



GOVERNMENT POLYTECHNIC, BALASORE

Government of Odisha

ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ, ବାଲେଶ୍ଵର

ACADEMIC LESSON PLAN FOR SUMMER SEMESTER - 2026

DEPT. OF ELECTRONICS & TELECOMMUNICATION, GOVT. POLYTECHNIC, BALASORE

NAME OF THE FACULTY: ER. LIPIKA SANDHA (LECT. STAGE -I, E & TC)

TH1: -ANALOG CIRCUITS

DISCIPLINE: ELECTRONICS & TELECOMMUNICATION ENGINEERING	SEMESTER: 4TH	NAME OF THE TEACHING FACULTY: ER. LIPIKA SANDHA (LECT. STAGE -I)
SUBJECT: TH1: ANALOG CIRCUITS	NO. OF DAYS/PER WEEK CLASS ALLOTTED: 3	SEMESTER FROM DATE: 22 ND , December 2025 NO. OF WEEKS: 15
WEEK	CLASS DAY	THEORY TOPICS
1 ST	1 ST	I. DIODE CIRCUITS 1.1 Half Wave & Full Wave Rectifiers with Concept of Filter Circuit.
	2 ND	1.1 Half Wave & Full Wave Rectifiers with Concept of Filter Circuit.
	3 RD	1.2 Different type of Non-linear circuits - Clipper,
2 ND	1 ST	Diode series & shunt, positive & negative biased & unbiased and combinational clipper clippers circuit & its application.
	2 ND	1.3 Different type of Clamper circuit (positive & negative clampers) & its application.
	3 RD	II. AMPLIFIER 2.1 Amplifier models: 2.1.1 Voltage amplifier
3 RD	1 ST	2.1.2 Current amplifier 2.1.3 Trans-conductance amplifier
	2 ND	2.1.4 Trans-resistance amplifier
	3 RD	2.2 Small signal analysis
4 TH	1 ST	2.3 Low frequency transistor models 2.4 Estimation of voltage gain, input resistance, output resistance
	2 ND	2.5 Design procedure for particular specifications 2.6 Low frequency analysis of multistage amplifiers
	3 RD	2.7 High frequency transistor models 2.8 Frequency response of single stage and multistage amplifiers, cascade amplifier
5 TH	1 ST	III. TUNED AMPLIFIER 3.1 Define and classify Tuned amplifier
	2 ND	3.2 Explain parallel Resonant circuit
	3 RD	3.3 Resonance Curve & sharpness of Resonance
6 TH	1 ST	3.4 Working principle of Single tuned Voltage & Double tuned Amplifier & its limitation
	2 ND	3.4 Working principle of Single tuned Voltage & Double tuned Amplifier & its limitation

	3 RD	IV OPERATIONAL AMPLIFIER 4.1 Differential amplifier & explain its configuration with significance. 4.2 Op-Amp 4.2.1 Block diagram of Op-Amp
7 TH	1 ST	4.2.2 Symbol of Op-Amp 4.2.3 Characteristics Op-Amp 4.2.4 Open loop and closed loop amplifier
	2 ND	4.2.5 Virtual ground concept 4.2.6 IC-741 and its pin configuration
	3 RD	4.3 Op-Amp parameters 4.3.1 Input offset voltage 4.3.2 Output offset voltage 4.3.3 Input offset current
8 TH	1 ST	4.3.4 Input bias current 4.3.5 Common Mode Rejection Ratio 4.3.6 Slew rate 4.3.7 Input and output Impedance
	2 ND	4.3.8 Bandwidth and gain bandwidth product 4.3.9 Drift parameters
	3 RD	4.4 Discuss the types of integrated circuits, manufacturer's designations of ICs, Package types, pin identification and temperature and ordering information
9 TH	1 ST	4.5 Draw and explain the Open Loop configuration (inverting, non-inverting Amplifier)
	2 ND	4.6 Draw and explain the Closed loop configurations: inverting and non inverting
	3 RD	V APPLICATION OF OPERATIONAL AMPLIFIER 5.1 Basic mathematical applications such as adder and subtractor 5.2 Discuss the summing scaling using inverting and non-inverting amplifiers
10 TH	1 ST	5.3 DC & AC Amplifies using OP-AMP. 5.4 Integrator and differentiator using op-amp
	2 ND	5.5 Sample and Hold circuit 5.6 I-V converter and V-I converter
	3 RD	5.7 Concept of Zero-Crossing Detector using Op-Amp (Inverting and Non Inverting type) 5.8 Comparator
11 TH	1 ST	5.9 Schmitt Trigger 5.10 Peak Detector
	2 ND	5.12 Voltage to Frequency Convertor using Operational Amplifier.
	3 RD	5.13 Frequency to Voltage Conversion using Operational Amplifier.
12 TH	1 ST	VI Integrated Circuit Timer 6.1 Internal block diagram and pin connection of a 555 timer chip
	2 ND	6.2 Function of Output, Reset, Discharge, Control voltage, Trigger and Threshold terminals of a 555 timer
	3 RD	6.3 555 timer used as, Astable Multi-vibrator, Mono stable Multi-vibrator, Pulse width modulator and Pulse position modulator 5
13 TH	1 ST	6.3 555 timer used as, Astable Multi-vibrator, Monostable Multi-vibrator,
	2 ND	

	3 RD	Pulse width modulator and Pulse position modulator 5
14th	1 ST	VII. Power Supply and Regulated Power Supply 7.1 Design a full wave bridge rectifier circuit by choosing the proper size of transformer, diode and capacitors
	2 ND	7.2 Measure the percent regulation and percent ripple of dc power supply
	3 RD	7.3 Design a bipolar unregulated power supply
15 TH	1 ST	7.4 Design a fixed dual voltage power supply using 7800 and 7900n series of IC three terminal regulator
	2 ND	7.5 Design an adjustable dual voltage regulated power supply using LM317 and LM337 chips
	3 RD	7.5 Design an adjustable dual voltage regulated power supply using LM317 and LM337 chips

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20/12/2024
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H.O.D 20/12/25