**UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA**

**Academic lesson plan for summer semester - 2022**

**Sandip Mishra**

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| Name of the teaching faculty:  Semester:**4th**  No. of periods per week: **5**  semester Exam: **80**  Total Marks: **100** | | | Discipline / Dept.: **EE**  Subject (Theory): **EC-I**  Total Periods: **75**  Class Test:**20** | | |
| **Week** | **Period** | **Unit/chapter** | | **Topic to be covered** |
|  | 1st | DC GENERATORS | | Introduction to EM. Operating principle of generator |
| 1ST | 2nd | DC GENERATORS | | Constructional features of DC machine. |
| 3rd | DC GENERATORS | | Constructional features of DC machine. |
| 4th | DC GENERATORS | | Different types of D.C. machines |
| 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Objective Questions related to Basics of DC generator. |
| 2ND | 1st | DC GENERATORS | | Derivation of EMF equation |
| 2nd | DC GENERATORS | | Losses and efficiency. Condition for max efficiency |
| 3rd | DC GENERATORS | | Armature reaction in D.C. machine |
| 4th | DC GENERATORS | | Commutation and methods of improving commutation |
| 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Problems Discussion on emf equation |
| 3RD | 1st | DC GENERATORS | | Inter poles and compensating winding |
| 2nd | DC GENERATORS | | Characteristics of D.C. Generators |
| 3rd | DC GENERATORS | | Characteristics. Problem Discussion on losses Efficiency |
| 4th | DC GENERATORS | | Application of different types of D.C. Generators. |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Problems Discussion on losses efficiency |
| 4TH | 1st | DC GENERATORS | | Concept of critical resistance and critical speed |
| 2nd | DC GENERATORS | | Conditions of Build-up of emf of DC generator |
| 3rd | DC GENERATORS | | Parallel operation of D.C. Generators. |
| 4th | DC GENERATORS | | Numerical problems on DC Generator |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Doubt clear class related to DC generator. |
| 5TH | 1st | DC GENERATORS | | Doubt clear class related to DC generator. |
| 2nd | DC MOTORS | | Basic working principle of DC motor |
| 3rd | DC MOTORS | | Significance of back emf in D.C. Motor. |
| 4th | DC MOTORS | | Voltage equation of D.C. Motor. |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Problems Discussion on Back EMF. |
| 6TH | 1st | DC MOTORS | | Condition for maximum power output |
| 2nd | DC MOTORS | | Torque Equation and Problems. |
| 3rd | DC MOTORS | | Characteristics of shunt, series and compound motors |
| 4th | DC MOTORS | | Application and Problems on output power. |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Objective Questions related to Basics of DC Motor. |
| 7TH | 1st | DC MOTORS | | Starting method of shunt, series and compound motors |
| 2nd | DC MOTORS | | Speed control of D.C shunt motors |
| 3rd | DC MOTORS | | Speed control of D.C shunt motors and problems. |
| 4th | DC MOTORS | | Speed control of D.C. series motors |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Numerical problems on DC Motor. |
| 8TH | 1st | DC MOTORS | | Determination of efficiency of D.C. Series Machine |
| 2nd | DC MOTORS | | Determination of efficiency of D.C. shunt Machine |
| 3rd | DC MOTORS | | Losses, efficiency and power stages of D.C. motor |
| 4th | DC MOTORS | | Uses of D.C. motors, Problems Discussion. |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Doubt clear class related to DC Motor. |
| 9TH | 1st | SINGLE PHASE TRANSFORMER | | Working principle of transformer. |
| 2nd | SINGLE PHASE TRANSFORMER | | Constructional feature of Transformer |
| 3rd | SINGLE PHASE TRANSFORMER | | Constructional feature of Transformer |
| 4th | SINGLE PHASE TRANSFORMER | | Constructional feature of Transformer |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Objective and Doubt discussion |
| 10TH | 1st | SINGLE PHASE TRANSFORMER | | procedures for Care and maintenance |
| 2nd | SINGLE PHASE TRANSFORMER | | EMF equation of transformer |
| 3rd | SINGLE PHASE TRANSFORMER | | Ideal transformer voltage transformation ratio |
| 4th | SINGLE PHASE TRANSFORMER | | Operation of Transformer at no load with ph diagrams |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Objective Question discussion on Basics of Transformer. |
| 11TH | 1st | SINGLE PHASE TRANSFORMER | | Operation on load with phasor diagrams |
| 2nd | SINGLE PHASE TRANSFORMER | | Equivalent R, Leakage X and Z of transformer. |
| 3rd | SINGLE PHASE TRANSFORMER | | phasor diagram of transformer on with using upf load |
| 4th | SINGLE PHASE TRANSFORMER | | ph dig. of transformer on with leading pf and lagging pf load |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Problems Discussion on Phesor diagram |
| 12TH | 1st | SINGLE PHASE TRANSFORMER | | Equivalent circuit and numerical problems Discussion |
| 2nd | SINGLE PHASE TRANSFORMER | | Approximate & exact voltage drop. |
| 3rd | SINGLE PHASE TRANSFORMER | | Voltage Regulation of transformer. |
| 4th | SINGLE PHASE TRANSFORMER | | Different types of losses in a Transformer |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Open circuit and Short Circuit test |
| 13TH | 1st | SINGLE PHASE TRANSFORMER | | Efficiency, efficiency at different loads and pf |
| 2nd | SINGLE PHASE TRANSFORMER | | Condition for max efficiency. Problems Discussion |
| 3rd | SINGLE PHASE TRANSFORMER | | All Day Efficiency & Problems Discussion. |
| 4th | SINGLE PHASE TRANSFORMER | | Load corresponding to Maximum efficiency |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Parallel operation of single phase transformer. |
| 14TH | 1st | AUTO TRANSFORMER | | Constructional features & working of Auto transformer |
| 2nd | AUTO TRANSFORMER | | Comparison of A.T. with two winding transformer |
| 3rd | AUTO TRANSFORMER | | Uses of Auto transformer. Tap changing. |
| 4th | INSTRUMENT TRANSFORMER | | Current Transformer and Potential Transformer |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Doubt clear class related to Auto Transformer. |
| 15TH | 1st | INSTRUMENT TRANSFORMER | | Ratio error, Phase angle error. |
| 2nd | INSTRUMENT TRANSFORMER | | Uses of C.T. and P.T. |
| 3rd | INSTRUMENT TRANSFORMER | | Objective Question discussion on C.T., P.T., A.T. |
| 4th | INSTRUMENT TRANSFORMER | | Doubt clear class related to Instrument Transformer. |
|  | 5th | TUTORIAL CUM DOUBT CLEAR CLASS | | Objective Question discussion on Electrical Machine. |

The lesson plan prepared by the concerned faculty.

SANDIP MISHRA

PTGF, ELECTRICAL DEPARTMENT