

PSIET, KARANDA, DHENKANAL

LESSON PLAN Session (2022-2023)

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| Discipline: Electronics & Telecommunication | Semester: 4 th , Summer/2023 | Name of the Faculty: Manibhadra Chand, Lecturer |
| Subject: Electrical Machine, Theory-1 | No. of Days/week: 04 | Start Date: 15/02/2023 End Date: 23/05/2023 |

| Week | Class Day | Theory Topics |
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| 1st | 1st | Electrical Material- Properties & uses of different conducting material. |
| | 2nd | Properties & use of various insulating materials used electrical engineering |
| | 3rd | Various magnetic materials & their uses. |
| | 4th | DC Generator- Construction of DC Generator |
| 2nd | 1st | Principle of DC Generator. |
| | 2nd | Classification of DC generator |
| | 3rd | voltage equation of DC generator |
| | 4th | Derive EMF equation & simple problems. |
| 3rd | 1st | Parallel operation of DC generators. |
| | 2nd | Numerical Solving |
| | 3rd | DC Motor- Principle of working of a DC motor |
| | 4th | Concept of back EMF in DC motor |
| 4th | 1st | Concept of torque of DC Motor |
| | 2nd | Numerical solving |
| | 3rd | Derive equation relating to back EMF, Current, Speed and Torque |

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| | | equation, Numerical Solving |
| | 4th | Quiz-1 Test |
| 5th | 1st | Numerical Solving |
| | 2nd | Classify DC motors |
| | 3rd | characteristics of different DC Motor |
| | 4th | Application of different DC Motor |
| 6th | 1st | Three point stator/static of DC motor by solid State converter |
| | 2nd | four point stator/static of DC motor by solid State converter |
| | 3rd | Speed of DC motor by field control and armature control method. |
| | 4th | Power stages of DC motor & derive Efficiency of a DC motor. |
| 7th | 1st | AC Circuits -Mathematical representation of phasors, significant of operator "j" Addition, Subtraction, Multiplication and Division of phasor quantities |
| | 2nd | AC series circuits containing resistance, inductances and capacitances |
| | 3rd | Conception of active, Reactive and apparent power |
| | 4th | Q-factor of series circuits & solve related problems |
| 8th | 1st | Find the relation of AC Parallel circuits containing Resistances, Inductance and Capacitances |
| | 2nd | Q-factor of parallel circuits. |
| | 3rd | Transformer - Construction & working principle of transformer |
| | 4th | Derive of EMF equation of transformer |
| 9th | 1st | voltage transformation ratio |
| | 2nd | Numerical Solving |
| | 3rd | Discuss Flux, Current, EMF components of transformer and their phasor diagram under no load Condition. |
| | 4th | Phasor representation of transformer flux, current EMF primary and secondary Voltages under loaded condition. |
| 10th | 1st | Types of losses in Single Phase (1- ϕ) Transformer |
| | 2nd | Open circuit Test of single phase Transformer |

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| | 3rd | short-circuit test of single phase Transformer |
| | 4th | Numerical Solving on open circuit test |
| 11th | 1st | Numerical Solving on short circuit test |
| | 2nd | Parallel operation of Transformer, Auto Transformer |
| | 3rd | Quiz-2 Test |
| | 4th | Induction Motor- Construction feature, types of three-phase induction motor. |
| 12th | 1st | Principle of development of rotating magnetic field in the stator |
| | 2nd | Establish relationship between synchronous speed, actual speed and slip of induction motor |
| | 3rd | Establish relation between torque, rotor current and power factor. |
| | 4th | Explain starting of an induction motor by using DOL starter |
| 13th | 1st | Explain starting of an induction motor by using Star-Delta stator |
| | 2nd | State industrial use of induction motor. |
| | 3rd | Single Phase Induction Motor- Construction features of capacitor type single-phase induction motor. |
| | 4th | Principle of operation of capacitor type single-phase induction motor. |
| 14th | 1st | Construction features of shaded pole type single-phase induction motor. |
| | 2nd | Principle of operation of shaded pole type single-phase induction motor. |
| | 3rd | Explain construction & operation of AC series motor. |
| | 4th | Concept of alternator, application of alternator |
| 15th | 1st | Expected Questions Discussion & Practice Test 1 |
| | 2nd | Expected Questions Discussion & Practice Test 2 |
| | 3rd | Expected Questions Discussion & Practice Test 3 |
| | 4th | Expected Questions Discussion & Practice Test 4 |

Manish Chandra Choudhary
Signature of the faculty

[Signature]
15/12/23
Signature of the Principal