



Discipline: ELECTRICAL ENGG	Semester: 5TH	Name of the Teaching Faculty: J BINOD KUMAR
Subject: ENEY CONVERSION -II	No. of Days/per week class allotted:04	Semester From Date: 01/09/20 To Date: 19/03/21 No. of Weeks 15
Week	Class Day	Theory/Practical Topics
1 <sup>st</sup>	01	Production of rotating magnetic field
	02	Constructional feature of squirrel cage and slip ring induction motor
	03	Principles of operation of 3-phase induction motor
	04	Slip speed, slip, and relation with rotor quantities
2 <sup>nd</sup>	01	Starting torque, Running torque condition for maximum torque
	02	Numerical problems
	03	Torque slip characteristics, relation between full load torque and starting torque
	04	Numerical problems
3 <sup>rd</sup>	01	Relations between rotor copper loss, rotor output, and gross torque and relation of slip with rotor copper loss
	02	Explain and state methods of starting and different type of starters
	03	Explain speed control by voltage control, rotor resistance control, pole changing, frequency control techniques
	04	Plugging of three phase induction motors
4 <sup>th</sup>	01	Different types of motor enclosures.
	02	Principle of induction generator and its application
	03	Types of alternators and their applications
	04	Working principle of alternator and relation between speed and frequency.
5 <sup>th</sup>	01	Armature winding and derivation of expression for winding factors.
	02	Harmonics its causes and its impact on winding factor.
	03	EMF equation of alternator.
	04	Numerical problems
6 <sup>th</sup>	01	Armature reaction and its effect on EMF at different power factor of load.
	02	Vector diagram of loaded alternator.
	03	Numerical problems
	04	Testing of alternator (open circuit test and short circuit test).
7 <sup>th</sup>	01	Numerical problems
	02	Determination of voltage regulation by direct loading and synchronous impedance method.
	03	Parallel operation of alternator using synchroscope, dark and bright lamp method.

  
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	04	Distribution of load by parallel connected alternators.
8 <sup>th</sup>	01	Constructional features of synchronous motor. Principle of operation and concept of load angle.
	02	Effect of varying load with constant excitation and effect of varying excitation with constant load.
	03	Derivation of torque and power developed.
	04	Power angle characteristics of cylindrical rotor motor.
9 <sup>th</sup>	01	Effect of excitation on armature current and power factor.
	02	Haunting and function damper bars.
	03	Method of starting synchronous motor.
	04	Application of synchronous motor.
	05	Tutorial class
10 <sup>th</sup>	01	Rotating field theory of single phase induction motor.
	02	Feraris principle.
	03	Split phase motor.
	04	Capacitor start motor.
11 <sup>th</sup>	01	Capacitor start, capacitor run motor.
	02	Permanent capacitor type motor.
	03	Shaded pole motor.
	04	Method to change the direction of rotation of above motors.
12 <sup>th</sup>	01	Construction and working principle of single phase series motor.
	02	Running characteristic and application of single phase series motor.
	03	Construction, working principle and application of universal motor.
	04	Repulsion start motor.
13 <sup>th</sup>	01	Repulsion start induction motor.
	02	Repulsion induction motor.
	03	Principle and classification of stepper motor.
	04	Principle of variable reluctance stepper motor.
14 <sup>th</sup>	01	Principle of permanent magnet stepper motor.
	02	Principle of hybrid stepper motor.
	03	Applications of stepper motor.
	04	Grouping of winding
15 <sup>th</sup>	01	Advantages of grouping.
	02	Parallel operation of three phase transformer.
	03	Tap changer (on/off load tap changing)
	04	Maintenance transformers.

  
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