



# GOVERNMENT POLYTECHNIC, BALASORE

Government of Odisha

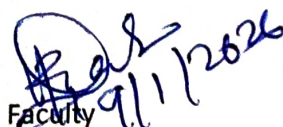
ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ, ବାଲେଶ୍ଵର

## LESSON PLAN (SUMMER-2026)

|                                                                                                |                                               |                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Discipline: Electronics &amp; Telecommunication Engg.</b>                                   | <b>Semester: 2<sup>ND</sup></b>               | <b>Name of the Teaching Faculty: PRAKASH CHANDRA DAS</b>                                                                                                                                              |
| <b>Subject: Fundamentals of Electrical &amp; Electronics Engineering(Course Code- TH 4(a))</b> | <b>No of Days /per week class allotted: 4</b> | <b>Semester From date: 9<sup>TH</sup> January, 2026</b><br><b>No of Weeks: 15</b>                                                                                                                     |
| <b>Week</b>                                                                                    | <b>Class Day</b>                              | <b>Theory / Practical Topics</b>                                                                                                                                                                      |
| <b>1st</b>                                                                                     | 1st                                           | <b>UNIT I Overview of Electronic Components &amp; Signals:</b> Passive Active Components: Resistances, Capacitors, Inductors,                                                                         |
|                                                                                                | 2nd                                           | Diodes, Transistors,                                                                                                                                                                                  |
|                                                                                                | 3rd                                           | FET, MOS and CMOS and their Applications.                                                                                                                                                             |
|                                                                                                | 4th                                           | Concept and simple problems of Resistance, Capacitor & Inductor                                                                                                                                       |
| <b>2nd</b>                                                                                     | 1st                                           | classification and Working of diode(PN junction,LED, Zener)                                                                                                                                           |
|                                                                                                | 2nd                                           | classification and Working of diode(PN junction,LED, Zener)                                                                                                                                           |
|                                                                                                | 3rd                                           | classification and Working of diode(PN junction,LED, Zener)                                                                                                                                           |
|                                                                                                | 4th                                           | transistor, FET, Concept of MOS and CMOS)                                                                                                                                                             |
| <b>3rd</b>                                                                                     | 1st                                           | transistor, FET, Concept of MOS and CMOS)                                                                                                                                                             |
|                                                                                                | 2nd                                           | Signals: DC/AC, voltage/current, periodic/non-periodic signals, average, rms, peak values, different types of signal waveforms, Ideal/non-ideal                                                       |
|                                                                                                | 3rd                                           | Signals: DC/AC, voltage/current, periodic/non-periodic signals, average, rms, peak values, different types of signal waveforms                                                                        |
|                                                                                                | 4th                                           | Ideal/non-ideal voltage/current sources, independent/dependent voltage current sources.                                                                                                               |
| <b>4th</b>                                                                                     | 1st                                           | <b>UNIT II Overview of Analog Circuits:</b> Operational Amplifiers-Ideal Op-Amp, Practical op amp                                                                                                     |
|                                                                                                | 2nd                                           | Operational Amplifiers-Ideal Op-Amp, Practical op amp                                                                                                                                                 |
|                                                                                                | 3rd                                           | Operational Amplifiers-Ideal Op-Amp, Practical op amp                                                                                                                                                 |
|                                                                                                | 4th                                           | Operational Amplifiers-Ideal Op-Amp, Practical op amp                                                                                                                                                 |
| <b>5th</b>                                                                                     | 1st                                           | Open loop and closed loop configurations, Application of Op-Amp as amplifier                                                                                                                          |
|                                                                                                | 2nd                                           | Open loop and closed loop configurations, Application of Op-Amp as amplifier                                                                                                                          |
|                                                                                                | 3rd                                           | adder, differentiator and integrator.                                                                                                                                                                 |
|                                                                                                | 4th                                           | adder, differentiator and integrator.                                                                                                                                                                 |
| <b>6th</b>                                                                                     | 1st                                           | adder, differentiator and integrator.                                                                                                                                                                 |
|                                                                                                | 2nd                                           | <b>UNIT III Overview of Digital Electronics:</b> Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, Gates-Functional Block Approach (Simple problems of Number system) |

|      |     |                                                                                                                                                                                                    |
|------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | 3rd | Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, Gates-Functional Block Approach (Simple problems of Number system)                                               |
|      | 4th | Introduction to Boolean Algebra, Electronic Implementation of Boolean Operations, Gates-Functional Block Approach (Simple problems of Number system)                                               |
| 7th  | 1st | Storage elements-Flip Flops-A Functional block approach,                                                                                                                                           |
|      | 2nd | Storage elements-Flip Flops-A Functional block approach,                                                                                                                                           |
|      | 3rd | Counters: Ripple, Up/down and decade                                                                                                                                                               |
|      | 4th | Counters: Ripple, Up/down and decade                                                                                                                                                               |
| 8th  | 1st | Introduction to digital IC Gates (of TTL Type).                                                                                                                                                    |
|      | 2nd | Introduction to digital IC Gates (of TTL Type).                                                                                                                                                    |
|      | 3rd | <b>Unit IV Electric and Magnetic Circuits:</b> EMF, Current, Potential Difference, Power and Energy; M.M.F, magnetic force, permeability                                                           |
|      | 4th | Unit IV Electric and Magnetic Circuits: EMF, Current, Potential Difference, Power and Energy; M.M.F, magnetic force, permeability,                                                                 |
| 9th  | 1st | hysteresis loop, reluctance, leakage factor and BH curve; Electromagnetic induction,                                                                                                               |
|      | 2nd | Faraday's laws of electromagnetic induction, Lenz's law; Dynamically induced emf; Statically induced emf; Equations of self and mutual inductance; Analogy between electric and magnetic circuits. |
|      | 3rd | Faraday's laws of electromagnetic induction, Lenz's law; Dynamically induced emf; Statically induced emf; Equations of self and mutual inductance; Analogy between electric and magnetic circuits. |
|      | 4th | Faraday's laws of electromagnetic induction, Lenz's law; Dynamically induced emf; Statically induced emf; Equations of self and mutual inductance; Analogy between electric and magnetic circuits. |
| 10th | 1st | Faraday's laws of electromagnetic induction, Lenz's law; Dynamically induced emf; Statically induced emf; Equations of self and mutual inductance; Analogy between electric and magnetic circuits. |
|      | 2nd | <b>Unit V A.C. Circuits:</b> Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor,                                                      |
|      | 3rd | Cycle, Frequency, Periodic time, Amplitude, Angular velocity, RMS value, Average value, Form Factor Peak Factor                                                                                    |
|      | 4th | impedance, phase angle, and power factor; Mathematical and phasor representation of alternating emf and current                                                                                    |
| 11th | 1st | <b>Voltage and Current relationship in Star and Delta connections; A.C in resistors, inductors and capacitors;</b>                                                                                 |
|      | 2nd | <b>Voltage and Current relationship in Star and Delta connections; A.C in resistors, inductors and capacitors.</b>                                                                                 |
|      | 3rd | <b>Voltage and Current relationship in Star and Delta connections; A.C in resistors, inductors and capacitors</b>                                                                                  |
|      | 4th | <b>A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.</b>                                                                                 |
| 12th | 1st | <b>A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.</b>                                                                                 |
|      | 2nd | <b>A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.</b>                                                                                 |

|      |     |                                                                                                                                                                       |
|------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | 3rd | A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.                                                           |
|      | 4th | A.C in R-L series, R-C series, R-L-C series and parallel circuits; Power in A. C. Circuits, power triangle.                                                           |
| 13th | 1st | <b>Unit VI Transformer and Machines:</b> General construction and principle of different type of transformers; Emf equation and transformation ratio of transformers; |
|      | 2nd | Unit VI Transformer and Machines: General construction and principle of different type of transformers; Emf equation and transformation ratio of transformers;        |
|      | 3rd | Unit VI Transformer and Machines: General construction and principle of different type of transformers; Emf equation and transformation ratio of transformers;        |
|      | 4th | Auto transformers; Construction and Working principle of motors; Basic equations and characteristic of motors.                                                        |
| 14th | 1st | Auto transformers; Construction and Working principle of motors; Basic equations and characteristic of motors.                                                        |
|      | 2nd | Auto transformers; Construction and Working principle of motors; Basic equations and characteristic of motors.                                                        |
|      | 3rd | Auto transformers; Construction and Working principle of motors; Basic equations and characteristic of motors.                                                        |
|      | 4th | Auto transformers; Construction and Working principle of motors;                                                                                                      |
| 15th | 1st | Auto transformers; Construction and Working principle of motors                                                                                                       |
|      | 2nd | Auto transformers; Construction and Working principle of motors;                                                                                                      |
|      | 3rd | Basic equations and characteristic of motors.                                                                                                                         |
|      | 4th | Basic equations and characteristic of motors.                                                                                                                         |

  
 Faculty

HOD