AVANTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Approved by A.I.C.T.E., New Delhi, & Permanently Affiliated to J.N.T.U-GV, Vizianagaram)
NAAC B++ Accredited Institute
Cherukupally (Village), Near Tagarapuvalasa Bridge, Bhogapuram (Mandal), Vizianagaram -531162.
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Department of Electrical and Electronics Engineering

R23 Regulation B.Tech Course Outcomes

I-I Sem	**Course Code: R23BS01** **Course Name: Linear Algebra & Calculus**
CO-1	Develop matrix algebra techniques that is needed by engineers for practical applications.
CO-2	to find the eigen values and eigen vectors and solve the problems by using linear transformation
CO-3	learn important tools of calculus in higher dimensions.
CO-4	familiarize with functions of several variables which is useful in optimization.
CO-5	familiarize with double and triple integrals of functions of several variables in two an d three dimensions.
I-I Sem	**Course Code: R23BS04** **Course Name: Chemistry**
CO-1	Compare the materials of construction for battery and electrochemical sensors.
CO-2	Explain the preparation, properties, and applications of thermoplastics & thermosetting & elastomers conducting polymers.
CO-3	Explain the principles of spectrometry, slc in separation of solid and liquid mixtures.
CO-4	Apply the principle of Band diagrams in the application of conductors and semiconductors.
CO-5	Summarize the concepts of Instrumental methods.
I-I Sem	**Course Code: R23ES07** **Course Name: Introduction to Programming**
CO-1	To impart adequate knowledge on the need of programming languages and problem-solving techniques and develop programming skills.
CO-2	To enable effective usage of Control Structures and Implement different operations on arrays.
CO-3	To demonstrate the use of Strings and Functions.
CO-4	To impart the knowledge of pointers and understand the principles of dynamic memory allocation.
CO-5	To understand structures and unions and illustrate the file concepts and its operations.
I-I Sem	**Course Code: R23ES03** **Course Name: Engineering Graphics**
CO-1	To enable the students with various concepts like dimensioning, conventions and standards related to Engineering Drawing
CO-2	To impart knowledge on the projection of points, lines and plane surfaces
CO-3	To improve the visualization skills for better understanding of projection of solids
CO-4	To develop the imaginative skills of the students required to understand Section of solids and Developments of surfaces.
CO-5	To make the students understand the viewing perception of a solid object in Isometric and Perspective projections.

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I-I Sem	**Course Code: R23ES04** **Course Name: Basic Electrical & Electronics Engineering**
CO-1	**CO1:** Remember the fundamental laws, operating principles of motors, generators, MC and MI instruments.
CO-2	**CO2:** Understand the problem solving concepts associated to AC and DC circuits, construction and operation of AC and DC machines, measuring instruments; different power generation mechanisms, Electricity billing concept and important safety measures related to electrical operations.
CO-3	**CO3:** Apply mathematical tools and fundamental concepts to derive various equations related to machines, circuits and measuring instruments; electricity bill calculations and layout representation of electrical power systems.
CO-4	**CO4:** Analyze different electrical circuits, performance of machines and measuring instruments.
CO-5	**CO5:** Evaluate different circuit configurations, Machine performance and Power systems operation
I-I Sem	**Course Code: R23BS04** **Course Name: Chemistry Lab**
CO-1	Determine the cell constant and conductance of solutions.
CO-2	Prepare advanced polymer Bakelite materials.
CO-3	Measure the strength of an acid present in secondary batteries.
I-I Sem	**Course Code: R23ES07** **Course Name: Computer Programming Lab**
CO-1	Read, understand, and trace the execution of programs written in C language
CO-2	Select the right control structure for solving the problem.
CO-3	Develop C programs which utilize memory efficiently using programming constructs like pointers, arrays and functions.
I-I Sem	**Course Code: R23ES05** **Course Name: Electrical &Electronics Engineering Workshop**
CO-1	Understand the Electrical circuit design concept; measurement of resistance, power, power factor; concept of wiring and operation of Electrical Machines and Transformer.
CO-2	Apply the theoretical concepts and operating principles to derive mathematical models for circuits, Electrical machines and measuring instruments; calculations for the measurement of resistance, power and power factor.
CO-3	Apply the theoretical concepts to obtain calculations for the measurement of resistance,power and power factor
I-II	**Course Code: R23BS02** **Course Name: Differential Equations and Vector Calculus**
CO-1	Solve the differential equations related to various engineering fields.
CO-2	Model engineering problems as higher order differential equations and solve analytically.
CO-3	identify solution methods for partial differential equations that model physical processe

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CO-4	Interpret the physical meaning of different operators such as gradient, curl and divergence.
CO-5	Estimate the work done against a field, circulation and flux using vector calculus.
I-II	**Course Code: R23BS03** **Course Name: Engineering Physics**
CO-1	Analyze the intensity variation of light due to polarization, interference and diffraction
CO-2	Familiarize with the basics of crystals and their structures.
CO-3	Explain fundamentals of quantum mechanics and apply it to one dimensional motion of particles.
CO-4	Summarize various types of polarization of dielectrics and classify the magnetic materials.
CO-5	Explain the basic concepts of Quantum Mechanics and the band theory of solids. Identify the type of semiconductor using Hall effect.
I-II	**Course Code: R23HS01** **Course Name: Communicative English**
CO-1	Remedially learn applying grammatical structures to formulate sentence sand use appropriate words and correct word forms.
CO-2	Using discourse markers to speak clearly on a specific topic in formal as well as informal discussions.(not required)
CO-3	Improved communicative competence in formal and informal contexts and for social and academic purposes.
CO-4	Critically comprehending and appreciatingading /listening texts and to write summaries based on global comprehension of these texts.
CO-5	Writing coherent paragraphs essays, letters/e-mails and resume.
I-II	**Course Code: R23ES01** **Course Name: Basic Civil & Mechanical Engineering**
CO-1	Understand various sub-divisions of Civil Engineering and to appreciate their role in ensuring better society.
CO-2	Know the concepts of surveying and to understand the measurement of distances, angles and levels through surveying
CO-3	Realize the importance of Transportation in nation's economy and the engineering measures related to Transportation.
CO-4	Understand the importance of Water Storage and Conveyance Structures so that the social responsibilities of water conservation will be appreciated.
CO-5	Understand the basic characteristics of Civil Engineering Materials and attain knowledge on prefabricated technology.
I-II	**Course: R23PC01** **Course Name: Electrical Circuit Analysis-I**
CO-1	**CO1:** Remembering the basic electrical elements and different fundamental laws.
CO-2	**CO2:** Understand the network reduction techniques, transformations, concept of selfinductance and mutual inductance, phasor diagrams, resonance and network theorems.

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CO-3	**CO3:** Apply the concepts to obtain various mathematical and graphical representations.
CO-4	**CO4:** Analyse nodal and mesh networks, series and parallel circuits, steady state response, different circuit topologies (with R, L and C components).
CO-5	**CO5:** Evaluation of Network theorems, electrical, magnetic and single-phase circuits.
I-II	**Course Code: R23HS01** **Course Name: Communicative English Lab**
CO-1	Understand the different aspects of the English language proficiency with emphasis on LSRW skills.
CO-2	Apply communication skills through various language learning activities.
CO-3	Analyze the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking comprehension, participating in debates and group discussions.
I-II	**Course Code: R23BS03** **Course Name: Engineering Physics Lab**
CO-1	Operate optical instruments like travelling microscope and spectrometer.
CO-2	Estimate the wavelengths of different colours using diffraction grating.
CO-3	Plot the intensity of the magnetic field of circular coil carrying current with distance
I-II	**Course Code: R23ES06** **Course Name: IT workshop**
CO-1	Perform Hardware troubleshooting.
CO-2	Understand Hardware components and inter dependencies.
CO-3	Safeguard computer systems from viruses/worms.
I-II	**Course Code: R23ES02** **Course Name: Engineering Workshop**
CO-1	Identify workshop tools and their operational capabilities.
CO-2	Practice on manufacturing of components using workshop trades including fitting, carpentry, foundry and welding.
CO-3	Apply fitting operations in various application
I-II	**Course Code: R23PC01** **Course Name: Electrical Circuits Lab**
CO-1	**CO1:** Understand the concepts of network theorems, node and mesh networks, series and parallel resonance and Locus diagrams.
CO-2	**CO2:** Apply various theorems to compare practical results obtained with theoretical calculations.
CO-3	**CO3:** Determine self, mutual inductances and coefficient of coupling values, parameters of choke coil.

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