1st Year Odd semester

EEE 1101 Electrical Circuits I
Contact hours/week: 3 Credits : 3
Introduction of electrical power sources, ideal and practical sources, linear circuit elements. DC analysis of series,
parallel and series-parallel circuits. Kirchhoff's Voltage and current laws, voltage, current, power and energy.
Sinusoidal wave: Average and effective values, form factor, peak factor, phase relation and phasors. Steady state AC
analysis of series, parallel and series parallel circuits, phase relation between voltage and current, concept of
impedance, power, power factor, phasor diagram. Network theorems: Superposition theorem, Thevenin's theorem,
Norton's theorem, maximum power transfer theorem, substitution theorem and reciprocity theorem. Frequency
response of ac circuits, resonance phenomena.
Magnetic circuit and concepts: flux, fields, permeability reluctance, analysis of series, parallel and series- parallel
magnetic circuit.

EEE 1102 Electrical Circuits I Sessional
Contact hours/week : 3 Credits : 1.5
Sessional based on the theory of course EEE 1101.

CSE 1111 Computer Programming
Contact hours/week: 3 Credits: 3
Introduction to digital computers. Programming languages, algorithms and flow charts. Structured programming
using C: Variables and constants, operators, expressions, control statements, functions, array, pointer, structure
union, user defined data types, input-output files.
Object oriented programming using C++: Introduction, classes and objects; polymorphism; function and operator
overloading; inheritance.

CSE 1112 Computer Programming Sessional
Contact hours/week: 3 Credits: 1.5
Sessional based on the theory of course CSE 1111.

Math 1101 Engineering Mathematics I
Contact hours/week: 3 Credits: 3
Differential Calculus: Review of differentiation of various types of functions. Rolle's theorem, Mean value
theorem. Taylor's and Maclaurin's theorems in finite and infinite forms. Divergency and Convergency of series.
Partial differentiation, Euler's theorem. Tangent, normal and curvature. Determination of maximum and minimum
values of functions and their application.
Integral Calculus: Review of indefinite and definite integration of various types of functions. Use of definite
integration in summing series. Walli's formulae. Improper integrals. Beta function and Gamma functions. Area
under a plane curve and area of a region enclosed by two curves in cartesian and polar coordinates. Volume and
surface areas of solids of revolution.
Co-ordinate Geometry: Co-ordinate geometry of three dimension- System of co-ordinates, transformation of coordinates,
distance between two points, section formula, projection, direction cosines, equations of planes and lines.

Phy 1111 Physics
Contact hours/week: 3 Credits: 3
Atomic Structure: Thompsons, Rutherford and Bhor's atomic model. Atomic arrangement in solid. Different types
of bonds in solid-metallic, Vander Walls and ionic bond.
Electronic structure of materials: Free electron theory, Metallic conduction. Energy bands, Brillouin zones,
Temperature dependence of metallic conductivity. Semiconductors: Band theory, intrinsic and extrinsic
semiconductors, Fermi levels, mobility and electrical conductivity, carrier diffusion and life time. Magnetic
materials: Properties, Dia-, Para- and Ferro-magnetism. Hysteressis loop, B-H curve, Energy losses in magnetic
materials and their measurements. Soft and hard magnetic materials, ferrities.
Thermal electricity: thermocouple, Seebeck effect, Peltier and Thompson effect, Thermo-emf.
Photoelectricity: Laws of photoemission and Einstein's equation. Photoelectric cell and its use.
Sound: Simple harmonic motion, wave equation, Principle of superposition. Beats, Dispersion, Phase and group
velocities, Doppler's effect, Free and force vibrations.
Physical Optics: Theories of light; Hyugen's principle and construction. Interference of light: Young's double slit

experiment, Fresnel bi-prism, Newton's ring, interferometers. Diffraction of light: Fresnel and Fraunhoffer
diffraction, diffraction by single and double slit diffraction gratings. Polarization, production and analysis of
polarized light, optical activity, optics of crystals.

Phy 1112 Physics Sessional
Contact hours/week: 3/2 Credits: 0.75
Sessional based on the theory of course Phy 1111.

Hum 1111 Technical English
Contact hours/week : 3 Credits: 3
Grammar: Grammatical principles, modals, phrases & idioms, prefixes & suffixes, sentence structures,wh& yes/no
questions, conditional sentences.
Vocabulary: Technical & scientific vocabulary, defining terms.
Spoken English: Introduction to phonetic symbols, dialogue, responding to particular situations, extempore speech.
Reading: Comprehension of technical & non-technical materials-skimming, scanning, inferring & responding to
context.
Technical Writing: Paragraph & composition writing on scientific & other themes, report writing, research paper
writing, library references.
Professional communication: Business letter, job application, memos, quotations, tender notice.

Hum 1112 Technical English Sessional
Contact hours/week : 3/2 Credits:0.75
Developing Reading Skill: Strategies of reading-skimming, scanning, predicting, inferencing; Analyzing and
interpreting variety of texts; Practicing comprehension from literary and nonliterary texts.
Developing Writing Skill: Sentences, sentence variety, generating sentences; Clarity and correctness of sentences,
linking sentences to form paragraphs, writing paragraphs, essays, reports, formal and informal letters.
Developing Listening Skill and Note Taking: Listening to recorded texts and class lectures and learning to take
useful notes based on listening.
Developing Speaking Skill: Oral skills including communicative expressions for personal identification, life at
home, giving advice and opinion, instruction and directions, requests, complains, apologies, describing people and
places, narrating events.