PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH

PROGRESS REGISTER

Session-2021-2022

Discipline: Electrical Engineering Engg. Semester: 5th

Name of the Teaching Faculty: Bimal Kumar Gadtia

Sub:- EC-II Sec - B

Subject: Energy Conversion-II No. of Days/per week class allotted 4

Semester From Date : 2/10/21 To Date : 27/10/21 No. of Weeks : 4

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
2/10/21	Type of alternator and it's construction	alternator type & it's construction	Saliant & Non Saliant pole, Stator, Rotor.	Bradh 2/10/21
3/10/21	Working principle & Relation between N & f	Working Principle & Relation between N & f	Faraday's law	Bradh 3/10/21
5/10/21	Armature winding terminology and winding factor	winding terminology and winding factor	Distributed & Concentrated wdg, K_p & K_d	Bradh 5/10/21
5/10/21	Harmonics causes it's impact on winding factor	Harmonics cause and it's impact	K_{dn} & K_{pn} for nth harmonics	Bradh 5/10/21
6/10/21	Emf equation of alternator	Emf equation of alternator	K_p, K_d, P, Z, T, N, ϕ, f	Bradh 6/10/21
7/10/21	Armature Reaction	Armature Reaction	magnetising, Demagnetising Crossmagnetising	Bradh 7/10/21
9/10/21	effect of armature Reaction on emf	Armature Reaction effect on emf	— do —	Bradh 9/10/21
21/10/21	Vector Diagram of loaded alternator	Vector Diagram of Loaded alternator	R_a, X_L, X_s, Z_s	Bradh 21/10/21
23/10/21	Testing of alternator OC Test SC Test	Testing of alternator	OCC, SCC	Bradh 23/10/21
26/10/21	Numerical on SC & OC Test	Problem on OC & SC Test	Problem Practice	Bradh 26/10/21
27/10/21	votage regulation by Direct Loading & emf method	Voltage regulation by Direct Loading & emf method.	OCC, SCC draw R_a, X_s, Z_s finding	Bradh 27/10/21

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Semester From Date : 28/10/21 To Date : 13/11/21 No. of Weeks : 3

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
28/10/21	Numerical of Voltage Regulation	Problem on voltage Regulation	Problem Practice	Bradh 28/10/21
30/10/21	Parallel operation by synchroscope & bark-bright Lamp method	Parallel operation by synchroscope Three Lamp method.	Synchroscope & Three-lamp method	Bradh 30/10/21
2/11/21	Construction of synchro Load Sharing by Parallel Connected alternators.	Load sharing of Parallel connected alternator	CKt Diagram of parallel alternator Circulating Current	Bradh 2/11/21
3/11/21	Construction of synchronous motor & working principle	Construction of Synchronous motor working principle	Stator, Stator-core Rotor, Rotor-core exciting coil exciter	Bradh 3/11/21
3/11/21	Torque & power developed on synchronous motor	Torque & Power developed by synchronous motor	Pullout torque, Gross torque, Shaft torque, P_{mech}, P_{max}	Bradh 3/11/21
6/11/21	effect of varying Load with const excitation effect of varying excitation with const Load	effect of varying load with Const E varying E with Const load	Under, over, Normal excitation	Bradh 6/11/21
7/11/21	Power angle Characteristics	Power angle Characteristics	P Vs δ, V, E, X_d & X_q	Bradh 7/11/21
9/11/21	effect of excitation on I_a & cosϕ	effect of excitation on I_a & cosϕ	under excitation Normal " unit pf over excitation	Bradh 9/11/21
10/11/21	Hunting & Function of Damper bar in Synchronous motor	Hunting & function of Damper bar	Cause of hunting Effect of " Reduction of "	Bradh 10/11/21
11/11/21	Starting method of synchronous motor	Starting method of Synchronous motor	Induction motor Starting DC motor starting Damper bar "	Bradh 11/11/21
13/11/21	Application of synchronous motor	Application	pf correction Precise & constent speed.	Bradh 13/11/21

Subject: Energy Conversion - II No. of Days/per week class allotted 4

Semester From Date : 16/11/21 To Date : 4/12/21 No. of Weeks : 3

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
16/11/21	Production of rotating magnetic field	Production of rotating magnetic field	3φ current supply speed & Direction of rotating field	16/11/21
17/11/21	Construction of squirrel cage & slipring I/M	Construction of Squirrel cage & Slipring I/M	Stator, rotor, Squirrel cage wound rotor.	17/11/21
18/11/21	Working principle of 3φ I/M	working principle	Rotor conductor Stator conductor stator magnetic flux Faraday's law	18/11/21
23/11/21	Slip speed, Slip & Relation between S & Rotor parameter	Slip speed, Slip Relation between S & Rotor quantity	% slip, rotor emf, X_2, f_2, I_2	23/11/21
24/11/21	expression of T_{st}, T_{max} & T_{max}	expression of T_{st}, T_{max}, T_{max}	Z_2, I_2, $\cos\phi_2$	24/11/21
24/11/21	Torque - slip Characteristics	Torque - slip characteristics	Family of T-S Characteristics S=0 to S=1	24/11/21
25/11/21	Relation between T_{fl} & T_{st}	Relation between T_{fl} & T_{st}	Ratio of T_{max} & T_{fl} Finding a= R_2/X_2	25/11/21
30/11/21	Losses - Rotor cu loss, Rotor o/p, T_g & Relation between & Rotor cu. Loss	Rotor cu loss Rotor o/p, T_g	Fixed loss, variable loss, Gross o/p of Rotor	30/11/21
1/12/21	Method of starting & Difference starter in 3φ I/M	Method of starting & starter in 3φ I/M	DOL, Y-Δ, Stator-Resistance	1/12/21
2/12/21	Speed control voltage control Rotor Resistance control	Speed control by voltage control & Rotor Resistance control	Stator voltage supply, additional external rotor Resistance	2/12/21
4/12/21	Speed control by pole changing, frequency control	Speed control by pole changing & frequency control	V/f control Stator pole PAM	4/12/21

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Semester From Date : 7/12/21 To Date : 22/12/21 No. of Weeks : 3

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
7/12/21	Type of motor enclosure	Type of motor enclosure	ODP, TEFC, TEAO, TENV, TEFV/TEBC	Prachi 7/12/21
7/12/21	Plugging in 3φ I/M	Plugging in 3φ I/M	Braking Interchange of Phase of stator	Prachi 7/12/21
8/12/21	Principle of Induction Generator & it's application	Principle of Induction Generator & it's application	As synchronous Gen' supply, add'n power to remote load	Prachi 8/12/21
9/12/21	Ferrari's principle	—do—	Electromagnet at right angle ac of 90° out of phase	Prachi 9/12/21
11/12/21	Double revolving field, cross field theory	Double revolving field & cross field theory	Tesla's rotating magnetic field	Prachi 11/12/21
14/12/21	Working principle Torque-speed characteristics	Working principle T-N characteristics	+ve Forward torque -ve Back ward torque	Prachi 14/12/21
15/12/21	Application of Split phase & Capacitor start motor	Application of Split phase & Capacitor start motor	Running & Starting winding Centrifugal switch	Prachi 15/12/21
16/12/21	Application of capacitor start & capacitor run motor	Application of Split phase & Capacitor start motor	Running & Starting winding centrifugal switch	Prachi 16/12/21
18/12/21	Application of Capacitor start & Capacitor run motor	Application of Capacitor start Capacitor run motor	High starting torque	Prachi 15/12/21
21/12/21	Application of Permanent Capacitor Type motor Application of shaded pole motor	Application of Permanent Capacitor Type motor Application of shaded pole motor	Salient or Projecting pole low starting torque	Prachi 21/12/21
22/12/21	Method of Changing direction of rotating	Changing direction of rotation	Reversible by disassembly & flipping over the Stator	Prachi 22/12/21

Subject: Energy Conversion - II No. of Days/per week class allotted 4

Semester From Date : 23/12/21 To Date : 18/1/22 No. of Weeks : 4

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
23/12/21	Construction & working principle of Commutator motor	Construction & working principle of commutator motor	Series commutator motor, 1φ ac voltage supply	Radha 23/12/21
28/12/21	Running characteristics & application of 1φ series motor	Running characteristics & application of 1-φ series motor	hair dryer, grinder, table fan, blower	Radha 28/12/21
4/1/22	Construction of Universal motor	Construction of universal motor	DC series motor, few turn series field, Low reluctance path	Radha 4/1/22
5/1/22	Working principle & application of universal motor	working principle & application of Universal motor	interaction of field flux & armature flux electric shaver.	Radha 5/1/22
6/1/22	Working principle of Repulsion start motor	working principle of Repulsion start motor	Construction, Two-pole repulsion motor	Radha 6/1/22
8/1/22	Repulsion start, Induction run Repulsion I/M	Repulsion start induction run motor	Repulsion motor Centrifugal Device	Radha 8/1/22
11/1/22	Principle of stepper motor	Principle of stepper motor	Brushless DC motor open-loop controller switch reluctance motor	Radha 11/1/22
12/1/22	Classification of Stepper motor	Classification	Permenent magnet. variable reluctance Permenent magnet rotor	Radha 12/1/22
13/1/22	Hybrid stepper motor principle	hybrid stepper motor	Combination of Permenent magnet & variable reluctance motor	Radha 13/1/22
15/1/22	Stepper motor Application	Application	Computer Printer floppy disk drive CD, CNC machine.	Radha 15/1/22
18/1/22	Grouping of winding & Advantage	Grouping of winding	Δ/Δ, Y/Y, Y/Δ, Δ/Y Group I, II, III	Radha 18/1/22

Subject: Energy Conversion - II

Semester From Date : 18/1/2022 To Date : 29/1/22 No. of Weeks : 2

No. of Days/per week class allotted 4

Date	Topics to be covered as per Lesson Plan	Topics actually covered	Points/contents Discussed (in brief)	Signature of Teacher
18/1/22	Parallel operation of 3φ T/F	Parallel operation of 3φ T/F	maximise elect. Power, efficiency Reliability.	18/1/22
19/1/22	—do—		flexibility - condition of Parallel operation	19/1/22
20/1/22	Tap changer On/off Load tap changing	Tap changer	NLTC, OLTC	20/1/22
22/1/22	maintenance schedule of power T/F	maintenance schedule	BFT, DDA, flash point, Sludge content Dielectric strength	22/1/22
25/1/22	Doubt clear Class	Doubt clear class		25/1/22
27/1/22	Doubt clear class	Doubt clear class		27/1/22
29/1/22	Doubt clear class	Doubt clear class		29/1/22