with effect from the academic year 2015-16

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderabad-500031

DEPARTMENT OF ELECTRICAL ELECTRONICS & ENGINEERING

II/IV BE I & II SEMESTER SCEHME AND SYLLABI
With effect from the academic year 2015-16

DEPARTMENT VISION

Excellence in quality education by keeping pace with rapidly changing technologies and to create man power of global standards in the field of Electrical and Electronics Engineering

DEPARTMENT MISSION

To advance knowledge and educate electrical engineering students so that they have the knowledge and the skills to innovate, excel and lead in their professions. To instil in the students values, attitudes, vision that will prepare them for life times of continued learning and leadership for the benefit of society locally and globally.

COLLEGE VISION

Striving for a symbiosis of technological excellence and human values

COLLEGE MISSION

To arm the young brains with competitive technology and nurture the holistic development of the individuals for a better tomorrow

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderabad-500031

DEPARTMENT OF ELECTRICAL ELECTRONICS & ENGINEERING

SCHEME OF INSTRUCTION AND EXAMINATION FOR B.E. II YEAR (Regular) - I-SEMESTER

S.NO	Sub reference Code	Subject	Scheme of Instructions				Scheme of Examination			
			Periods per week				Duration in Hrs	Maximum Marks		Credits
			L	T	D	P		SEM Exam	Sessionals	
THEORY										
1	EE 2010	Electric Circuits-I	4	1	-	-	3	70	30	3
2	EE 2020	Electrical Measurements & Instruments	4	-	-	-	3	70	30	3
3	EE 2030	Electromagnetic Theory	4	1	-	-	3	70	30	3
4	MA 2020	Partial Differential Equations and Numerical Methods	4	-	-	-	3	70	30	3
5	ME 2070	Principles of Mechanical Engineering	4	-	-	-	3	70	30	3
6	EC 2140	Electronic Engineering-I	4	-	-	-	3	70	30	3
7	HS2180	Finishing School-I	4		-	-	3	70	30	2
PRACTICALS										
8	EC 2401	Electronic Engineering-I Lab	-	-	-	3	3	50	25	2
9	EE 2031	Circuits and Measurements Lab	-	-	-	3	3	50	25	2
		TOTAL	**28**	**2**	**-**	**6**		**590**	**260**	**24**
								850		
INTERDISCIPLINARY COURSE OFFERED TO OTHER DEPARTMENTS										
PRACTICALS										
1	EE 2041	Basic Electrical Engineering Lab (For ECE)	-	-	-	3	3	50	25	2
		Total				**3**		**50**	**25**	**2**

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD-31

SCHEME OF INSTRUCTION & EXAMINATION

2/4 B.E. Bridge Course (for Lateral Entry Students of all branches)

With effect from the academic year 2015-16

I-Semester

S No.	Code	Subject	Scheme of Instruction				Scheme of Examination			
			Periods per week				Duration	Maximum Marks		Credits
			L	T	D	P		SEM Exam	Sessionals	
Theory										
1	MA2040	Mathematics	1	-	-	-	90 min	25	-	-
2	PH2130	Physics of materials	1	-	-	-	90 min	25	-	-
3	CE2080	Engineering Mechanics	2	-	-	-	3 hrs	50	-	-
Practicals										
4	CS 2091	C-Programming Lab	-	-	-	2	3 hrs	50	-	-
			4	**-**	**-**	**2**	**-**	**150**	-	-
II-Semester Practicals										
1	HS2231	ELT-LAB	-	-	-	2	3	50	-	-

No credits are awarded to the bridge courses offered to 2/4 B.E (all branches) lateral entry students taking admissions from the academic year 2015-16 under autonomous status. However pass in each of these courses is mandatory to obtain the degree. Every student shall get 40% marks in each course for a pass in theory subject and 50% marks in laboratory course. Only semester examinations will be conducted at the end of the each semester.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderabad-500031

DEPARTMENT OF ELECTRICAL ELECTRONICS & ENGINEERING

SYLLABUS FOR BE 2/4 FIRST SEMESTER

ELECTRICAL CIRCUITS –I

Instruction: 4+1 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **EE2010**
Credits : 3	Sessional Marks:30	Duration of Sem Exam:3 Hrs.

Course objectives	**Course Outcomes** Student will be able to
The objective of Electrical Circuits is to provide Under Graduate Engineer a thorough understanding of the fundamentals of electric circuits such that the student would develop an in depth knowledge of circuit elements (active and passive), their characteristics and their functioning to analyze many engineering problems.	1. Explain basic electrical concepts, including electric charge, current, electrical Potential, electrical power, and energy and the relationship of voltage and current in resistors, capacitors, inductors, and mutual inductors and apply Kirchhoff's voltage and current laws to the analysis of electric circuits and use different circuit analysis techniques. 2. Apply theorems to analyze the AC/DC circuits that include passive devices, dependent sources, and independent sources in combination. 3. Apply concepts of electric network topology: nodes, branches, and loops to solve circuits. 4. Explain AC steady-state circuit concepts (impedance, reactance, etc) and perform AC steady state analysis in Phasor and frequency domain and able to systematically obtain the equations that characterise the performance of an electric circuit as well as solving both single phase and three-phase circuits in sinusoidal steady state. ` 5. Illustrate the phenomenon of series resonance and parallel resonance and formulate the resonant conditions and calculate the Z, Y , ABCD, h parameters of the given network and outline the relation between various two port parameters.

UNIT-I

Definitions of Electric Circuit Parameters, Voltage, Current and Power, Passive sign convention, Passive circuit elements R, L and C and their V-I relationship & symbols, Description of independent and dependent sources, Ohm's law, KCL, KVL. Current and voltage division principles, DC Circuit Analysis Techniques, Simple series and parallel circuit analysis and reduction techniques, Circuit analysis using Source Transformation, Nodal, loop and mesh circuit analysis containing independent and dependent sources.

UNIT-II

Definition and computation of average value, RMS value of time varying periodic signals, Steady state response of RLC networks subjected to sinusoidal excitation, Complex exponentials, Definition of phasor, Phasor domain conversions, Network analysis techniques in phasor domain. Definition of complex power, Reactive power, Power factor and calculations of power in single phase ac circuits.

Unit III

Network Theorems:

Superposition Theorem, Thevenin's, Norton's, Maximum Power Transfer, Tellegen's Theorem, Milliman's Theorem and Reciprocity Theorem with DC and AC excitation and their applications.

Unit IV

Resonance – Definitions and computations of series and parallel resonance, definitions of bandwidth and Q-factor, selectivity. Locus diagrams (RL and RC series circuits only). Coupled circuits: Dot convention, Analysis of circuits with mutual inductance, Linear Transformers and ideal transformers

Network Topology: Network Graph concept, oriented graph, Node, Branch, complete incidence matrix, basic incidence matrix, loop, tie-set, tree and its properties, co-tree, Fundamental tie-set matrix, cut-set, Fundamental cut-set matrix, Duality.

UNIT-V

Two port parameters: Z, Y, ABCD and h-parameters, their interrelationships, series, parallel and cascade connection of two ports, terminated two ports.

3-phase circuit analysis: 3-phase power, Y and Δ Connected systems, Calculations of voltages, current and power in 3- phase circuits with Y and Δ connected loads and generator, Star – Delta transformation. Balanced and unbalanced loads. Measurement of 3-phase power by two wattmeter method.

Learning Resources:

1. Van Valkenburg , Network Analysis , Prentice Hall of India, 3rd Ed, 1992
2. W.H.Hayt,J .E.Kimmerly, Engineering Circuit Analysis, McGraw Hill, 5th Ed, 2000
3. Charles K.Alexander & Matthew N.O.Sadiku, Fundamentals OJ Electric Circuits, Tata McGraw-Hili, 2003.
4. David A.Bell, Electric Circuits ,Oxford university Press, Seventh Edition,2015

SYLLABUS FOR BE 2/4 FIRST SEMESTER
ELECTRICAL MEASUREMENTS AND INSTRUMENTS

Instruction: 4 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **EE2020**
Credits : 3	Sessional Marks:30	Duration of Sem Exam:3 Hrs.

Course objective:	**Course Outcomes:**
Enable the student to	Student able to
1. Have a fair knowledge about the fundamentals of construction & working principles of different types of Analog Ammeters, Voltmeters and Watt meters.	1. **Identify** and **choose** the proper type and range of meter to measure current / voltage / Power.
2. Aquire the knowledge of different types of energy meters, power factor meters and frequency meters.	2. **Measure** and **calculate** the Energy in a 1-ph/3-ph system of balanced/unbalanced.
3. Have the knowledge of measurements of circuit elements R,L & C using bridges.	3. **Calculate** the R, L & C values using the proper bridges.
4. Understand the fundamentals of magnetic measurements of B, B-H curve & Iron loss. Understand the construction, working principle and applications of DC and AC potentiometers and CTs and PTs.	4. **Test** the bar specimen/ring specimen and **calculate** the Flux density (B) / Iron loss.
5. Understand the construction, working principle and applications of DC and AC potentiometers and CTs and PTs.	5. **Calibrate** ammeter/ voltmeter/ wattmeter using the Potentiometer

UNIT -I

Principles of Measurement and Instrumentation: Objectives of measurements, analog versus digital measurements, accuracy, precision and uncertainty, sources of measurement error. Standard cell and standard resistance. Basic characteristics of measuring instruments with a moving element.

Instruments: Ammeter, Voltmeter. Expression for torque of moving coil, moving iron, dynamometer and electrostatic instruments. Extension of range of instruments wattmeter, torque expression for dynamometer

instruments. Reactive power measurement. Digital Instruments – DVM. Basic construction and operation.

UNIT -II

Induction type instruments, Energy meters, single phase and poly phase, Driving torque and braking torque equations. Errors and testing compensation, maximum demand indicator, power factor meters, frequency meters, electrical resonance and Weston type of synchoroscope.

UNIT -III

Bridge methods: measurement of inductance, capacitance and resistance using Bridge.

Maxwell's, Anderson, Wein, Heaveside Cambell's Desauty's, Schering's bridges, Kelvin's doublebridge, price guard wire bridge, loss of charge method, megger, wagners Earthing device.

UNIT -IV

Magnetic measurements: Ballistic Galvanometer, calibration by Hibbert's magnetic standard, flux meter, Lloyd-fischer square for measuring iron loss, testing of ring and bar specimens. Determination of B-H curve and hysteresis loop using CRO, Determination of leakage factor.

UNIT -V

Potentiometers and Instrument Transformers: Crompton's DC and AC polar and coordinate type, Applications. Measurement of impedance, Calibration of ammeter, voltmeter and wattmeter. Use of Oscilloscope in frequency, phase and amplitude measurements. Instrument transformers -Ratio and phase angle errors and their reduction.

Learning Resources:

1. A.K. Sawhney, A course in Electrical and Electronics Measurements and Instruments- Dhanpat RAi and Sons, Delhi, 2005
2. Umesh Sinha, Electrical and Electronics Measurements and Instruments, Satya Prakashan
3. F.W.Golding and Widdis, Electrical and Electronics Measurements and Instruments 5th Edition-2010

SYLLABUS FOR BE 2/4 FIRST SEMESTER
ELECTROMAGNETIC THEORY

Instruction: 4+1 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **EE2030**
Credits : 3	Sessional Marks:30	Duration of Sem Exam:3 Hrs.

Course objective:	**Course Outcomes:**
To impart the basic knowledge of the electromagnetic fields to enable the student to analyze and design various engineering applications involving electromagnetic fields.	students will be able to 1. State and apply the principles of Coulomb's Law and Gauss's law to electric fields in the Cartesian, cylindrical and spherical coordinate systems to determine the electric field intensity resulting from various configurations of charge distributions. 2. Classify magnetic materials, and solve magneto static field problems using Biot-Savart law and Ampere's circuit law with the associated boundary conditions. 3. Determine self and mutual inductance of simple practical current carrying systems and calculate force and torque in magnetic fields. 4. Solve electrostatic boundary-value problems by applying of Poisson's and Laplace's equations and determine capacitance of various geometries representing practical system of conductors. 5. Interpret Maxwell's equations for time-varying electromagnetic fields and deduce equations to describe wave propagation, to relate wave velocity and time delay and identify the reasons and methods of reducing electromagnetic compatibility.

UNIT-I

Electrostatic Fields: Brief review of vector analysis – Introduction to different Coordinate systems – Coulomb's law (point charges and charge distribution) Electric field and flux density – Gauss's law – Gauss divergence theorem – potential energy and electrical potential – relationship between E and V – integral and point form of Maxwell's Electrostatic equation.

UNIT-II

Electric dipole – Dipole moment – potential and EFI due to an electric dipole – Torque on an Electric dipole in an electric field – Behaviour of conductors in an electric field – Conductors and Insulators. Electric field inside a dielectric material – polarization – Dielectric –, Capacitance – Capacitance of parallel plate and spherical and coaxial capacitors with composite dielectrics – Energy stored and energy density in a static—Conductor and Dielectric – Dielectric boundary conditions electric field. Poisson's and Laplace equations –Uniqueness theorem, Analytical solutions – By direct integration (One dimensional)

UNIT -III

Magneto static fields: Current density – conduction and Convection current densities – Equation of continuity. Ohm's law in point form, determination of magnetic fields using Biot-Savart's law and Amperes law-Magnetic scalar and vector potentials- magnetic materials – forces in magnetic fields – Lorentz force equation – force between parallel conductors – magnetic torque and Dipole moment – inductance calculations (Solenoid, Toroids, Parallel transmission line)-Mutual inductance – Integral and point forms of Maxwell's magneto static equation. Magnetic boundary conditions

UNIT-IV

Time Varying Electromagnetic fields and wave propagation: Faraday's law of induction – equation of continuity – displacement current – final forms of Maxwell's equations – power and poynting theorem – time – harmonic electromagnetic fields – wave equations (one dimension) – plan wave propagation in perfect and Lossy Dielectric.

UNIT-V

Electromagnetic Interference and Compatibility (Theoretical Aspects only):

Introduction to electromagnetic interference and electromagnetic compatibility (EMI & EMC) – sources and characteristics of EMI – control techniques of EMI – Grounding – Shielding – Filtering.

Learning Resources:

1. W.H.Hayt, Engineering Electromagnetics, Tata McGraw Hill, 8th Edition,1994.
2. Sadiku, Elements of Electromagnetics, 5th Edition, Oxford University Press,2000
3. H.Narayan Rao, Elements of Engineering Electromagnetics, Prentice Hall of India, 3'" Edition, 1992.
4. MIT OpenCourseWare http://ocw.mit.edu *Electromagnetic Field Theory: A Problem Solving Approach*

SYLLABUS FOR BE 2/4 FIRST SEMESTER
PARTIAL DIFFERENTIAL EQUATIONS –NUMERICAL METHODS

Instruction: 4 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **MA 2020**
Credits : 3	Sessional Marks:30	Duration of Sem Exam:3 Hrs.

COURSE OBJECTIVES	COURSE OUTCOMES
Students should	*students will be able to:*
1. Formulate and solve linear and nonlinear partial differential equations. 2 ***Study*** the Fourier series, conditions for expansion of function and half range series 3 Apply partial differential equations to engineering problems viz., wave, heat and Laplace's equations. 4 ***Study*** the methods to solve equations, apply numerical methods to interpolate, differentiate and integrate functions and to solve differential equations using numerical methods and solve systems of equations. 5 Analyze the characteristics and properties of and Z – transforms and solve the Difference Equations.	1. ***Find*** the Partial differential equations by eliminating arbitrary constants and functions and solve linear, non-linear Partial differential equations 2. ***Expand*** any function which is continuous, discontinuous, even or odd in terms of its Fourier series. 3. ***Solve*** wave, heat and Laplace's equations in engineering problems . 4. ***Solve*** algebraic and transcendental equations using Bisection method Regula-Falsi, Newton-Raphson, apply numerical methods to interpolate, differentiate functions, solve systems of equations and solve differential equations using numerical methods. 5. Apply Z-transform in the analysis of continuous time and discrete time systems and also solve the Difference Equations using Z-transform.

Unit – I (10 Classes)

Fourier Series: Expansion of a function in Fourier series for a given range-odd and even functions of Fourier series change of interval - Half range sine and cosine expansions-Applications of Fourier series-Square wave forms-Saw tooth wave form.

Unit – II (10 Classes)

Partial Differential Equations: Formation of partial differential equations of first order- Lagrange's solution – standard types – Charpit's method– Partial differential equations of higher order with constant Coefficient

Unit – III (10 Classes)

Applications of Partial Differential Equations: Classification of Partial Differential Equations of second order **-** Method of separation of variables **-** Solution of one dimensional wave equation – One and Two dimensional Heat equation and Laplace's Equation(Polar and Cartesian).

Unit – IV (12 Classes)

Numerical Methods: Solutions of Algebraic and transcendental equations-Bisection method- Regula-Falsi method-Newton's-Raphson's method- – Interpolation - Newton's Forward and Backward difference Interpolation formulas- Lagrange's Interpolation - Newton's divided difference interpolation - Numerical differentiation - Solution of Differential equations by Euler's method-Modified Euler's method and Runge – Kutta Method of 4^{th} order(without proofs).

Unit – V(12 Classes)

Z- Transforms: Introduction - Basic Theory of Z – Transforms - Z – Transform of some standard sequences - Existence of Z – Transform - Linearity property - Translation Theorem - Scaling property- Initial and Final Value Theorems - Differentiation of Z – Transform - Convolution Theorem - Solution of Difference equations using Z – Transforms.

Learning Resources:

1. E. Kreyszig. Advanced Engineering Mathematics – Wiley Eastern Ltd., 8^{th} Edition, New Delhi, 2006.
2. R.K. Jain & S.R.K. Iyengar**,** Advanced Engineering Mathematics – Narosa Pub.2005.
3. B.V. Ramana, Higher Engineering Maqthematics, Core Engineering Series, Tata Mc Graw – Hill publishing Company Ltd., New Delhi, 2007.
4. B.S. Grewal, Higher Engineering Mathematics, Khanna Publications, 34^{th} Edition, 1998.
5. Numerical methods ,B.S.Grewal,Khanna Publishers.

SYLLABUS FOR BE 2/4 FIRST SEMESTER
PRINCIPLES OF MECHANICAL ENGINEERING

Instruction: 4 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **ME 2070**
Credits : 3	Sessional Marks:30	Duration of Sem Exam:3 Hrs.

Course Objectives	Course Outcomes
students shall: • learn the basic principles of mechanical engineering in the areas of Heat transfer, Refrigeration; IC Engines; Gears, Ropes and Belt drives; Hydraulic turbines and pumps	students should be able to: 1. compute the problems in heat transfer and refrigeration 2. evaluate the performance of on I.C. Engines, air compressors and analyze the working of Boilers and gas turbines 3. Compute the power transmission, velocity ratio in belt &rope drives and gear trains. 4. calculate coefficient of discharge in flow meters and evaluate the performance of hydraulic turbines 5. analyse the problems in centrifugal pumps and reciprocating pumps

UNIT-I

Heat Transfer: Modes of Heat transfer – conduction, convection and radiation – steady state conduction – Heat transfer through plane walls, cylinders, critical radius of insulation for cylinders, concept of black body radiation.

Heat Exchanger: Classification, Industry applications, LMTD calculations for parallel and counter flows.

Refrigeration System: Coefficient of performance, ton of refrigeration, air refrigeration system using Bell Colemn Cycle, simple vapour compression refrigeration system (dry saturated at the beginning of the compression) T-S and P-H diagrams, refrigerants and their properties, working principle of window and split air conditioning systems.

UNIT-II

IC Engines: Working of four–stroke and two–stroke petrol and diesel engines with P–v diagrams, calculation of indicated power, brake power, specific fuel consumption, mechanical and thermal efficiencies.

Reciprocating air compressors: Uses of compressed air, principle of working and work done of single stage compressor–Without and with clearance, multistage compressors, advantages, intercoolers and after cooler.

Generation of Steam: Classification of boilers, Fire tube boilers– Locomotive boilers, Cochran boiler, Water tube boiler–Babcock & Wilcox boiler.

Gas Turbines: Classification, calculation of efficiency of simple open gas turbine cycle (Joule cycle/Brayton cycle) and applications

UNIT-III

Gears: Classification, Gear trains, types – Single, compound, Inverted & Epi cyclic gear trains, Belt & rope drives, open and cross belt, length of belt, ratio of tension flat belts, condition for maximum power.

UNIT-IV

Introduction to Bernoulli's equation, applications – Venturi meter, Orifice meter, Flow through pipes – Hagen's formula, Friction loss in pipes, Darcy's formula, Reynolds number and its significance.

Hydraulic Turbines: Classification – working principle – Francis, Kaplan, Pelton Wheels, work done, power output, efficiency, specific speed, unit quantities, draft tube, performance characteristic curves.

UNIT-V

Pumps: Working principles and construction details of centrifugal and reciprocating pumps, Effect of friction, acceleration head, work done, power required with and without air vessels, cavitation, and velocity triangles of centrifugal pumps.

Learning Resources:

1. PL Ballaney, Thermal Engineering, Khanna Publishers, New Delhi 2010.
2. VB Bandari, Machine Design, Tata McGraw Hill, 2010
3. R.K. Rajput, Thermal Engineering, Laxmi Publications, 2005
4. S. Ramamrutham, Hydraulic, Fluid Mechanics and Fluid Machines, Dhanpat Rai and sons, 2006

SYLLABUS FOR BE 2/4 FIRST SEMESTER
ELECTRONICS ENGINEERING – I

Instruction: 4 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **EC 2140**
Credits : 3	Sessional Marks:30	Duration of Sem Exam:3 Hrs.

Course Objective:	Course Outcomes
To familiarize the students with various electronic devices working and analyzation and design of simple real time electronic products.	**students should be able to:** 1. Define and describe the principle of operation of electronic devices like PN junction diode, Zener diode, BJT and FET etc. 2. Analyze and design various rectifier circuits with and without filters for a regulated DC power supply. 3. Illustrate the use of diode in practical applications and gain knowledge on special diodes. 4. Analyze and compare the small signal low frequency bipolar junction Transistor and Field effect transistor amplifiers in different configurations with the help of their equivalent circuits.

UNIT – I

Semiconductor diodes and Rectifiers: Review of semiconductor physics, p-n junction as a rectifier, V-I characteristics, temperature dependence of V-I characteristics; Breakdown of junctions-Zener and Avalanche. Half wave, full wave, bridge rectifiers, L, C, π-section filters; Regulation and Ripple characteristics

UNIT – II

Transistors and their biasing: BJT, current components; CE, CB, CC configurations; characteristics. Transistor as an amplifiers; h-parameters; Analysis of CE, CB, CC amplifiers. Operating point, bias stability, stabilization circuits, fixed bias, collector to base bias and Emitter bias.

UNIT – III

Field Effect Transistors and their biasing: Principles of V-I characteristics of JFET and MOSFETs; Depletion and Enhancement modes, small signal equivalent circuit, FET as a CS amplifier. Biasing of JFET's and MOSFET's source self-bias, biasing for zero current drift, biasing against device variations, Characteristics of UJT, SCR, DIAC & TRIAC.

UNIT – IV

Low frequency BJT amplifier Circuits : Cascading amplifier stages, simplified analysis for three amplifier configurations, Miller's theorem-High input impedance transistor circuits, cascode configuration, Difference amplifier.

UNIT – V

Multistage amplifiers: Classification of amplifiers, Distortion in amplifiers, Frequency response of RC coupled amplifiers, effect of emitter (source) by pass capacitor on LF response, Transformer coupled amplifiers, step response, Bandwidth of cascaded stages.

Learning Resources:

1. Jacob Millman and Halkias," Electronic devices and circuits", 2nd Edition, McGraw Hill Publication, 3/e, 2010.
2. Jacob Millman, Christos C. Halkias, "Integrated electronics: analog and digital circuits and systems", 2nd Ed, Mc Graw-Hill, 2010.
3. David Bell, "Fundamentals of Electronic Devices and Circuits", 5th Edition, Oxford University Press 2008.
4. Donald L schilling & Charles Belove, Electronic circuits: Discrete & Integrated, McGraw Hill International Edition, 3rd Edition,1989.
5. Robert L. Boylestad, Louis Nashelsky "Electronic Devices and Circuit Theory", 10th Edition, PHI, 2009

SYLLABUS FOR BE 2/4 FIRST SEMESTER
FINISHING SCHOOL-I

Instruction: 2 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **HS 2180**
Credits : 3	Sessional Marks:30	Duration of Sem Exam:3 Hrs.

Course objective:	Course Outcomes:
1. Identify the various features and functions of human language and communication. 2. Develop the habit of listening effectively so as to analyze the speaker's tone and tenor. 3. Choose the appropriate words so as to speak and write accurately. 4. Read various types of texts and sift information correctly. 5. Write notes and letters for personal and official purposes.	1. Listen and analyze context, tone and tenor before responding to others. 2. Begin, sustain and end conversation. 3. Respond to people in different situations. 4. Read with adequate speed and comprehend various texts. 5. Use words appropriately in different contexts for speaking and writing. 6. Use markers in written discourse. 7. Construct grammatically correct sentences to write effectively.

SECTION-I
Soft Skills (35 marks)

UNIT I.
ORAL COMMUNICATION: LANGUAGE FUNCTION IN CONTEXT

- Greeting People and responding to greetings
- Making and responding to introductions
- Making and responding to requests
- Making , accepting and refusing invitations
- Taking permissions
- Thanking people and responding to thanks

UNIT II. AURAL COMMUNICATION: LISTENING TO VARIOUS SPEAKERS AND TEXTS

- Listening for meaningful chunks of information
- Listening for gist and specific information

UNIT III: READING: COMMUNICATING WITH A GIVEN TEXT

- For gist
- For details
- To target questions
- For main idea
- For supporting details to the main idea

UNIT IV: WRITING: PERSONAL AND OFFICIAL COMMUNICATION

- Basic structures of texts
- Punctuation
- Letters
- Types of sentences

UNIT V: GRAMMAR

- Relative clauses
- Subject verb
- Prepositions
- Common errors

VOCABULARY

- Collocations
- Phrasal verbs
- Idioms
- Adjectives for descriptions

SECTION-II
Technical Skills (35 marks)

Introduction to Programming Languages, Problem solving: Algorithm, Flowcharts
Types, Operators and Expressions, Expression evaluation
Control Flow and Behavior Flow Charts, Iterations, Functions, Recursion
Arrays, 2D-Arrays
Strings, String Manipulation functions
Pointers, Pointers to strings
Structures and Unions, Pointers to structures
File Handling
OOPs Concepts
Message passing and polymorphism
Inheritance, Exception Handling
Templates

SYLLABUS FOR BE 2/4 FIRST SEMESTER
ELECTRONICS ENGINEERING – I LAB

Instruction: 3 Periods/Week	Sem Exam Marks: 50	Subject Reference Code : **EC 2401**
Credits : 2	Sessional Marks: 25	Duration of Sem Exam:3 Hrs.

Course Objective:	Course Outcomes
To develop an understanding of the characteristics of Electronic devices and circuits with Qualitative approach	**students should be able to:** 1. Estimate the parameters from V-I characteristics of different diodes and evaluate the performance of rectifiers. 2. Estimate the parameters from BJT and FET characteristics. 3. Compute the bandwidth of RC coupled BJT and FET amplifiers from the frequency response.

List of Experiments:

1. V-I Characteristics of Si, Ge and Zener diode
2. Zener as Voltage Regulator
3. Design of Half wave and Full wave Rectifiers with and without Filters
4. Common Base characteristics of BJT and measurement of h – parameters
5. Common Emitter characteristics of BJT and measurement of h-parameters
6. JFET Characteristics and measurement of its small signal parameters.
7. Applications of Cathode ray oscilloscope.
8. BJT biasing.
9. Analysis and bandwidth calculation of Single stage RC coupled CE Amplifier.
10. Analysis and bandwidth calculation of Emitter follower.
11. Single stage FET Common Source RC coupled Amplifier
12. Analysis and bandwidth calculation of Source follower.
13. Analysis and bandwidth calculation of Multi stage RC coupled CE Amplifier.
14. Characteristics of UJT.

Learning Resources:

1. Paul B. Zbar, Albert P. Malvino, Michael A. Miller, "Basic Electronics, A Text - Lab Manual", 7thEdition, TMH 2001
2. S.Poorna Chandra,B. Sasikala, Electronics Laboratory Primer,A design approach, Wheeler publishing,1998.

SYLLABUS FOR BE 2/4 FIRST SEMESTER
CIRCUITS AND MEASUREMENTS LAB

Instruction: 3 Periods/Week	Sem Exam Marks: 50	Subject Reference Code:**EE 2031**
Credits : 2	Sessional Marks: 25	Duration of Sem Exam:3 Hrs.

Course objective:	Course Outcomes:
Enable the student 1. To have fair knowledge about Transient, Frequency response of RLC-circuits and Parameters of network. 2. To understand the various theorems concepts and their application. 3. To understand the construction, working principles, calibration and applications of different types of Analog instruments – Ammeter, Voltmeters, Watt meter, Energy meter and Potentio meters. 4. To have the knowledge of measurement of circuit elements R, L & C using bridges.	the student is able to 1. identify and choose the proper type of theorem to solve the circuits. 2. identify and choose the proper type and range of meter to measure current, voltage, Power and Energy. 3. calibrate ammeter, voltmeter and wattmeter using the Potentio meter. 4. calculate the R, L & C values using the proper bridges.

List of Experiments

PART- A: CIRCUITS

1. Charging discharging characteristics of RC series circuit
2. Locus diagram of a RC/RL Circuit
3. Frequency response of a RLC series circuit
4. Parameters of Two Port network
5. Verification of Theorems a) Thevenin's Theorem b) Norton's Theorem c) Super Position theorem d)Max. Power Transfer Theorem
6. Characteristics of Linear / Non-Linear and Bilateral elements
7. Transient in RLC Circuits
8. Application of PSPICE to electrical circuits

PART -B : MEASUREMENTS

1. Measurement of low resistance by Kelvin's Double Bridge
2. Calibration of Single phase energy meter by Phantom Loading
3. Measurement of Induction by Maxwell's and Anderson's Bridge
4. Measurement of capacitance by DeSautry's bridge
5. Measurement of Iron losses by Lloyd Fischer square
6. Use of D.C Potentiometer to measure unknown voltage and impedance
7. Calibration of 3-phase Energy meter (Electromagnetic/static) by direct loading
8. Use of Oscilloscope and plotting B.H Curve and calculation of iron loss

Note: At least 5 experiments should be completed from each part.

SYLLABUS FOR BE 2/4 FIRST SEMESTER
BASIC ELECTRICAL ENGINEERING LAB (For ECE)

Instruction: 3 Periods/Week	Sem Exam Marks: 50	Subject Reference Code : **EE 2031**
Credits : 2	Sessional Marks: 25	Duration of Sem Exam:3 Hrs.

Course objective:	Course Outcomes:
To impart the practical knowledge on measuring of 3-phase power, performance and speed control of DC machines and AC machines.	Students will be able to 1. Identify suitable instruments in the application of DC and AC machines. 2. Analyze the performance and speed control of DC Machines. 3. Analyze the performance and speed control of Induction motor. 4. Analyze the performance of an alternator. 5. Analyze the performance of single phase transformer. 6. Compute a 3-phase power by using 2-Watt meters.

List of Experiments:

1. Magnetization curve of a separately excited D.C. generator.
2. The load characteristics of a shunt generator.
3. The load characteristics of a series generator.
4. Performance characteristics of a D.C. shunt motor
5. The load characteristics of a D.C. series motor
6. The performance characteristic of DC compound motor.
7. Speed control of D.C. motor
8. O.C. and S.C. tests on single phase transformer
9. Load test on single phase transformer
10. Performance characteristics of a three phase induction motor
11. Speed control methods of induction motor
12. Regulation of alternator by O.C. and S.C. tests.
13. Measurement of three-phase power by two Wattmeter method.

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)
DEPARTMENT OF ELECTRICAL ELECTRONICS & ENGINEERING
SCHEME OF INSTRUCTION AND EXAMINATION B.E. II/IV SEMESTER-II

S.NO	Sub reference Code	Subject	Scheme of Instructions				Scheme of Examination			
			Periods per week				Duration in Hrs	Maximum Marks		Credits
			L	T	D	P		SEM Exam	Sessionals	
THEORY										
1	EE 2040	Electrical Circuits – II	4	1	-	-	3	70	30	3
2	EE 2050	Digital Electronics and Logic Design	4	-	-	-	3	70	30	3
3	EE 2060	Power Systems-I	4	1	-	-	3	70	30	3
4	EE 2070	Electrical Machinery – I	4	1	-	-	3	70	30	3
5	EC 2290	Electronic Engineering – II	4	-	-	-	3	70	30	3
6	CE 2090	Environmental Studies	4	-	-	-	3	70	30	3
7	HS2140	Human Values and Professional Ethics	1	-	-	-	3	70	30	1
8	HS2240	Finishing School-II	4	-	-	-	3	70	30	2
PRACTICALS										
9	EC 2501	Electronic Engineering – II Lab	-	-	-	3	3	50	25	2
10	ME 2031	Mechanical Technology Lab	-	-	-	3	3	50	25	2
		TOTAL	**29**	**3**	**-**	**6**		**660**	**290**	**25**
								950		
INTERDISCIPLINARY COURSE OFFERED TO OTHER DEPARTMENTS										
THEORY										
1	EE 2090	Electrical Circuits And Machines (For Mech.)	4	-	-	-	3	70	30	3
2	EE 2100	Electrical Technology (For Civil)	3	-	-	-	1.5	35	15	2
PRACTICALS										
3	EE 2111	Electrical Circuits &Machines Lab(For Mech.)	-	-	-	3	3	50	25	2
		Total	**7**			**3**		**155**	**70**	**7**

SYLLABUS FOR BE 2/4 SECOND SEMESTER
ELECTRICAL CIRCUITS - II

Instruction: 4+1 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **EE 2040**
Credits : 3	Sessional Marks: 30	Duration of Sem Exam:3 Hrs.

Course objective:	Course Outcomes:
1. To analyze the electrical circuits transients for various inputs (step, impulse, sinusoidal etc.) 2. To apply Laplace Transforms to analyze the transients in circuits with various inputs 3. To implement and analyze the Fourier Series and Fourier Transform applications to Electrical circuits 4. To synthesise the networks in Foster's and Cauer's forms for the given transfer functions of the various electrical systems.	students should be able to 1. Write down differential-equation models for linear circuits, understand, obtain and analyze the transient response of networks containing various Energy storage elements such as Resistance, Inductance and Capacitance using classical and Laplace Transform methods 2. Evaluate Laplace Transforms and evaluate the Laplace transforms of various time domain functions such as, impulse, unit step, ramp, sinusoids and exponential functions. 3. Apply several mathematical techniques underlying systems/signal analysis, including Laplace-domain analysis, Fourier series, and Fourier Transforms. 4. Apply several mathematical techniques underlying systems/signal analysis using Fourier series, and Fourier Transforms for analyzing the electrical circuits. 5. Analyze and synthesize the various network functions using Foster's and cauer's forms

Unit I

Transient Response: Initial and final (Steady - State) conditions in circuit elements (R, L, C), in zero-input response of RC, RL and RLC networks. Definitions of unit impulse, unit step and ramp functions. Zero State Response with impulse and step inputs.

Complete response of circuits with initial conditions and forcing functions such as step, exponential and Sinusoidal functions.

Unit II

Development of Laplace Transform Method: Laplace Transform pair, Evaluation of Laplace Transforms of common time functions in particular delta, Unit step, Ramp, sinusoids and exponential functions, Building of Laplace Transform tables, Laplace transform theorems relating time shifting, Differentiation, Integration and Convolution of time functions, Initial and final value theorems, Waveform synthesis, Partial fraction expansion method of obtaining inverse Laplace transforms.

Unit III

Application of Laplace Transform for circuit analysis, Transient phenomena with laplace transforms, circuit analysis in the S (Complex variable) domain. Concept of transfer function, Pole-Zero plots.

Unit IV

Fourier series representation of periodic functions using both trigonometric and exponential functions. Amplitude and Phase spectrums , application to linear circuits. Symmetry conditions, Fourier transform representation of aperiodic signals, Symmetry properties, Power and bandwidth concepts. System function and its application in determining steady- state response.

Unit V

Network Synthesis: Hurwitz polynomials and their properties, Positive Real functions and their properties, Synthesis of reactive network (one port) by Foster's I and II forms,pole-zero interpretations of elements of Foster form, Cauer's I and II forms of synthesis of reactive networks, RL network synthesis by Foster's and Cauer's forms (I and II) of representation, RC network systems by Foster's and Cauer's forms (I and II).

Learning Resources:

1. M.R. Van Valkenburg, *Network Analysis,* Prentice Hall of India, 3rd Edition, 1995.
2. W.H.Hayt, J.E.Kimmerly, *EngineeringCircuitAnalysis,*McGrawHill,6th Edition, 2002
3. N.C. Jagan & C. Lakshminarayana, *Network Analysis and Synthesis,* B.S. Publications 2004.
4. Charles K.Aleximder &Matthew N.O.Sadiku, Fundamental of Electric Circuits, Tata McGraw-Hill, 2003.
5. Gopal G Bhise, Prem R Chadha & Durgesh, C. Kulshreshtha Engineering Network Analysis & Filter Design, Umesh Publications.

SYLLABUS FOR BE 2/4 SECOND SEMESTER
DIGITAL ELECTRONICS AND LOGIC DESIGN

Instruction: 4 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **EE 2050**
Credits : 3	Sessional Marks: 30	Duration of Sem Exam:3 Hrs.

Course objective:	**Course Outcomes:**
To impart the knowledge of combinational and sequential digital circuits.	1. Comprehend the number system and apply programmable logic devices to implement the logic functions. 2. Explain and apply logic gates, Boolean algebra, k-map and tabulation method for implementation of logic functions. 3. Classify different logic families. 4. Design different combinational circuits. 5. Design Sequential Circuits.

UNIT-I

Boolean Algebra and Combinational Logic : AND, OR and NOT operations – Laws of Boolean Algebra – minimization of Boolean expressions – truth tables and maps – sum – of products and product of sums – map method of reduction – incompletely specified functions – multiple output minimization – tabular minimization.

UNIT-II

Digital logic Families and IC's : Tabular minimization – Digital logic families and IC's-Characteristics of Digital IC's –introduction to RTL,DTL, TTL , CMOS, ECL families, Details of TTL logic family- totem pole, open collector ouputs. Wired AND operation, Comparision of performance, TTl subfamilies, – multiplexer and demultiplexer – encoder and decoder – code converters, implementation of combinational logic using standard logic gates and multiplexers.

UNIT-III

Binary arithmetic and circuits: Half adder and Full adder – Subtractor and Magnitude comparator – number complements – two's complement arithmetic – carry look ahead adder – decimal numbers and their codes – BCD and Excess – 3 arithmetic.

UNIT-IV

Synchronous sequential Circuits : Basic latch circuit – debouncing switch – SR, JK, D and T flip-flops truth-table and excitation table – ripple and synchronous counters – up/down counter – general BCD counter – shift registers – ring counters.

UNIT-V

Design of Digital Systems: Concept of state. State diagram – design of counters – sequence detectors – sequence generators –Design procedure, synthesis using D,JK,T flip-flops-applications of resgisters-concepts of programmable , logic – PROM, PLA, PAL

Learning Resources:

1. Morris Mano M., Digital Design, Prentice Hall of India, Second Edition, 1994.
2. Zvi Kohavi, Switching and Finite Automata Theory, Tata McGraw Hill, Second Edition, 1991
3. Tocci & Widmer_Digital Systems-Pearson Education-Eight Editiion, 2003.
4. Donald Pleach/Albert Paul Malvino/ Goutam Saha : Digital Principles and Applications" MCGraw-Hill, 2006.
5. B. Somnath Nair, Digital Elctronics and Logic Design, Prentice Hall, India, 2002

SYLLABUS FOR BE 2/4 SECOND SEMESTER
POWER SYSTEMS – I

Instruction: 4+1Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **EE 2060**
Credits : 3	Sessional Marks: 30	Duration of Sem Exam:3 Hrs.

Course objective:	**Course Outcomes:**
1. Have a fair knowledge about the fundamentals of various conventional power plants like thermal Hydel, Nuclear and Gas. 2. Acquire the knowledge of different types of non-conventional energy generation methods like solar, wind, Ocean Thermal Energy Conversion(OTEC), Tidal and geo thermal. 3. Understand the construction of Overhead lines, materials, Supports, insulators and Underground cables 4. Know the fundamentals of Transmission line Parameters- Inductance, Capacitance, Composite conductors, GMD, GMR, Transposition of conductors and Bundled conductors 5. Understand the Economics of Power Generation, types of costs, Depreciation, methods of p. f. improvement, Tariffs and General aspects of AC &DC distribution systems.	1. **Identify** and **select** the proper type of Power Plant for the Power Generation. 2. **Estimate** the Energy generated by different Nonconventional Generating stations. 3. **Test** and **categorize** the insulators and **calculate** the Sag & Tension in Overhead lines. 4. **Calculate** the Transmission line Parameters – Inductance and Capacitance for Single Phase & 3 – Phase. 5. **Assess** the P.f. improvement methods, Tariffs and **differentiate** AC & DC distribution systems.

UNIT – I

Thermal, Hydel, Nuclear Power Generation Principles, Choice of site, layout and various parts of generating stations.

Estimation of power in Hydel, flow duration curve, hydrograph, mass curve etc. Types of Hydel stations. Nuclear Stations, PWR, BWR, FBR GAS Turbines, GAS power stations, combined cycle power stations. MAJOR DISASTERS around the world in power plants-lessons learnt.

UNIT – II

Nonconventional energy generation methods: Solar, Wind, Ocean Thermal Energy Conversion (OTEC), Tidal, Geo Thermal.

Solar cells, Efficiency, Manufacturing Technology, Solar Radiation, Calculation of insulation, Solar collectors, Concentrators. Wind generators, Wind turbine types, rotors construction, Hybrid power generation.

UNIT – III

Construction of Overhead lines **-** Overhead line materials – Supports – types, Vibration Dampers, Arcing Horns, Sag / Tension calculations, Equal / Unequal supports, Effects of Wind, ICE / Erection Conditions Stringing Charts

Insulators **-**Types –Material for construction – new technological developments, potential distribution over string of insulators, Equalizing of potential-Methods. Insulator testing, Insulated cables –Insulating Materials, Mechanical Protection, EHV / HV / LV cables, grading capacitance of 3 core cables.

UNIT- IV

Inductance and Capacitance of Transmission Lines single phase and three phase with symmetrical and unsymmetrical composite conductors, GMR and GMD spacing's, transposition, bundled conductors, effect of earth capacitance.

UNIT – V

Economics of Power Generation: Load Curve, load demand and diversity factors, base load and peak load operation, types of costs and depreciation fund calculations. Methods of power factor improvement, economics of p.f. improvements, tariffs.

General aspects of AC and DC distribution systems, underground, Overhead lines, DC Systems ring main, Radial, Voltage drop calculations, Distributor fed at one end, Distributor fed at both ends. AC distribution systems.

Learning Resources:

1. C.L. Wadhwa, Electrical Power Systems, Wiley Eastern Ltd. 5th Edition, 2005
2. C.L. Wadhwa, Generation, Distribution and Utilisation of Electrical Energy, Wiley Eastern Ltd., 5th Edition, 2005
3. S.N.Singh- Electrical Power Generation, Transmission and Distribution-Prentice Hall pvt.ltd. New-2003.

SYLLABUS FOR BE 2/4 SECOND SEMESTER
ELECTRICAL MACHINERY – I

Instruction: 4+1Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **EE 2070**
Credits : 3	Sessional Marks: 30	Duration of Sem Exam:3 Hrs.

Course objective:	**Course Outcomes:**
To study the principles, performances and applications of electromechanical energy conversion devices like D.C machines and Transformers which are used in many industries.	1. Evaluate the stored and converted energy and also exerted force in electromechanical energy conversion devices 2. Able to select appropriate D.C Generator to meet the requirements of the application in industry. 3. Able to Test the performance and select appropriate D.C motor to meet the requirements of the application in industry 4. Able to Test the performance of single phase Transformer 5. Able to choose a suitable three phase transformer based on its application and also convert three phase to two phase or vice versa

UNIT – I

Principles of Electro-mechanical Energy Conversion: Energy in magnetic system, Field energy and mechanical force, Direction of mechanical force developed, Flow of energy in electro-mechanical devices, singly excited and multiply excited systems, Basic concepts of magnetically induced emf and force.

UNIT – II

DC Machines: Brief description of constructional features, Armature windings, simple lap and wave windings, Brush position, Classification of DC Machines.

DC Generators: Generated EMF, Methods of excitation, Armature reaction, Theory of commutation, compensating windings, interpoles, Types of generators and their characteristics, parallel operation.

UNIT – III

DC Motors: Generation of electromagnetic torque, Types of motors and their characteristics, Application of motors, Starting and speed control methods of DC motors. Testing of DC Motors, Losses and efficiency, Swinburne's test, Hopkinson's test, Field test for series motors, Retardation test, Separation of losses.

UNIT – IV

Single Phase Transformers: Constructional features, Principle of operation, Ideal transformer, Transformer on 'No load' and 'On load', Vector diagram, Equivalent circuit, Polarity test, O.C & S.C tests, Sumpner's test, Regulation & efficiency, All day efficiency, Separation of losses, Auto Transformer

UNIT – V

Three Phase Transformers: Three phase transformers connections Y-Y, Δ-Δ, Δ-Y, Y-Δ, V-V and Scott connections

Tap Changing Transformers: Concept of tap changing, on-load and off-load tap changers

Learning Resources:

1. P.S. Bhimbra Electrical machinery, Khanna Publications,7th edition,2003.
2. Fitzgerald, Kingsley, Umans, Electric Machinery, Tata Mc-Graw Hill Publications, 6th edition, 2002.
3. Nagrath I.J & Kothari D.P, Electrical Machines, Tata McGraw Hill Publications, Sigma series, 2006.
4. Theory and performance of electrical machines by J.B Gupta,S.K. Kataria & Sons,14th edition,2014.
5. H.Cotton, Advanced Electrical Technology, Wheeler & Co,7th edition, CBS publishers,2005.

with effect from the academic year 2015-16

SYLLABUS FOR BE 2/4 SECOND SEMESTER
ELECTRONIC ENGINEERING – II

Instruction: 4Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **EC 2090**
Credits : 3	Sessional Marks: 30	Duration of Sem Exam:3 Hrs.

Course Objective:	Course Outcomes
To familiarize the students with design and working of various amplifiers and oscillators and analyze concepts of linear and non-linear circuits.	**students should be able to:** 1. Analyze and design various feedback amplifies and large signal amplifiers. 2. Design a sinusoidal oscillator. 3. Analyze drift compensation techniques and differential amplifiers. 4. Design and analyze linear and non-linear wave shaping circuits.

UNIT – I

Feedback amplifiers: Concept of feedback, feedback amplifier configurations, circuits, Advantages of negative feedback, analysis of simple feedback amplifiers using BJTs and FETs.

UNIT – II

Oscillators: Barkhausen criterion, RC phase shift oscillator, Weinbridge oscillator, LC oscillators: Hartley and Colpitts, Crystal controlled oscillator (analysis of oscillators using only BJTs), Stability of oscillator

UNIT – III

DC amplifiers: Problems of dc amplifiers, Drift compensation techniques, Differential amplifiers, importance of CMRR, High CMRR differential amplifier.

UNIT – IV

Power amplifiers: Classification of Power amplifiers, analysis of class A and class B power amplifiers, Distortion in amplifiers, push pull amplifiers, complementary symmetry power amplifiers

UNIT – V

Wave shaping circuits: RC low pass and high pass circuits: response to step, pulse, ramp and square inputs, Differentiating and integrating circuits, Clipping circuits for single level and two level using diode, Clamping circuits.

Learning Resources:

1. Jacob Millman, Christos C.Halkias, and Chetan Parikh, "Integrated Electronics", 2nd Edition, McGraw Hill Publication, 2009
2. Jacob Millman, Christos C.Halkias and Satyabrata Jit,Electronic Devices and Circuits, McGraw Hill,3/e,2010.
3. Jacob Millman & Herbert Taub,Pulse, Digital and switching waveforms,TMH,3/e, 2011.
4. Robert L. Boylestad, "Electronic Devices and Circuit Theory", 6th Edition, PHI, 1998
5. Donald Schilling, Charles Belove, TuviaApelewicz Raymond Saccardi, "Electronic Circuits: Discrete and Integrated", TMH, 3rd Edition
6. Roody and Coolen, "Electronic Communications", 4th Edition, Pearson Education, Reprint 2007

SYLLABUS FOR BE 2/4 SECOND SEMESTER
ENVIRONMENTAL STUDIES

Instruction: 4Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **CE 2090**
Credits : 3	Sessional Marks: 30	Duration of Sem Exam:3 Hrs.

COURSE OBJECTIVES	**COURSE OUTCOMES**
the students will	*students will be able to*
1. Describe various types of natural resources available on the earth surface. 2. Explain the concepts, energy flow in ecosystem along with the biotic and abiotic components of various aquatic ecosystems. 3. Identify the values, threats of biodiversity, endangered and endemic species of India along with the conservation of biodiversity. 4. Explain the causes, effects and control measures of various types of pollutions and environmental protection acts. 5. Describe the methods for water conservation, the causes, effects of global warming, climate change, acid rain, ozone layer depletion, various types of disasters and their mitigation measures.	1. Describe the various types of natural resources. 2. Differentiate between various biotic and abiotic components of ecosystem. 3. Examine the values, threats of biodiversity, the methods of conservation, endangered and endemic species of India. 4. Illustrate causes, effects, control measures of various types of environmental pollutions and environmental protection acts. 5. Explain the causes, effects of climate change, global warming, acid rain and ozone layer depletion, various types of disasters and their mitigation measures and list the methods of water conservation and watershed management.

UNIT-II **Ecosystems:** Concepts of an ecosystem, structure and functions of an ecosystem, producers, consumers and decomposers, energy flow in ecosystem, food chains, ecological pyramids, aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries).

UNIT-III **Biodiversity:** Genetic species and ecosystem diversity, bio-geographical classification of India. Value of biodiversity, threats to biodiversity, endangered and endemic species of India, conservation of biodiversity.

UNIT-IV **Environmental Pollution:** Causes, effects and control measures of air pollution, water pollution, soil pollutions, noise pollution, thermal pollution and solid waste management.

Environment Protection Act: Air, water, forest and wild life acts, issues involved in enforcement of environmental legislation.

UNIT-V **Social Aspects and the Environment:** Water conservation, watershed management, and environmental ethics. Climate change, global warming, acid, rain, ozone layer depletion. EIA, population explosion.

Disaster Management: Types of disasters, impact of disasters on environment, infrastructure, and development. Basic principles of disaster mitigation, disaster management, and methodology, disaster management cycle, and disaster management in India.

Learning Resources:

1. Deswal S. and Deswal A., *A Basic Course on Environmental studies*, Dhanpat Rai & Co Pvt. Ltd. 2004.
2. Benny Joseph, *Environmental Studies*, Tata McGraw-Hill, 2005.
3. Suresh K. Dhameja, *Environmental Studies*, S.K. Kataria & Sons, 2010.
4. De A.K., *Environmental Chemistry*, New Age International, 2003.
5. Odum E.P., *Fundamentals of Ecology,* W.B. Sunders Co., USA, 2004.
6. Sharma V.K., *Disaster Management*, National Centre for Disaster Management, IIPE, Delhi, 1999.
7. Rajagopalan R., *Environmental Studies*, Second Edition, Oxford University Press, 2013.

SYLLABUS FOR BE 2/4 SECOND SEMESTER
FINISHING SCHOOL-II

Instruction: 2 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **HS2240**
Credits : 2	Sessional Marks: 30	Duration of Sem Exam:3 Hrs.

Course objective:	**Course Outcomes:**
1. The various features and functions of human language and communication. 2. Develop the habit of listening effectively so as to analyze the speaker's tone and tenor. 3. Choose the appropriate words so as to speak and write accurately. 4. Read various types of texts and sift information correctly. 5. Write notes and letters for personal and official purposes.	1. Listen and analyze context, tone and tenor before responding to others. 2. Begin, sustain and end conversation. 3. Respond to people in different situations. 4. Read with adequate speed and comprehend various texts. 5. Use words appropriately in different contexts for speaking and writing. 6. Use markers in written discourse. 7. Construct grammatically correct sentences to write effectively.

SECTION-I
Soft Skills (35 Marks)

UNIT-I: ORAL COMMUNICATION: LANGUAGE FUNCTION IN CONTEXT

- Interpreting a conversation
- Apologizing and responding to apologies
- Expressing opinions
- Complimentary close to a conversation
- Expressing sympathy and condolences
- Describing process

UNIT II: AURAL COMMUNICATION: LISTENING TO VARIOUS SPEAKERS AND TEXTS

- Listening for gist and specific information
- Note-taking
- Listening to identify cohesive devices and coherence in discourse

UNIT III: READING: COMMUNICATING WITH A GIVEN TEXT

- For supporting details to the main idea
- Note Making
- For discourse structure
- For basic referential and in inferential information

UNIT IV: WRITING: PERSONAL AND OFFICIAL COMMUNICATION

- Letters
- Email Etiquette
- Reports
- Resume writing

UNIT V: GRAMMAR- ADVANCED LEVEL

- Relative clauses
- Subject verb
- Prepositions
- Common errors

VOCABULARY- ADVANCED LEVEL

- Collocations
- Phrasal verbs
- Idioms
- Adjectives for descriptions

SECTION-II
Technical Skills (35 Marks)

SYLLABUS FOR BE 2/4 SECOND SEMESTER
Human Values and Professional Ethics

Instruction: 2 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **HS2140**
Credits : 1	Sessional Marks: 30	Duration of Sem Exam:3 Hrs.

Course Objectives	Course Outcomes
In this subject the students will	*students will be able to*
• Get a holistic perspective of value- based education. • Grasp the meaning of basic human aspirations vis-a-vis the professional aspirations. • Understand professionalism in harmony with self and society. • Develop ethical human conduct and professional competence. • Enrich their interactions with the world around, both professional and personal	• Gain a world view of the self, the society and the profession. • Start exploring themselves in relation to others and their work –constantly evolving into better human beings and professionals • Inculcate Human values into their profession. • Validate their aspirations through right understanding of human relationship and see the co-relation between the human values and prevailing problems. • Strike a balance between physical, mental, emotional and spiritual parts their being. • Obtain a holistic vision about value-based education and professional ethics

1. **The purpose of life**-Individual to society to the ideal –individual transformation as a stepping stone to idealism- the flow of transformation from individual to society – An awakened society as a basis to move towards the concept of idealism.
2. **Positive thinking-**The need, nature and scope of positive thinking-Positive thinking as a foundation to success.
3. **Character building** – Introspection and Self-analysis-identifying the desirable traits-Building of right character. Meaning of values versus skills. Self-worth and Professional worth. Professional Obligations and Competence. Work-life balance.
4. **Philosophy of Life from different cultures–value of life– Objective of life-**The Physical, Mental and Emotional aspects of man-Building an integrated personality. Ways and means to accomplish it.

5. **Different lifestyles and habits**-How they affect the basic behavior-Roadmap to a healthy lifestyle and impact on the wellbeing of an individual.
6. **Excellence-Professional & Personal ethics in society**-Goals-Striking a balance between excellence and goals and how to aim for excellence and achieve it with ethics.
7. **Potentials and harnessing potentials**-Self-Hidden potentials-Weeding out weaknesses-Channelizing the potential. Optimizing potential to achieve goals.
8. **Time Management**-Why it is essential? Impediments-how to best manage time? Benefits of effective time-management. How to make the best of the present?
9. **Environmental Protection-Human Role**- how to conserve and respect nature-Efforts to restore ecological balance –the price of progress –case studies.
10. **Impact of global development towards seeking unity in diversity** –Society as a kaleidoscope of diversity –Seeing diversity as a positive aspect of creation –Looking beyond the curtain of diversity to a common source.

Learning Resources:

1. B.L Bajpai, 2004, Indian Ethos and Modern Management, New Royal Book Co., Lucknow. Reprinted 2008.
2. A.N Tripathy, 2003 Human values, New Age International Publishers.
3. EG Seebauer & Robert L. Berry,2000, Fundamentals of Ethics for Scientists and Engineers, Oxford University Press.
4. Mike Martin and Ronald Schinzinger "Ethics in Engineering "McGraw Hill
5. Charles E Haris, Micheal J Rabins, " Engineering Ethics "Cengage Learning
6. Caroline whitback < Ethics in Engineering Practice and Research, Cambridgs University Press
7. Georgs Reynolds, Ethics in Information Technology", Cengage Learning
8. Charles D.Fleddermann, " Engineering Ethics", Pearson Education Prentice Hall, New Jersey,2004 (Indian Reprint)
9. Value Education website, Http://www.universalhumanvalues.info
10. UPTU webiste, Http://www.uptu.ac.in
11. story of stuff, Http://www.storyofstuff.com
12. AlGore, As Inconvenient Truth, Paramount Classics ,USA
13. Charlie Chaplin, Modern Times, United Artists, USA
14. IIT Delhi, Modern Technology-The Untold story
15. Anand Gandhi, Right Here Right Now, Cyclewala production

SYLLABUS FOR BE 2/4 SECOND SEMESTER
ELECTRONIC ENGINEERING – II Lab

Instruction: 3Periods/Week	Sem Exam Marks: 50	Subject Reference Code : **EC2501**
Credits : 2	Sessional Marks: 25	Duration of Sem Exam:3 Hrs.

Course Objective:	Course Outcomes
To develop an understanding of the underlying concepts of analog electronic circuits including feedback amplifiers, power amplifiers & oscillators, and design linear wave shaping and non-linear wave shaping circuits.	**students should be able to:** 1. Analyze the small signal amplifiers behavior with and without feedback 2. Design and verify the functioning of various sinusoidal oscillators 3. Examine the characteristics of a difference amplifier 4. Design different types of clippers and clampers

List of Experiments :

1. Frequency response of Voltage series feedback amplifier
2. Frequency response of Voltage Shunt feedback amplifier
3. Frequency response of Current series feedback amplifier
4. Frequency response of Current Shunt feedback amplifier
5. Design of Hartley Oscillator
6. Design of Colpitt's Oscillator
7. Design of RC Phase Shift
8. Difference amplifier(Op-Amp)
9. Transformer coupled Class A power amplifier
10. Class B Power amplifier
11. Linear wave shaping-Integrator & Differentiator
12. Clipping circuits
13. Clamping Circuits

Learning resources:

1. Paul B. Zbar, Albert P. Malvino, Michael A. Miller, "Basic Electronics, A Text - Lab Manual", 7thEdition, TMH 2001.
2. Paul B. Zbar, Industrial Electronics,A Text-Lab Manual, 3rd Edition, TMH 1983.

SYLLABUS FOR BE 2/4 SECOND SEMESTER
MECHANICAL TECHNOLOGY LAB

Instruction: 3Periods/Week	Sem Exam Marks: 50	Subject Reference Code : **ME 2031**
Credits : 2	Sessional Marks: 25	Duration of Sem Exam:3 Hrs.

Course Objectives	Course Outcomes
The objectives of this course are to: • Conduct experiments by applying principles of heat transfer and Refrigeration • conduct experiments on I. C. Engines and two stage air compressor • conduct experiments on flow meters, hydraulic pumps and turbines	the student will be able to: • Evaluate the performance of internal combustion engine • Analyze the performance of multi stage air compressor • Determine the flash and fire point of a given fuel using flash and fire point apparatus. • Calculate the hydraulic efficiency, discharge and power output of hydraulic turbines and pumps • Plot the theoretical discharge Vs actual discharge using venture meter and orifice meter.

List of Experiments:

1. Performance test on multi cylinder/single cylinder diesel engine.
2. Measurement of discharge by venture meter.
3. Measurement of discharge by Orifice meter.
4. Determination of heat flow through lagged pipe
5. Determination of Heat transfer coefficient under Natural Convection
6. Determination of volumetric efficiency and Isothermal Efficiency of Two stage reciprocating air compressor
7. Performance characteristics of Francis Turbine
8. Performance characteristics of Pelton wheel
9. Performance characteristics of reciprocating pump
10. Performance characteristics of centrifugal pump
11. Determination of effectiveness of parallel flow and counter flow heat exchanger
12. Determination of COP refrigeration test rig

SYLLABUS FOR BE 2/4 SECOND SEMESTER
ELECTRICAL CIRCUITS AND MACHINES

Instruction: 4 Periods/Week	Sem Exam Marks: 70	Subject Reference Code : **EE 2090**
Credits : 2	Sessional Marks: 30	Duration of Sem Exam:3 Hrs.

Course objective:	**Course Outcomes:**
To impart fundamental concepts of DC and AC circuits, three phase circuits, transformers, DC machines, three phase induction motors and special motors to enable the students to understand and choose the motors in engineering applications.	1. Apply the fundamental concepts to solve the problems in DC and AC circuits. 2. Distinguish three phase connections, calculate power and analyze the behaviour of transformer. 3. Demonstrate the principle of operation and performance characteristics of DC Machines. 4. Select suitable three phase induction motor and also interpret speed control method for different applications. 5. Identify suitable single phase induction motor, Stepper motor and BLDC motor for various applications.

UNIT-I

DC & AC Circuits: Analysis of circuits using loop current method, Thevenin's and Norton's theorems, Sinusoidal sources, Phasor representation of sinusoidal quantities, Average and RMS values, Active power, Reactive power, Energy stored in inductance and capacitance, Mutual inductance, Dot convention, analysis of simple coupled circuits.

UNIT-II

Production of 3-Phase Voltages: Analysis of 3-phase balanced circuits, 3-phase power measurement by two wattmeter method. Transformers: Principle of transformation of voltages and currents, Equivalent circuits of transformer on no load and load, Efficiency and regulation of transformer, OC and SC tests, Auto-transformer.

UNIT - III

DC Machines: Construction and working principle of a DC machine, production of emf in a generator, Types of excitation, Characteristics of series, shunt and compound motors, Speed control and application of DC motors, Losses and efficiency.

UNIT - IV

Induction Motors: Production of rotating magnetic field, Construction and principle of operation of induction motors, Speed-torque characteristics, Methods of starting and Speed control of 3-phase induction motors.

UNIT - V

Single-Phase & Special Motors: Various types of single phase motors, Split phase, Capacitor start and capacitor run, Basic features of Stepper motor and Brushless DC motor.

Applications of variable frequency (speed) drives.

Learning Resources:

1. V.K. Metha, Principles of Electrical Engineering, S.Chand & Co., 1995
2. Kothari and Nagrath, Basic Electrical Engineering, Tata McGraw Hill, 2nd Edition, 2002

SYLLABUS FOR BE 2/4 SECOND SEMESTER
ELECTRICAL TECHNOLOGY

Instruction: 4 Periods/Week	Sem Exam Marks: 35	Subject Reference Code : **EE 2100**
Credits : 2	Sessional Marks: 15	Duration of Sem Exam:90 min.

Course objective:	**Course Outcomes:**
To impart fundamental concepts of DC and AC circuits, three phase circuits, transformers, DC machines, three phase induction motors and special motors and illumination aspects to enable the students to understand and choose the motors in engineering applications.	1. Apply the fundamental concepts to solve the problems in DC and AC circuits. 2. Distinguish three phase connections, calculate power and analyze the behaviour of transformer. 3. Demonstrate the principle of operation and performance characteristics of DC Machines. 4. Select suitable three phase induction motor and also interpret speed control method for different applications. 5.Identify suitable single phase induction motor , Stepper motor and BLDC motor for various applications, student is able to apply the illumination engineering concepts.

UNIT-I

Introduction and Applications in Civil Engineering.

D.C. Circuits: Ohm's Law, Kirchoff's Laws, resistance networks; series, parallel and series – parallel circuits with D.C. Sources, Power loss in resistive elements.

Alternating Currents: Principles of production of AC wave form, frequency, effective value and form factor, effective values of currents and voltages, vector representation, behavior of pure inductance, capacitance, and resistance with sinusoidal sources. Impedance and power factor, simple A.C network with R,L&C elements under steady state; three phase circuits under balanced conditions, Star-delta connections, Power in balanced three–phase circuit.

UNIT-II

Transformers: Ideal transformers, principle of transformation, working of actual transformer – under no load and load conditions. Approximate equivalent circuit, OC & SC tests, regulation and efficiency.

UNIT - III

Induction Motors: Types of induction motors, Production of rotating magnetic field – synchronous speed, torque production, slip and speed of motor, slip-torque characteristics, starting of induction motors, applications of induction motors.

Illumination: Units of light measurement, Coefficient of utilization and depreciation. Polar curves, Calculations of street lighting.

Learning Resources:

1. J. B. Gupta, Fundamentals of Electrical Engineering, S.K. Kataria & Sons, 2012
2. V.K. Metha, Principles of Electrical Engineering, S.Chand & Co., 1995
3. Kothari and Nagrath, Basic Electrical Engineering, Tata McGraw Hill, 2nd Edition, 2002

SYLLABUS FOR BE 2/4 SECOND SEMESTER
ELECTRICAL CIRCUITS & MACHINES LAB

Instruction: 3 Periods/Week	Sem Exam Marks: 50	Subject Reference Code : **EE 2111**
Credits : 2	Sessional Marks: 25	Duration of Sem Exam:90 min.

Course objective:	**Course Outcomes:**
To impart the practical knowledge on basic theorems, measuring of 3-phase power, performance and speed control of DC machines and AC machines.	Students will be able to 1. Identify suitable instruments in the application of DC and AC machines. 2. Analyze the performance and speed control of DC Machines. 3. Analyze the performance and speed control of Induction motor 4. Analyze the performance of single phase transformer. 5. Compute a 3-phase power by using 2-Watt meters.

List of Experiments:

1. Verification of Thevenin's and Norton's Theorems
2. Measurement of 3-Phase Power by Two Wattmeter Method
3. Study of Single-Phase R, L & C Series & Parallel Circuits
4. Study of Self and Mutual Inductance of Coils and their Interconnections
5. Magnetization Curve of a Separately Excited DC Generator
6. Load Characteristics of a DC Shunt Generator
7. Performance Characteristics of a DC Shunt Motor
8. Performance Characteristics of a DC Compound Motor
9. Performance Characteristics of a DC Series Motor
10. Speed Control of DC Shunt Motor.
11. O.C. and S.C. Tests on Single - Phase Transformer.
12. Performance Characteristics of 3-Phase Induction Motor.
13. Speed Control Methods of Induction Motors.

Department of Civil Engineering
SYLLABUS FOR BRIDGE COURSE BE 2/4 - FIRST SEMESTER

ENGINEERING MECHANICS
(for All branches of 2/4 B.E-I SEMESTER)

Instruction :2 periods week	Subject Reference Code: **CE2080**
Semester Exam Marks : 50	Duration of Semester Exam: 3 Hrs

COURSE OBJECTIVES	COURSE OUTCOMES
1. To learn the resolution of a system of spatial forces. 2. To assess the frictional forces on rigid body. 3. To understand the concepts of dynamics and its principles. 4. To explain kinetics and kinematics of particles, projectiles, curvilinear motion and centroidal motion. 5. To impart the concepts of work-energy method and its applications to rectilinear translation, centroidal motion.	*students will be able to:* 1. Judge whether the body under the action of spatial force system. 2. Solve problem of bodies subjected to friction. 3. Distinguish between statics and dynamics and differentiate between kinematics and kinetics. 4. Understand the kinetics and kinematics of a body undergoing rectilinear, curvilinear, rotatary motion and rigid body motion. 5. Know the concepts of work and energy principles subject and derive the work energy equations for translation, rotation and connected systems.

UNIT-I (3 periods)

Force Systems: Components of forces, moments in space and its applications.

UNIT-II (4 periods):

Friction: Laws of friction. Application to simple systems and wedge friction.

UNIT-III (5 periods) :

Kinematics: Rectilinear motion, curvilinear motion, Velocity and acceleration of a particle.

UNIT-IV (6 periods) :

Kinetics: Analysis as a particle. Analysis as a rigid body in translation. Fixed axis rotation and Rolling bodies.

UNIT-V (5 periods) :

Work Energy: Principles of work-energy, and its application to translation, Particle motion and connected systems.

Learning Resource:

1. F.L.Singer, "Engineering Mechanics", Harpper & Collins, Singapore 1994.
2. S.P.Timoshenko and D.H.Young, "Engineering Mechanics", McGraw Hill International Edition, 1983
3. Andrew Pytel., Jaan Kiusalaas., "Engineering Mechanics", Cengage Learning, 2014.
4. F.P.Beer & E.R.Johnston, "Jr. Vector Mechanics for Engineers", TMH, 2004.
5. R.C.Hibbeler & Ashok Gupta, "Engineering Mechanics", Pearson Education, 2010.
6. Tayal A.K., "Engineering Mechanics – Statics & Dynamics", Umesh Publications, 2011.
7. Basudeb Bhattacharyya., "Engineering Mechanics", Oxford University Press, 2008.
8. Meriam. J. L., "Engineering Mechanics", Volume-I Statics, John Wiley & Sons, 2008.
9. NPTEL Course and Virtual labs on the web.

with effect from the academic year 2015-16

DEPARTMENT OF PHYSICS

SYLLABUS FOR BRIDGE COURSE BE 2/4 - FIRST SEMESTER

Physics of Materials (SECTION-I)

(for All branches of 2/4 B.E-I SEMESTER)

Instruction :1 period week	Subject Reference Code: **PH2130**
Semester Exam Marks : **25**	Duration of Semester Exam: **90 Min**

Course objectives	Course Outcomes *Student should be able*
• To apply basic principles of physics in field of engineering • Analyse the characteristics of semiconductor devices • To take up research at Undergraduate Level in new and emerging areas like materials science including magnetic, dielectrics and nanotechnology	• Differentiate properties, characteristics and applications of various materials like magnetic, dielectric and semiconducting materials • Inquire the new trends in interdisciplinary research area such as Magnetic materials, dielectric materials Semiconductors and nanotechnology

Unit -I

1. Dielectric Materials: (3 periods)

Polar and Non polar dielectrics-Different types of polarizations in dielectrics- Ferro-electric materials: properties and applications.

2. Magnetic Materials: (3 periods)

Ferro, Ferri and anti-ferro magnetic materials and their properties, Domain theory of ferromagnetism- Hysteresis (B-H) curve-soft and hard magnetic materials.

Unit – II:

1. Semiconductor Devices: (3 periods)

Fermi energy in semiconductor- Intrinsic carrier concentration of semiconductor-Characteristics of Photo diode and solar cell

2. Nano Materials: (3 periods)

Distinction between Bulk, thin and nano material-Surface to volume ratio-Quantum confinement-Basic properties of nano-materials, Applications of Nano materials and CNT's.

LEARNING RESOURCES:

1. Introduction to Solid State Physic*s,* Kittel C, Wiley Eastern
2. A text book of Engineering Physics, Avadhanulu & Kshirasagar
3. Applied Physics for Engineers, Neeraj Mehta, PHI
4. N Chattopadhyay, K. K.Banerjee- Introduction to Nanoscience and Nanotechnology, PHI

with effect from the academic year 2015-16

DEPARTMENT OF MATHEMATICS

SYLLABUS FOR BRIDGE COURSE BE 2/4 - FIRST SEMESTER

Mathematics (SECTION-II)

(for All branches of 2/4 B.E-I SEMESTER)

Instruction :1 period week	Subject Reference Code: **MA2040**
Semester Exam Marks : **25**	Duration of Semester Exam: **90 Min**

Course Objectives	Course Outcomes
• To understand the statistical concepts measures of central tendency, the addition and multiplication theorems of probability , discrete random variable • To practice the integration by substitution, integration by parts, multiple integrals problems • To understand the concepts of on the applications of integration to find areas, surface areas, volume of solid of revolution	• The student is able to understand the statistical concepts measures of central tendency, the addition and multiplication theorems of probability, discrete random variable • The Student is able to solve the problems on integration by substitution, integration by parts and multiple integrals • The student is able to understand the concepts on the applications of integration to find areas, surface areas, volume of solid of revolution

Unit -I (6 Periods):

Basics of Statistics & Probability: Measures of central tendency (Mean, Median & Mode) - Definition of Probability –Basic problems of Probability- Addition & Multiplication theorems- Discrete random variable

Unit -II (6 Periods):

Integral Calculus: Methods of integration (Integration by substitution and integration by parts)-Multiple Integrals -Applications of Integration - areas - Surface areas - Volume of solid of revolution

LEARNING RESOURCES:

1. Higher Engineering Mathematics by B.S. Grewal.
2. Fundamentals of Mathematical Statistics by Gupta & Kapoor
3. Integral calculus by Shantinarayan.

Department of Computer Science & Engineering
SYLLABUS FOR BRIDGE COURSE BE 2/4 - FIRST SEMESTER

C-PROGRAMMING LAB
(for All branches of 2/4 B.E-I SEMESTER)

Instruction :2 periods week	Subject Reference Code: **CS 2091**
Semester Exam Marks : **50**	Duration of Semester Exam: **3hr**

1. Finding roots of quadratic equation
2. Check whether a given number is (i) Prime (ii) Perfect (iii) Strong
3. Sin x and Cos x values using series expansion.
4. Menu driven program to calculate income tax
5. Generating Pascal's Triangle
6. Frequency of occurrence of characters and special characters like \n, \t, white spaces.
7. Bubble sort, Selection sort using arrays
8. Linear search and Binary Search.
9. Functions to find maximum and minimum of given set of numbers, interchange two numbers
10. Recursion: Factorial, Fibonacci, GCD of given numbers
11. Functions for string manipulations without using library functions
12. String comparisons and sorting using pointers to strings.
13. Matrix addition and multiplication using pointers
14. Programs on Structures and Unions
15. File handling programs, Finding the no: of characters, words and lines of given text file.
16. **Mini Project**: Simple application using the concepts of C language

Learning Resources:

1. B.A.Forouzan & Richard F.Gilberg, *A Structured Programming Approach using C*, 3rd Edition, Cengage Learning, 2013
2. Brian W. Kernighan and Dennis M. Ritchie, *The C Programming Language,* 2nd Edition, Prentice-Hall, 2006
3. E.Balagurusamy, *Programming in ANSI C*, TMG, 4th Edition, 2008.

Department of Humanities and Social Sciences

SYLLABUS FOR BRIDGE COURSE BE 2/4 – SECOND SEMESTER

ELT-LAB

(for All branches of 2/4 B.E-II SEMESTER)

Instruction :2 periods week	Subject Reference Code: **HS2231**
Semester Exam Marks : **50**	Duration of Semester Exam: 2hrs

Course objectives	**Course Outcomes** *Student should be able*
• Use language effectively without mother tongue influence. • Converse in various situations. • Make paper and power point presentations. • Listen to audio clippings, exchange dialogues and write short texts. • Speak effectively using discourse markers. • Read and understand various forms of texts and review them.	• Pronounce words in isolation as well as in spoken discourse. • Research and sift information to make presentations. • Comprehend the tone and tenor of various types of speeches from media and classroom lectures. • Listen for gist and make inferences from various speeches. • Identify connectives and transitions in various speeches. • Use connectives and make transitions effectively while speaking

PHONETICS LAB- TOPICS

1 **Introduction to English Phonetics:** Introduction to auditory, acoustic and articulatory phonetics. Organs of speech: the respiratory, articulatory and phonatory systems

2 **Sound System of English:** Phonetic sounds, Introduction to International Phonetic Alphabet, Classification and Description of English Phonemic sounds; Minimal pairs: The Syllable: Types of syllables; Difficulties of Indian speakers with sound of English.

3 **Rhythm and Intonation:** Introduction to rhythm and intonation; Major patterns of intonation in English with their semantic implications; difficulties of Indian speakers with sound of English.

INTERACTIVE COMMUNICATION SKILLS LAB-TOPICS

1 **Group discussion:** Objectives of GD, Types of GDs; Initiating, Continuing, and concluding a GD.

2 **Debate:** Understanding the differences between a debate and a group discussion, essentials of debate, concluding a debate.

3 **Presentation Skills:** Making Effective Presentations, Expressions which can be used in Presentations, Use of Non-Verbal Communication, Coping with Stage Fright, Handling Question and Answer Session; Use of Audio-Visual Aids, PowerPoint Presentations.

4 **Public Speaking:** Advantages of public speaking, essentials of an effective speech, types of delivery, rehearsal techniques, planning and delivering a speech.