# GOVT. POLYTECHNIC BALASORE LESSON PLAN

## ACADEMIC YEAR-2024-25

| Discipline : E&TC Engg. | Semester: 4th Sem | Name of the Teaching Faculty : Jadunath Murmu(Sr. Lect, in ETC) |
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| Subject : A.E.&LIC | No. of Days / per week class allotted : 05 | From date : 04.02.2025 To Date : 17.05.2025 |

| Week | Day | Date | Class Day | Topics |
|---|---|---|---|---|
| 1st week of February | Wednesday | 05.02.2025 | 1st | Introduction |
| | Thursday | 06.02.2025 | 2nd | 1.1 Working principle, of Diode & its current equation, Specification anduse of p-n junction |
| | Friday | 07.02.2025 | 3rd | 1.2 Breakdown of diode (Avlance&Zener Breakdown) and Construction, working,Characteristics |
| 2nd week of February | Monday | 10-02-2025 | 1st | 1.3 Classification of Rectifiers and working of different types of Rectifiers- Half-Wave Rectifier, Full-Wave Rectifier (CT & BRIDGE type) |
| | Wednesday | 12-02-2025 | 2nd | 1.4 Working principle of p-n-p and n-p-n transistor, different types of transistor connection (CB, CE and CC)& input and output characteristics of transistor in different connections. |
| | Thursday | 13-02-2025 | 3rd | 1.5 Define ALPHA, BETA and GAMMA of transistors in various modes. Establish the Mathematical relationship between them. |
| | Friday | 14-02-2025 | 4th | 1.6 Basic concept of Biasing, Types of Biasing,h-parameter model of BJT,load line (AC &DC) and determine the Q-point. |
| | Saturday | 15-02-2025 | 5th | 1.6 Basic concept of Biasing, Types of Biasing,h-parameter model of BJT,load line (AC &DC) and determine the Q-point. |
| | Saturday | 15-02-2025 | 6th | 1.7 Types of Coupling, working principle and use of R-C Coupled Amplifier & Frequency Responses of R-C coupled Amplifier & draw the curve. |
| 3rd week of February | Monday | 17-02-2025 | 1st | Revision |
| | Wednesday | 19-02-2025 | 2nd | 1.1 Classify Power Amplifier &Differentiate between Voltage and Power Amplifier. |
| | Thursday | 20-02-2025 | 3rd | 1.2 Working principle of different types of Power Amplifier (Class-A, Class-AB, Class-B and Class-C & Class D amplifier). |
| | Friday | 21-02-2025 | 4th | 1.2 Working principle of different types of Power Amplifier (Class-A, Class-AB, Class-B and Class-C & Class D amplifier). |
| 4th week of February | Monday | 24-02-2025 | 1st | 1.2 Working principle of different types of Power Amplifier (Class-A, Class-AB, Class-B and Class-C & Class D amplifier). |
| | Wednesday | 26-02-2025 | 2nd | 1.2 Working principle of different types of Power Amplifier (Class-A, Class-AB, Class-B and Class-C & Class D amplifier). |
| | Thursday | 27-02-2025 | 3rd | 1.2 Working principle of different types of Power Amplifier (Class-A, Class-AB, Class-B and Class-C & Class D amplifier). |
| | Friday | 28-02-2025 | 4th | 1.3 Construction and working principle and advantages of Push Pull (Class-B) Amplifiers |
| 1st week of March | Saturday | 01-03-2025 | 1st | 1.3 Construction and working principle and advantages of Push Pull (Class-B) Amplifiers |
| | Saturday | 01-03-2025 | 2nd | 3.1 FET & its classifications &Differentiate between JFET & BJT. |
| 2nd week of March | Monday | 03-03-2025 | 1st | 3.2 Construction, working principle & characteristics of JEFT &Explain JEFT as an amplifier, parameters of JFET & Establish relation among JFET parameters. |
| | Thursday | 06-03-2025 | 2nd | 3.2 Construction, working principle & characteristics of JEFT &Explain JEFT as an amplifier, parameters of JFET & Establish relation among JFET parameters. |
| | Friday | 07-03-2025 | 3rd | 3.2 Construction, working principle & characteristics of JEFT &Explain JEFT as an amplifier, parameters of JFET & Establish relation among JFET parameters. |
| 3rd week of March | Monday | 10-03-2025 | 1st | 3.2 Construction, working principle & characteristics of JEFT &Explain JEFT as an amplifier, parameters of JFET & Establish relation among JFET parameters. |
| | Wednesday | 12-03-2025 | 2nd | 3.3 Construction & working principle MOSFET & its classification & characteristics (Drain & Transfer) |
| | Thursday | 13-03-2025 | 3rd | 3.3 Construction & working principle MOSFET & its classification & characteristics (Drain & Transfer) |
| 4th week of March | Monday | 17-03-2025 | 1st | 3.3 Construction & working principle MOSFET & its classification & characteristics (Drain & Transfer) |
| | Wednesday | 19-03-2025 | 2nd | 3.4 Explain the operation of CMOS, VMOS & LDMOS. |
| | Thursday | 20-03-2025 | 3rd | 3.4 Explain the operation of CMOS, VMOS & LDMOS. |

| Week | Day | Date | Class Day | Topics |
|---|---|---|---|---|
| | Friday | 21-03-2025 | 4th | 4.1 Define & classify Feedback Amplifier, principle of negative feedback with the help of block diagram, Types of feedback negative &positive feedback. |
| 5th week of March | Monday | 24-03-2025 | 1st | 4.2 Types of negative feedback voltage shunt, voltage series, current shunt& current series and characteristics voltage gain, bandwidth , input Impedance output impedance, stability, noise , distortion in amplifiers. |
| | Wednesday | 26-03-2025 | 2nd | 4.2 Types of negative feedback voltage shunt, voltage series, current shunt& current series and characteristics voltage gain, bandwidth , input Impedance output impedance, stability, noise , distortion in amplifiers. |
| | Thursday | 27-03-2025 | 3rd | 4.2 Types of negative feedback voltage shunt, voltage series, current shunt& current series and characteristics voltage gain, bandwidth , input Impedance output impedance, stability, noise , distortion in amplifiers. |
| | Friday | 28-03-2025 | 4th | 4.3 Oscillator -block diagram of sine wave oscillator ,Types Requirement of oscillation-Barkhausen criterion |
| | Saturday | 29-03-2025 | 5th | 4.3 Oscillator -block diagram of sine wave oscillator ,Types Requirement of oscillation-Barkhausen criterion |
| | | | 6th | 4.4 RC oscillators RC phase shift ,Crystal, LC oscillators Colpitts , Hartley & Wien Bridge Oscillators :Circuit operation, circuit diagram, equation for frequency of oscillation & frequency stability |
| 1st week of April | Wednesday | 02-04-2025 | 1st | 4.4 RC oscillators RC phase shift ,Crystal, LC oscillators Colpitts , Hartley & Wien Bridge Oscillators :Circuit operation, circuit diagram, equation for frequency of oscillation & frequency stability |
| | Thursday | 03-04-2025 | 2nd | 4.4 RC oscillators RC phase shift ,Crystal, LC oscillators Colpitts , Hartley & Wien Bridge Oscillators :Circuit operation, circuit diagram, equation for frequency of oscillation & frequency stability |
| | Friday | 04-04-2025 | 3rd | 4.4 RC oscillators RC phase shift ,Crystal, LC oscillators Colpitts , Hartley & Wien Bridge Oscillators :Circuit operation, circuit diagram, equation for frequency of oscillation & frequency stability |
| | Saturday | 05-04-2025 | 4th | 5.1 Defined and classify Tuned amplifier, Explain parallel Resonant circuit, Resonance Curve & sharpness of Resonance. |
| | | | 5th | 5.2 working principle of Single tuned Voltage& Double tuned Amplifier & its limitation |
| 2nd week of April | Monday | 07-04-2025 | 1st | 5.2 working principle of Single tuned Voltage& Double tuned Amplifier & its limitation |
| | Wednesday | 09-04-2025 | 2nd | 5.3 Different type of Non-linear circuits - Clipper, diode series &shunt, positive& negative biased & unbiased and combinational clipper clippers circuit & its application. |
| | Thursday | 10-04-2025 | 3rd | 5.4 Different type of Clamper circuit (positive & negative clampers) & its application. |
| | Friday | 11-04-2025 | 4th | 5.5 Working of Astable, Monostable & BistableMultivibrator with circuit diagram. |
| 3rd week of April | Monday | 14-04-2025 | 1st | 5.5 Working of Astable, Monostable & BistableMultivibrator with circuit diagram. |
| | Wednesday | 16-04-2025 | 2nd | 5.5 Working of Astable, Monostable & BistableMultivibrator with circuit diagram. |
| | Thursday | 17-04-2025 | 3rd | 5.6 Working& use of Integrator and Differentiator circuit using R- C circuit(Linear), input / output waveforms & frequency response. |
| | Saturday | 19-04-2025 | 4th | 5.6 Working& use of Integrator and Differentiator circuit using R- C circuit(Linear), input / output waveforms & frequency response. |
| | | | 5th | 6.1 Differential amplifier & explain its configuration &significance. |
| 4th week of April | Monday | 21-04-2025 | 1st | 6.2 Block diagram representation of a typical Op- Amp, its equivalent circuits and draw the schematic symbol |
| | Wednesday | 23-04-2025 | 2nd | 6.3Discuss the types of integrated ckt manufacturers designations of Ics, Package types, pin identification and temperature and ordering information. |
| | Thursday | 24-04-2025 | 3rd | 6.4 Define the following electrical characteristics input offset voltage, input offset current, CMMR, Large signal voltage gain, Slew rate . |
| | Friday | 25-04-2025 | 4th | 6.5 Draw and explain the Open Loop configuration (inverting, non-inverting Amplifier) |
| 5th week of April | Monday | 28-04-2025 | 1st | 6.6 Draw the circuit diagram of the voltage series feedback amplifier and derive the close loop Voltage gain, gain of feedback circuits input resistance, and output resistance, bandwidth and total output offset voltage with feedback |
| | Wednesday | 30-04-2025 | 2nd | 6.6 Draw the circuit diagram of the voltage series feedback amplifier and derive the close loop Voltage gain, gain of feedback circuits input resistance, and output resistance, bandwidth and total output offset voltage with feedback |

| Week | Day | Date | Class Day | Topics |
|---|---|---|---|---|
| 1st week of May | Thursday | 01-05-2025 | 1st | 6.6 Draw the circuit diagram of the voltage series feedback amplifier and derive the close loop Voltage gain, gain of feedback circuits input resistance, and output resistance, bandwidth and total output offset voltage with feedback |
| | Friday | 02-05-2025 | 2nd | 6.7 Draw the circuit diagram of the voltage shunt feedback amplifier and derive the close loop, Voltage gain, gain of feedback circuits and input resistance, and output resistance, bandwidth and total output offset voltage with feedback. |
| | Saturday | 03-05-2025 | 3rd | 6.7 Draw the circuit diagram of the voltage shunt feedback amplifier and derive the close loop, Voltage gain, gain of feedback circuits and input resistance, and output resistance, bandwidth and total output offset voltage with feedback. |
| 2nd week of May | Monday | 05-05-2025 | 1st | 7.1 Discuss the summing scaling and averaging of inverting and non-inverting amplifiers |
| | Tuesday | 06-05-2025 | 2nd | 7.2 DC & AC Amplifies using OP-AMP. |
| | Thursday | 08-05-2025 | 3rd | 7.3 Integrator and differentiator using op-amp. |
| | Friday | 09-05-2025 | 4th | 7.4 Active filter and describe the filter design of fast order low Pass Butterworth |
| 2nd week of May | Monday | 12-05-2025 | 1st | 7.6 Block diagram and operation of IC 555 timer &IC 565 PLL& its applications. |
| | Wednesday | 14-05-2025 | 2nd | 7.7 Working of Current to voltage Convertor using Operational Amplifier |
| | Thursday | 15-05-2025 | 3rd | 7.8 Working of the Voltage to Frequency Convertor using Operational Amplifier. |
| | Friday | 16-05-2025 | 4th | 7.9 Working of the Frequency to Voltage Conversion using Operational Amplifier. |
| | Saturday | 17-05-2025 | 5th | 7.10 Operation of power supply using 78XX and 79XX,LM 317 Series with their PIN configuration |
| | | | 6th | 7.11 Functional block diagram & Working of IC regulator LM 723 & LM 317. |

Signature of Sr. Lect./Lect.

01/02/2025

Signature of HOD

01/02/2025