



### CAMPUS: \_\_\_\_CENTURION\_\_\_\_\_

KOENELECTRO N5DC MACHINES5/4/20205/8/2020Week Number:1Learning Objective / Learning Outcome To understand demag and crossmag theory and calculations. Compoles Compensating Level compound Starters Speed controlTeaching Resources/Aids textbook white boardLength of period 1hour15 min	Lecture's Name	Subject	Date From	Date To	
Number:1To understand demag and crossmag theory and calculations.Resources/AidsperiodCompoles Compensating Level compound Starters Speed controltextbook white1hour15 min	KOEN	ELECTRO N5	DC MACHINES	5/4/2020	5/8/2020
		To understand dem	ag and crossmag theory and calculations.	Resources/Aids textbook white	period

Week Days	Objectives	Act	ivities	Teaching Methodology	Lesson Completed	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Monday	After this lesson the learner must do the calculations and understand the theory	demag and crossmag theory and calculations. Compoles	Do class work and home work and exercises	Demonstration,Discussi ons,	Yes	

Tuesday	After this lesson the learner must do the calculations and understand the theory	demag and crossmag theory and calculations. Compensating Level compound	Do class work and home work and exercises	Demonstration,Discussi ons,	Yes	
Wednesday	After this lesson the learner must do the calculations and understand the theory	generators Level compound generators	Do class work and home work and exercises	Demonstration,Discussi ons,	Yes	
Week Days	Objectives	Act	tivities	Teaching Methodology	Les: Comp	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Thursday	After this lesson the	Speed torque	Do class work and	Demonstration, Discussi	Yes	
	learner must do the calculations and understand the theory	Starting	home work and exercises	ONS,		





# CAMPUS: \_\_\_\_CENTURION\_\_\_\_\_

e Subject Topic		Date From	Date To
ELECTRO N5 AC MACHINES		5/11/2020	5/15/2020
Learning	Teaching	Length of	
<b>To understand</b> AC Circ	uit theory: Single and polyphase systems. Generating	Resources/Aids	period
an emf. Instantaneous value	textbook white	1hour15 min	
Calculations of mixed circu	its using phasors. Types of waveforms. Power.	board	
t	heory and calculations		
	ELECTRO N5 Learning To understand AC Circ an emf. Instantaneous value Calculations of mixed circu		ELECTRO N5AC MACHINES5/11/2020Learning Objective /Learning OutcomeTeachingTo understand AC Circuit theory: Single and polyphase systems. Generating an emf. Instantaneous values. RMS aid average values. Simpson's rule. Calculations of mixed circuits using phasors. Types of waveforms. Power.Teaching Resources/Aids textbook white board

Week Days	Objectives	Act	Activities		Lesson Completed	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Monday	After this lesson the learner must do the calculations and understand the theory	AC Circuit theory: Single and polyphase systems	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Tuesday	After this lesson the learner must do the calculations and understand the theory	Generating an emf. Instantaneous values. RMS aid average values	Do class work and home work in exercises	Demonstration, Discussi ons,	Yes	

Wednesday	After this lesson the learner must do the calculations and understand the theory	Simpson's rule. Calculations of mixed circuits using phasors	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Week Days	Objectives	Act	tivities	Teaching Methodology	Less Comp	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Thursday	After this lesson the learner must do the calculations and understand the theory	Types of waveforms. Power.	Do class work and home work in exercises	Demonstration, Discussi ons,	Yes	
Friday	After this lesson the learner must do the calculations and understand the theory	REVISION	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	





# CAMPUS: \_\_\_\_CENTURION\_\_\_

Lecture's Name	me Subject Topic		Date From	Date To
KOEN	ELECTRO N5	DC MACHINES	5/18/2020	5/22/2020
Week	Learning	Objective /Learning Outcome	Teaching	Length of
Number:3	To understand Transform	ners: Polyphase transformers (use, construction and	<b>Resources/Aids</b>	period
	operation). Leakage reactsno	textbook white	1hour15 min	
	Transformers in parallel — s	board		
	circuit. Tap—changing on a			
	th	neory and calculations		
		•		

Week Days	Objectives	Activ	ities	Teaching Methodology	Lesson Completed	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Monday	After this lesson the learner must do the calculations and understand the theory	Transformers: Polyphase transformers (use, construction and operation)	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Tuesday	After this lesson the learner must do the calculations and	Leakage reactance. Welding machines. Calculation. on and off	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	

	understand the theory	load.				
Wednesday	After this lesson the learner must do the calculations and understand the theory	Transformers in parallel — sharing of load,	Do class work and home work in exercises	Demonstration, Discussi ons,	Yes	
Week Days	Objectives	Activ	ities	Teaching Methodology	Les: Comp	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Thursday	After this lesson the learner must do the calculations and understand the theory	circulating currents. Equivalent circuit.	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Friday	After this lesson the learner must do the calculations and understand the theory	Tap—changing on and off load. Cooling methods	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	





# CAMPUS: \_\_\_\_CENTURION\_\_\_\_

Lecture's Name	Subject	Торіс	Date From	Date To
KOEN	ELECTRO N5	MEASURING	5/25/2020	5/29/2020
Week Number:4	<b>To understand</b> Meas systems with wattmeter	<b>y Objective /Learning Outcome</b> uring: Measuring power in balanced and unbalanced s. Range changing — shunt resistance; transformers <b>theory and calculations</b>	Teaching Resources/Aids textbook white board	Length of period 1hour15 min

Week Days	Objectives	Act	ivities	Teaching Methodology	Lesson Completed	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Monday	After this lesson the learner must be able to do the calculations and study the theory	Measuring:	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Tuesday	After this lesson the learner must be able to do the calculations and study the theory	Measuring power in balanced and unbalanced systems with wattmeters	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	

Wednesday	After this lesson the learner must be able to do the calculations and study the theory	Range changing	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Week Days	Objectives	Acti	ivities	Teaching Methodology	Less Comp	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Thursday	After this lesson the learner must be able to do the calculations and study the theory	shunt resistance; transformers	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Friday	After this lesson the learner must be able to do the calculations and study the theory	REVISION	Do class work and home work in exercises	Demonstration, Discussi ons,	Yes	





### CAMPUS: \_\_\_\_CENTURION\_\_\_\_

Lecture's Name	Subject Topic		Date From	Date To
KOEN	ELECTRO N5	ELECTRO N5 AC MACHINES		6/5/2020
Week	Learning	Objective /Learning Outcome	Teaching	Length of
Number:5	To understand A	C Machines: Alternator and synchronous motor	<b>Resources/Aids</b>	period
	(construction, use and ope	ration) — starting up; parallel operation; damping and	textbook white	1hour15 min
	hunting; synchronizing. In	nduction motors — rotating field; slip; speed control b	board	
	pole changing; losses (flow	v diagram); reversal; current — speed relation— snip;		
	construction of	circle diagram theory and calculations		

Week Days	Objectives	Activ	Activities		Lesson Completed	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Monday	After this lesson the learner must be able to explain the of AC Machines	AC Machines: Alternator and synchronous motor (construction, use and operation)	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Tuesday	After this lesson the learner must be able to explain the of AC Machines	starting up; parallel operation; damping and hunting; synchronizing	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	

Wednesday	After this lesson the learner must be able to explain the of AC Machines	Induction motors — rotating field; slip; speed control b pole changing	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Week Days	Objectives	Activ	ities	Teaching Methodology	Less Comp	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Thursday	After this lesson the learner must be able to explain the of AC Machines	losses (flow diagram); reversal; current — speed relation— ship	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Friday	After this lesson the learner must be able to explain the of AC Machines	construction of circle diagram	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	





### CAMPUS: \_\_\_\_CENTURION\_

Lecture's Name	Subject Topic		Date From	Date To	
KOEN	ELECTRO N5Generation and supply of ac power		6/8/2020	6/12/2020	
Week	Learnin	g Objective /Learning Outcome	Teaching	Length of	
Number:6	To understand Genera	tion and supply of ac power: Resistance of overhead	Resources/Aids	period	
	Lines, capacitance and inductance regulation of transmission line.		textbook white	1hour15 min	
		theory and calculations	board		

Week Days	Objectives	Act	Activities		Lesson Completed	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Monday	After this lesson the learner must be able to explain the of	Generation and supply of ac power	Do class work and home work in exercises	Demonstration, Discussi ons,	Yes	
Tuesday	After this lesson the learner must be able to explain	: Resistance of overhead	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	

Wednesday	After this lesson the learner must be able to explain	capacitance and inductance	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Week Days	Objectives	Act	tivities	Teaching Methodology	Less Comp	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Thursday	After this lesson the learner must be able to explain	regulation of transmission line	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	
Friday	After this lesson the learner must be able to explain	regulation of transmission line	Do class work and home work in exercises	Demonstration, Discussi ons,	Yes	





# CAMPUS: \_\_\_\_CENTURION\_\_

Lecture's Name	Subject	Торіс	Date From	Date To	
KOEN	ELECTRO N5	Switchgear and protective devices	6/15/2020	6/19/2020	
Week	Learning	g Objective /Learning Outcome	Teaching	Length of	
Number:7	To understand Switchg	gear and protective devices: 'Earth leakage relay and	Resources/Aids	period	
	other differential protection	n relays. Bucholz relay. Protection of high inductive	textbook white	1hour15 min	
	circuits — metrosil; discha	arge resistance.	board		
	Static control: Multivibrate	ors. Flip-flops; counters and logic circuits. Design,			
	development and operation				
	and feedback circuits. Phas				
	Installation, care, operation	n, maintenance, supervision and inspection of			
	transformers, cables, switc	hgear and protective devices.			
	theory and calculatio	ns			
	-				

Week Days	Objectives	Activities		Teaching Methodology	Less Comp	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Monday	After this lesson the learner must be able to explain the of	Switchgear and protective devices: 'Earth leakage relay and other	Do class work and home work in exercises	Demonstration, Discussi ons,	Yes	

		differential protection				
		relays. Bucholz relay.				
		Protection of high				
		inductive circuits —				
		metrosil; discharge				
		resistance.				
Tuesday	After this lesson the	Static control:	Do class work and	Demonstration, Discussi	Yes	
rucsuuy	learner must be able	Multivibrators. Flip-	home work in	Ons,	103	
	to explain the of	flops; counters and logic	exercises			
		circuits. Design,				
		development and				
		operation of logic				
		circuits. Operational				
		amplifier characteristics				
		and feedback circuits.				
		Phase control				
Wednesday	After this lesson the	Installation, care,	Do class work and	Demonstration, Discussi	Yes	
	learner must be able	operation, maintenance,	home work in	ons,		
	to explain the of	supervision and	exercises			
		inspection of				
		transformers, cables,				
		switchgear and protective				
		devices.				
Week Days	Objectives	Activ	ities	Teaching	Less	son
<b>/</b> -	· · · · · · · · · · · · · · · · · · ·			Methodology	Comp	
		What will the lecturer	What will students do?	(Demonstrably, Discussions, Practic	Yes	No
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)		No
Thursday	After this lossen the	do?		al,etc)	Yes	No
Thursday	After this lesson the	do? REVISION Materials	Do class work and	<sup>al,etc)</sup> Demonstration,Discussi		No
Thursday	learner must be able	do? <b>REVISION</b> Materials used for the design of	Do class work and home work in	al,etc)	Yes	No
Thursday		do? <b>REVISION</b> Materials used for the design of electrical equipment, i.e.	Do class work and	<sup>al,etc)</sup> Demonstration,Discussi	Yes	No
Thursday	learner must be able	do? <b>REVISION</b> Materials used for the design of electrical equipment, i.e. copper, aluminium, etc.,	Do class work and home work in	<sup>al,etc)</sup> Demonstration,Discussi	Yes	No
Thursday	learner must be able	do? <b>REVISION</b> Materials used for the design of electrical equipment, i.e.	Do class work and home work in	<sup>al,etc)</sup> Demonstration,Discussi	Yes	No
Thursday	learner must be able	do? <b>REVISION</b> Materials used for the design of electrical equipment, i.e. copper, aluminium, etc.,	Do class work and home work in	<sup>al,etc)</sup> Demonstration,Discussi	Yes	No
Thursday	learner must be able	do? <b>REVISION</b> Materials used for the design of electrical equipment, i.e. copper, aluminium, etc., their characteristics?	Do class work and home work in	<sup>al,etc)</sup> Demonstration,Discussi	Yes	No

Friday	After this lesson the learner must be able to explain the of	REVISION	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	





# CAMPUS: \_\_\_\_CENTURION

Lecture's Name	Subject	Торіс	Date From	Date To
	ELECTRO	REVISION	6/22/2020	6/26/2020
Week	Learning	g Objective /Learning Outcome	Teaching	Length of
Number:8	To understand COMPOLES th	neory, the gen Emf, Flux, Torque in N.m, resonant circuits	<b>Resources/Aids</b>	period
	,transformer,induction motor,alternator and calculations			1hour15 min

Week Days	Objectives	Activities		Teaching Methodology	Lesson Completed	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions, Practical,etc)	Yes	No
Monday	REVISION	Name FOUR methods ofimprovingcommutation.Increasebrush contact, shiftingbrushes, interpoles,compensating windingsA 1290 kW, 540 V, six-pole DC seriesgenerator has a wave-connected winding with	Do class work and home work in exercises	Demonstration Discussions	Yes	

		260 armature conductors.Determine the number of turns per pole required for the commutating poles, assuming the compole				
		ampere turns per pole to be about 1, 3 times the armature ampere turns per pole and the brushes to be in				
		geometric neutral axis A six-pole lap-wound, 335 V shunt-excited DC machine draws an armature current of 8,				
		25 A on no-load at 1 500 rpm When loaded, it draws an armature current of 65 A from the supply and runs at 1 500				
		rpm. The resistance of the armature circuit is 0, 4 and there are 1 200 armature conductors. Calculate <b>the gen Emf</b> ,				
Tuesday	REVISION	Flux, Torque in N.m A constant voltage at a frequency of 0, 75 MHz is applied across a	Do class work and home work in exercises	Demonstration Discussions	Yes	
		circuit consisting of an inductor in series with a variable cap. When the capacitor is adjusted				

		obtained, when operating transformers in parallel. <b>Same volts</b>				
Wednesday	REVISION	State FOUR requirements that are necessary, for satisfactory performance to be	Do class work and home work in exercises	Demonstration Discussions	Yes	
		parallel circuit, Current in each				
		resonance, the impedance of the				
		Value of capacitor at				
		of 1, 5 MHz. Calculate:				
		is 50 V, with a frequency				
		supply across this circuit				
		a resistor of 8675 $\Omega$ . The				
		connected in series with				
		variable capacitor, is				
		in parallel with a				
		and a resistance of 38 $\Omega$				
		an inductance of 465 µH				
		comprising of a coil with				
		A resonant circuit				
		inductor.				
		resistance of the				
		inductance and				
		max value. <b>Find the</b>				
		current is 0,707 of its				
		reduced to 280 pF, the				
		When the capacitance is				
		to305 pF, the current has its maximum value.				

impedance, same		
polarity, same phase		
sequence, zero relative		
phase displacement		
A single-phase		
transformer with a		
supply voltage of 278 V		
has an equivalent		
resistance of $0,33\Omega$ and		
an equivalent leakage		
reactance of 0, 83 ohms		
referred to the primary		
winding. The secondary		
winding is connected to		
a coil with a resistance		
of $335\Omega$ and a reactance		
of 180 Ω. The secondary		
winding has 5 times as		
many turns as the		
primary winding.		
Calculate the secondary		
terminal voltage.		
THREE similar inductors		
each with a resistance		
of 26 $\Omega$ and an		
inductance of0,027 H,		
are delta-connected to		
a three-phase 375 V, 50		
Hz, and sinusoidal		
supply. Calculate Line		
current Power factor =		
Cos <b>0,950 lag</b>		

Week Days	Objectives	Activities		Activities		Methodology Com		son leted
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No		
Thursday	REVISION	The input to a 2635 V three- phase delta- connected induction motor is 128 kW. The pf is 0, 85 lagging.Calculate: the line and phase currents the input power readings on the TWO watt-meters the kVA rating of the motor A three-phase transmission line supplies a 1, 25 MW star-connected load with a power factor of 0,75 lagging at a line voltage of 34 kV. The line has a resistance of 86 $\Omega$ per phase and an inductive reactance of 145 $\Omega$ per phase. Calculate Voltage at the sending end the per- unit regulation the efficiency of the line	Do class work and home work in exercises	Demonstration, Discussi ons,	Yes			
Friday	REVISION	Calculate the efficiency and the output power of a three-phase 565 V induction motor,	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes			

	-
running on load with a	
fractional slip of 0,08	
and drawing a current	
of 75 A at a power	
factor of 0,8. When	
running light at 565 V,	
the motor has an input	
current of 23 A and the	
power taken is 2 175 W.	
The resistance per	
phase of the stator	
winding is 0, 7 Ω (delta-	
connected).	
A three-phase, six-pole	
star-connected	
alternator delivers 425	
V between lines on	
open circuit, running at	
a speed of 1 550 r/min.	
There are two	
conductors per slot and	
three slots per pole per	
phase. If the winding	
has a pitch factor of 0, 8	
and a distribution factor	
of 0, 96 and assuming a	
sine wave Calculate: the	
frequency turns per	
phase useful flux per	
pole	

Lecturer	Signature
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2020-05-04





### CAMPUS: \_\_\_\_CENTURION\_\_\_\_\_

Lecture's Name	Subject	Торіс	Date From	Date To
	ELECTRO	REVISION	6/29/2020	7/3/2020
Week Number:9	-	<b>bjective /Learning Outcome</b> y,the gen Emf, Flux, Torque in N.m,resonant circuits ernator and calculations	Teaching Resources/Aids textbook white board	Length of period 1hour15 min

Week Days	Objectives	Acti	Activities		Lesson Completed	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions, Practical,etc)	Yes	No
Monday	REVISION	<ul> <li>Name FOUR methods of improving commutation.Increase brush contact, shifting brushes, interpoles, compensating windings</li> <li>A 1290 kW, 540 V, six-pole DC series generator has a wave-connected winding</li> </ul>	Do class work and home work in exercises	Demonstration Discussions	Yes	

		with 260 armature conductors.Determine the				
		number of turns per pole				
		required for the				
		commutating poles,				
		assuming the compole				
		ampere turns per pole to				
		be about 1, 3 times the				
		armature ampere turns per pole and the brushes to be				
		in geometric neutral axis				
		A six-pole lap-wound, 335				
		V shunt-excited DC				
		machine draws an				
		armature current of 8, 25 A				
		on no-load at 1 500 rpm				
		When loaded, it draws an				
		armature current of 65 A				
		from the supply and runs at				
		1 500 rpm. The resistance				
		of the armature circuit is 0,				
		4 and there are 1 200				
		armature conductors.				
		Calculate the gen Emf,				
		Flux, Torque in N.m				
Tuesday	REVISION	A constant voltage at a	Do class work and	Demonstration	Yes	
Tuesday	REVISION	frequency of 0, 75 MHz is	home work in	Discussions	165	
		applied across a circuit	exercises			
		consisting of an inductor in				
		series with a variable cap.				
		When the capacitor is				
		adjusted to305 pF, the				
		current has its maximum				
		value. When the				

		capacitance is reduced to 280 pF, the current is 0,707 of its max value. Find the inductance and resistance of the inductor. A resonant circuit comprising of a coil with an inductance of 465 $\mu$ H and a resistance of 38 $\Omega$ in parallel with a variable capacitor, is connected in series with a resistor of 8675 $\Omega$ . The supply across this circuit is 50 V, with a frequency of 1, 5 MHz. Calculate: Value of capacitor at resonance, the impedance of the parallel circuit, Current in each				
Wednesday	REVISION	State FOUR requirements that are necessary, for satisfactory performance to be obtained, when operating transformers in parallel. Same volts ratio, same p.u impedance, same polarity, same phase sequence, zero relative phase displacement A single-phase transformer with a supply voltage of 278 V has an equivalent	Do class work and home work in exercises	Demonstration Discussions	Yes	

Week Days Thursday	Objectives REVISION	sinusoidal supply. Calculate Line current Power factor = Cos 0,950 lag	vities What will students do? Do class work and home work in	Teaching Methodology (Demonstrably,Discussions,Practic al,etc)         Demonstration,Discussi ons,	Less Comp Yes Yes	
		resistance of 0,33Ω and an equivalent leakage reactance of 0, 83 ohms referred to the primary winding. The secondary				

		the TWO watt-meters the kVA rating of the motor A three-phase transmission line supplies a 1, 25 MW star-connected load with a power factor of 0,75lagging at a line voltage of 34 kV. The line has a resistance of 86 $\Omega$ per phase and an inductive reactance of 145 $\Omega$ per phase. Calculate Voltage at the sending end the per-unit regulation the efficiency of the line				
Friday	REVISION	Calculate the efficiency and the output power of a three-phase 565 V induction motor, running on load with a fractional slip of 0,08 and drawing a current of 75 A at a power factor of 0,8. When running light at 565 V, the motor has an input current of 23 A and the power taken is 2 175 W. The resistance per phase of the stator winding is 0, 7 $\Omega$ (delta-connected). A three-phase, six-pole star-connected alternator delivers 425 V between lines on open circuit, running at a speed of 1 550	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	

r/min. There are two	
conductors per slot and	
three slots per pole per	
phase. If the winding has a	
pitch factor of 0, 8 and a	
distribution factor of 0, 96	
and assuming a sine wave	
Calculate: the frequency	
turns per phase useful flux	
per pole	





### CAMPUS: \_\_\_\_CENTURION\_\_\_

Lecture's Name	Subject	Торіс	Date From	Date To
	ELECTRO	REVISION	7/6/2020	7/10/2020
Week Number:10	-	<b>Objective /Learning Outcome</b> eory,the gen Emf, Flux, Torque in N.m,resonant circuits r,alternator and calculations	Teaching Resources/Aids textbook white board	Length of period 1hour15 min

Week Days	Objectives	Activities		Teaching Methodology	Lesson Completed	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions, Practical,etc)	Yes	No
Monday	REVISION	Name FOUR methods of improving commutation.Increase brush contact, shifting brushes, interpoles, compensating windings A 1290 kW, 540 V, six- pole DC series generator has a wave-connected	Do class work and home work in exercises	Demonstration Discussions	Yes	

		<ul> <li>winding with 260 <ul> <li>armature</li> <li>conductors.Determine</li> <li>the number of turns per</li> <li>pole required for the</li> <li>commutating poles,</li> <li>assuming the compole</li> <li>ampere turns per pole to</li> <li>be about 1, 3 times the</li> <li>armature ampere turns</li> <li>per pole and the brushes</li> <li>to be in geometric neutral</li> <li>axis</li> </ul> </li> <li>A six-pole lap-wound, 335</li> <li>V shunt-excited DC <ul> <li>machine draws an</li> <li>armature current of 8, 25</li> <li>A on no-load at 1 500</li> <li>rpm When loaded, it</li> <li>draws an armature</li> <li>current of 65 A from the</li> <li>supply and runs at 1 500</li> <li>rpm. The resistance of</li> <li>the armature circuit is 0,</li> <li>4 and there are 1 200</li> </ul></li></ul>				
		Calculate the gen Emf, Flux, Torque in N.m				
Tuesday	DEVISION	-	Do class work and	Domonstration	Vec	
Tuesday	REVISION	A constant voltage at a frequency of 0, 75 MHz is	Do class work and home work in	Demonstration Discussions	Yes	
		applied across a circuit	exercises			
		consisting of an inductor				
		in series with a variable				
		cap. When the capacitor				

		is adjusted to305 pF, the current has its maximum value. When the capacitance is reduced to 280 pF, the current is 0,707 of its max value. Find the inductance and resistance of the inductor. A resonant circuit comprising of a coil with an inductance of 465 $\mu$ H and a resistance of 38 $\Omega$ in parallel with a variable capacitor, is connected in series with a resistor of 8675 $\Omega$ . The supply across this circuit is 50 V, with a frequency of 1, 5 MHz. Calculate: Value of capacitor at resonance, the impedance of the				
		the impedance of the				
		parallel circuit, Current in each				
Wednesday	REVISION	eacn State FOUR requirements that are necessary, for satisfactory performance to be obtained, when operating transformers in parallel. Same volts ratio, same p.u impedance, same polarity, same phase sequence, zero relative phase	Do class work and home work in exercises	Demonstration Discussions	Yes	

displacement	
A single-phase	
transformer with a supply	
voltage of 278 V has an	
equivalent resistance of	
0,33Ω and an equivalent	
leakage reactance of 0,	
83 ohms referred to the	
primary winding. The	
secondary winding is	
connected to a coil with a	
resistance of 335Ω and a	
reactance of 180 Ω. The	
secondary winding has 5	
times as many turns as	
the primary winding.	
Calculate the secondary	
terminal voltage.	
THREE similar inductors	
each with a resistance of	
26 $\Omega$ and an inductance	
of0,027 H, are delta-	
connected to a three-	
phase 375 V, 50 Hz, and	
sinusoidal supply.	
Calculate Line current	
Power factor = Cos 0,950	
lag	

Week Days	Objectives	Activities		Teaching Methodology	Lesson Completed	
		What will the lecturer do?	What will students do?	(Demonstrably,Discussions,Practic al,etc)	Yes	No
Thursday	REVISION	The input to a 2635 V three- phase delta- connected induction motor is 128 kW. The pf is 0, 85 lagging.Calculate: the line and phase currents the input power readings on the TWO watt-meters the kVA rating of the motor A three-phase transmission line supplies a 1, 25 MW star-connected load with a power factor of 0,75 lagging at a line voltage of 34 kV. The line has a resistance of 86 $\Omega$ per phase and an inductive reactance of 145 $\Omega$ per phase. Calculate Voltage at the sending end the per- unit regulation the efficiency of the line	Do class work and home work in exercises	Demonstration, Discussi ons,	Yes	
Friday	REVISION	Calculate the efficiency and the output power of a three-phase 565 V induction motor,	Do class work and home work in exercises	Demonstration,Discussi ons,	Yes	

running on load with a
fractional slip of 0,08
and drawing a current
of 75 A at a power
factor of 0,8. When
running light at 565 V,
the motor has an input
current of 23 A and the
power taken is 2 175 W.
The resistance per
phase of the stator
winding is 0, 7 Ω (delta-
connected).
A three-phase, six-pole
star-connected
alternator delivers 425
V between lines on
open circuit, running at
a speed of 1 550 r/min.
There are two
conductors per slot and
three slots per pole per
phase. If the winding
has a pitch factor of 0, 8
and a distribution factor
of 0, 96 and assuming a
sine wave Calculate: the
frequency turns per
phase useful flux per
pole

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