

BHUBANANANDA ORISSA SCHOOL OF ENGINEERING, CUTTACK

Lesson Plan of Sidharth Sekhar Mallick, Lecturer in AE&I

Session- 2023-2034

VISION & MISSION OF APPLIED ELECTRONICS & INSTRUMENTATION ENGINEERING DEPARTMENT

VISION OF THE DEPARTMENT:-

To produce efficient professional in applied electronics & instrumentation engineering and other allied area's with update technical knowledge to meet the challenges of society in relevant sector.

MISSION OF THE DEPARTMENT:-

- To provide the student competent in applied electronics and instrumentation engineering with societal, environmental and human values through quality education, training.
- Provide knowledge of basic science, applied mathematics, instrumentation technology and communicative skills to identify and solve problems related to Applied Electronics and Instrumentation engineering.
- To enable the students to acquire various parameter measurement and automatic control technology used for industrial automation and inculcate quality of leadership, mentorship & teamwork in collaboration with parents, alumni & industry.

PROGRAMME EDUCATIONAL OBJECTIVES:

- To provide students with a solid foundation in basic science, electrical, electronics, instrumentation and interdisciplinary subjects that is necessary to excel in professional career, entrepreneur in future and/or higher education.
- To prepare students to meet the needs and face the challenges of real life as well as industry automation and digitalization in terms of technical, economic and social feasibility.
- To inculcate professionalism, communication skills, attitudes, team work and to adapt to the current trends by engaging in lifelong learning.
- To utilize the technology in domestic, medical, industry and community for proper utilization of instrument for measurement & control.

Discipline: Applied Electronics	Semester : 3 rd	Name of the teaching faculty: Sidharth Sekhar Mallick
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& Instrumentation Engineering.		
Subject: Circuit Theory	No. of Days/per week class allotted: 04 periods/per week (MON ,TUE , THU & FRI:- 1 Period each)	Semester From Date:- 01-08-2023 To Date:- 30-11-2023 No. of weeks: 20 weeks
Week	Class Day	Theory Topics
1 st	01/08/2023	Introduction, syllabus discussion and define the vision, mission, PEOS of the department
	03/08/2023	Unit-1: CIRCUIT ELEMENTS& ENERGY SOURCES 1.1 Circuit elements (Resistance, Inductance, Capacitance), Scope of network analysis & synthesize
	04/08/2023	1.2 Voltage Division & Current Division, Energy Sources
2 nd	07/08/2023	1.3 Electric charge, electric current, Electrical energy, Electrical potential, R-L-C parameters, Active& Passive Elements.
	08/08/2023	1.4 Energy Sources, Current and voltage sources and their transformation & mutual inductance
	10/08/2023	1.5 Star – Delta transformation
	11/08/2023	Quiz test on unit-1 and important previous year question discussion.
3 rd	14/08/2023	Unit-2: NETWORK THEOREMS (Applications in dc circuits) 2.1 Nodal of Electrical Circuits with simple problem, Continue...
	17/08/2023	2.1 Mesh Analysis of Electrical Circuits with simple problem.
	18/08/2023	2.2 Thevenin's Theorem Statement Explanation & applications.
4 th	21/08/2023	Norton's Theorem Statement Explanation & applications.
	22/08/2023	Maximum Power transfer Statement Theorem Explanation & applications.
	24/08/2023	Superposition Theorem Theorem Statement Explanation & applications.
	25/08/2023	Millman Theorem, Reciprocity Theorem-Statement, Explanation & applications.
5 th	28/08/2023	2.3 Solve numerical problems of above theorem
	29/08/2023	Revision on Chapter 1 & 2
	31/08/2023	Class Test -1
	01/09/2023	Unit-3: Power Relation in AC circuits & Transient Response of passive circuits 3.1 Definition of frequency, Cycle, Time period, Amplitude, Average value, RMS value, Cont...
6 th	04/09/2023	3.1 Instantaneous power & Form factor, Apparent power, Reactive power, power Triangle of AC Wave.
	05/09/2023	3.2 Phasor representation of alternating quantities

	07/09/2023	3.3 Single phase Ac circuits-Behaviours of A.C. through pure Resistor, Inductor & Capacitor.
	08/09/2023	3.4 DC Transients-Behaviors of R-L, R-C series circuit & draw the phasor diagram and voltage triangle.
7 th	11/09/2023	DC Transients-Behaviors of R-L-C series circuit & draw the phasor diagram and voltage triangle.
	12/09/2023	3.5 Define Time Constant of the above Circuit
	14/09/2023	3.6 Solve numerical simple problems of above Circuit
	15/09/2023	Unit-4: RESONANCE AND COUPLED CIRCUITS 4.1 Introduction to resonance circuits & Resonance tuned circuit 4.2 Series & Parallel resonance
8 th	18/09/2023	4.3 Expression for series resonance, Condition for Resonance, Frequency of Resonance, continued.
	21/09/2023	4.3 Impedance, Current, Voltage, power, Q Factor and Power Factor of Resonance, Bandwidth in term of Q.
	22/09/2023	4.4 Parallel Resonance (RL, RC & RLC) & derive the expression
9 th	25/09/2023	4.5 Comparisons of Series & Parallel resonance & applications
	26/09/2023	4.6 simple problems of above Circuit
	28/09/2023	Revision on Chapter -3 & 4
10 th	03/10/2023	Class Test -2
	05/10/2023	Unit-5: LAPLACE TRANSFORM AND ITS APPLICATIONS 5.1 Laplace Transformation, Analysis and derive the equations for circuit parameters of Step response of R-L, Continued...
	06/10/2023	5.1 Laplace Transformation, Analysis and derive the equations for circuit parameters of Step response of R-C & R-L-C
11 th	09/10/2023	Internal Assessment
	10/10/2023	Internal Assessment
	12/10/2023	5.2 Analysis and derive the equations for circuit parameters of Impulse response of R-L, R-C, R-L-C
	13/10/2023	Unit-6: Two Port Network Analysis 6.1 Network elements, ports in Network (One port, two port)
14 th	16/10/2023	6.2 Network Configurations (T & pie).
	17/10/2023	6.3 Open circuit (Z-Parameter)
	19/10/2023	6.3 Short Circuit(Y-Parameter) Parameters,
	20/10/2023	6.3 Calculate open & short Circuit Parameters for Simple Circuits & its conversion.
15 th	26/10/2023	PUJA HOLIDAY

	27/10/2023	
16 th	30/10/2023	6.4 h- parameter (hybrid parameter) Representation
	31/10/2023	6.5 Define T-Network & pie – Network
	02/11/2023	Revision on Chapter -5 & 6
	03/11/2023	Class Test -3
17 th	06/11/2023	Unit-7: FILTERS& ATTENUATORS 7.1 Ideal & Practical filters and its applications, cut off frequency, pass band and stop band
	07/11/2023	7.2 Classify filters- low pass, high pass, & study their Characteristics, continued...
	09/11/2023	7.2 Classify filters band pass, band stop filters& study their Characteristics
	10/11/2023	7.3 Butterworth Filter Design
18 th	13/11/2023	7.4 Attenuation and Gain, Bel, Decibel & neper and their relations
	14/11/2023	7.5 Attenuators& its applications. Classification-T- Type continued.
	16/11/2023	7.5 PI – Type attenuators
	17/11/2023	Quiz test on unit-1,2,3 and question discussion
19 th	20/11/2023	Quiz test on unit-4,5,6&7 and question discussion
	21/11/2023	Quiz test on unit-4,5,6&7 and question discussion
	23/11/2023	Class Test-4
	24/11/2023	Revision and important question on unit-1 & 2
20 th	28/11/2023	Revision and important question on unit-3 & 4
	30/11/2023	Revision and important question on unit-5,6 & 7