## PROGRAMME ELECTIVE COURSE VERTICALS FOR HONOURS / MINOR DEGREE

## VERTICAL II : POWER CONVERTERS AND DRIVES

22EEHO201 ANALYSIS OF ELECTRICAL MACHINES							SEME	MESTER			
PREREQUISITES						CATEGORY	PEC	Credit		3	
						Hours (Week L T P					
DC	C Machines , Synchronous and Induction Machines Hours/Week 2								2	4	
Co	urse Obj	ectives:									
1.	To mod	el & simulate all ty	pes of DC ma	achines							
2.		elop reference frame			lements like R.	L and C					
3.		el an induction (thr									
4.		e reference frame e									
5.		y the need and world									
UN	IT I	MODELING O					6	0	6	1	
Fu	ndamenta	als of Operation -	Introduction -	– Governir	ng equations ar	d modeling of Bru	ished DC	-Mot	or - S	Shur	
		Compound – State 1	nodel derivat	tion – Cons	struction of Mo	del of a DC Mach	ine using	state	equa	tion	
	,	s and Compound.									
	IT II	<b>REFERENCE F</b>					6	0	6	12	
		ackground - phase		on and com	mutator transf	ormation – transfo	rmation o	of vari	iables	fro	
stat		arbitrary reference	frame .								
UN	IT III	INDUCTION M.	ACHINES				6	0	6		
UN		<b>INDUCTION M</b> induction machine	ACHINES	circuit– fre	e acceleration of	haracteristics – vol	-		-		
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Test E	Books:
1.	Stephen D. Umans, "Fitzgerald & Kingsley's Electric Machinery", Tata McGraw Hill, 7th Edition, 2020.
2.	Bogdan M. Wilamowski, J. David Irwin, The Industrial Electronics Handbook, Second Edition, Power Electronics and Motor Drives, CRC Press, 2011, 1st Edition.
3.	Paul C. Krause, Oleg Wasynczuk, Scott D. Sudhoff, Steven D. Pekarek, "Analysis of Electric Machinery and Drive Systems", 3rd Edition, Wiley-IEEE Press, 2013
4.	Chee Mun Ong, Dynamic Simulation of Electric Machinery using MATLAB, Prentice Hall, 1997, 1st Edition
5.	Atif Iqbal,Shaikh Moinoddin, Bhimireddy Prathap Reddy, Electrical Machine Fundamentals with Numerical Simulation using MATLAB/SIMULINK, Wiley,2021,1st Edition

Refe	erence Books
1.	R. Krishnan, Electric Motor & Drives: Modeling, Analysis and Control, Pearson Education, 1st Imprint, 2015, 1st Edition.
2.	R.Ramanujam, Modeling and Analysis of Electrical Machines, I.k.International Publishing House Pvt.Ltd,2018.

Course O	Bloom's Taxonomy		
Upon con	ıple	tion of this course, the students will be able to:	Mapped
CO1	:	Find the modeling for a brushed DC-Motor (Shunt, Series, Compound and separately excised motor) and to simulate DC motors using state models	L1: Remembering
CO2	:	Apply reference frame theory for, resistive and reactive elements (three phase)	L2: Understanding
CO3	:	Compute the equivalent circuit and torque of three phase induction motor and synchronous motor in machine variable arbitrary reference frame variable	L5: Evaluating
CO4	:	Demonstrate the working of multiphase induction and synchronous machine.	L3: Applying
CO5	:	Compute the model of three phase and multiphase induction and synchronous machine.	L6: Creating

COs/ Pos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	РО 7	PO 8	PO 9	PO 10	РО 11	PSO1	PSO2	PSO3
CO1	3	3	3	3	3		2	1		3		3	3	3
CO2	3	3	3	3	3		2	1		3		3	3	3
CO3	3	3	3	3	3		2	1		3		3	3	3
CO4	3				3		2	1		3		3	3	3
CO5	3				3		2	1		3		3	3	3
Avg	3	3	3	3	3	0	2	1	0	3	0	3	3	3