**ANIL NEERUKONDA
INSTITUTE OF TECHNOLOGY AND SCIENCES
(AUTONOMOUS)
ACCREDITED BY NBA & NAAC WITH'A'GRADE**

Affiliated to Andhra University

CURRICULUM

Dept. of Electrical & Electronics Engineering

First Year I –Semester

CODE	Name of the subject	Category	Lecture	Tutorial	Practical	Total	Sessional Marks	Semester end marks	CREDITS
EEE 111	English	HS	3	1	-	4	60	40	3
EEE 112	Engineering Mathematics – I	BS	3	1	-	4	60	40	3
EEE 113	Engineering Physics	BS	3	1	-	4	60	40	3
EEE 114	Engineering Drawing	ES	1	-	3	4	60	40	3
EEE 115	Environmental Sciences	BS	3	1	-	4	60	40	3
EEE 116	Engineering Physics Lab	BS	-	-	3	3	50	50	2
EEE 117	Programming with 'C' Lab	ES	2	-	3	5	50	50	3
EEE 118	Engineering Workshop	ES	-	-	3	3	50	50	2
	NCC	AC	-	-	3	3	-	-	-
	Total		*15*	*4*	*15*	*34*	*450*	*350*	*22*

First Year II –Semester

CODE	Name of the subject	Category	Lecture	Tutorial	Practical	Total	Sessional Marks	Semester end marks	CREDITS
EEE 121	Engineering Mathematics – II	BS	3	1	-	4	60	40	3
EEE 122	Engineering Chemistry	BS	3	1	-	4	60	40	3
EEE 123	Professional Ethics & Human Values	HS	2	1	-	3	-	100	2
EEE 124	Applied Physics	BS	3	1	-	4	60	40	3
EEE 125	Fundamentals of EEE	PC	3	1	-	4	60	40	3
EEE 126	Engineering Chemistry Lab	BS	-	-	3	3	50	50	2
EEE 127	Language Lab	HS	-	-	3	3	50	50	2
EEE 128	Objective Oriented Programming with C++ Lab	ES	2	0	3	5	50	50	3
	NSS / Sports	AC	-	-	3	3	-	-	-
	Total		*16*	*5*	*12*	*33*	*390*	*410*	*21*

BS : Basic Sciences; ES : Engineering Sciences; HS : Humanities and Social Sciences; PC : Professional Core;
PE : Professional Elective; OE : Open Elective; PW : Project Work; IT : Industrial Training; AC : Audit Course

FIRST YEAR SYLLABI

I- Semester

&

II- Semester

ENGLISH
(Common for all branches)

EEE 111   **Credits:3**

Instruction : 3 Periods & 1 Tut/Week	Sessional Marks : 40
End Exam :3 Hours	End Exam Marks: 60

Course Objectives:

> To improve the language proficiency of the students in English with emphasis on Reading and Writing skills.

> To enable the students to study engineering subjects with greater comprehension & cognizance.

To strengthen the vocabulary of the students.

To enable the students to write grammatically correct structures with logical flow.

> To equip the students with the knowledge of different formats of business communication.

Course Outcomes:

	By the end of the course, the student will be able to:
1.	Analyze the structure of the phrases, clauses and sentences
2.	Apply his enriched vocabulary to give better shape to his communication skills.
3.	Effectively use different formats of business correspondence.
4.	Use idiomatic expressions and foreign phrases in his communication.
5.	Analyse, interpret and compose meaningful texts.

SYLLABUS

UNIT I   10 Periods

Vocabulary   : One Word Substitutes

Grammar   : Noun : Noun Phrase, Gerunds

Writing Skills   :

1) Formal Letter writing – format, style of letter writing and types of letters — complaint, enquiry, requesting quotations, invitation, regret and acceptance.

2) Story Building-Developing a story from the key words, giving a title and describing learning outcomes.

UNIT II   10 Periods

Vocabulary   : Foreign phrases or expressions

Grammar   : Adjectives : Quantifiers, qualifiers, determiners, nouns as adjectives, verbs as adjectives, adjective phrases

Writing Skills:

1. Technical Report writing – Formal reports and types: Informational reports, Analytical reports and Recommendation reports— Status, feasibility, progress, incident and project.

2. Essay writing.

UNIT III   10 Periods

Vocabulary   : Idiomatic expressions- meaning and usage.
Grammar   : Articles (concept and function; definite ,indefinite and
                      omission of articles)
Writing Skills :
1.   Preparation of C.V. and Resume-format, style purpose and objective.
2.   Précis- writing technique with suitable title.

UNIT IV   9 Periods

Vocabulary   : Phrasal Verbs derived from the following dynamic verbs: Go,
                      Get, Run, Take, Look, Put, Hold, Stand etc.
Grammar   : Prepositions or prepositional phrases
Writing Skills :
1.   Reading comprehension – questions based on facts, interpretation, logical
      deduction, vocabulary.
2.   E-mail etiquette- format, style and language

UNIT V   9 Periods

Vocabulary   : Synonyms and Antonyms (From the text book only)

Grammar   : Pronouns: Kinds of pronouns, relative pronouns – who and
TEXT BOOK: whom, whose, which Verbs - Aspects, moods, tenses, direct
Life through   and indirect speech (active and passive voice), concord,
language Pearson Infinites and verb participles, verb phrase, Conditionals –
Publication Delhi   probable, improbable, impossible, If-clause, Correction of
                    sentences

REFERENCE BOOKS:
1.   GJ.K. Gangal*A Practical Course for Developing Writing Skill in English*PHI
2.   Mark Lester and Larry Beason *Handbook of English Grammar &Usage*
      Tata McGraw Hill.
3.   S.M.Gupta *Current English Grammar And Usage* PHI
4.   Dr. P. Prasad, Rajendra K Sharma*The Functional Aspects of
      Communication Skills*Katson Books
5.   AbulHashem *Common errors in English* Ramesh Publishing House
6.   M. Ashraf Rizvi *Effective Technical Communication* Tata Mc-Graw Hill
7.   Edgar Thorpe &Showick Thorpe *Objective English* Pearson

ENGINEERING MATHEMATICS-I
(Common for all branches)

EEE 112   **Credits :3**

Instruction : 3 Periods & 1 Tut/Week   Sessional Marks :40

End Exam : 3 Hours   End Exam Marks:60

Course Objectives :

To impart knowledge in basic concepts of functions of several variables and their applications like maxima & minima.

To enable the students to study the concepts of Fourier series.

To enable the students to study the concepts of three dimensional figures like sphere, cone cylinder and conicoids.

To equip the students with the knowledge of multiple integrals and their applications.

To introduce the concepts of improper integrals like beta, gamma & error functions.

Course Outcomes:

By the end of the course, student will be able to:	
1.	Familiarize with functions of several variables
2.	Apply Fourier series in solving boundary value problems
3.	Applythe concept of three dimensional analytical geometry
4.	Use mathematical tools needed in evaluating multiple integral and their usage.
5.	Use the concepts of improper integrals, Gamma, Beta and Error functions which are needed in Engineering applications

SYLLABUS

UNIT I   12 Periods

Partial Differentiation: Function of two or more variables – Partial Derivatives – which variable is to be treated as constant – Homogeneous functions – Euler's theorem – Total Derivative - Change of Variables .Jacobians – Taylor's theorem for functions of two variables – Maxima and Minima functions of two variables.

UNITII   12 Periods

Fourier series: Introduction – Euler's formula – conditions for a Fourier expansion – Functions having points of Discontinuity – Change of interval – Even and Odd functions – Half range series-Parseval's formula.

UNIT III   12 Periods

Three Dimensional Analytical Geometry: Equation of a sphere – Plane section of a sphere – Tangent Plane - Equation of a cone – Right circular cone – Equation of a cylinder – Right circular cylinder.

UNITIV   14 Periods

Multiple Integrals: Double integrals – Change of order of integration – Double integral in polar co-ordinates – Area enclosed by plane curves – Triple Integrals. Volume of Solids- Change of Variables-Area of curved surfaces, Calculation of mass.

UNIT V   10 Periods

Beta & Gamma functions : Beta function – Gamma function relation between Beta and Gamma functions –results and problems, error function.

TEXT BOOK:

1.   Dr. B.S. Grewal, Higher *Engineering Mathematics*43rd edition, Khanna Publishers, New Dehli.

REFERENCE BOOKS:

1.   N.P. Bali, Dr . Ashok Saxena,Dr.N.Ch.S. Narayana, *A Text book on Engineering Mathematics*Laxmi pub.(p)Ltd. New Dehli

2.   H.K.Dass, *Advanced Engineering Mathematics*,S.chand and company Ltd

3.   Dr.M.K. Venkataraman, *Higher Engineering Mathematics* National Pub.Co.Madras.

4.   Erwin kreyszig. *Advanced Engineering Mathematics* John Wiley and sons Newyork

ENGINERING PHYSICS
(Common for all branches)

EEE 113   **Credits:3**

Instruction : 3 Periods & 1 Tut/Week   Sessional Marks :40

End Exam : 3 Hours   End Exam Marks:60

Course Objectives:

To impart knowledge in basic concepts of physics relevant to engineering applications

To introduce advances in technology for engineering applications

Course Outcomes:

	By the end of the course, student will be able to:
1	Understand the fundamental concepts of thermodynamics.
2	Familiar with the fundamentals of electromagnetic induction and Ultrasonics.
3	Aware of the basic concepts of optics like interference, diffraction, polarization and its various applications.
4	Understand the working principle and applications of lasers and fiber optics.
5	Learn fundamentals of modern physics and its importance in modern technology.

SYLLABUS

UNIT I   10 Periods

Thermodynamics: Heat and work, first law of thermodynamics and its applications, reversible and irreversible processes, heat engine, Carnot cycle and its efficiency, Carnot's theorem, second law of thermodynamics, entropy – entropy change in reversible and irreversible processes, entropy and second law, entropy and disorder, entropy and probability, third law of thermodynamics

UNIT II   10 Periods

Electromagnetism: Faraday's law of induction , Lenz's law, Integral and differential forms of Faraday's law , self-inductance, energy stored in electric and magnetic fields, Poynting vector, displacement current, Maxwell's equations in integral form (no derivation), wave equation, propagation of electromagnetic waves in free space

Ultrasonics: Properties of ultrasonic waves, production of ultrasonic waves by magnetostriction and piezoelectric methods, applications of ultrasonics

UNIT III   10 Periods

Optics

Interference: Introduction, principle of superposition, coherence, Young's double slit experiment, conditions for interference, interference in thin films by reflection, wedge shaped film and Newton's rings

Diffraction: Introduction, Fresnel and Fraunhofer diffraction, diffraction at a single slit

Polarisation: Introduction, types of polarized light, double refraction in uniaxial crystals, Nicol's prism, quarter and half-wave plate, production and detection of plane, circular and elliptically polarized light

UNIT IV   10 Periods

Lasers: Introduction, characteristics of a laser beam, spontaneous and stimulated emission of radiation, population inversion, Ruby laser, He-Ne laser, semiconductor laser, applications of lasers

Fibre optics: Introduction to optical fibers, principle of propagation of light in optical fibers,, acceptance angle and acceptance cone, numerical aperture, types of optical fibers, modes of propagation and refractive index profiles, attenuation in optical fibers, advantages of optical fibers in communications, fiber optics communication system, applications of optical fibers, fiber optic sensors

UNIT V   10 Periods

Quantum Mechanics: Planck's hypothesis, wave-particle duality, introduction to quantum theory, de-Broglie concept of matter waves, Heisenberg's uncertainty principle, Schrodinger's time independent and time dependent wave equations, physical significance and properties of the wave function ψ , application of Schrodinger wave equation for a particle in one dimensional well – eigenwavefunctions and energy eigen values of the particle Elements of Statistical Mechanics: Elementary concepts of Maxwell-Boltzman, Bose-Einstein and Fermi-Dirac statistics (no derivation)

TEXT BOOKS:

1.   S.L Gupta and SanjeevGupta*Engineering physics*DhanpatRai publications.

2.   M.N. Avadhanulu&P.G.Kshirasagar*A text book of engineering physics*, S.Chand publication

3.   Resnick&Halliday*Physics* - Volume II

REFERENCE BOOKS:

1)   V. Rajendran*Engineering physics*McGrawHill Education Private Ltd

2)   S.O.Pilai, Sivakami*Engineering Physics* New Age International Publishers

3)   Young & Freedman *University Physics* Pearson Education

4)   A.Marikani*Engineering Physics* PHI Learning Private Limited

ENGINERING DRAWING
(Common for all branches)

EEE 114　　　　　　　　　　　　　　　　　　　**Credits :3**
Instruction : 1 Theory& 3 Practical Periods/week　　Sessional Marks :40
End Exam : 3 Hours　　　　　　　　　　　　　　End Exam Marks:60

Course Objectives:

To increase ability to communicate with people and learn to sketch and take field dimensions.

To make the student familiar to the drawing practices and convection

To familiarize the student about various engineering curves used in industry

To enable the student draft simple engineering components and analyze different views of components.

To introduce basic Auto CAD skills.

Course Outcomes:

By the end of the course, student will be able to:	
1.	Draw various engineering curves and understand the basic geometrical constructions.
2.	Prepare orthographic projections of points and lines
3.	Produce orthographic projections of plane surfaces
4.	Draw orthographic projections of solids in various orientations.
5.	Prepare isometric projections and understand basics of Computer Aided Drafting.

SYLLABUS

UNIT I

Introduction to Engineering Drawing & basics of geometrical construction. Construction of conic sections, Construction of cycloidal curves (cycloid, epicycloid, and hypocycloid), involutes (over circles and polygon) & Archimedian spiral.

UNIT II

Orthographic projections – projections of points – projections of straight lines (lines parallel to both HP&VP, lines parallel to one and inclined to other, lines inclined to both the planes)

UNIT III

Projections of planes – perpendicular planes – oblique planes

UNIT IV

Projection of solids – Prisms – Cylinder– Pyramids &Cones

UNIT V

Isometric projections – Plane solids, Combination of solids Demonstration & Practice: Computer aided drafting of lines, planes solids and Dimensioning.

TEXT BOOK:

1.   N. D. Bhatt *Engineering Drawing* Charotar Publishing House Pvt. Ltd, 53rd Edition : 2014

REFERENCE BOOKS:

1.   K. L. Narayana& P. Kanniah *Engineering Drawing*

2.   R. B. Choudary *Engineering Graphics* with Auto CAD

3.   TrymbakaMurty *Computer Aided Engineering Drawing*

ENVIRONMENTAL SCIENCES
(Common for all branches)

EEE 115   Credits 3
Instruction : 3 Periods & 1 Tut/Week   Sessional Marks :40
End Exam : 3 Hours   End Exam Marks:60

Course Objectives:

To gain knowledge on the importance of environment and ecosystems.

> To acquire knowledge with respect to biodiversity, its threats and its conservation and appreciate the concept of interdependence.

> To acquire knowledge about environmental pollution- sources, effects and control measures of environmental pollution

To understand the treatment of wastewater and solid waste management.

> To be aware of the national and international concern for environment for protecting the environment

Course Outcomes:

	By the end of the course, student will be able to:
1	Identify the characteristics of various natural resources and can implement the conservation practices
2	Realize the importance of Ecosystem and Biodiversity for maintaining ecological balance
3	Classify, analyze various pollutants and can develop methods for solving problems related to environment
4	Design and evaluate strategies and methods for sustainable development of environmental systems and for the remediation or restoration of degraded environments
5	Get awareness on various environmental laws and regulations applicable to global issues and play a role in solving social problems

SYLLABUS

UNIT I   10 Periods

Introduction to Environment and Natural Resources : Introduction: Definition, Multidisciplinary nature, Scope and Importance of Environmental Sciences- R & D in environment, green advocacy, green marketing, green media and environment consultancy. Need for public awareness.

Natural Resources: Forest resources-use and overexploitation, deforestation, Big Dams effects on forests and tribal people. Water resources-sources, use and over utilization of surface and ground water, conflicts over water, dams-benefits and problems. Food resources-environmental impact of modern agriculture-fertilizer and pesticides. Land resources-land degradation- landslides, soil erosion and desertification. Energy resources- renewable and non-renewable energy resources and use of alternate-energy sources.

UNIT II   10 Periods

Ecosystem & Bio Diversity : Ecosystem: Concept of an ecosystem-structure and function of an ecosystem Food chains, food webs and ecological pyramids, Energy flow in an ecosystem, Ecosystem regulation, Ecological succession. Types, characteristic features, structure and function of forest, grass land, desert and aquatic ecosystems.

Biodiversity : Definition, types, India as a Mega diversity Nation, Values of biodiversity, Hot spots of biodiversity, Threats to biodiversity-habitat loss, poaching, human-wildlife conflicts, Endangered and endemic species, Conservation of biodiversity.

UNIT III   10 Periods

Environmental Pollution and Waste Management : Sources, effects and control measures of Air pollution, Noise Pollution, Soil Pollution, Marine pollution, Thermal pollution, Radio Active Pollution. Water Pollution (Sources, Effects, Control measures, DO, BOD, COD, sewage treatment), Green house effect, Ozone depletion, Acid rain –causes and adverse effects.

Solid waste management : Sources and effects of municipal waste, bio-medical waste, Industrial waste, e-waste, Process of waste management-composting, sanitary landfills, incineration.

UNIT IV   8 Periods

Social Issues and Environment : Social Issues and the Environment: From unsustainable to sustainable development, Environmental Impact Assessment, Water conservation, Rain water harvesting, water shed management. Resettlement and rehabilitation of people, Environmental ethics.

Urbanization, Industrialization, Transportation, Human population and the environment-population growth, role of information technology in environment and human health.

UNIT V   10 Periods

Legislations, Conventions & Case Studies : Environmental protection act-Air (prevention and control of pollution) act, Water (prevention and control of pollution) act, Wildlife protection act, Forest conservation act.

International Conventions : Stockholm Conference, Brundtland Commission, Rio declaration, Vienna Convention, Kyoto protocol, Johannesburg Summit.

Case Studies: Chipko Moment, Kolleru Lake, Flourosis, Silent valley project, Narmada BachoAndolan, Ralegeon siddhi, Tehri dam, Madhura refinery and Tajmahal

TEXT BOOK:

1.   AnubhaKaushik&C.P.Kaushik*Principles of Environmental Studies*New Age International Publications.

REFERENCE BOOKS:

1.   B.K. Sharma *Environmental chemistry*Goel publishing house, Meerut, 2001.

2.   G. S. Sodhi*Fundamental concepts of Environmental Chemistry*, Narosa publishing house, New Delhi

3.   S .S.Dara*A text book of Environmental Chemistry and pollution control*S.Chand and Company Ltd, New Delhi, 2002.

ENGINEERING PHYSICS LAB
(Common for all branches)

EEE 116   **Credits: 2**
Practical / week : 3   Sessional Marks :50
End Exam : 3Hrs   End Exam Marks : 50

Course Objectives:
> To enable the students to acquire skill, technique and utilization of the Instruments

Course Outcomes:

By the end of the course, student will be able to:
1   Design and conduct experiments as well as to analyze and interpret data.
2   Apply experimental skills to determine the physical quantities related to Heat, Electromagnetism and Optics.

List of experiments (any eight to ten experiments are to be completed)

1. Determination of coefficient of thermal conductivity of a bad conductor-Lee's method.

2. Determination of radius of curvature of a convex lens - Newton's rings.

3. Determination of wavelengths of spectral lines in mercury spectrum-using diffraction grating in normal incidence position.

4. Determination of Cauchy's constants of the material of the prism using spectrometer.

5. Determination of thickness of a thin paper by forming parallel interference fringes-Wedge method.

6. Study of variation of magnetic field along the axis of a current carrying circular coil – Stewart and Gee's apparatus

7. Calibration of a low-range voltmeter using potentiometer.

8. Verification of laws of resistance and determination of specific resistance of wire by using Carey- Foster's bridge.

9. Determination of refractive indices o-ray and e-ray in quartz crystal (double refraction)

10. Determination of the frequency of an electrically maintained tuning fork - Melde's experiment.

11. Determination of Rydberg constant using hydrogen discharge tube.

12. Characteristics of photo cell and determination of Planck's constant – Photoelctric effect.

13. Determination of e/m of an electron by Thomson's method

14. Determination of band gap of semiconductor.

TEXT BOOK:

1. Physics Laboratory Manual   prepared by Department of Physics ANITS

REFERENCE BOOKS:

1. D.P Siva Ramaiah and V. Krishna Murthy *Practical physics* Maruti book Depot

2. A.R Vegi *Comprehensive practical Physics* Vegi Publishers Pvt.Ltd.

PROGRAMMING WITH C LAB
(Common for all branches)

EEE 117   **Credits : 3**
Instruction : 2 Periods/Week Practicals : 3 Periods/week   Sessional Marks : 50
End Exam : 3Hrs   End Exam Marks : 50

Course Objectives :
To enable students to
Understand the program development steps using compilers.
      Strengthen the problem solving skills using programming techniques.
      Design programs using various control structures.
Develop programs using structures, unions and files.

Course Outcomes:

By the end of the course, student will be able to:	
1.	Gain a working knowledge on programming.
2.	Learn and use the fundamentals of a programming language (such as language-defined data types (int, float, char, double), control constructs (sequence, selection, repetition), program modules (including functions, modules, methods).
3.	Exhibit the ability to formulate a program that correctly implements the algorithm.
4.	Demonstrate the effective use the programming environment used in the course.

SYLLABUS

1. Overview
2. Introduction to Unix
3. Data Types, Constants
4. Operators, Expressions
5. Control Structures
6. Arrays & Strings
7. Pointers
8. Functions.
9. Structures & Unions
10. Files

REFERENCE BOOKS:

1. YashwantKanetkar*Let Us C* 5th Edition.
2. V.Rajaraman*Fundamentals of Computers* 4th Edition, PHI 2005.
3. Programming Techniques through C, M.G. V. Murthy, Pearson Education, 2002
4. KRVenugopal, SR Prasad *Mastering C* Tata McGraw Hill.
5. B.W. Kernighan, Dennis M. Ritchie *The C – Programming Language* PHI

LIST OF SAMPLE PROGRAMS

1. Write a C program for any three of the following

   i) To accept the distance between two cities and convert the distance in meters, feet, inches and centimeters. (Note: Input distance in Kilometers).

   ii) To accept the marks obtained by a student in five different subjects, calculate the total marks and percentage obtained by the student (The maximum marks for each subject is 100).

   iii) To accept a 3-digit number and calculate the sum of its digits.

   iv) To accept quantity, product code, unit price of five products and calculate the total price for each product and the SUBTOTAL, TAX, TOTAL and print the details in the following format

Qty	Product code	Unit price	Total price
XX	1	400.00	XXXX.XX
XX	2	20.00	XXXX.XX
XX	3	200.00	XXXX.XX
XX	4	100.00	XXXX.XX
XX	5	200.00	XXXX.XX
		SUB TOTAL	XXXXX.XX
		TAX	XXXX.XX
		TOTAL	XXXXX.XX

   v) To evaluate the following expression

   a) $(ax + by) / (ax - by)$

   b) $a^2 + b^2 + \sqrt{2ab}$

2. Write a C program for any three of the following

   i) To find the maximum and minimum of three numbers.

   ii) For the above experiment in 1-ii) find and display the grade of the student as prescribed below:

Percentage	Grade
>90	A
>80 and <=90	B
>70 and <=80	C
>60 and <=70	D
>=50 and <=60	E
< 50	F

   iii) To find the roots of a quadratic equation.

   iv) To find the area of a triangle when

        a)   Sides are given

        b)   Base and height are given

        c)   Co-ordinates are given

   v)   To accept an alphabet and convert into its opposite case.

       (Do not use library functions)

3.   Write a C program for any four of the following

   i)   To print prime numbers between the specified range (eg. 100 to 200)

   ii)   To generate Pascal triangle format

   iii)   To compute cosine series: $\cos(x) = 1 - x^2/2! + x^4/4! - x^6/6! + \ldots$

   iv)   To check whether number is palindrome or not.

   v)   To print set of Armstrong numbers in a specified range. (eg. 100 to 200)

   vi)   To convert the numbers from the following

        a)   Binary to decimal

        b)   Decimal to binary

4.   Write a C program to perform the following operations in a given array of 'n' numbers

   i)   Sum of all the numbers

   ii)   Minimum and maximum in the array

   iii)   Searching an element

   iv)   To generate random real numbers in the range of 10 to 20 and sort them.

5.   Write a C Program to perform the following on the matrices

   i)   Transpose of a matrix and check the symmetry

   ii)   Trace and norm of a matrix

   iii)   Addition of matrices

   iv)   Multiplication of two matrices

6.   Write a C program to perform any two of the following operations on strings (not using library functions)

   i)   To check whether the given string is palindrome or not.

   ii)   To find the length of the string

   iii)   To concatenate two strings.

   iv)   To check whether the given substring exists in a text and display the frequency.

7.

   i)   Write a C program to create a structure for a student with the details name, roll no five subject marks, total marks, percentage and sort the records according to the percentage.

   ii)   Write a C program to add two complex numbers using structures.

   iii)   Write a C program to illustrate difference between union and structure.

8.
  i) Write a program to calculate the sum of an array using pointers.
  ii) Write a program to search a name in a given list of names using pointers
9. Write a C program using functions
  i) To illustrate call by value and call by reference
  ii) To accept a string and character and pass them as parameters to a function, the function shall replace the character in the string with any other specific character and return the modified string.
  iii) To pass the employee record as a structure to the function. The function shall compute the gross salary (include DA and HRA Calculation), take the savings as input and compute the tax payable as per the prescribed table.

Gross Salary	Tax (%)
Less than 2 Lakhs	NIL
2 Lakhs to 5 Lakhs	10
5 Lakh to 10 Lakh	20
10 Lakhs to 50 Lakhs	30
Above 50 lakhs	50

Note: The employee record shall contain employee name, employee id, hire date, basic salary, DA, HRA.
10. Write a C program for any one program for the following to illustrate recursion
  i) Factorial of a number
  ii) GCD and LCM of two numbers
  iii) Fibonacci series
11. Write a C program to perform any three of the following on files
  i) To count the number of alphabets, numbers, words, lines in a given file.
  ii) To merge two files into third auxiliary file and display the content.
  iii) To print every even position character in a given file.
  iv) To separate alphabets and integers into two files from the given source file.
12. Write a C program to update the record of a person in a file by accepting person ID.
  Hint:
  1. Create the file with few records.
  2. The fields in a record
    a. Name of the person
    b. Identity(ID) of the person
    c. Age
    d. Gender
    e. Occupation
    f. Salary

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WORKSHOP

(Common for all branches)

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EEE 118   **Credits : 2**

Practical / week :3   Sessional Marks :50

End Exam : 3Hrs   Exam Marks : 50

Course Objectives:

         To provide training and hands on experience to the students on basic Engineering related skills like carpentry, fitting, house wiring and tin smithy.

Course Outcomes:

By the end of the course, student will be able to:	
1.	Make different carpentry joints.
2.	Make simple fitting jobs.
3.	Make simple jobs like funnel, elbow etc. using sheet metal.
4.	Understand and build circuits for different types of applications like stair case wiring, series and parallel connections.

LIST OF EXPERIMENTS

Minimum of three exercises has to be conducted from each trade.

Trade:

Carpentry	1. Cross Lap Joint
	2. Dovetail Joint
	3. Mortise and Tennon Joint
	4. Briddle Joint
Fitting	1. V Fit
	2. Square Fit
	3. Half Round Fit
	4. Dovetail Fit
House Wiring	1. Parallel / Series Connection of three bulbs
	2. Stair Case wiring
	3. Florescent Lamp Fitting
	4. Measurement of Earth Resistance
Tin Smithy	1. Taper Tray
	2. Square Box without lid
	3. Elbow
	4. Funnel

ENGINEERING MATHEMATICS-II
(Common for all branches)

EEE 121   **Credits :3**

Instruction : 3 Periods & 1 Tut/Week   Sessional Marks :40

End Exam : 3 Hours   End Exam Marks:60

Course Objectives:

To impart knowledge in basic concepts of solving linear system of equations.

To enable the students to study the Eigen values and Eigen vectors of matrix.

To introduce the concepts of ordinary differential equations and their applications to engineers.

To enable the students to solve any higher order differential equations and to solve differential equations related to simple electric circuits, Newton's law of cooling.

To introduce the students to Laplace Transforms and their applications.

Course Outcomes:

	By the end of the course, student will be able to:
1.	Solve linear system equations using of matrix algebra techniques
2.	Determine the Eigen values and vectors of a matrix
3.	Apply different techniques in solving differential equations that model engineering problem
4.	Use the application of Differential equations like simple electric circuits, Newton's law of cooling and to solve any higher order linear ordinary differential equation with constant coefficients
5.	Solve linear differential equations and Network analysis using Laplace transforms.

SYLLABUS

UNIT I   11 Periods

Linear Algebra: Rank of matrix-Elementary Transformation of a matrix- Gauss Jordan Method of finding the inverse – Normal form of the matrix- PAQ form – Consistency of linear system of equations – System of homogeneous and non-homogeneous equations .

UNIT II   12 Periods

Linear transformations – Orthogonal transformations- Vectors (Linearly Independent & Dependent) ,Eigen values , Eigen Vectors, Properties of Eigen values – Cayley Hamilton theorem (without proof).Reduction to diagonal form – Reduction of Quadratic form to canonical form – Nature of quadratic form.

UNIT III   10 Periods

Differential Equations of first order : First order Linear differential equations, Bernoulli's equations , Exact Differential Equations –Equations reducible to exact Equations - Orthogonal trajectories – Simple Electric circuits-Newton law of cooling.

UNIT IV   10 Periods

Higher order Linear Differential Equations : Definitions – Rules for finding the complementary function, rules for finding the particular integral, method of variation of parameters, equations reducible to linear equations with constant coefficient - Cauchy's homogeneous linear equation, Legendre's linear equation.

UNIT V   17 Periods

Laplace Transforms: Introduction – definitions- Transforms of elementary functions - Properties of Laplace transforms- Transforms of Periodic functions – Transforms of Derivatives – Transforms of Integrals- Multiplication by - division by t -Evaluation of integrals by Laplace transforms.

Inverse Laplace transforms – Other methods of finding inverse transforms (Excluding Residue method) Convolution theorem – Application's to Differential Equations – Unit Step function- Unit Impulsive functions.

TEXT BOOK:

1.   Dr. B.S. Grewal*Higher Engineering Mathematics*43rd edition, Khanna Publishers, New Dehli.

REFERENCE BOOKS:

1.   N.P. Bali, Dr . Ashok Saxena,Dr.N.Ch.S. Narayana, *A Text book on Engineering Mathematics*Laxmi pub.(p)Ltd. New Dehli.
2.   H.K.Dass, *Advanced Engineering Mathematics*,S.chand and company ltd
3.   Dr.M.K. Venkataraman, *Higher Engineering Mathematics* National Pub.Co.Madras.
4.   Erwin kreyszig. *Advanced Engineering Mathematics*John Wiley and sons, Newyork.

ENGINEERING CHEMISTRY
(Common for all branches)

EEE 122   **Credits :3**

Instruction : 3 Periods & 1 Tut/Week   Sessional Marks :40

End Exam : 3 Hours   End Exam Marks:60

Course Objectives:

To provide knowledge on problems associated with impure water and various water treatment technologies

To enable the students to know the importance of semiconducting materials and preparation techniques

To provide basic knowledge on conventional energy resources, developments in batteries and fuel cells

To understand the corrosion of metals, various methods to prevent and control of corrosion

To create awareness on advanced concepts like nano materials, green chemistry and eco-friendly technologies for future development

Course Outcomes:

	By end of the course, student will be able to:
1	Identify the problems associated with raw water in various applications and can adopt suitable technologies for domestic and industrial feed waters.
2	Identify & generalize the properties of semiconducting materials and can select suitable semiconducting & various ceramic materials for specific applications.
3	Classify and analyze the conventional energy sources and design of suitable batteries/cells for different engineering applications.
4	Select and design of suitable materials to prevent corrosion and protect various parts from corrosion.
5	Implement the green chemistry principles, concept of tribology, unique properties of nano &composite materials in designing of suitable methods and materials to meet the technological challenges.
6	Solve scientific problems related to various engineering fields.

SYLLABUS

UNIT I   10 Periods

Water Chemistry: Impurities in water, Hardness of water - units and calcium carbonate equivalents, -estimation of hardness (EDTA method) - disadvantages of hard water, boiler troubles- Scale & Sludge formation - prevention- Internal treatment - (Phosphate, Carbonate and Calgon conditioning) -Caustic embrittlement

Water treatment techniques: Softening of water -lime-soda process -numerical problems on LS process -Zeolite, -ion exchange methods, Desalination of water – Reverse osmosis and Eelectrodialysis, Municipal water treatment - Screening, sedimentation, coagulation, Sterilization- Chlorination-Break Point chlorination.

UNIT II   10 Periods

Solid State Chemistry: Classification of Solids, Band theory of solids. Chemistry of Semiconductors – Intrinsic, extrinsic, compound and defect semiconductors, Organic semiconductors, Purification and preparation of Semiconductor by zone refining – Single crystal growth(Czochralski method) – epitaxial growth. Liquid crystals, LCD, LED and OLED.

Ceramic Materials : Cement-Manufacture of Portland cement - Setting and hardening of cement - Cement concrete - RCC, Refractories - Classification - properties, Ceramics and its Engineering applications.

UNIT III   10 Periods

Thermal Energy: Fuel –types of fuels -Calorific value and its determination (Bomb calorimeter method) Coal- Ranking of coal - analysis (proximate and ultimate) – COKE – Manufacture (Otto Hoffmann's process). Petroleum – refining of Crude oil; Synthetic petrol – Fisher - Tropsch and Bergius methods, Knocking in Petrol and Diesel engine – Octane number - Cetane number, LPG and CNG.

Chemical Energy: Electrode potential, electro chemical series – Reference electrodes – SHE, Calomel electrode – Galvanic cells – primary cells (Dry cell) secondary cells (Lead acid, Ni-Cd, Li ion batteries) H_2-O_2 fuel cells.

Solar Energy: Construction and Working of Photovoltaic cell

UNIT IV   08 Periods

Corrosion Chemistry: Origin and theories of corrosion – Types of corrosion - Galvanic corrosion, concentration cell corrosion, pitting corrosion, stress corrosion, inter granular corrosion; Factors affecting corrosion – Corrosion

Prevention & Control of Corrosion: Cathodic protection; Corrosion inhibitors; Protective coatings –Galvanization & Tinning –Anodized coatings - paints & special paints

Nanochemistry: Introduction, growth of nanoparticles (Sol-gel process), Fullerenes and Carbon nanotubes

Green chemistry: Principles of Green chemistry, Alternative Solvents used in green synthesis.

Lubricants: Concept of Tribology -Mechanism of lubrication- Blended oils - properties of lubricating oils -Viscosity Index -Fire & Flash Point -Cloud &Pour Point -Aniline point.

High Polymers & Composites : Basic concepts of Polymers, Effect of polymer structure on properties. Plastics-Thermoplastic and Thermosetting resins, Composites -types- Fiber Reinforced Plastics -Particulate composites -Layer composites, engineering applications of composites.

TEXT BOOK:

1.   P.C. Jain and M. Jain *Engineering Chemistry* 16th edition - DhanapathiRai& Sons, Delhi

REFERENCE BOOKS:

1.   S.S. Dara*A text book of Engineering Chemistry* 15 the edition, S. Chand & Co. New Delhi

2.   O.G.Palanna*Engineering Chemistry* Tata Mcgraw Hill Education pvt ltd, New Delhi.

3.   B.K. Sharma *Engineering Chemistry* - Krishna Prakashan Meerut

4.   A.K.Bandopadhayay*Nanomaterials* new age international publishers.

5.   V.K. Ahluvalia*Green solvents for organic synthesis*Narosa publications.

PROFESSIONAL ETHICS AND HUMAN VALUES
(Common for All Branches)

EEE 123   **Credits :2**

Instruction : 2 Periods & 1 Tut/Week   Sessional Marks : 100

Course Objectives :

       To understand moral values and their significance.

       To draw inspiration for imbibing moral values

To understand professional ethics and obligations

To know the code of ethics of relevant Professional societies

Course Outcomes:

By end of the course, student will be able to:	
1.	Understand the right code of conduct.
2.	Assess his/her roles as a proactive member of the society
3.	Solve moral dilemmas and issues
4.	Implement Code of ethics of relevant Professional societies

SYLLABUS

UNIT I: Introduction

Philosophical basis for human values- Human values as enshrined in the Gita, Bible and khoran; Religion- Values propounded in various religions- Need for Religious harmony

UNIT II: Human Values: Inspiration

Inspiration for human values- Mahatma Gandhi, Dr.SarvepalliRadha Krishnan, Swami Vivekananda, Rabindranath Tagore, Mother Theresa- Benefits of Human values- Harmony between Self-interest and human values

UNIT III: Basics of Professional Ethics

Ethical Human Conduct – based on acceptance of basic human values; Humanistic Constitution and Endersal human order – skills, sincerity and fidelity; Scope and characteristics of people-frily and eco-frily production system, Technologies and management systems.

UNIT IV: Professional Ethics in practice

Profession and Professionalism – Professional Accountability, Roles of a professional, Ethics and image of profession; Engineering Profession and Ethics - Technology and society, Ethical obligations of Engineering professionals, Roles

of Engineers in industry, society, nation and the world; Professional Responsibilities – Collegiality, Loyalty, Confidentiality, Conflict of Interest, Whistle Blowing

UNIT V: Indian Constitution, Code of Ethics and Global Issues

Indian Constitution: Fundamental Rights and duties, Freedom, Equality, Fraternity, Justice, Directive principles of state policy. Sample code of Ethics by Professional Societies such as ASME, ASCE, IMEC, IETE, Institution of Engineers (India), Indian Institute of Materials Management etc.

Multinational corporations - Environmental ethics - computer ethics - weapons development - engineers as managers-consulting engineers-engineers as expert witnesses and advisors -moral leadership.

TEXT BOOKS:

1. K.R. Govindan and S.SenthilKumar*Professional Ethics & Human Values*Anuradha Publications.

2. Mike Martin and Roland Schinzinger*Ethics in Engineering*3rd edition, McGraw Hill. New York (2012).

REFERENCE BOOKS:

1. R. Subramanian*Professional Ethics* Oxford Endersity Press.

2. A.N. Tripathy*Human values* 2003, New Age International Publishers

3. S.B. Srivasthva*Professional Ethics & Human Values* SciTech Publications (India) Pvt. Ltd. New Delhi.

4. Prof. D.R. Kiran*Professional Ethics & Human Values* TATA McGraw Hill Education.

5. M. Govindrajran, S Natrajan& V.S. Senthi Kumar*Engineering Ethics (including human Values)* Eastern Economy Edition, Prentice hall of India Ltd

APPLIED PHYSICS
(for EEE, ECE & Mech)

EEE 124   **Credits:3**

Instruction : 3 Periods & 1 Tut/Week   Sessional Marks : 40

End Exam : 3 Hours   End Exam Marks: 60

Course Objectives:

To enhance student's knowledge of theoretical and modern technological aspects in physics and to introduce fundamentals of physics relevant to engineering applications

To introduce advances in technology for engineering applications

Course Outcomes:

	By end of the course, student will be able to:
1	Understand the properties of magnetic materials and superconductivity.
2	Understand the dielectric nature of materials, properties and its applications.
3	Aware about nano material properties, synthesis and characterization tools.
4	Familiar with fundamentals of crystal structures.
5	Learn the basic phenomenon involved in semiconductors and semiconductor devices.

SYLLABUS

UNIT I   **12 Periods**

Magnetic materials: Definition of magnetic permeability, magnetization and magnetic susceptibility, origin of magnetic moment, classification of magnetic materials, properties of diamagnetic and paramagnetic materials, ferromagnetic materials - hysteresis curve , domain theory of ferromagnetism, soft and hard ferromagnetic materials, anti-ferromagnetic and ferrimagnetic materials , ferrites and its applications

Superconductivity: Introduction, properties of superconductors, effect of temperature and magnetic field, Meissner effect, flux quantization , type – I and type – II superconductors high temperature superconductors, applications of superconductors, BCS theory (qualitative)

UNIT II   **10 Periods**

Dielectric materials: Definition of electric dipole moment, dielectric polarization and dielectric constant, types of polarization – electronic, ionic and oriental polarization, expression for polarisability, internal fields in solids, Classius – Mossotti

equation, frequency dependence of electronic polarization ,properties of ferroelectric materials and their applications

UNIT III   10 Periods

Nanophase materials: Introduction to nanophase materials, properties of nanophase materials, synthesis of nanophase materials – chemical vapour deposition, sol-gel method, MEChanical attrition method, applications of nanophase materials. Principles of X-Ray florescence X-Ray Diffraction-Electron Microscopy (SEM and TEM)

UNIT IV   10 Periods

Crystal structure: Introduction, fundamental terms of crystallography – space lattice, , crystal lattice, unit cell, planes, seven crystal systems – Bravias lattices, cubic lattices, crystal directions and planes, Miller indices, interplanar spacing and interatomic distance , some simple crystal structures, body-centered cubic crystals, face-centered cubic crystals

UNIT V   12 Periods

Semiconductor Physics: Intrinsic and extrinsic semiconductors, Fermi level, carrier concentration in intrinsic semiconductor, continuity equation, direct and indirect band gap semiconductors. Lorentz force, Hall effect and its applications. Physics of semiconductor devices: open circuited p-n junction diode, energy diagram of p-n diode, working of a diode, volt-ampere characteristics of p-n junction, diode as a rectifier, light emitting diode (LED) , liquid crystal display (LCD), photodiode

TEXTBOOKS:

1. S.L Gupta and SanjeevGupta*Engineering physics*DhanpatRai publications.

2. M.N. Avadhanulu&P.G.Kshirasagar*A text book of engineering physics*, S.Chand publication

REFERENCE BOOKS:

1) V.Rajendran*Engineering physics* Tata McGraw Hill Education Private Limited

2) DattuRamanlal Joshi *Engineering Physics* Tata McGraw Hill Education Private Limited

3) A.Marikani*Engineering Physics* PHI Learning Private Limited

EEE 125   **Credits:3**

Instruction: 3 Periods & 1 Tut/Week   Sessional Marks : 40

End Exam : 3 Hours   End Exam Marks : 60

Course Objectives:

To analyze circuits by using basic network theorems and reduction techniques.

To understand operation of various basic electronic components.

To understand the principle of operation of electrical machines.

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

CO	BL	CO Statement
CO1	BL-3	**Apply** basic laws and **Determine** the parameters of the electrical circuits.
CO2	BL-3	**Apply** network theorems and **calculate** various parameters of D.C and A.C circuits.
CO3	BL-4	**Analyze** the behavior of magnetic circuits and **calculate** the parameters of magnetic circuits.
CO4	BL-2	**Explain** operation of various electronic devices and **Illustrate** the Applications of various electronic switching devices.
CO5	BL-2	**Apply** the concepts of electro-mechanical energy conversion and **Explain** construction, operation and performance of Electrical Machines.

Program Matrix

COs	Program Outcomes (POs)												PSOs	
	Domain Specific POs					Domain Independent POs								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1-	PO11	PO12	PSO1	PSO2
CO1	3	2	-	-	-	-	-	-	-	-	-	1	1	-
CO2	3	2	1	-		-	-	-	-	-	-	1	1	-
CO3	1	1	-	-		-	-	-	-	-	-	1	1	-
CO4	1	1	-	-	-	-	-	-	-	-	-	1	-	1
CO5	1	1	-	-	-	-	-	-	-	-	-	1	1	-

JUSTIFICATION STATEMENT FOR CO-PO MAPPING

COS	POS	LEVEL	DESCRIPTION
CO1	PO1	3	Simplification of electrical network with the knowledge of fundamentals of basic electrical engineering and mathematics.
CO1	PO2	2	Analyze the networks by applying basic laws.
CO1	PO12	1	Recognize the need of fundamental laws in power systems.
CO1	PSO1	1	Determine voltage ,current and power ,reduction of networks as a part of power system components
CO2	PO1	3	Solve problems for different theorems with the knowledge of fundamentals of basic electrical engineering and mathematics
CO2	PO2	2	With basic laws and theorems analyze D.C circuits
CO2	PO3	1	Developing solutions for D.C circuits.
CO2	PO12	1	Recognize the need of network theorems to design power systems.
CO2	PSO1	1	Apply theorems to D.C networks as a part of power system components
CO3	PO1	2	Basics of Magnetic circuits are explained with the knowledge of fundamentals of basic electrical engineering and mathematics.
CO3	PO2	1	Hysterisis and Eddy current losses are Analyzed .
CO3	PO12	1	Recognize the need of magnetic circuit concepts in the field of power systems
CO3	PSO1	1	Analyze magnetic concepts as a part of power system components
CO4	PO1	2	operation of electronic components with the knowledge of fundamentals of basic electrical engineering and sciences
CO4	PO2	1	Analysis of MOSFET,SCR.
CO4	PO12	1	Recognize the need of electronic components to design power electronics.
CO4	PSO2	1	Analyze working of electronic components as a part of power electronics
CO5	PO1	1	Construction and operation of D.C machines are explained with the knowledge of fundamentals of basic electrical engineering and mathematics.
CO5	PO2	1	Analysis on winding of D.C machines.
CO5	PO12	1	Recognize the need of machines in electric power Generation.
CO5	PSO1	1	Analyze EMF concepts as a part of power system components

SYLLABUS

UNIT I   14 Periods

The Fundamental Laws of Electrical Engineering: Units, Electric Current, Coulomb's law, Ohm's Law, Kirchhoff's laws, Ampere's Law Faraday's Law of Electromagnetic Induction, Lenz's Law.

Circuit Elements: Current and Voltage Sources, Source transformation, Reference Directions and Symbols, Resistance, Inductance and Capacitance Parameters, Series and parallel Combinations of Resistance, Inductance and Capacitance, Energy and Power, Network Reduction by Delta-Star transformation.

UNIT II   12 Periods

Elementary Network Theory: Mesh Analysis and Nodal Analysis, Superposition Theorem, Thevenin's and Norton's Theorems, Maximum Power Transfer Theorem, Tellegen's Theorems for DC Circuits. AC Circuits – Definitions of Average and Effective Values of Periodic Functions, Instantaneous, Complex, Real and Reactive Powers, Power Factor, Phasor diagrams of 1-ph R, RL, RC, RLC Circuits.

UNIT III   12 Periods

Magnetic Theory and Circuits: The Magnetic Circuit: Concept and Analogies, Units, Magnetic Circuit Computations, Hysteresis and Eddy-Current Losses in Ferromagnetic Materials.

UNIT IV   12 Periods

Electronic Devices: The Boltzmann Relation and Diffusion Current in Semiconductors, The Semiconductor Diode, The Transistor, The Junction Field-Effect Transistor (JFET), The Insulated-Gate FET (or MOSFET), the Silicon-Controlled Rectifier (SCR).

UNIT V   10 Periods

Electromechanical Energy Conversion: Analysis of Induced Voltages, Analysis of Electromagnetic Torque, Constructional Features of Electric Machines, (Elementary Treatment only).

TEXT BOOK:

1.   Vincent Del Toro, "Electrical Engineering Fundamentals", PHI publications.

REFERENCE BOOKS:

1.   Jimmie J. Cathey and Syed A. Nasar "Basic Electrical Engineering", McGraw-Hill publications.

2.   M.E. VanValkenburg, "Network Analysis", PHI publications.

3.   V K Mehta, "Principles of Electrical Engineering" S. Chand & Co.

ENGINEERING CHEMISTRY LAB
(Common for all branches)

EEE 126   **Credits : 2**
Practical / week : 3   Sessional Marks :50
End Exam : 3Hrs   End Exam Marks : 50

Course Objectives:
To provide clear idea over quantitative chemical analysis.
To improve skills in analyzing samples through titration procedures.
   To familiarize with Instrumental methods of analysis for more accuracy.
   To introduce various methods of analyzing the ore samples.

Course Outcomes:

By end of the course, student will be able to:	
1	Apply experimental skills in quantitative chemical analysis of water quality parameters, substances and ores.
2	Select and use a suitable instrumental technique for the quantitative estimation and analyse the data obtained.

List of Experiments (any 10 experiments are to be completed):
1.   Preparation of standard solution
2.   Estimation of sodium carbonate present in soda ash.
3.   Estimation of amount of calcium present in the Portland cement by titrimetrically.
4.   Estimation of amount of Copper present in the Copper ore by Iodometrically.
5.   Determination of total Hardness present in the given water sample.
6.   Estimation of amount of Zinc by titrating with EDTA.
7.   Determine the strength of acid by titrating with strong base using **pH meter**.
8.   Estimate the individual strength of acids present in the acid mixture by titrating with strong base using **conductivity meter.**
9.   Estimate the amount of Mohr's salt present in the given solution by titrating with potassium dichromate using potentiometer.
10. Determination of viscosity of the given liquid by Ostwald viscometer.
11. Determination of rate constant of acid catalyzed hydrolysis of ester.
12. Determination of partition coefficient of iodine distributed between Water and Carbon tetra chloride.

Demonstration
13. Estimation of amount of dissolved oxygen (D.O) present in the given water sample.
14. Synthesize the Phenol-Formaldehyde resin.

TEXT BOOK:
1.   S.K. Bhasin and SudhaRani*Laboratory manual on Engineering chemistry*, third edition DhanpatRai Publishing Company.

REFERENCE BOOK:
1.   S.S. Dara *Experiments and calculations in Engineering chemistry* 9th edition S. Chand& Company ltd.

LANGUAGE LAB
(Common for all branches)

EEE 127   **Credits: 2**
Practical / week : 3   Sessional Marks :50
End Exam : 3Hrs   End Exam Marks : 50

Course Objectives:

To expose the students to a variety of self-instructional, learner-friendly modes of language learning.

To facilitate computer-aided multi-media instruction enabling individualized and independent language learning.

To improve the fluency in spoken English and neutralize mother tongue influence

To bring about a consistent accent and intelligibility in their pronunciation of English by providing an opportunity for practice in speaking.

To initiate them into greater use of the computer in resume preparation, report writing, format-making etc.

To help the students cultivate the habit of reading passages from the computer monitor, thus providing them with the required facility to face computer-based competitive exams such GRE, TOEFL, GMAT etc.

Course Outcomes:

By the end of the course, student will be able to:	
1.	Handle CBT (Computer Based Tests) of the qualifying examinations.
2.	Receive, interpret, remember and evaluate information by practicing effective listening skills.
3.	Speak English with neutralized accent.
4.	Narrate, describe and report incidents and situations using appropriate terminology.

SYLLABUS

I   CALL (Computer Aided Language Learning)

1.   Introduction to the Sounds of English-Vowels, Diphthongs & Consonants.

2.   Introduction to Stress and Intonation.

3.   Short and long Reading comprehension exercises (listening skills)

4.   Telephoning Skills.

II   CSL (Communication Skills Lab)

5.   'Just A Minute' Sessions (JAM).

6.   Describing Objects / Situations / People.

7   Video talks

8.   Situational Dialogues / Role Play.

9.   Oral Presentations- Prepared and Extempore.

Suggested Software

Cambridge Advanced Learners' English Dictionary with

CD. English Phonetics and Phonology – 2 CDs set

English Mastery – Alania

ABC Telephoning English

Cambridge Grammar of English (Ronald Carter and Michael McCarthy)

CD English Grammar in Use -Cambridge University Press

Communication Skills – Oxford U P (Sanjay Kumar and PushpaLatha)

REFERENCE BOOKS:

Books Suggested for English Language Lab Library (to be located within the lab in addition to the CDs of the text book which are loaded on the systems)

1.   *Spoken English (CIEFL)* in 3 volumes with 6 cassettes, OUP.

2.   Daniel Jones *English Pronouncing Dictionary* Current Edition with CD.

3.   R. K. Bansaland J. B. Harrison, *Spoken English*-Orient Longman 2006 Ed.

4.   Dr A Ramakrishna Rao, Dr G Natanam& Prof SA Sankaranarayanan*English Language Communication : A Reader cum Lab Manual*Anuradha Publications, Chennai

5.   Krishna Mohan & NP Singh *Speaking English Effectively* (Macmillan)

6.   J. Sethi, KamleshSadanand& D.V. Jindal*A Practical Course in English Pronunciation, (with two Audio cassettes)* Prentice-Hall of India Pvt. Ltd., New Delhi.

7.   T. Balasubramanian*A text book of English Phonetics for Indian Students* (Macmillan).

8.   *English Skills for Technical Students*, WBSCTE with British Council, OL

9.   J.K. Gangal *A Practical Course in Effective English Speaking Skills* PHI.

OBJECT ORIENTED PROGRAMMING WITH C++LAB (Common for all branches, except for Civil & Chemical branches)

EEE 128	**Credits :3**
Instruction : 2 Periods/Week Practicals : 3 Periods/week	Sessional Marks : 50
End Exam : 3Hrs	End Exam Marks : 50

Course Objectives:

To introduce Object Oriented Programming (OOP) using the C++ Language.

To provide the basic concepts and techniques which form the Object Oriented Programming paradigm.

Course Outcomes:

	By the end of the course, student will be able to:
1.	Understand how to use the programming constructs of CPP.
2.	Use Object Oriented Programming concepts to develop object oriented programs.
3.	Apply various object oriented features to solve real world computing problemsusing C++ language.

SYLLABUS

List of the experiments to be done on the following topics

1.   Overview (Transition from C)
2.   OOP Concepts and Characteristics
3.   Preprocessor , Command line arguments
4.   Classes & Data Abstraction
5.   Objects
6.   Operator Overloading
7.   Inheritance
8.   Virtual Functions & Polymorphism
9.   I/O Streams
10.   Templates
11.   File Processing
12.   Exception Handling Concepts

REFERENCE BOOKS:

1.   Mahesh Bhave, Sunil patekar*Object Oriented Programming in C++* Second edition, Pearson

2.   R Rajaram, *Object Oriented Programming in C++* 2nd Edition New Age International Publishers

3.   Herbert Schildt*C++ the Complete Reference* III edition, TMH 1999

4.   E Balaguruswamy*Object Oriented Programming with C++*3rd Edition , McGraw Hill

LIST OF SAMPLE PROGRAMS

1.   Write a C++ program that uses a recursive function for solving Towers of Hanoi problem.

2.   Write a C++ program to find both the largest and smallest number in a list of integers.

3.   Write a C++ program that uses function templates to solve problems 1 and 2 experiments

4.   Write a C++ program to implement the matrix ADT using a class. Use operator overloading for implementation

5.   Write the definition for a class called **Rectangle** that has floating point data members length and width. The class has the following member functions: **void setlength(float)** to set the length data member **void setwidth(float)** to set the width data member **float perimeter()** to calculate and return the perimeter of the rectangle **float area()** to calculate and return the area of the rectangle **void show()** to display the length and width of the rectangle **intsameArea(Rectangle)** that has one parameter of type Rectangle. sameArea returns 1 if the two Rectangles have the same area, and returns 0 if they don't.

   i.   Write the definitions for each of the above member functions.

   ii.   Write main function to create two rectangle objects. Set the length and width of the first rectangle to 5 and 2.5. Set the length and width of the second rectangle to 5 and 18.9. Display each rectangle and its area and perimeter.

   iii. Check whether the two Rectangles have the same area and print a message indicating the result. Set the length and width of the first rectangle to 15 and 6.3. Display each Rectangle and its area and perimeter again. Again, check whether the two Rectangles have the same area and print a message indicating the result

6.   Create a class called MusicIns to contain three methods string(),wind() and perc(). Each of these methods should initilialize string array to contain the following

   i.   Veena, guitear, sitar, sarod and mandolin under string

   ii.   Flute, clarinet, saxophone, nadaswaram and piccolo under wind

   iii. Table, mridangam, bangos, drums and tambour under perc

It should also display the contents of the arrays initialized , create a sub class call TypeIns to contain a method called get() and show(). The get() methods must display a menu as follows

- o   String instruments
- o   Wind instruments
- o   Percussion instruments

The show method should display the relevant details according to user choice the base class variable must be accessible only to its derived classes.

7. Create a base class called shape. It should contain two methods getCoord(), showCoord() to accept x and y co ordinates and to display the same respectively . Create a sub class called Rect. It should contain method to display length and breadth of the rectangle called showCoord() . In main method, execute the showCoord() of Rect class by applying the dynamic method dispatch concept

8. Create a class called car. Initialize the color and body attributes to "blue" and "wagon". there should be two constructors one is a default the creates blue wagon the other constructor should take two argcolor, body and initialize. write method toString() that returns the color and body. Create a sub class funcar. In sub class there are two constructors to invoke super class constructors resp. Write a method playCD in sub class that displays the message "Beautiful music fills the passenger compartment" execute the methods to show the messages
    i.   Mycar is a blue wagon
    ii. My father's car is red convertible.

9. Create the ZooAnimal constructor function. The function has 4 parameters — a character string followed by three integer parameters. In the constructor function dynamically allocate the name field (20 characters), copy the character string parameter into the name field, and then assign the three integer parameters to cageNumber, weightDate, and weight respectively.

10. Write a C++ program to perform operations on complex numbers using operator overloading

11. Write a C++ program to write number 1 to 100 in a data file NOTES.TXT

12. Write a function in C++ to count and display the number of lines not starting with alphabet 'A' present in a text file "STORY.TXT".
    Example:
    If the file "STORY.TXT" contains the following
    lines, The rose is red.
    A girl is playing there.
    There is a playground. An
    aeroplane is in the sky.
    Numbers are not allowed in the password.
    The function should display the output as