

BOS Date: 7<sup>th</sup> June 2023

 <p style="text-align: center;"><b>SAMRAT ASHOK TECHNOLOGICAL INSTITUTE VIDISHA (M.P.)</b> (A Govt. Aided UGC Autonomous &amp; NAAC Accredited Institute Affiliated to RGPV Bhopal)</p> <p style="text-align: center;"><b>Scheme of Examination (Semester-IV) Bachelor of Technology (B. Tech.) – Electrical Engg.</b></p> <p style="text-align: center;"><b>for Batch Admitted in session - 2022-23</b></p>														
Subject Code	Subject Category	Subject Name	Maximum Marks Allotted								Contact Hrs.			Total Credits
			Theory				Practical			Total Marks	L	T	P	
			ES	MS	Assignment	Quiz	ES	LW	Quiz					
MAB-401	BSC	Mathematics- Numerical Methods & Complex variable	60	20	10	10	-	-	-	100	3	1	0	4
EE-402	DC	Electro Mechanical Energy Conversion. -II	60	20	10	10	30	10	10	150	3	0	2	4
EE-403	DC	Digital Electronics	60	20	10	10	30	10	10	150	3	0	2	4
EE-404	DC	Power system –I (Generation + Transmission)	60	20	10	10	30	10	10	150	3	0	2	4
<b>OE-405</b>	<b>OE</b>	OE-II	60	20	10	10	-	-	-	100	3	0	0	3
EE-406	DL	MATLAB Programming	-	-	-	-	60	20	20	100	-	-	4	2
<b>Total</b>			<b>300</b>	<b>100</b>	<b>50</b>	<b>50</b>	<b>150</b>	<b>50</b>	<b>50</b>	<b>750</b>	<b>15</b>	<b>1</b>	<b>5</b>	<b>21</b>
	ILC	Extracurricular Activities	Based on participation in extra curriculum activities , one credit per year to be endorsed in eight semester mark sheet.											
HUM -408	HEC*	<b>Holistic Course</b>	-	20	20	10	-	-	-	-	-	-	-	Grade
EEVA256	VAO	Artificial Intelligence	Respective faculty to develop his/ her own rubrics for evaluation.											Grade
MS: Minimum two mid semester tests to be conducted during Semester, (L – Lecture, T- Tutorial, P-practical) HEC* - Holistic education classes will be conducted in off hours (weekends)														

**Open Elective (OE - 405): (1) Artificial Intelligence (2) Application of AC/DC machine.**

**Abbreviations:** ES -End Semester, MS- Mid Semester, LW- Laboratory Work/Assignment. (L: Lecture, T: Tutorial, P:Practical), BSC- Basic Science Course, ESC- Engineering Science Course, HSMC- Humanities Science and Management Course, MAC- Mandatory, Audit Course, AC- Audit Course, HEC- Holistic Education Courses: NSS/NCC/NSO, ITC- Information Technology Course, ILC-Institute Level Course, DC- Department Course, DE-Department Elective, OC- Open Course, DLC- Department Laboratory, PROJ- Project Work, VA-Value Added Course.

Signature of BoS members:



 <b>SAMRAT ASHOK TECHNOLOGICAL INSTITUTE</b> (Engineering College), VIDISHA M.P. (An Autonomous Institute Affiliated to RGPV Bhopal) <b>Department of Electrical Engineering</b>										
Semester/Year		IV /II	Program			B.Tech				
Subject Category		DC	Subject Code:	EE-402	Subject Name:	Electro Mechanical Energy Conversion. – II				
Maximum Marks Allotted							Contact Hours			Total Credits
Theory			Practical			Total Marks	L	T	P	
ES	MS	Quiz	ES	LW	Quiz					L
60	20	20	30	20		150	3	-	2	4
<b>Prerequisites:</b>										
Knowledge of AC & DC Machines and fundamentals of AC & DC Circuits.										
<b>Course Objective:</b>										
1. To explain basic principle and operation of a synchronous motor. 2. Analysis of electrical machines using generalized theory. 3. Constructional features, operating principle, characteristics and applications of special induction machine										
<b>Course Outcomes:</b>										
At the end of this course, students will demonstrate the ability to:										
CO1. Analyze the constructional features of polyphase synchronous machines and explain their operating principles, excitation systems. Derive the EMF equation, equivalent circuit model, and phasor diagram for cylindrical rotor and salient pole of synchronous machines and apply the two-reaction theory of salient pole synchronous machines.										
CO2. Understand the voltage regulation and V-curves and inverted V-curves, analyze synchronizing methods for synchronous alternator, starting methods synchronous motors.										
CO3. Understand the parameters of synchronous machines, analyze 3-phase short circuit oscillograms and perform slip tests and measure positive, negative, and zero sequence reactances.										
CO4. Understand the basics and principles for the development of a generalized approach, apply the concepts of speed, transformer voltage, electrical torque, Kron's Primitive machine model, Park's and inverse Park's transformations for analyzing electrical machines.										
CO5. Analyze the constructional features and operating principles of induction generators, synchronous induction motors, LIM, and eddy current slip coupling.										
Units	Descriptions						Hrs.	CO's		
I	Polyphase Synchronous Machines: Constructional features. Excitation systems, emf equation, equivalent circuit model and phasor diagram for cylindrical rotor machine, Salient pole machines: Two reaction theory, Power angle equations and characteristics.						8	CO1		
II	Methods of voltage regulation, Synchronizing methods, Starting methods of synchronous motor, V-curves, inverted v-curve, synchronous condenser, damper winding and hunting effects.						8	CO2		
III	Parameters of synchronous machines, Analysis of 3- $\phi$ , short circuit oscillogram, slip test, measuring method of positive, negative and zero sequence reactances.						8	CO3		

Signature of BoS members:

