CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY

ELECTRONICS AND COMMUNICATION ENGINEERING

B. E. I – Year

I – Semester

THEORY						
S.No	**Code**	**Subject**	**L**	**T**	**P/D**	**Credits**
1	EG 111	English - I	2	0	0	2
2	MT 111	Mathematics - I	3	1	0	3
3	PY 111	Engineering Physics - I	3	0	0	3
4	CY 111	Engineering Chemistry - I	3	0	0	3
5	CS 111	Programming and Problem Solving	3	1	0	3
6	CE 111	Engineering Mechanics - I	3	1	0	3
7	CE 112	Environmental Studies	3	1	0	3
PRACTICALS						
8	EG112	English Language Laboratory – I	0	0	2	1
9	PY114/ CY114	Engineering Physics Lab – I/ Engineering Chemistry Lab – I	0	0	3	2
10	CS 114	Programming Lab – I	0	0	3	2
11	ME114	Workshop	0	0	3	2
TOTAL			**20**	**04**	**11**	**27**

II – Semester

THEORY						
S.No	**Code**	**Subject**	**L**	**T**	**P/D**	**Credits**
1	EG 121	English - II	2	0	0	2
2	MT 121	Mathematics - II	3	1	0	3
3	PY 122	Applied Physics	3	0	0	3
4	CY 121	Engineering Chemistry - II	3	0	0	3
5	CS 121	Object Oriented Programming through C++	3	1	0	3
6	EC 121	Network Theory	3	1	0	3
7	ME 112N	Engineering Graphics	1	0	3	3
PRACTICALS						
8	EG 122	English Language Laboratory – II	0	0	2	1
9	PY 125 / CY 123	Engineering Physics Lab – II / Engineering Chemistry Lab – II	0	0	3	2
10	CS 122	Programming lab - II	0	0	3	2
11	EC 122	Networks Lab	0	0	3	2
TOTAL			**18**	**03**	**14**	**27**

EG 121

ENGLISH – II
(common to all branches)

Instruction	2L Periods per week
Duration of University Examination	3 Hours
University Examination	75 Marks
Sessionals	25 Marks
Credits	2

Course Objectives:

- To understand the difference between oral and written communication, interpersonal and intrapersonal communication
- To acquaint the students with the process of technical writing through different types of reports and information transfer.
- To enhance the different sub- skills of reading through skimming and scanning.
- To enhance imaginative, creative and critical thinking through literary texts.
- To help students develop their Presentation skills through AV aids and different aspects of body language.

UNIT- I

Effective communication: Intrapersonal communication, Interpersonal communication, Dyadic Communication, One way versus two way communication and Johari Window.

UNIT- II

Grammer Practice: Common errors in English ad, Punctuation.

Vocabulary Enhancement:

Indian and American usage, Words often misspelt, Prefixes & Suffixes, technical vocabulary

Prose: Muthyala Raju Revu: An Engineer Turned IAS Officer.

UNIT- III

Writing Skills: Reports, Technical Report Writing, Information transfer: Flow charts, piecharts, graphs and scientific papers

UNIT- IV

Reading comprehension – Unknown passages, Skimming and Scanning, intensive reading and critical analysis.

Prose: R. Madhavan : Engineering to Farming

UNIT- V

Soft Skills: Presentation skills – Rubrics, use of AV aids and making of a Power Point Presentation, Body Language. Leadership skills and Team Building.

Text Books:

1. "Essential English"- E Suresh Kumar et al**.**(Orient Black Swan PVT Ltd.)
2. "Communication Skills and Soft Skills: An Integrated Approach"- E Suresh Kumar et al**. (**Pearson Publications)

Suggested Reading:

1. " High School English Grammar & Composition" – Wren and Martin (S.Chand)
2. "ABC of Common Grammatical Errors" – Nigel D Turton (Macmillan)
3. "Communication Skills & Soft Skills" – An Integrated approach – E Suresh Kumar (Pearson)
4. "Examine your English" – Margaret M Maison (Orient Longman)
5. "Professional Presentation" – Malcolm Goodale (Cambridge University Press)
6. "English Grammar at alance" – M. Gnanamurali (S. Chand)
7. "Business Communication & Soft skills" (Lab Manual) – D. Sudha Rani (Pearson)
8. "A Course Book in English" – K.R. Lakshminarayan (SciTech Publication)
9. "Effective Technical Communication" – M. Ashraf Rizvi (Tata- McGraw Hill)

MT 121

MATHEMATICS – II
(common to all branches except Bio-Tech)

Instruction	3L + 1T Periods per week
Duration of University Examination	3 Hours
University Examination	75 Marks
Sessionals	25 Marks
Credits	3

UNIT- I

Ordinary differential Equations: Exact Differential equations (integrating Factors) Applications differential equations-Orthogonal trajectories-Problems on oscillatory electrical circuits (LC and LCR circuits). Linear Differential equations of higher order with constant coefficients, complementary function and particular integrals when RHS is of the forms e^{ax}, sinax, cosax, x^m, $e^{ax}(v)$, $x^m(v)$, where v-is a function of 'x', Legender's and Cauchy's form of Homogeneous equations.

UNIT- II

Laplace Transforms: Definition of integral transform, domain of the function and kernel of the Laplace transforms. Existence of Laplace transforms. Properties- Laplace transforms of standard functions, Laplace transforms of piecewise continuous functions, first and second shifting theorems, multiplication by 't', division by 't'. Laplace transforms of derivatives and integrals of functions-Unit step function- Periodic functions (without proofs). Inverse Laplace transforms-by partial fractions (Heaviside method), Residue method-Convolution Theorem. Solving Ordinary differential equations by Laplace Transforms

UNIT- III

Series solution of Differential equations: Introduction-ordinary and singular points of an equation-power series solution- Solution of Legender equation (without proof)- Legendre polynomials-Rodrigue'sformula-Generating function of Legender polynomials-Recurrence relations- orthogonal property.

UNIT- IV

Vector Differentiation: Scalar and vector fields- directional derivative- Gradient of a scalar-Divergence and Curl of a vector point function. Properties of divergence, curl - vector identities. Solenoidal and Irrotational vectors.

UNIT-V

Vector Integration: Vector Line integrals, surface integrals and volume integrals
Greens Theorem, Gauss divergence Theorem and Stokes theorem (without proofs)
Applications of Integration-problems based on verification and evaluation using the above theorems (for cube, rectangular parallelepiped, sphere, cylinder)

Text Books:

1. Advanced Engineering by Kreyszig, John Wiley & Sons -Publishers.
2. Mathematical Methods of Science & Engg, Aided with MATLAB, Kanti.B.Datta. Cengage Learning India Pvt.Ltd.
3. Mathematics for Engineers and Scientists by Alen Jaffery , 6th ed 2013 CRC press,Taylor & Francis Group. (Elsevier)
4. Advanced Engineering Mathematics by Michael Greenburg, Second Edition –Pearson Education.

Suggested Reading: (for further reading and examples on applications)

1. Mathematics for Engineers-a modern interactive approach by A.Craft and Robert Davison-Willey
2. Applied Mathematics and physicists by Loius Pipes-Mc Graw Hill pubulishers.
3. Advanced Engineering Mathematics by R.K.Jain & S.R.K.Iyenger, 3rd edition, Narosa Publications
4. Matrices for Engineering Dynamics by AR Collar and A. Simpson-John Willey & sons
5. Essential Mathematics for Engineers by W.Bolton-Betterworth and Heineman
6. Mathematical for Physicists and Engineers- L F Landoviz, Publishers- Rienfold Book Corporation.
7. Higher Engineering Mathematics by B.S.Grewal, Khanna Publishers.
8. Engineering Mathematics by B.V.Ramana
9. Calculus by Smith and Minton
10. Applications of Linear Algebra by David.C Lay

PY 122

APPLIED PHYSICS
(common to CSE, IT, ECE & EEE)

Instruction	3L Periods per week
Duration of University Examination	3 Hours
University Examination	75 Marks
Sessionals	25 Marks
Credits	3

UNIT – I

Elements of Quantum Mechanics:

Introduction – Dual nature of light – de Broglie's hypothesis – Expression for de Broglie's wave length – Heisenberg's uncertainty principle and its illustration (diffraction of a beam of electron at a slit) – Schrödinger time independent and time dependent wave equations – Interpretation of wave function – Infinite square well potential (particle in a box) – Potential step – Potential barrier (qualitative) – Tunneling effect.

UNIT – II

Crystallography: Space lattice – Unit cell – Crystal systems – Bravais lattices – Number of atoms per unit cell – Coordination number – Atomic radius – Packing fraction (for SC, BCC, FCC) – Lattice planes – Miller indices – Bragg's law – Experimental determination of lattice constant of cubic crystals by powder diffraction method.

Crystal Defects: Classification of defects – Point defects – Concentration of Schottky & Frenkel defects.

UNIT – III

Band Theory of Solids: Salient features of classical free electron theory – Energy band formation in solids – Kronig-Penny model (qualitative) – Classification of solids into conductors, semiconductors and insulators.

Semiconductors: Intrinsic and extrinsic semiconductors – Concept of hole – Concept of Fermi level – Carrier concentration in intrinsic semiconductors – Conductivity in semiconductors – Hall Effect in semiconductors.

UNIT – IV

Magnetic Materials: Classification of magnetic materials: dia, para, ferro, anti-ferro and ferrimagnetic materials – Weiss molecular field theory – Domain theory – Hysteresis curve – Soft and hard magnetic materials.

Dielectric Materials: Introduction – Dielectric polarization – Types of dielectric polarization: electronic, ioninc, orientation and space-charge polarization (qualitative) – Frequency and temperature dependence of dielectric polarization – Determination of dielectric constant (Schering bridge method) – Ferroelectricity – Barium titanate – Applications of ferroelectrics.

UNIT – V

Superconductors: Introduction – General properties of superconductors – Meissner's effect – Type I and Type II superconductors – BCS theory (qualitative) – Applications.

Thin Films: Distinction between bulk, thin and nanofilms – Thin film preparation techniques – Physical vapor deposition (PVD) techniques – Thermal evaporation – Electron beam evaporation – Pulsed laser deposition – Applications of thin films – Solar cell – Gas sensor.

Nanomaterials: Zero dimensional materials – Properties of materials at reduced size – Surface to volume ratio – Quantum confinement – Preparation of nanomaterials – Bottom-up methods: Sol-gel, Sputtering and Chemical vapor deposition (CVD) – Top-down methods: Ball milling – Elementary ideas of carbon nanotubes – Applications.

Text Books:

1. M.N. Avadhanulu and P.G. Kshirsagar, *A Text BookEngineering Physics*, S. Chand Publications, 2014
2. S.L. Gupta and Sanjeev Gupta, *Modern Engineering Physics*, DhanpatRai Publications, 2011
3. V. Rajendran, *Engineering Physics*, McGahill Education Publications, 2013

Suggested Reading:

1. R. Murugeshan and KiruthigaSivaprasath, *Modern Physics*, S. Chand Publications, 2005
2. M. Arumugam, *Materials Science*, Anuradha Publications, 2002.
3. Satyaprakash and Agarwal, *Statistical mechanics*, Kedannath Publications
4. P.K. Palanisamy, *Engineering Physics*, Scitech Publications, 2012
5. Hitendra K Malik and A.K. Singh, *Engineering Physics*, Tata McGahill Education Publications, 2011

CY 121

ENGINEERING CHEMISTRY - II
(common to all branches except Chemical Engg & Bio-Tech)

Instruction	3L Periods per week
Duration of University Examination	3 Hours
University Examination	75 Marks
Sessionals	25 Marks
Credits	3

Course Objectives:

The syllabus has sought to fulfill the objective of making the student of engineering and technology realize that chemistry like other subjects is the real base of his profession and that therefore he must have a good understanding of chemistry before he can use it in his profession. The various units of the syllabus is so designed to fulfill the following objectives.

1. Thermodynamics and Electrochemistry units give conceptual knowledge about spontaneous processes and how can they be harnessed for producing electrical energy and efficiency of systems. It also includes the devices used for electrical energy storage and captive generation and tapping it as and when required.
2. Newer materials lead to discovering of technologies in strategic areas like defense and space research. Recently modern materials synthesized find applications in industry and creating instruments for solving problems of electronics, telecommunications, health care, agriculture, and technology etc., Inorder to emphasize the above the topics like composite materials, polymers, conducting polymers and nano materials have been incorporated in the curriculum.
3. Knowledge to prevent corrosion of machinery and metallic materials and water chemistry which require serious attention in view of increasing pollution has been included in the syllabus.
4. Fuels have been taught with a view to give awareness as to materials which can be used as sources of energy and fuel cells which are the alternate energy sources for generating electrical energy on spot and portable applications.
5. To appraise the students about the importance and role of chemistry in the field of Engineering by explaining the relevant topics.
6. To enable students to apply the knowledge acquired in improving the properties of engineering materials.

The engineer who has the above background can effectively manage the materials in his designing applications and discovering and improving the systems for various uses in industry, agriculture, health care, technology, telecommunications, electronics and instruments detecting in advance in natural calamities. The above knowledge also helps students to carry out inter disciplinary research such that the findings benefit the common man.

UNIT – I

Electrochemistry

Introduction, construction of electrochemical cell, sign convention, cell notation, cell emf, SOP and SRP, electrochemical series and its applications

Activity, fugacity, Nernst equation and applications, numericals

Types of Electrodes – Standard Hydrogen Electrode, Saturated Calomel Electrode, Quinhydrone electrode and Ion selective electrode (Glass electrode), construction

UNIT – II

Corrosion Science

Introduction, causes and effects of corrosion, chemical and electro chemical corrosion, mechanism of electro chemical corrosion

Galvanic corrosion and types of differential aeration corrosion (pitting and waterline corrosion)

Factors affecting corrosion (position of the metals in galvanic series, relative areas of anode and cathode, nature of corrosion product – solubility and volatility of corrosion product, nature of corroding environment – temperature, humidity and P^H).

Corrosion control methods – cathodic protection, sacrificial anodic protection and impressed current cathodic protection.

Protective coatings – Anodic and cathodic coatings

Paints, constituents and their functions

UNIT – III

Water Chemistry

Hardness of water – Types, units of hardness, estimation of temporary and permanent hardness of water by EDTA method, alkalinity of water and its determination

Numericals on hardness and alkalinity

Specifications of potable water, disinfection of water by chlorination, break point chlorination and by ozone treatment

Desalination of water by reverse osmosis and electro dialysis

UNIT – IV

Fuels – II

Liquid fuels, fractional distillation of crude oil, cracking and significance, catalytic cracking by fixed bed cracking, knocking, significance, antiknocking agents (TEL, MTBE), octane number, cetane number, unleaded petrol.

Gaseous fuels, LPG, CNG, composition and uses, automobile exhaust – catalytic converter.

Battery Technology

Types of batteries, Lithium battery and Lithium ion battery, fuel cell – MeOH – Oxygen fuel cell, H_2-O_2 fuel cell Rocket propellants, requirements of a good propellant, classification, solid-liquid propellants with examples. Photo catalysis

UNIT –V

Instrumental Techniques in Chemical Analysis

Principle, method and applications of Conductometry (acid-base titration), Potentiometry (acid-base, redox titration), P^H-metry (acid – base titration), UV, Visible Spectro photometer (Beer-Lambert's Law), examples

Atomic absorption spectroscopy-Principle, instrumentation (Block Diagram only), estimation of Nickel by Atomic absorption spectroscopy

Text Books:

1. J.C. Kuriacase & J. Rajaram, "Chemistry in engineering and Technology", Tata McGraw-Hill Pub.Co.Ltd, New Delhi (2008)
2. S.S.Dara & S.S.Umare, "Engineering Chemistry", S.Chand company
3. ShasiChawla, "Text Book of Engineering Chemistry", Dhantpat Rai Publishing Company, NewDelhi (2008)
4. P.C.Jain and Monica Jain, "Engineering Chemistry", Dhanpat Rai Pub, Co., New Delhi (2002)
5. Puri & Sharma, "Principles of Physical Chemistry
6. P.R.Vijayasarathi, "Engineering Chemistry" PHI Learning Private Limited, New Delhi (2011)

Suggested Reading:

1. Physical chemistry by P.W.Atkin (ELBS OXFORD PRESS)
2. Physical chemistry by W.J.Moore (Orient Longman)
3. Physical Chemistry by Glasstone
4. Physical Chemistry by T.Engel & Philip Reid, Pearson Publication
5. Introduction to nano materials by T.Pradeep

CS 121

OBJECT ORIENTED PROGRAMMING THROUGH C++
(common for all branches)

Instruction	3L + 1T Periods per week
Duration of University Examination	3 Hours
University Examination	75 Marks
Sessionals	25 Marks
Credits	3

UNIT- I

Principles of Object Oriented Programming: Procedure Vs Object Oriented, Paradigm, Basic concepts, benefits, Applications and Object Oriented Languages.

Introduction: Program structure, Creating, Compiling and Linking of C++ program.

Token, Expression and Control Structures: Tokens, Keywords, Identifiers and Constants, Data Types, Operators, Precedence, Type Compatibility, Control Structures, New Features of C++.

Functions: Function Prototype and Parameter Passing, Inline Functions, Default, Constant Arguments, Recursion, Function Overloading, Function Template.

UNIT - II

Classes and Objects: Defining classes and Member functions, Arrays, Static Members, Friend Functions.

Constructors and Destructors: Type of Constructors, Dynamic Initialization of Objects, Destructors.

UNIT - III

C++ operator overloading: Fundamentals, restrictions, overloading unary / binary operators, overloading ++ and --, Manipulation of Strings.

C++ Inheritance: Defining derived classes, Types of Inheritance, Virtual Base class Abstract Class, Nesting of classes.

UNIT- IV

Pointers and Polymorphism: Pointers and Generic pointer, Pointer to Objects and Derived Classes, this pointer, Virtual Functions, Virtual Destructors.

C++ Stream Input/Output: Streams, Stream classes, Formatted and Unformatted operations, Manipulators.

Files: Classes for file Stream operations, Sequential and Random access operations, Command line Arguments

UNIT - V

C++ Templates: Introduction, class templates, member function template, overloading template functions.

C++ Exception Handling: Try, throw, catch

Suggested Reading:

1. E. Balagurusamy **"**Object Oriented Programming with C++" , McGraw-Hill Education (India), 6 th Edition 2013
2. Bjarne Stroustrup "The C++ Programming Language", Pearson Education, 5th Edition (2013)
3. Robert Lafore **"**Object-Oriented Programming in C++ " Fourth Edition Sams Publishing,2002

EC 121

NETWORK THEORY
(ECE)

Instruction	3L + 1T Periods per week
Duration of University Examination	3 Hours
University Examination	75 Marks
Sessionals	25 Marks
Credits	3

Course Objectives:

1. To provide concepts of Network/Circuit Theory and Theorems.
2. To provide the knowledge of A.C and D.C analysis of circuits.

Course Outcomes:

1. Student will be able to distinguish between circuit/network and analyze DC, AC circuits.
2. Student will be able to understand the transient analysis.
3. Student will be able to distinguish between Symmetrical/Asymmetrical networks and understanding the significance of two port parameters, magnetic coupled circuits.

UNIT-I

Basic Concepts of Electric Circuits: Lumped Circuit elements, dependent and independent sources, Ohm's law, Kirchoff's laws, network reduction techniques, nodal and mesh analysis, Source transformations, Star and Delta transformations, Thevenin's and Norton's theorems, Superposition theorem, Maximum power transfer theorem, Reciprocity theorem, Tellegen's theorem, Millman's Theorem,

Network Topology: Topological description of networks. Network graphs, tree, chord, cutset, incidence matrix, tieset matrix, cutset matrix. formulation of node and loop equations, duality, dual networks.

UNIT-II

Steady state Sinusoidal analysis: Steady state response of RLC networks to exponential signals, Sinusoidal signals, phasor and vector representations, impedance and admittance, applications of network theorems. Calculation of power in a.c. circuits: average power, apparent power, complex power.

Magnetic coupled circuits: Concept of self, mutual inductance, co-efficient of coupling, dot convention rules and analysis of simple circuits.

UNIT-III

Time domain analysis: steady state and transient analysis for basic RL, RC and RLC circuits in linear time invariant first order and second order circuits, Formulation of integro differential equations, Zero Input Response (ZIR), Zero State Response (ZSR), complete response.

Laplace transforms: Introduction to Laplace transforms and its applications to circuit analysis.

UNIT-IV

Frequency domain analysis: Concept of complex frequency, impedance and admittance functions, Pole-Zero cancellation, calculation of natural response from pole zero plot. Series and parallel resonance, Q-factor, selectivity, bandwidth

UNIT-V

Symmetrical and Asymmetrical networks: Characteristic impedance, propagation constants, image and iterative impedances for T, π, L, Bridged T and Lattice networks. Introduction to Attenuators and equalizers

Two port networks: Z, Y, h, g, ABCD and Inverse ABCD parameters, equivalence of two port networks. Inter connection of two port networks, ideal and practical transformer.

Text Books:

1. William H.Hayt, Jr.,Jck E. Kemmerly & Steven M.Durbin, Engg Circuit Analysis, 5th ed, McGraw Hill, 2010.
2. Van.valkenberg M.E Network analysis, PHI, Newdelhi, 3rd edition 2002.

Suggested Reading:

1. Charels A. Desoer nd Ernest S Kuth, Basic Circuit Theory, McGraw Hill, 2009.
2. Raymond A. DeCarlo and Penmin Lin, Linear Circuit Analysis, 3rd edition, Oxford Univ. Press, 2007.
3. Lawrence P. Huelsman, Basic Circuit Theory, 3rd edition, 2009.

ME 112N

ENGINEERING GRAPHICS
(common to CSE, ECE, EEE and IT)

Instruction	1L + 3D Periods per week
Duration of Mid term Examination	90 minutes
Duration of University Examination	3 Hours
University Examination	75 Marks
Sessionals	25 Marks
Credits	3

Course Objectives:

1. To provide an exposure in understanding the drawings during a multidisciplinary approach towards a problem
2. To train up in perception and imagination of a three dimensional scenario.

Course Outcomes:

1. To understand theory of projections
2. Ability to improve visualization skills
3. Ability to sketch Engineering Objects

UNIT- I

Introduction: Instruments and their uses, Lettering and dimensioning.
Simple Geometric Constructions: Construction of Regular polygons given length of the side.

UNIT- II

Conic sections: Construction of Ellipse, Parabola & Hyperbola by different methods.
Orthographic Projections: Introduction, Projection of points placed in different quadrants.

UNIT- III

Projection of straight lines: straight line inclined to one of the reference planes - Straight line inclined to both the reference planes with traces.

UNIT- IV

Projection of planes: projection of perpendicular planes, projection of oblique planes

UNIT- V

Projection of Solids: Polyhedra, Solids of revolution, Projection of solids with axis inclined to one plane and parallel to another reference plane.

Text Books:

1. N.D.Bhatt," Elementary Engineering Drawing", Charotar Publishers,2012.
2. Basanth Agrawal and C M Agrawal "Engineering Drawing 2e ", McGraw-Hill Education(India) Pvt. Ltd.

Suggested Reading:

1. K.L.Narayana and P.K.Kannaiah, "Text Book of Engineering Drawing", Scitech Publications, 2011.
2. P.S.Gill' "Engineering Graphics", Kataria Publications, 2011.
3. K.Veenugopal, "Engineering Drawing and Graphics + Autocad", New Age International Pvt.Ltd, 2011.
4. Shaw M.B and Rana B.C., "Engineering drawing", Pearson, 2nd edition, 2009
5. P I Varghees, " Engineering Graphics ",Tata McGraw-Hill publications, 2013
6. Bhattacharya. B, "Engineering Graphics", I. K. International Pvt.Ltd, 2009
7. Dhawan R.K., "Principles of Engineering Graphics and Drawing", S. Chand 2011

EG 122

ENGLISH LANGUAGE LABORATORY – II
(common to all branches)

Instruction	2 Periods per week
Duration of University Examination	3 Hours
University Examination	50 Marks
Sessionals	25 Marks
Credits	1

COMPUTER ASSISTED LANGUAGE LEARNING LAB (CALL)

Introduction:

The language lab focuses on the practice of connected speech and word stress. They are also introduced to the process of Listening.
The following are the **objectives** of the course:

1. To recognize and be familiar with word stress and identify stress patterns.
2. To develop awareness of rhythm and notion of stress time.
3. Listen effectively in a variety of situations for a variety of purposes; practice the behavior of effective, active listeners.
4. Assess strengths in listening and set goals for the future.

SYLLABUS:

1. Word stress: Primary stress, secondary stress, functional stress, rules of word stress.
2. Rhythm & Intonation: Introduction to Rhythm and Intonation. Major patterns, intonation of English with the semantic implications.
3. Aspects of connected speech: Strong forms, weak forms, contracted forms, elision.
4. Listening skills.

INTERACTIVE COMMUNICATION SKILLS LAB (ICS LAB)

Introduction:

The objective of the course is to introduce them to the art of making effective presentations. They also learn do debate, the interview process and interview skills.
The following are the **objectives** of the course:

1. To enable students to express themselves fluently and appropriately in social and professional contexts.
2. To provide techniques for preparing and delivering a presentation.
3. Practicing interview skills via an interpersonal encounter similar to real life situation.
4. To understand and communicate various forms of argument effectively, to develop the ability to analyze, evaluate, construct and refute arguments.

SYLLABUS:

1. Debate: Differences between a debate and a group discussion. Essentials of a debate, conducting a debate.
2. Presentation Skills: Making effective presentations, expressions which can be used in presentation, use of non-verbal communication, coping with stage fright , handling question and answer session; use of audio- visual aids , Power point presentations.
3. Interview skills: Planning and preparing for interviews, facing interviews confidently, use of suitable expressions during interview.

Suggested Reading:

1. E.Suresh kumar et al, **. English for Success** (with CD), Cambridge University Press India Pvt Ltd. 2010.
2. T Balasubramanian. **A Textbook of English Phonetics for Indian Students**, Macmillan, 2008.
3. J Sethi et al. **A Practical Course in English Pronunciation** (with CD), Prentice Hall India, 2005.
4. Edgar Thorpe. **Winning at Interviews**, Pearson Education, 2006
5. Priyadarshi Patnaik**. Group Discussions and Interviews,** Cambridge University Press Pvt Ltd 2011

PY 125

ENGINEERING PHYSICS LAB - II
(common to all branches except Bio-Tech)

Instruction	3 Periods per alternate week
Duration of University Examination	3 Hours
University Examination	50 Marks
Sessionals	25 Marks
Credits	2

1. Planck's Constant – Determination of Planck's Constant using photo cell
2. Solar Cell – Study of I-V characteristics of given solar cell and calculation of fill factor, efficiency and series resistance
3. Hall Effect – Determination of Hall coefficient, carrier concentration & mobility of charge carriers of given semiconductor specimen
4. P-N Junction Diode – Study of V-I characteristics and calculation of resistance of given diode in forward and reverse bias
5. B-H Curve – Determination of hysteresis loss of given specimen
6. Dielectric Constant – Determination of dielectric constant of given PZT sample at phase transition temperature
7. Energy Gap – Determination of energy gap of given semiconductor
8. Thermistor – Determination of temperature coefficient of resistance of given thermistor
9. *e/m* of Electron by Thomson's Method
10. Thermoelectric Power – Determination of thermoelectric power of given sample

CY 123

ENGINEERING CHEMISTRY LAB - II
(common to all branches except Chemical and Bio-Tech)

Instruction	3 Periods per alternate week
Duration of University Examination	3 Hours
University Examination	50 Marks
Sessionals	25 Marks
Credits	2

Course Objectives

1. To impart fundamental knowledge in handling the equipment/glassware and chemicals in the chemistry laboratory.
2. To offer hands on experience on the basic equipment related to engineering chemistry.
3. For practical understanding of theoretical concepts of chemistry

I. Volumetric Analysis:

1. Estimation of amount of copper ion using hypo solution.
2. To find out saponification number of oil.

II. Complexometry

3. Estimation of permanent and temporary hardness of water using EDTA solution.
4. Ore analysis – estimation of MnO_2 in pyrolusite.

III. Organic Preparations

9. Preparation of aspirin
10. Preparation of azodye

IV. Instrumental Chemical Analysis

i) Potentiometric Titrations

5. Strong acid vs strong base
6. Redox titration (estimation of Fe^{+2} using $KMnO_4$ solutions)

ii) pH metric titration

7. Strong acid vs strong base

iii) Polarimetry

8. Specific rotation of sucrose and inversion of sucrose.

Suggested Reading:

1. Vogel's text book of quantitative chemical analysis by J.Mendham & Thomas, Pearson education; Pvt.Ltd.new Delhi 6th ed.2002
2. Senior practical physical chemistry by BD Khosla, A.Ghulati, VC.Garg; R.Chand and CD; New Delhi 10th ed 2001.
3. Laboratory manual in engineering chemistry by S.K.Bhasin and Sudha Rani; Dhanpath Rai publishing company.

CS 122

PROGRAMMING LAB - II
(common for all branches)

Instruction	3 Periods per week
Duration of University Examination	3 Hours
University Examination	50 Marks
Sessionals	25 Marks
Credits	2

1. Program to implement function overloading
2. Program to implement function template
3. Program to implement types of constructors and destructor
4. Program to implement new and delete operators (Dynamic memory allocation).
5. Program to implement unary and binary operator overloading
6. Creation of inheritance hierarchy for graphic shapes.
7. Implementation of runtime polymorphism
8. Classes for Bank Account, Student information, Library catalog
9. Implementation of Streams.
10. Implementation of Template Classes.

EC 122

NETWORKS LAB
(ECE)

Instruction	3 Periods per week
Duration of University Examination	3 Hours
University Examination	50 Marks
Sessionals	25 Marks
Credits	2

Course Objectives

1. To provide practical study of passive elements and their measurement procedures.
2. To provide familiarity with CRO and soldering practices.
3. To provide the practice of A.C and D.C circuit analysis using network theorems.
4. To provide a practice on simulating software.

Course Outcomes

1. Student will be able to identify and measure circuit elements R, L, C.
2. Student will be able to work with CRO and Power sources.
3. Student will be able to conduct experiments on D.C and A.C circuits and also verify the network theorems.
4. Student will be able to simulate a circuit using the simulation software.

1. Study of RLC components, Bread board, Regulated power supply, Function generator, C.R.O.
2. Measurement of R, L, C components using LCR - Q Meter.
3. Soldering for simple circuits.
4. Verification of Ohm's law, KVL and KCL.
5. Verification of Superposition theorem and Tellegen's theorem.
6. Verification of Thevenin's and Norton's theorems.
7. Verification of Maximum power transfer theorem and Reciprocity theorem.
8. Verification of Transient Response in RC, RLcircuits for DC inputs
9. Design and Verification of Series Resonance.
10. Design and Verification of Parallel Resonance.
11. Measurement of two-port network parameters (Z,Y,h,T).
12. Design and Verification of Attenuators.

Note: Experiments are to be simulated by using any simulating software.