = a + bx + cx^2$.

Unit: 3
FOURIER SERIES

Determination of Fourier coefficients, Dirichlet's conditions, Fourier series of Even and Odd functions, Functions having points of discontinuity, change of interval, half-range Fourier Sine and Cosine series, practical Harmonic Analysis.

Unit: 4
FOURIER TRANSFORMS

Infinite Fourier Transforms, Fourier Sine and Cosine transforms, Relation between Fourier and Laplace Transforms, Finite Fourier Sine and Cosine Transforms, Inverse Fourier Transforms, Applications of Fourier Transforms to Boundary value problems.

Unit: 5
Z-TRASFORMS

Z- Transforms, Inverse Z- Transformation, Properties: Damping rule, Shifting rule, Initial and final value theorem. Application of Z- Transforms to Difference equations.

Unit: 6
PARTIAL DIFFERENTIAL EQUATIONS

Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions. Linear equations of first order – Lagrange's Linear equation. Applications: Method of separation of variables, one dimensional wave equation, one dimensional Heat equation.

Text books:

1. B.S.Grewal, Higher Engineering Mathematics, Khanna Publishers, 40th Edition, 2007.
2. T.K.V.iyengar and others, Mathematical Methods, S.Chand & Company, 7th Edition, 2012.

Reference Books:

1. Erwyn Kreyszig, Advanced Engineering Mathematics, John wiley, 8th Edition, 2006.
2. N.P.Bali and others, A Text Book of Engineering Mathematics, Lakshmi Publishers, 7th Edition, 2009.
3. B.V.Ramana, Higher Engineering Mathematics, TMH Publishers, 2nd Edition, 2006.

NOTE:

End Exam: The question paper for end examination shall consist of One Compulsory question consisting of objective type, fill in the blanks etc for 10 marks and for the remaining 60 marks student has to answer any four questions out of 6 questions for 15 marks each.

Internal Assessment: The question paper for sessional examination shall have one *compulsory* question carrying 6 marks and five other conventional (descriptive or analytical type) questions carrying 8 marks each. The compulsory question consists of objective type questions like the multiple choice, fill in the blanks etc. Apart from the compulsory question, the student has to answer any 3 from the remaining 5 conventional questions.

BS103: Applied Physics (AP)
(Common for all branches of I B.Tech)

Scheme   : 2013
Internal Assessment : 30
End Exam   : 70
End Exam duration : 3 hrs

L	T/D	P	C
3	1	0	4

Course Outcomes:

At the end of the course, students will be able to

1. Learn the fundamental concepts of Acoustics of Buildings and Ultrasonics
2. Understand the wave nature of light by studying the concepts of Interference and Diffraction and their applications
3. Understand the Crystal systems, Miller indices and Packing factor
4. Understand the principle, theory, operations and applications of Lasers and Optical Fibres
5. Understand the properties and applications of Dia, Para, Ferro, Ferri, Anti-ferro magnetic materials and Superconductors
6. Understand and importance of Nanomaterials along with their Engineering applications and their Synthesis methods

Unit: 1
ACOUSTICS AND ULTRASONICS

<u>Acoustics:</u> Characteristics of musical sound-loudness, pitch, quality, Weber-Fechner law, decibel, absorption coefficient, reverberation, reverberation time, Sabine's formula, acoustics of buildings

<u>Ultrasonics:</u> Introduction, Production methods- magnetostriction and piezoelectric methods, detection of ultrasonic waves, determination of velocity of ultrasonic waves, applications

Unit: 2
PHYSICAL OPTICS

<u>Interferenec:</u> Conditions for observing interference, interference due to thin films, wedge shaped films, Newton's rings, applications of interference

<u>Diffraction:</u> Fresnel and Fraunhoffer diffraction, difference between interference and diffraction, Fraunhoffer diffraction at single slit, double slit, grating, circular aperture (qualitatively), resolving power, Rayleigh"s criteria, resolving power of telescope and grating.

Unit: 3
CRYSTALLOGRAPHY

Space lattice, unit cell, crystal systems, Miller indices, Bravais lattices, interplanar spacing, No. of atoms per unit cell, coordination number, atomic radius, packing factor for SC, FCC, BCC, Bragg's Law, diffraction of X-rays, Bragg's X-ray spectrometer

UNIT: 4
LASERS

Introduction, characteristics of laser, spontaneous and stimulated emission of radiation, Einstein's coefficients, population inversion, pumping mechanisms, laser types: Ruby laser, He-Ne laser, semiconductor laser, applications of laser, Industrial applications, and Medical applications.

UNIT: 5
FIBER OPTICS

Principle and propagation of light in optical fibers, structure of optical fibers, numerical aperture ,acceptance angle, types of optical fibers (material, refractive index, mode), losses in fibers, optical fiber communication system, fiber optic sensors (displacement and pressure sensors).

UNIT: 6
MATERIAL SCIENCE

Magnetic Materials: Permeability, origin of magnetic moment, classification of magnetic materials, dia, para, ferro, ferri and antiferro magnetism, hysteresis curve and uses, soft and hard magnetic materials, applications: superconductivity and types, Meissner effect, high temperature superconductors applications

Nanotechnology: Introduction, properties of nanoparticles, synthesis of nanomaterials- ball milling method, sol-gel method, chemical vapour deposition method, applications of nanomaterials, carbon nanotubes-properties, types and fabrication methods, applications.

Text Books:

1. Hitendra K Malik & A.K.Singh ,Engineering Physics, Tata McGraw Hill Education Pvt. Ltd. 2009
2. M.N.Avadhanulu and P.G.Kshirsagar,A Text Book of Engineering Physics, S.Chand & Company 2007
3. K.Raja Gopal,Engineering Physics, Printice Hall India. 2011

Reference Books:

1. S.O.Pillai, Solid State Physics, New Age International Publications 2005
2. Halliday, Resenick and Walker,Fundamentals of Physics , 9th edition John Wiley 2011
3. Ajoy Ghatak, Optics , Tata McGraw Hill Education Pvt. Ltd 2006

NOTE:

End Exam: The question paper for end examination shall consist of One Compulsory question consisting of objective type, fill in the blanks etc for 10 marks and for the remaining 60 marks student has to answer any four questions out of 6 questions for 15 marks each.

Internal Assessment: The question paper for sessional examination shall have one *compulsory* question carrying 6 marks and five other conventional (descriptive or analytical type) questions carrying 8 marks each. The compulsory question consists of objective type questions like the multiple choice, fill in the blanks etc. Apart from the compulsory question, the student has to answer any 3 from the remaining 5 conventional questions.

BS104: Applied Physics Lab (APP)
(Common for all branches of I B. Tech)

Scheme   : 2013
Internal Assessment : 30
External Assessment : 70
End Exam duration :2 hrs

L	T/D	P	C
0	0	2	2

Course Outcomes:

At the end of the course, students will be able to

1. Compare theoretical and experimental values
2. Handle the different physical apparatus

List of Experiments:

1. Determination of small thickness by parallel fringes

2. Diffraction grating –Determination of wave lengths.

3. Determination of size of a particle using Laser

4. Hall effect –Determination of Hall coefficient and Charge density

5. B-H curve –Study of Magnetic behavior of ferromagnetic material.

6 Energy gap of a semiconductor by four probe method

7 Torsional Pendulum -Determination of Rigidity Modulus.

8 Verification of Faradays laws of Electromagnetic induction.

9 Study of magnetic field along axis of a circular coil -Steward Gees Apparatus

10 Numerical Aperture of a Optical Fiber

11 Electrical Resonance-Series LCR Circuit

12 Loses in optical fibers

13 Electrical resonance –Parallel LCR Circuit

14 Newton's rings

15 Determination of Dielectric Constant

BS105: Engineering Chemistry (EC)
(Common for all branches of I B.Tech)

Scheme   : 2013
Internal Assessment : 30
End Exam   : 70
End Exam Duration : 3 Hrs

L	T/D	P	C
4	0	0	4

Course Outcomes:

At the end of the course, students will be able to

1. Understand the concept of electrochemistry, able to analyze the functioning of different cells
2. Understands corrosion concepts and implement the prevention measures
3. Able to address the boiler problems and treatment of hard water
4. Gain the ability to analyze the fuel and evaluate the quality of the fuel
5. Understands the chemistry of polymers and their uses in Engineering
6. Understand the basic concepts of phase rule and their applications

Unit: 1
ELECTROCHEMISTRY

Galvanic cells, single electrode potential, electrochemical series. EMF of a cell and its measurement. Nernst equation. Electrolyte concentration cell. Electrochemical energy systems-lithium batteries - Fuel cells. Conductometric titrations.

Unit: 2
CORROISIONAND ITS PREVENTION

Theories of Corrosion, Chemical & electrochemical corrosion-Galvanic series-galvanic, pitting, stress and concentration cell corrosion. Factors influencing corrosion-corrosion control methods - Cathodic protection and corrosion inhibitors. Protective coatings -metallic coatings - Hot dipping, Electroplating and Anodizing.

Unit: 3
WATER CHEMISTRY & INSTRUMENTAL METHODS OF ANALYSIS

 Hardness of water. Types and it‟s units. Determination of hardness of water- EDTA method. Disadvantages of hard water-boiler troubles-scale and sludge, caustic embrittlement, priming & foaming and boiler corrosion. Water softening method – internal & external conditioning – zeolite process and ion exchange process. Desalination – reverse osmosis .

Instrumental Methods of Analysis: Colorimetry and Spectrophotometry, Qualitative and quantitative analysis; Potentiometry.

Unit: 4

ENERGY

Fuels, Classification, Calorific value and its Determination by Bomb calorimeter. Coal and its analysis,Petroleum-Extraction-Refining-Reforming-cracking-catalytic cracking-knocking-octane number, cetane number., Combustion Calculations, Flue Gas Analysis by Orsat‟s Apparatus, Synthetic petrol, Power alcohol, Biodiesel, Hydrogen as a source of energy.

Unit: 5
HIGH POLYMERS
Addition, Condensation polymerization, Copolymerization, Thermoplastics and Thermosets. Preparation, properties and uses of PVC, TEFLON, Nylons, Bakelite, Polyurethane, Rubbers – natural Processing vulcanization, synthetic rubber, Buna S, Buna N, Silicone and Butyl Rubbers. Liquid crystalline Polymers - Polymer composites – FRP - laminar composites.

Unit: 6
PHASE RULE
Definition and derivation of phase rule. Application to one component system - water and sulphur systems. Condensed phase rule-Two component alloy systems - Pb-Ag.

Text Books:
1. P.C. Jain and Monika Jain, Engineering Chemistry, Dhanpat Rai and Sons, New Delhi 2010,15th edition.

Reference Books:
1. Shashi Chawla, A Reading of Engineering Chemistry, 3rd Edition, Dhanpat Rai and Co., New Delhi, 2011,3rd edition.
2. Gowariker et al., Polymer Science and Technology, Prentice Hall of India Pvt. Ltd., New Delhi, 2004, 10th reprint.
3. P. W. Atkins and Julio de Paula, Atkins Physical Chemistry l Chemistry, 7th Edition, Oxford University Press, New York, 2002,2nd edition.
4. Kuriacose, J.C and Rajaram, J, Engineering Chemistry, Volume I/II, Tata McGraw – Hill Publishing Co. Ltd. New Delhi, 2010, 2nd edition.
5. S. S. Dara, A Textbook of Engineering Chemistry, S. Chand & Co. Ltd. New Delhi.2007, 10th edition.

NOTE:

End Exam: The question paper for end examination shall consist of One Compulsory question consisting of objective type, fill in the blanks etc for 10 marks and for the remaining 60 marks student has to answer any four questions out of 6 questions for 15 marks each.

Internal Assessment: The question paper for sessional examination shall have one *compulsory* question carrying 6 marks and five other conventional (descriptive or analytical type) questions carrying 8 marks each. The compulsory question consists of objective type questions like the multiple choice, fill in the blanks etc. Apart from the compulsory question, the student has to answer any 3 from the remaining 5 conventional questions.

BS106: Engineering Chemistry Laboratory (CHP)
(Common for all branches of I B.Tech)

Scheme : 2013
Internal Assessment : 30
End Examination : 70
Exam Duration : 2 Hrs

L	T/D	P	C
0	0	2	2

Course Outcomes:

At the end of the course, students will be able to

1. Understand & appreciate various analytical methods including instrumentation that act as tools in analysis of water
2. Understand various analytical methods including instrumentation that act as tools in analysis of various alloys
3. Able to understand various analytical methods including instrumentation that act as tools in analysis of different fuels

List of Experiments:

I. Volumetric Analysis:
   1. Determination of a weight of a substance using Analytical Balance.
   2. Preparation of Standard solution.
   3. Estimation of Total and Permanent hardness of Water.
   4. Estimation of copper using EDTA titrations.
   5. Estimation of Magnesium using EDTA titrations.
   6. Estimation of Dissolved oxygen in water.
   7. Estimation of Copper in Brass Alloy.
   8. Estimation of Iron using diphenylamine indicator by dichrometry.

II. Instrumentation:
   1. Determination of Calorific Value of Fuel using Bomb Calorimeter..
   2. Potentiometry titration.
   3. Conductometry titration.
   4. Verification of Beer-Lamberts Law using colorimetry.
   5. Determination of simple Eutectic of Two component system.
   6. Estimation of Yield of Phenol-Formaldehyde Resin.
   7. Determination of Viscosity of lubricating oil using Viscometer.

CS101: COMPUTER PROGRAMMING (CP)
(Common for all branches of I B.Tech)

Scheme : 2013
Internal Assessment : 30
End Examination : 70
Exam Duration : 3 Hrs

L	T/D	P	C
4	0	-	4

Course Outcomes:

At the end of the course, students will be able to

1. Design an algorithm and flowchart for a given problem
2. Summarize the structure of 'C' program
3. Explain the use of Arrays in 'C' programs
4. Illustrate the applications of functions and pointers
5. Understand the purpose of structures and Files in 'C'

Unit: 1
COMPUTER CONCEPTS AND EVOLUTION OF LANGUAGES
Computer and its organization, Types of programming languages, Algorithm, Characteristics of an algorithm, Flow charts and Examples.

C Fundamentals: Identifiers and Key words, Data Types, Constants and Variable declarations, Operators, Expressions, Header files.

Unit: 2
DATA INPUT/OUTPUT
printf, scanf, getchar, putchar, gets, puts, Type conversion: implicit, explicit.

Flow Control: Selection: if statements, switch statement, goto statement. Loops: While, do-while, for; break, continue, nested loops. Programs on control statements.

Unit: 3
ARRAYS
Defining an array- One dimensional arrays-Multidimensional arrays – Processing an array. Character arrays- String handling functions: strlen, strcpy, strcmp, strcat. Examples – Matrix operations, Sorting: Selection Sort, Bubble Sort, Searching: Linear search, Binary search.

Unit: 4
FUNCTIONS
Definition, Accessing a function, passing arguments to a function. Local and global variable declarations, storage classes: automatic, external, static, register. Recursion. Passing arrays to a function.

Unit: 5
POINTERS
Introduction to pointers, pointer declarations, Operations on pointers – Pointers and one-dimensional arrays, pointers and multidimensional arrays – Passing pointers to a function. Dynamic Memory Allocation.

Unit: 6
STRUCTURES AND UNIONS
Defining a structure, processing a structure, structures and pointers, Passing structures to a function, Self-referential structures, Unions, User-defined data types: typedef, enum.

FILES

Types of files, Opening a file, Reading from a file, Writing to a file and Appending to a file, Closing a File, Error handling functions in files, Random access to files.

Text Books:
1. Ron S.Gottfried, Programming with C, (TMH – Schuam Outline Series) 3rd Edition -2011.
2. B.W. Kernignan and Dennis M.Ritchie, The C Programming Language , (PHI), 2nd Edition 2003.

Reference Books:
1. E.Balaguruswamy, Programming in ANSI C, TMH, 2003.
2. Yashavanth P.Kanetkar , Let US C , BPB Publications, 7th Edition,2007.
3. Ajay Mittal, Programming in C, Pearson Education, 2010.

NOTE:

End Exam: The question paper for end examination shall consist of One Compulsory question consisting of objective type, fill in the blanks etc for 10 marks and for the remaining 60 marks student has to answer any four questions out of 6 questions for 15 marks each.

Internal Assessment: The question paper for sessional examination shall have one *compulsory* question carrying 6 marks and five other conventional (descriptive or analytical type) questions carrying 8 marks each. The compulsory question consists of objective type questions like the multiple choice, fill in the blanks etc. Apart from the compulsory question, the student has to answer any 3 from the remaining 5 conventional questions.

CS102: COMPUTER PROGRAMING LAB (CPL)
(Common for all branches of I B.Tech)

Scheme : 2013
Internal Assessment : 30
End Examination : 70
Exam Duration : 3 Hrs

L	T/D	P	C
-	-	3	2

Course Outcomes:

At the end of the course, students will be able to

1. Execute programs using conditional and loop statements in C.
2. Develop programs using 1-Dimensional and 2-Dimensional arrays.
3. Perform Call by value, Call by reference and Recursion using functions
4. Implement programs using pointers, structures and files in C.

List of Programmes:

1. a. Program to find the roots of a quadratic equation considering all cases.

   b. Write a program to read a number and print its mirror image (Digits in reverse order).

2. a. Find the list of prime numbers less than or equal to a given number.

   b. Find sum of digits of a given number.

3. a. Write a program to evaluate the sum of the following series up to „n" terms

   $$e^{x}=1+x+x^2/2!+x^3/3!+x^4/4!+--------$$

   b. Program to generate Pascal Triangle.

   ```
                    1
                1       1
            1       2       1
        1       3       3       1
    1       4       6       4       1
   ```
4. a. Bubble Sort Technique.

   b. Selection Sort Technique.

5. a. Program to perform Linear Search on the elements of a given array.

   b. Program to perform Binary Search on the elements of a given array.

6. a. To accept a line of characters and find the number of vowels, Consonants, blank spaces, digits and special characters.

   b. Write a program to read a set of strings and sort them in alphabetical order.

7. a. Read two matrices and print their product in the matrix form.

   b. Write a program to read matrix and perform the following operations.

   i. Find the sum of Diagonal Elements of a matrix.

   ii. Print Transpose of a matrix.

   iii. Write a program to print sum of even and odd numbers in a given matrix.

8. a. Generate Fibonacci Series up to n terms using functions.

   b. Find the G.C.D (Greatest Common Divisor) of two given integers using Recursion.

9. Read two strings and perform the following operations without using built-in functions

   i. String lengths.   ii .Compare Two Strings

   iii. Concatenate them, if they are not equal.   iv. String reversing.

10. a Implement Call By Reference concept. b.
    Implementation of pointer concepts.

11. Write a program to define a structure with the following members. Roll
    No : Name: Marks in Sub1: Marks in Sub2: Marks in Sub3.

    Read the „n‟ students records and find the total marks of each student and print the result in the
    following format as per the regulations.

G. Pulla Reddy Engineering College (Autonomous): Kurnool

RollNo	Name	Marks in Sub-1	Sub-2	Sub-3	Total Marks	Result
20081001	xxxxx	80	81	82	243	Distinction
20081002	yyyyy	60	60	60	180	First Class
20081003	zzzzzz	40	50	58	148	Second Class

12. Write a program to perform following operation on files.
    a. Create a file by name *emp.dat* and store the information Name, Designation and Basic pay.

    b. Read the information from *emp.dat* and calculate D.A as 50% of Basic pay and H.R.A as 20% of
       Basic Pay and calculate Gross Salary and store the information in the following format in another
       file *emp.sal.*

G. Pulla Reddy Engineering College (Autonomous) : Kurnool

Name	Designation	Basic Pay	D.A	H.R.A	Gross Salary

13. Assembling of System and Installation of Operating System.

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ME101: ENGINEERING DRAWING (ED)

(Common for all branches of I B. Tech.)

</div>

Scheme   **: 2013**
Internal Assessment : 30
End Exam   **: 70**
End Exam Duration : 3 Hrs

L	T/D	P	C
2	3	-	5

Course Outcomes:

At the end of the course, students are able to

1. To Understand the concept of projections of an object and to draw the projection of points and straight lines
2. To draw the projection of planes
3. To draw projection of regular solids
4. To draw the sectional views of regular solids and their surface developments
5. To draw the orthographic views from isometic and vice versa

<div align="center">

(First Angle Projection)

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INTRODUCTION TO ENGINEERING DRAWING

Drawing instruments and their uses, Lettering and Dimensioning. Introduction to polygons and conics. Introduction to scales (**not for End examinations**).

Unit: 1
ORTHOGRAPHIC PROJECTIONS

Introduction, planes of projections, projections of points. First angle projection-Projections of straight lines- parallel to one and inclined to other plane- Inclined to both the planes (**treatment is limited to simple problems only**)

Unit: 2
PROJECTION OF PLANES

Regular planes- perpendicular, parallel to one reference plane and inclined to other reference planes - Inclined to both the reference planes.

Unit: 3
PROJECTIONS OF SOLIDS

Projections of right regular solids- prism, pyramid, cylinder and cone with axis inclined to one plane.

Unit: 4
SECTIONS OF SOLIDS

Sectional views of right regular solids - prism, pyramid, cylinder and cone. True shapes of Sections (**Treatment is limited to simple problems only**)

Development of Surfaces: Development of surfaces of right regular solids and their sections - prism, pyramid, cylinder and cone.

.

Unit: 5

ORTHOGRAPHIC PROJECTIONS

Conversion of pictorial views into orthographic views (**Treatment is limited to simple objects only)**

Unit: 6

ISOMETRIC PROJECTIONS

Principle of Isometric projection, Isometric scale. Isometric projections of simple regular solids (**Treatment is limited to simple objects only**)

TEXT BOOKS:

1. K.L.Narayana and P.Kannaiah" Text book on Engineering Drawing," Scitech Publications, Chennai.,Second Edition,2006
2. N.D.Bhatt and V.M.Panchal," Elementary Engineering Drawing ",Charotar Publishing house , Anand, India., 45 [th] Edition , , 2002

REFERENCE BOOKS:

1. K.Venugopal, " Engineering Drawing and Graphics with Auto CAD" , New Age International(P) Limited, Publishers, New Delhi, Fourth Edition, 2001.
2. Dhananjay A Jolhe, " Engineering Drawing with an introduction to Auto CAD", Tata Mc Graw-Hill Publishing Company Ltd. , New Delhi , 2008
3. M.B.Shaw & B.C.Rana " Engineering Drawing " Pearson Education , New Delhi, Second Edition , 2009

NOTE: The Question paper shall consist of **SIX** questions, **ONE** question from each unit. The student shall answer any **FOUR** questions.

ME102: ENGINEERING WORKSHOP (EW)
(Common for all branches of I B.Tech)

Scheme : 2013
Internal Assessment : 30
End Examination : 70
Exam Duration : 3 Hrs

L	T/D	P	C
0	0	2	2

Course Outcomes:

At the end of the course, students will be able to

1. To understand the usage of tools and equipments in fitting, carpentry, house wiring, soldering, foundry and smithy
2. To prepare of simple models in carpentry, fitting and smithy
3. To prepare sand mould using foundry tools
4. To do soldering circuit boards
5. To give electrical connections in house wiring

List of Experiments

 Introduction to tools and equipment used in each trade
Cycle – I (Carpentry)
  1. Dovetail joint
  2. Mitre-faced Bridle joints
  3. Mortise and Tenon joint

Cycle – II (Fitting)
  1. V – fitting
  2. Stepped fitting
  3. Half round fitting

Cycle – III (Black smithy and Foundry)
  1. Making Round to square cross section
  2. Making eye bolt
  3. Preparation of mould with split piece pattern.

Cycle – IV (House wiring)
  1. One bulb controlled by one-way switch and two-way switches.
  2. Two bulbs in series and parallel
  3. Wiring for a water pump with single phase starter.

Cycle – IV (Soldering)
  1. Soldering Practice
  2. Soldering Resistances in Series
  3. Soldering Resistances in parallel

Student has to perform at least two jobs from each trade.

Reference Books:

1. P. Kannaiah and K.L. Narayana, " Workshop Manual ", Scitech Publication , Chennai., Second Edition, 2010
2. K.Venkata Reddy,"First year Workshop manual", Bhagyasri Publishers, Tirupathi, 2003.
3. Hazrachowdhury and S.K. Bose, *"Workshop Technology Vol.1",*Media Promoters and Publication,New Delhi. 2003.

CE101: ENGINEERING MECHANICS (EGM)
(Common for all branches of I B.Tech)

Scheme : 2013
Internal Assessment : 30
End Examination : 70
Exam Duration : 3 Hrs

L	T/D	P	C
4	1	-	5

Course Outcomes:

At the end of the course, students will be able to

1. Calculate the resultant of coplanar force system
2. Determine the unknown forces in determinate structures using equilibrium conditions
3. Determine the axial forces in the members of determinate trusses
4. Locate the Centroid of composite areas
5. Determine moment of inertia of composite areas.
6. Compute the stresses and strains of axially loaded members and elastic constants

Unit: 1
FORCES AND FORCE SYSTEMS
Types of force systems – Resultant of coplanar, concurrent and non concurrent force systems – Concept of moment – Varignon"s theorem.

Unit: 2
EQUILIBRIUM OF SYSTEMS OF FORCES
Equilibrium concept in mechanics – Free body diagram - Equilibrium of coplanar force systems – Types of members and supports – Support reactions.

Unit: 3
STATIC ANALYSIS OF SIMPLE PLANE TRUSSES
Analysis of simple trusses by method of joints and method of sections.

Unit: 4
CENTRAL POINTS
Concept of first moment – Definition of centroid and centre of gravity – Centroid of composite areas.
Unit: 5
AREA MOMENT OF INERTIA
Moment of inertia for areas – Parallel and perpendicular axis theorems – Moment of inertia of compound sections – Radius of gyration.

Unit: 6
MECHANICS OF DEFORMABLE SOLIDS
Mechanical properties of materials –Simple stresses and strains – Types of stresses – Hooke"s law – Stress–strain curve for ductile material – Factor of safety and working stress.

RELATION BETWEEN ELASTIC CONSTANTS
State of simple shear – Complimentary shear stress – Relation between Young"s modulus, Rigidity modulus, Bulk modulus and Poisson"s ratio.

Text Books:

1. R.K. Bansal, "*A text book of Engineering Mechanics*", Laxmi Publications.
2. B.C. Punmia, Ashok Kumar Jain and Arun Kumar Jain, "*Mechanics of materials*", Laxmi Publications.

Reference Books:

1. Thimoshenko & Young, "*Engineering Mechanics*", Tata McGraw–Hill Publications.
2. Bhavikatti and Rajasekharappa, "*Engineering Mechanics*", New Age Intl. Publications

NOTE:

End Exam: The question paper for end examination shall consist of one compulsory question consisting of objective type, fill in the blanks etc for 10 marks and for the remaining 60 marks student has to answer any four questions out of 6 questions for 15 marks each.

Internal Assessment: The question paper for sessional examination shall have one compulsory question carrying 6 marks and five other conventional (descriptive or analytical type) questions carrying 8 marks each. The compulsory question consists of objective type questions like the multiple choice, fill in the blanks etc. Apart from the compulsory question, the student has to answer any 3 from the remaining 5 conventional questions.

EE101: ELEMENTS OF ELECTRICAL ENGINEERING (EEE)
(Common for all branches of I B.Tech)

Scheme : 2013
Internal Assessment : 30
End Examination : 70
Exam Duration : 3 Hrs

L	T/D	P	C
3	1	-	4

Course Outcomes:

At the end of the course, students will be able to

1. Apply ohm's law and Kirchhoff's laws for resistive circuits with dc excitation
2. Understand the behavior of RLC series circuits for single phase sinusoidal excitation and voltage and current relations in a three phase system.
3. Understand the working principle and basic concepts of dc generator and motors.
4. Understand the basic concepts of single phase transformer, Induction motor and alternator.
5. Apply the concepts of illumination and lightening design
6. Understand the basic concept of earthing, electrical shock and its preventions

Unit: 1
DC CIRCUITS

Definition of Current, Potential , Resistance, Power and Energy, Symbol and Units. Ohm"s law, Kirchhoff"s laws, Solution of Series, Parallel and Series Parallel circuits . Electromagnetic Induction, Faradays Law"s, Lenz"s Law and Flemings rules. Analysis of circuits using loop current method and node voltage method. Source transformation. (Simple problems only).

Unit: 2
PRINCIPLES OF AC CIRCUITS

Instantaneous, average , r.m.s and maximum value of sinusoidal wave. Concept of phase and phase difference. Concept of Inductance and Capacitance, R-L-C in simple AC Circuits. Power factor and improvement of power factor by use of capacitors. Concept of 3-Φ system ; Star and Delta connections ; Voltage and Current relationship (no derivation) (Problems with R load only)

Unit: 3
DC MACHINES

Construction and working principle of a DC machine. Production of emf in a generator, types of excitation, Characteristics of Series , Shunt and Compound Generators , Production of torque in a DC motor, Speed control of DC Motors, losses and efficiency. (Simple Problems only).

Unit: 4
TRANSFORMERS

Working, Principle and Construction of 1-Φ Transformer, transformer ratio, emf equation, losses and efficiency ,cooling of transformers, isolation transformer, auto - transformer (brief idea), applications. (Theoretical aspects only). Appropriate equivalent circuit.

Unit: 5
INDUCTION MOTORS

Production of rotating magnetic field, construction and principle of induction motor, slip, slip-torque characteristics .Basic idea of single phase induction motor (Theoretical aspects only)

AC GENERATORS

Construction, production of emf, synchronous Impedance, losses and regulation (synchronous impedance method only) (simple problems only).

Unit: 6
ILLUMINATION

Units and laws of Illumination – Simple lighting calculations – Types of lamps – Incandescent lamps, Fluorescent lamps and Sodium-vapour lamps – Lighting schemes.

EARTHING

Neutral wire, difference between neutral wire and earth wire – Concept of earthing and various types of earthing , applications of fuse and MCB"s – electrical shock , precautions against shock
– treatment of electrical shock.

Text Books:

1. M.S. Naidu, S. Kamakshaiah, "Introduction to Electrical Engineering" *Tata McGraw Hill Publishers,* First edition, 2004.
2. B.L. Thereja, "Electrical technology-Vol-I & II)" S. Chand Publishers, 23rd edition, 2004.
3. Dr.S.L.Uppal, "Electrical Wiring, Estimating and Costing" Khanna publishers, first edition, 2008.

Reference Books:

6. H. Cotton, "Electrical Technology" CBS Publishers, 7th edition, 2005.
7. Joseph Edminister, "Electric Circuits" *Tata McGraw Hill Publishers,* 5th edition, 2010.
8. K.B.Raina, S.K.Battacharya, "Electrical Design Estimating and Costing" New age publishers, 1st edition, 1991.

NOTE:

End Exam: The question paper for end examination shall consist of One Compulsory question consisting of objective type, fill in the blanks etc for 10 marks and for the remaining 60 marks student has to answer any four questions out of 6 questions for 15 marks each.

Internal Assessment: The question paper for sessional examination shall have one *compulsory* question carrying 6 marks and five other conventional (descriptive or analytical type) questions carrying 8 marks each. The compulsory question consists of objective type questions like the multiple choice, fill in the blanks etc. Apart from the compulsory question, the student has to answer any 3 from the remaining 5 conventional questions.

EC101: BASIC ELECTRONICS ENGINEERING (BEE)
(Common for all branches of I B.Tech)

Scheme   : 2013
Internal Assessment : 30
End Examination   : 70
Exam Duration   : 3 Hrs

L	T/D	P	C
3	1	0	4

Course Outcomes:

At the end of the course, students will be able to

1. Understand EBDs, compare intrinsic and extrinsic semiconductors and solve numerical problems to calculate their conductivities
2. Understand construction, operation, characteristics & applications of diode, BJT, FET, Zener diode and SCR
3. Solve problems associated with number system conversion and Boolean algebraic simplifications using Boolean theorems and postulates
4. Design binary adders and subsectors(combinational logic circuits), understand all the types of flip-flops, asynchronous counter and shift registers(sequential circuits)

5. Explain the classification of transduces with relevant examples and analyse errors in electronic measurements

Unit: 1
SEMI CONDUCTOR PHYSICS
Classification of materials based on energy band diagrams, Transport Phenomena in semiconductors - Electrons and Holes in intrinsic semiconductor, Donor and Acceptor impurities, electrical properties of Ge and Si, Hall-effect.

Unit: 2
JUNCTION DIODE CHARACTERISTICS
Open-circuited p-n junction, p-n junction as rectifier (forward bias Reverse Bias), current components in p-n diode, Volt-Ampere characteristics of p-n diode, Diode resistance, Break down mechanism in semiconductor diodes- Avalanche breakdown and zener breakdown, Zener diode characteristics, Zener diode as voltage regulator.
Rectifiers: Half wave, Full wave, and Bridge rectifiers- their operation, performance characteristics, analysis and comparison.

Unit: 3
BIPOLAR JUNCTION TRANSISTOR
Construction, Operation of NPN and PNP transistors, symbols,
Types of configurations- CB, CE and CC configurations and their characteristics, definitions of
α, β, and γ and their relations, simple problems, Comparison of CB, CE and CC configurations,
Transistor as an amplifier. (Theoretical aspects only).
Unit: 4
JUNCTION FIELD EFFECT TRANSISTOR
Construction and operation of N-channel JFET, Circuit symbols for N and P-channel JFET, Drain characteristics, Parameters of JFET, Transfer characteristics of JFET, Comparison of JFET and BJT, Applications of JFET.
INTRODUCTION TO SCR
Construction, working principle, double transistor analogy and characteristics.(Theoretical aspects only).

Unit: 5

DIGITAL ELECTRONICS

Number Systems-Binary, Octal and Hexadecimal number systems, conversions, Binary Arithmetic, Logic gates-OR,AND,NOT,NAND and NOR gates, DeMorgon"s Theorems, Boolean Algebra, EX-OR and EX-NOR gates.

COMBINATIONAL & SEQUENTIAL LOGIC

Implementation of Boolean functions using logic gates, Half Adder, Full Adder, Half subtractor, Combinational logic verses Sequential logic, Clocked S-R Flip-Flop , J-K Flip-Flop, race-around condition, Master-Slave J-K Flip-Flop, D and T Flip-Flops, counters-decade counter, shift register.

Unit: 6

ELECTRONIC INSTRUMENTATION & MEASUREMENTS

Accuracy and precision, types of errors-statistical analysis, probability of errors. **Transducers-** Classification of transducers, strain gages, displacement transducers-capacitive,

inductive, oscillation, piezoelectric, potentiometric, velocity transducers (LVDT), Temperature measurements, applications.

Text Books:

1. Millman Jacob , Christos Halkias, Satyabrata Jit, Electronic Devices & Circuits, Tata McGraw Hill, 3rd edition, 2010.
2. S Salivahanan,N Suresh Kumar, A Vallavaraj, Electronic Devices and Circuits, Tata McGraw Hill Publisher, 4th edition, 2008
3. Millman Jacob,Christos Halkias, Integrated Electronics, Tata McGraw Hill, 1st edition, 2008
4. Digital Logic and Computer Design, Morris Mano, PHI, 3rd edition,2006
5. Electronic instrumentation and Measurement Techniques, William D. Cooper, Prentice-Hall publications, 1st edition, 2008.

Reference Books:

1. Electronic Devices and Circuits, David A. Bell, Oxford University Press, 5th edition,2008.
2. Dr. Lal Kishore ,Electronics Devices Circuits, BS Publications , 2nd Edition, 2005.
3. Electronic instrumentation and Measurement, AK Sahani, Dhanpat Rai Publications 2nd edition.2010.

NOTE:

End Exam: The question paper for end examination shall consist of One Compulsory question consisting of objective type, fill in the blanks etc for 10 marks and for the remaining 60 marks student has to answer any four questions out of 6 questions for 15 marks each.

Internal Assessment: The question paper for sessional examination shall have one *compulsory* question carrying 6 marks and five other conventional (descriptive or analytical type) questions carrying 8 marks each. The compulsory question consists of objective type questions like the multiple choice, fill in the blanks etc. Apart from the compulsory question, the student has to answer any 3 from the remaining 5 conventional questions.

HU101: PROFESSIONAL COMMUNICATION AND ENGLISH (PCE)
(Common for all Branches of I B.Tech)

Scheme   : 2013
Internal Assessment : 30
End Exam   : 70
End Exam Duration : 3 Hrs

L	T/D	P	C
4	0	-	4

Course Objectives:

At the end of the course, students will be able to

1. Use grammatically acceptable English in oral and written communication.
2. Use good vocabulary in technical and general contexts.
3. Employ various reading and listening skills like skimming and scanning, note taking and note making – top-down and bottom-up listening skills for comprehending and interpreting technical and general discourses.
4. Write technical reports, proposals, job applications, resumes, formal letters and business letters
5. Write topical, narrative, descriptive, persuasive analytical and paragraphs and essays with cohesion and coherence

Course Work

To achieve the objectives, instruction will be imparted through a Text Book, relevant ESP materials, and articles from news papers. Students will be given holistic practice in LSRW skills.

Contents

- Reading with a purpose: reading for understanding, skimming, scanning, note taking and note making
- Reading Comprehension
- Vocabulary: synonyms, antonyms, one-word substitutes, idioms and idiomatic phrases, prefixes and suffixes and foreign words and words often confused
- Common Errors: articles, prepositions, tenses, concord, modals, conditionals, etc.(Remedial Grammar)
- Essay writing
- Précis writing
- Technical Report Writing: Factual Reports and Feasibility Reports
- E-correspondence: e-mail etiquette
- Reference Skills: Use of dictionary, thesaurus, library and internet for material

Text Books:
5. Devendra Kohli &Harish Trivedi, Heritage of English, Macmillan India Ltd, 2009

Selected Topics from the Text Book
1. A Tea Party : Ruth Prawer Jhabvala

2. The Panorama of India‚s Past : Jawaharlal Nehru

3. English Zindabad Vs Angrezi Hatao : Kushwant Singh

4. Examinations : R.K.Narayan

5. Man‟s War Against Nature : Rachel Carson

Reference Books:

1. Michael Swan, Practical English Usage, Third Edition, Oxford University Press, 2006.
2. M.A.Pink & S.E.Thomas, English Grammar, Composition and Correspondence, S.Chand & Sons Pvt Ltd, New Delhi.
3. T.Samson, Innovate with English, A Course for Engineering Students, Foundation Books, 2010
4. Study Reading – A Course in Reading Skills for Academic Purposes, Foundation Books, 2008.
5. M.A.Ashraf Rozvi, Effective Technical Communication, Tata Mc Graw Hill, 2005.

NOTE:

End Exam: End Examination will be for Seventy Marks (70). The question paper will consist of Seven Questions and each question will carry ten (10) marks. All the questions are compulsory. Some questions will have internal choice. There will be questions on essay writing, short answer questions, vocabulary, correction of sentences, letter writing, reading comprehension, précis writing and report writing.

Internal Assessment: Two sessional examinations for 30 marks each will be conducted. All the questions in the Sessional Examination question paper are compulsory. Some questions will have internal choice. There will be questions on essay writing, short answer questions, vocabulary, reading comprehension, letter writing, précis writing, report writing and correction of sentences.

HU102: PHONETICS AND COMMUNICATION SKILLS LAB (PCP)
(Common for all branches of I B.Tech)

	L	T/D	P	C
	-	-	2	2

Scheme : 2013
Internal Assessment : 30
End Exam : 70
End Exam Duration : 2 Hrs

Course Outcomes:

At the end of the course, students will be able to

1. Speak internationally intelligible English without mother tongue accent
2. Adopt appropriate intonation patterns for effective oral communication
3. Identify International Phonetic Symbols to find the pronunciation of new words
4. Speak in English confidently, fluently and effectively
5. Exhibit team playing and leadership skills
6. Face job interviews confidently

PHONETICS LABORATORY

Focus in the lab is on accent neutralization for international intelligibility

1. Introduction to English Phonetic Symbols and associated sounds.
2. Practice in Consonant sounds
3. Practice in Vowels and Diphthongs
4. Practice in Accent, Rhythm and Intonation

COMMUNICATION SKILLS LABORATORY

Focus in the lab is more on fluency than on accuracy

1. Inter-personal Communication

a) Self Introduction
b) Introducing Others
c) Non-Verbal Communication
d) Posture, gait and body language.

2. Communication in Formal Situations

a) Public speaking – Extempore, Prepared Speech
b) Role-play
c) Situational Dialogues
d) Sell-out
e) JAM
f) Telephone etiquette

Books Recommended

1. Exercises in Spoken English Part – I, Part – II & Part – III Published by Central Institute of English and Foreign Languages, Hyderabad.
2. A Course in Phonetics and Spoken English, Dhamija Sethi, Prentice Hall of India, Pvt Ltd.
3. T. Balasubramanyam , A.Text Book of English Phonetics for Indian Students, Macmillan India Ltd.,
4. Krishna Mohan and Meera Benerjee , Developing Communication Skills , Macmillan India Ltd.,
5. D.Souza Eunice and Shahani. G , "Communication Skills in English" , Noble Publishing House

ML101: ENVIRONMENTAL STUDIES (ESC)
(Common for all branches of I B.Tech)

Scheme : 2013
Internal Assessment : 100
Exam Duration : 2 Hrs

L	T/D	P	C
3	0	0	2

Course Outcomes:

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

1. Apply the knowledge of Environmental issues in his area of work
2. Appreciate the need and methods for conservation of Natural Resources for sustainable development
3. Implement the knowledge of Ecosystem, Biodiversity and their importance.
4. Appreciate the Social issues related to Environment
5. Appreciate disaster management in preventing loss of property and life
6. Appraise the use of IT and related technology to conser environment and human health.

Unit-I: Introduction to Environmental Science

Definition, scope and importance of Environmental Studies, Multidisciplinary Nature - Need for public awareness.

Unit-II: Natural Resources

Energy Resources-Growing energy needs, nonrenewable and renewable energy resources: Hydel, Solar, Wind and Nuclear energy sources, Water Resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems, Forest Resources: Use and over-exploitation, deforestation, Timber extraction, mining, dams and their effects on forests and tribal people, aforestation, social forestry, Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity. Role of individual in conservation of natural resources.

Unit-III: Concept of an Ecosystem

Structure and functions of an ecosystem. Energy flow in an ecosystem, Ecological succession, Food chains and food web and ecological pyramids. Structure and functions of Forest, Grassland, Desert, Pond, River and Ocean Ecosystems.

Unit-IV: Biodiversity and Its Conservation

Levels of Biodiversity, Consumptive, Productive, Social, Ethical and Ecological service uses of Biodiversity. India as a mega diversity nation. Threats to Biodiversity- Habitat Loss, Poaching and Man-Wildlife conflicts. Conservation strategies: In-situ and ex-situ conservation -Bio-geographical classification, Endangered and endemic species of India, Biodiversity Hot Spots.

Unit-V: Environmental Pollution

Definition, Causes, effects and control measures of Air, Soil, Water, and Noise Pollutions. Nuclear hazards, Disaster management: Floods, earth quakes, cyclone and land- slides. Role of an individual in prevention of pollution. Global warming, Acid rain, Ozone layer depletion. Solid-Waste Management.

Unit-VI: Social Issues and the Environment

Consumerism and waste products, Form unsustainable to sustainable development, Acts related to Air, Water and Forest. Issues involved in enforcement of environmental legislations. Role of Information Technology in Environment and Human health. Field work.

Text Books:

1. C.P.Koushik & Anubha Kaushik " Environmental Studies" New Age International(P) Ltd., New Delhi.
2. Bharucha Erach, "The Biodiversity of India", Mapin Publishing Pvt., Ltd.

Reference Books:

1. Benny Joseph. "Environmental Studies", Tata McGraw Hill, New Delhi.
2. R. Rajagopalan, Environmental Studies-from crisis to cure, 2nd Edition, Oxford University Press, New Delhi, 2011.

NOTE:

END EXAM: There is no End Examination for this subject.

INTERNAL ASSESSMENT: Two Internal Examinations will be conducted for 50 Marks each. The Question paper consists of SIX questions. The FIRST question is compulsory. It consists of 10 questions of two marks each. Four questions to be answered from the remaining five questions and each question carries 7.5 marks.

ML102: PROFESSIONAL ETHICS AND HUMAN VALUES (PEHV)
(Common to All Branches of I B.Tech)

L	T/D	P	C
2	0	0	2

Scheme : 2013
Internal Assessment : 100
Exam Duration : 2 Hrs

Course Outcomes:

At the end of the course, students are able to

1. Understand the importance of ethics and human values and become humane.
2. Function in accordance with national and international codes of conduct prescribed by professional bodies.
3. Assess environmental issues to take protective measures to avoid risks.
4. Strike a balance between professional obligations and social responsibilities and become ethically good.
5. Understand the importance of various engineering ethics.

Unit: 1
HUMAN VALUES

Morals – Values - Ethics – Morals Vs Laws - Integrity - Work Ethics - Respect for Others - Peaceful Life - Honesty - Courage - Valuing Time- Empathy - Character - Spirituality

Unit: 2
ENGINEERING ETHICS

Definition of Engineering Ethics - Varieties of Morals - Types of Inquiry – Kohlberg's Theory –Gilligan's Theory - Consensus & Controversy - Models of Professional Roles - Customs and Religion - Uses of Ethical Theories

Unit: 3
SAFETY, RESPONSIBILITIES & RIGHTS

Safety and Risk - Risk Benefit Analysis and Reducing Risk - Collegiality and Loyalty - Respect for Authority
Confidentiality - Occupational Crime - Professional Rights - Employee Rights - Intellectual Property Rights (IPR)

Unit: 4
GLOBAL ISSUES

Multinational Corporations - Environmental Ethics - Computer Ethics -Engineers as Managers - Consulting Engineers - Moral Leadership - Sample Code of Ethics like ASME, ASCE, IEEE, Institute of Engineers, Indian Institute of Materials Management, IETE etc.,

Text Books:

 1.   Suresh, B.S.Raghavan, "Human Values and Professional Ethics", S. Chand Publications

Reference Books:

1. Mike Martin and Roland Schinzinger , "Ethics in Engineering", McGraw Hill, New York., 1996.
2. Charles D.Fleddermann , "Engineering Ethics", prentice Hall, New Mexico., 1999.
3. S. Dinesh Babu, "Professional Ethics & Human Values", Laxmi publications.

NOTE:

End Exam: There is no End Examination for this subject

Internal Assessment: Two Internal Examinations will be conducted for 50 marks each. The question paper consists of SIX questions. The First Question is compulsory. It consists of 10 questions of two marks each. THREE questions to be answered from the remaining FIVE questions and each question carry 10 Marks.