

Discipline:	Electrical.	Semester: 5th	Name of the Teaching Faculty: En. Kishore Ku Sasmal.	
Subject:	EC-II	No of Days/Week Class Allotted: 4	Semester From date: 1.10.2021 To date 18.1.2022	No. of Weeks:

WEEK	Class Day	Theory Topics
1 <sup>st</sup>	1st	Alternator: types of alternator and their constructional features
	2nd	Basic working principle of alternator and the relation b/w speed and frequency
	3rd	terminology in armature winding, and excitation / field winding, factors
	4th	explain harmonics, its cause and impact on winding factor.
	5th	
2 <sup>nd</sup>	1st	EMF eqn of alternator [Numerical problem solving]
	2nd	explain armature reaction and its effect on emf at different power factor & load
	3rd	vector diagram of loaded alternator (solve numerical problems)
	4th	testing of alternator: 1. Open circuit test & short circuit test.
	5th	
3 <sup>rd</sup>	1st	voltage regulation of alternator by direct loading and synchronous & miedere method
	2nd	parallel operation of alternator using synchroscope and darks bright lamp method.
	3rd	constructional features of synchronous motor & principle of operation & load angle.
	4th	Distribution of load by parallel connected alternator.
	5th	



WEEK	Class Day	Theory Topics
4th	1st	Principle of varying load with constant excitation. Effect of varying excitation with constant load.
	2nd	Principle of operation Derive torque & power developed
	3rd	Power angle characteristics of cylindrical rotor motor.
	4th	Explain effect of excitation on armature current and power factor.
	5th	
5th	1st	Hunting in synchronous motor, functions of damper bars in synchronous motor & generator.
	2nd	Describe method of starting, Application of synchronous motor.
	3rd	Production of rotating magnetic field.
	4th	Constructional feature of squirrel cage and slip ring induction motor.
	5th	
6th	1st	Working principles of operation of 3-ph Induction motor.
	2nd	Define slip speed $\rightarrow$ slip and est. relation of slip with rotor quantity.
	3rd	Derive expression for torque during starting and running and $n$ & derive cond <sup>n</sup> for max torque (solve numerical problem)
	4th	Derive expression for torque during starting & running, cond <sup>n</sup> and derive cond <sup>n</sup> for max torque
	5th	



Dicipline: <b>Electrical</b>	Semester: <b>5<sup>th</sup></b>	Name of the Teaching Faculty: <b>En Kishoree. K. Sasa</b>	
Subject: <b>EC-II</b>	No of Days/Week Class Allotted: <b>4</b>	Semester From date: <b>1-10-2021</b> To date: <b>18-1-2022</b>	No. of Weeks:

WEEK	Class Day	Theory Topics
7th	1st	Torque - slip characteristics
	2nd	Derive relation betn Rotor copper loss, Rotor output and cross torque, Rotor out put and relationship of slip with Rotor copper loss.
	3rd	Method of starting of 3-ph Induction motor
	4th	method of starting of 3-ph Induction motor.
	5th	
8th	1st	speed control by voltage control, Rotor resistance control, pole changing, frequency control method
	2nd	speed control by, voltage control, Rotor resistance control, pole changing, frequency control method
	3rd	plugging, as applicable to three phase Induction motor. Describe different and state its application
	4th	Explain principle of Induction generator and state its application.
	5th	
9th	1st	Explain Ferraris principle, Basic concept of 3-ph and 1-ph Induction motor.
	2nd	Explain double revolving field theory, and cross-field theory, to analyse starting torque.
	3rd	Explain working principle of single phase Induction motor, T-s characteristics, application of
	4th	working principle of, T-s characteristics, application of capacitor start motor.
	5th	



## Theory Topics

WEEK	Class Day	Topic
10th	1st	working principle, T-s characteristics application of capacitor start, capacitor run motor.
	2nd	working principle, T-s characteristics, application of capacitor start, capacitor run motor.
	3rd	working principle, T-s characteristics performance of permanent capacitor and shaded pole motor.
	4th	explain methods to change the dirn of rotation of single phase servomotor.
	5th	
11th	1st	construction, working principle & application of universal motor.
	2nd	working principle of repulsion start motor, repulsion start induction run motor.
	3rd	principle of stepper motor.
	4th	classification of stepper motor, principle of variable reluctance stepper motor.
	5th	
12th	1st	principle of permanent magnetic stepper motor.
	2nd	principle of hybrid stepper motor.
	3rd	application of stepper motor.
	4th	explain graphing of winding
	5th	



Discipline: <u>Electrical</u>	Semester: <u>5th</u>	Name of the Teaching Faculty: <u>En. Kishore Kumar Sasmal</u>	
Subject: <u>EC - II</u>	No of Days/Week Class Allotted: <u>4</u>	Semester From date: <u>1.10.2022</u> to date: <u>15.1.2022</u>	No. of Weeks:

WEEK	Class Day	Theory Topics
13 <sup>th</sup>	1st	Explain grading, or winding
	2nd	Explain grading, or winding
	3rd	Explain grading, or winding
	4th	Explain parallel operation of three-phase transformer
	5th	
14 <sup>th</sup>	1st	Explain parallel operation of 3-ph transformer
	2nd	Explain tap changer (on/off tap changer)
	3rd	Maintenance schedule of power transformer
	4th	
	5th	
	1st	
	2nd	
	3rd	
	4th	