**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