GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Course Title: AC Machines Lab

Following documents are available in Course File.

S.No.	Points	Yes	No
1	Institute and Department Vision and Mission Statements	√	
2	PEO & PO Mapping	√	
3	Academic Calendar	√	
4	Subject Allocation Sheet	√	
5	Class Time Table, Individual Timetable (Single Sheet)	√	
6	Syllabus Copy	√	
7	Course Handout	√	
8	CO-PO Mapping	√	
10	Lecture Notes		NA
11	Tutorial Sheets With Solution		NA
12	Soft Copy of Notes/Ppt/Slides		NA
13	Sessional Question Paper and Scheme of Evaluation		NA
14	Best, Average and eak Answer Scripts for Each Sessional Exam. (Photocopies)	√	
15	Assignment Questions and Solutions		NA
16	Previous University Question Papers		NA
17	Result Analysis	√	
18	Feedback From Students	√	
19	Course Exit Survey	√	
20	CO Attainment for All Mids.	√	
21	Remedial Action.		NA

Course Instructor / Course Coordinator   **Course Instructor / Course Coordinator**

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Vision of the Institute

To be among the best of the institutions for engineers and technologists with attitudes, skills and knowledge and to become an epicenter of creative solutions.

Mission of the Institute

To achieve and impart quality education with an emphasis on practical skills and social relevance.

Vision of the Department

To impart technical knowledge and skills required to succeed in life, career and help society to achieve self sufficiency.

Mission of the Department

- To become an internationally leading department for higher learning.
- To build upon the culture and values of universal science and contemporary education.
- To be a center of research and education generating knowledge and technologies which lay groundwork in shaping the future in the fields of electrical and electronics engineering.
- To develop partnership with industrial, R&D and government agencies and actively participate in conferences, technical and community activities.

Department of Electrical & Electronics Engineering

Programme Educational Objectives (B.Tech. – EEE)

This Programme is meant to prepare our students to professionally thrive and to lead.
During their progression:

Graduates will be able to

PEO 1: Have a successful technical or professional careers, including supportive and leadership roles on multidisciplinary teams.

PEO 2: Acquire, use and develop skills as required for effective professional practices.

PEO 3: Able to attain holistic education that is an essential prerequisite for being a responsible member of society.

PEO 4: Engage in life-long learning, to remain abreast in their profession and be leaders in our technologically vibrant society.

Programme Outcomes (B.Tech. – EEE)

At the end of the Programme, a graduate will have the ability to

PO-1: Ability to apply knowledge of mathematics, science, and engineering.

PO-2: Ability to identify, formulate, analyze engineering problems using engineering sciences.

PO-3: Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety.

PO-4: Ability to design and conduct experiments, as well as to analyze and interpret data with valid conclusions.

PO-5: Ability to utilize experimental, statistical and computational methods and tools necessary for modelling engineering activities.

PO-6: Ability to apply reasoning informed by the relative knowledge to evaluate societal, health, safety, legal and cultural issues and tasks applicable to the professional engineering practice.

PO-7: Ability to adapt broad education necessary to understand the impact of engineering solutions and obtain sustainability in a global, economic, environmental, and societal context.

PO-8: Ability to discover ethical principles and bind to professional and ethical responsibility.

PO-9: Ability to function as an individual and in multi-disciplinary teams.

PO-10: Ability to communicate effectively on complex activities in engineering community and society.

PO-11: Ability to develop Project management principles and apply in various disciplinary environments.

PO-12: Recognition of the need for, and an ability to engage in life-long learning.

Program Specific Outcomes(PSOs):

PSO-1: Graduates will interpret data and able to analyze digital and analog systems related to electrical and programming them.

PSO-2: Graduates will able to demonstrate, design and model electrical, electronic circuits, power electronics, power systems and electrical machines.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

Academic Year 2022-23

II B.Tech. – First Semester

S. No.	EVENT	PERIOD	DURATION
1	Commencement of First Semester class work	10-10-2022	
2	I Spell of Instructions	10-10-2022 to 07-12-2022	9 Weeks
3	I Mid-term Examinations	08-12-2022 to 12-12-2022	3 Days
4	II Spell of Instructions	13-12-2022 to 07-02-2023	8 Weeks
5	II Mid-term Examinations	08-02-2023 to 10-02-2023	3 Days
6	Preparation/Break	11-02-2023 to 17-02-2023	1 Week
7	End Semester Examinations (Theory/ Practical) Regular/ Supplementary	20-02-2023 to 11-03-2023	3 Weeks
8	Commencement of Second Semester, AY 2022-23	13-03-2023	

II B.Tech. – Second Semester

S. No.	EVENT	PERIOD	DURATION
1	Commencement of II Semester class work	13-03-2023	
2	I Spell of Instructions	13-03-2023 to 29-04-2023	7 Weeks
3	Summer Vacation	01-05-2023 to 13-05-2023	2 Weeks
4	I Spell of Instructions Contd	15-05-2023 to 27-05-2023	2 Weeks
5	I Mid-term Examinations	29-05-2023 to 31-05-2023	3 Days
6	II Spell of Instructions	01-06-2023 to 31-07-2023	8 Weeks
7	II Mid-term Examinations	01-08-2023 to 03-08-2023	3 Days
8	Preparation	04-08-2023 to 10-08-2023	1 Week
9	End Semester Examinations (Theory/ Practical) Regular / Supplementary	11-08-2023 to 31-08-2023	3 Weeks
10	Commencement of III B.Tech First Semester, AY 2023-24	01-09-2023	

Dean Academic Affairs

Copy to Principal, All HoDs, CoE

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

2022 -23 I sem Subject allocation sheet		
II YEAR(GR20)	**Section-A**	
Electrical Circuit Analysis	G Sandhya Rani	
Principles of Analog Electronics	P Ravikanth	
DC Machines and Transformers	Dr Phaneedra Babu B	
Electromagnetic Fields	Dr T Suresh Kumar	
Power Generation and Transmission	V Vijaya Rama Raju	
Java Programming for Engine	CSE Dept. Staff	
Constitution of India	D Karuna Kumar	
Value Ethics and Gender Culture	M Prashanth	
Principles of Analog Electronics Lab	U Vijaya Lakshmi/ M Prashanth	
DC Machines and Transformers Lab	V Vijaya Rama Raju / M Rekha	
III YEAR (GR20)	**Section-A**	
Power System Analysis	Dr J Sridevi	
Power Electronics	Dr Pakkiraiah B	
Microproces sors and Microcontrol lers	Dr D Raveedhra	
Electrical and Hybrid Vehicles (PE-1)	Dr D G Padhan	
Cloud Computing (NPTEL)	P Ravikanth	
Power Systems Lab	Dr J Sridevi / V Usha Rani/ U Vijaya Lakshmi	
Power Electronics Lab	Dr Pakkiraiah B/ G Sandhya Rani	
Microproces sors and Microcontrol lers Lab	Dr P Srividya Devi/ M N Sandhya Rani	
IV YEAR(GR18)	**Section-A**	**Section-B**
Power Systems – III	Dr P Srividya Devi	P Prashanth Kumar
Electronics Design	Dr D S N M Rao	Dr D S N M Rao
Electrical and Hybrid Vehicles (PE-III)	D Srinivasa Rao	D Srinivasa Rao
High Voltage Engineering (PE-IV)	A Vinay Kumar	A Vinay Kumar
Robotics	Anitha (Mech)	
Database Management Systems	D Swathi (CSE)	
Electronics Design Lab	P Ravikanth /Dr DSNM Rao	D Karuna Kumar/ V Usha Rani
Project work - (PhaseI)	A Vinay Kumar/ D Srinivasa Rao	M N Sandhya Rani / G Sandhya Rani
I/I BEE(GR20)	**Theory**	**LAB**
EEE (1) BEE	R Anil Kumar/ P Praveen Kumar / P Prashanth Kumar/ K Sudha	
ECE (3) BEE		
IT (3) BEE		
CSBS (1) PEE		
Design Thinking	Dr D G Padhan	
Mech II/I (GR20)	**A**	
BEEE	M N Sandhya Rani	

Department of Electrical & Electronics Engineering

B.Tech - EEE   II Year - I Semester

Day/Hour	9:00 - 9:50	9:50 - 10:40	10:40 - 11:30	11:30-12:00	12:00-12:45	12:45 - 1:30	1:30 - 2:15	2:15 - 3:00	Room No.	
MONDAY									Theory	4401
TUESDAY					ACM Lab(A1)				Lab	**2106/07**
WEDNESDAY				BREAK						
THURSDAY					ACM Lab(A2)				Class Incharge:	D Karuna Kumar
FRIDAY										
SATURDAY										

Department of Electrical & Electronics Engineering

Syllabus – AC Machines
LabCourse Code: GR20A2036
B.Tech II Year II Sem

List of Experiments:

Task 1: Brake test on slip ring induction motor.

Task 2: No-load and block rotor tests on squirrel cage induction motor.

Task 3: Equivalent circuit of single phase induction motor.

Task 4: Regulation of alternator by synchronous impedance method and MMF method

Task 5: Determination of Xd and Xq of a salient pole synchronous machine from slip test.

Task 6: V and inverted V curves of a 3-phase synchronous motor.

Task 7: Induction generator

Task 8: Determination of sub –transient reactances of Salient pole Synchronous Machine

Task 9: Determination of sequence impedances of Salient pole Synchronous Machine

Task 10: Rotor Resistance starter for Slip ring Induction Motor

Task 11: Star-Delta starter for Slip Ring Induction Motor

Task 12: Parallel operation of Alternators

Task 13: Regulation of Alternator by ZPF method.

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GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

COURSE OBJECTIVES

Academic Year   : 2022-23

Semester   : II

Name of the Program: EEE   B.Tech ..II/II

Course/Subject: ACM Lab   Code: … **GR20A2036**

Name of the Faculty: Dr V Vijaya Ramaraju, M.Rekha   Dept: …………..EEE…………
Designation: Professor, Assistant Professor

On completion of this Subject/Course the student shall be able to:

S.No	Course Objectives
1.	Demonstrate various parts of three phase induction motor
2.	Demonstrate various parts of single phase induction motor
3.	Demonstrate various parts of alternators.
4.	Test for induction generator.
5.	Design any electrical machine.

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

COURSE OUTCOMES

Academic Year   : 2022-23

Semester   : II

Name of the Program   :EEE   B.Tech ..II/II

Course/Subject: ACM Lab   Code: … **GR20A2036**

Name of the Faculty: Dr V Vijaya Ramaraju, M.Rekha   Dept: …………..EEE…………
Designation: Professor, Assistant Professor

The expected outcomes of the Course/Subject are:

S.No	Course Outcomes
1.	Explain the concepts of rotating magnetic fields
2.	Solve the parameters of equivalent circuit of single phase induction motor.
3.	Analyze performance characteristics of AC machines.
4.	Apply various characteristics of three phase induction motor.
5.	Experiment with synchronous Machine to find Direct and Quadrature axis reactance.

Department of Electrical & Electronics Engineering

GUIDELINES TO STUDY THE COURSE / SUBJECT

Academic Year   : 2022-23

Semester   : II

Name of the Program   :EEE   B.Tech ..II/II

Course/Subject: ACM Lab   Code: … **GR20A2036**

Name of the Faculty: Dr V Vijaya Ramaraju, M.Rekha   Dept: …………..EEE…………
Designation: Professor, Assistant Professor

Guidelines to study the Course/ Subject: ACM Lab

CourseDesignandDeliverySystem(CDD):

- The Course syllabus is written into number of learning objectives and outcomes.

- These learning objectives and outcomes will be achieved through lectures, Assessments, assignments, experiments in the laboratory, Projects, seminars, presentations, etc.

- Every student will be given an assessment plan, criteria for assessment, scheme of evaluation and grading method.

- The Learning Process will be carried out through assessments of Knowledge, Skills and Attitude by various methods and the students will be given guidance to refer to the text books, reference books, journals, etc.

The faculty be able to –

Understand the principles of Learning

Understand the psychology of students

Develop instructional objectives for a given topic

GOKARAJU RANGARAJU
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Department of Electrical & Electronics Engineering

Prepare course, unit and lesson plans

Understand different methods of teaching and learning

Use appropriate teaching and learning aids

Plan and deliver lectures effectively Provide feedback to students using various methods of Assessments and tools of Evaluation

Act as a guide, adviser, counselor, facilitator, and motivator and not just as a teacher alone

Department of Electrical & Electronics Engineering

COURSE SCHEDULE

Academic Year   : 2022-23

Semester   : II

Name of the Program   :EEE   B.Tech ..II/II

Course/Subject: ACM Lab   Code: … **GR20A2036**

Name of the Faculty: Dr V Vijaya Ramaraju, M.Rekha   Dept: …………..EEE…………
Designation: Professor, Assistant Professor

 The Schedule for the whole Course / Subject is:

Exp. No.	Description	Duration(Date)	Total No. of Periods
1.	Brake test on slip ring induction motor.	A1:23/3/23 A2:27/3/23	3
2.	No-load and block rotor tests on squirrel cage induction motor.	A1:3/4/23 A2: 6/4/23	3
3.	Equivalent circuit of single phase induction motor.	A1: 10/4/23 A2: 13/4/23	3
4.	Regulation of alternator by synchronous impedance method and MMF method.	A1: 17/4/23 A2: 20/4/23	3
5.	Determination of Xd and Xq of a salient pole synchronous machine from slip test..	A1: 24/4/23 A2: 27/4/23	3
6.	V and inverted V curves of a 3-phase synchronous motor.	A1:15/5/23 A2:18/5/23	3
7	Induction generator.	A1:22/5/23 A2:25/5/23	3
8.	Determination of sub –transient reactances of Salient pole Synchronous Machine.	A1:1/6/23 A2:5/6/23	3
9.	Determination of sequence impedances of Salient pole Synchronous Machine.	A1:8/6/23 A2:12/6/23	3
10	Determination of sequence impedances Salient pole Synchronous machine	A1:15/6/23 A2:19/6/23	3
11.	Star-Delta starter for Slip Ring Induction Motor	A1:22/6/23 A2:26/6/23	3

Total No. of Instructional periods available for the course ....Hours / Periods

GOKARAJU RANGARAJU
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Electrical & Electronics Engineering

CO-PO MAPPING

PO's CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	M			H		M	H	M	M		H	H	M	
CO2		M			H	H	H		H	H	M			M
CO3		H	M			M		H	H		H	M		M
CO4	H			H	M	M	M		H	H	H		M	
CO5	M	M	M	H			H	H				H		M

Assessment methods:

1. Operation Skill and familiarization of Software.
2. Experimental Procedure, Simulation Results, Internal Observation, Lab Record.
3. Internal Examinations.
4. External Examinations.
5. Viva-Voce.

Department of Electrical & Electronics Engineering

ACM LAB RUBRIC

OBJECTIVE: Demonstrate various parts of single phase induction motor

STUDENT OUTCOME: Analyze performance characteristics of AC machines.

S.No.	Student Name	Performance Criteria	Unsatisfactory	Developing	Satisfactory	Exemplary	Score
			1	2	3	4	
1.		**Research & Gather Information**	Does not collect any information that relates to the topic.	Collects very little information--some relates to the topic	Collects some basic information--most relates to the topic.	Collects a great deal Of information--all relates To the topic.	3
		Fulfill team role's duty	Does not perform any Duties of assigned team role.	Performs very little duties.	Performs nearly all duties.	Performs all duties of Assigned team role.	3
		Share Equally	Always relies on others to do the work.	Rarely does the assigned work--often needs reminding.	Usually does the assigned work--rarely needs reminding.	Always does the Assigned Work Without having to Be reminded.	3
		Listen to other team Mates	Is always talking--never allows anyone else to speak.	Usually doing most of the talking--rarely allows others to speak.	Listens, but sometimes talks too much.	Listens and speaks a Fair amount.	4

			Department of Electrical & Electronics Engineering			Average score	3.5
2.			**Research & Gather Information**	Does not collect any information that relates to the topic.	Collects very little information--some relates to the topic	Collects some basic information--most relates to the topic.	Collects a great deal of information--all relates to the topic.	3
			Fulfill team role's duty	Does not perform any duties of assigned team role.	Performs very little duties.	Performs nearly all duties.	Performs all duties of assigned team role.	3
			Share Equally	Always relies on others to do the work.	Rarely does the assigned work--often needs reminding.	Usually does the assigned work--rarely needs reminding.	Always does the assigned work without having to be reminded.	4
			Listen to other team mates	Is always talking--never allows anyone else to speak.	Usually doing most of the talking--rarely allows others to speak.	Listens, but sometimes talks too much.	Listens and speaks a fair amount.	3
							Average score	4
3			**Research & Gather**	Does not	Collects	Collects some	Collects a great deal	3

Department of Electrical & Electronics Engineering

EVALUATION STRATEGY

Academic Year   **: 2022-23**

Semester   **: II**

Name of the Program: B.Tech   **Year: II**

Course/Subject: AC Machines Lab   **Course Code: GR20A2036**
Name of the Faculty: V Vijaya Rama Raju (Assoc.Prof),
                 M.Rekha(Asst.Prof)   **Dept.: EEE.**

.
1. TARGET:

 A) Percentage for pass: **100%**

2. COURSE PLAN & CONTENT DELIVERY

(Please write how you intend to cover the contents: i.e., coverage of Units/Lessons by lectures, design, exercises, solving numerical problems, demonstration of models, model preparation, experiments in the Lab., or by assignments, etc.)

3. METHOD OF EVALUATION

 3.1 ☐ Daily Attendance

 3.2 ☐ Lab Record and Observation

 3.3 ☐ Projects

 3.4 ☐ Viva Voce

 3.5 ☐ Internal Examination

Department of Electrical & Electronics Engineering

RESULT ANALYSIS

Gokaraju Rangaraju Institute of Engineering & Technology

II B.Tech II SEM (EEE) Result Analysis   AcademicYear: 2022-23   Total No. of Students Registered:69

Course	Total No. of Students appeared	Total No. of Students Passed	No. of Students Failed	Count of Students with Grade Point					
				GP (10)	GP (9)	GP (8)	GP (7)	GP (6)	GP (5)
ES	69	67	02	00	08	27	20	12	00
P&S	69	43	26	00	00	01	09	09	24
DBE	69	66	03	01	09	16	23	11	06
PDE	69	59	10	01	01	14	25	16	02
ACM	69	54	15	00	00	07	18	19	10
CS	69	53	16	01	03	17	20	10	02
PDP	69	64	05	00	025	11	30	15	06
PDE Lab	69	66	03	12	16	15	09	10	04
ACM Lab	69	62	07	06	11	07	11	10	17
CS Lab	69	67	02	17	28	09	06	07	00

Arrears Position – II year / II Semester

00No.of students	All Pass	One Arrear	Two Arrears	Three Arrears	More than three arrears	Overall % of pass
69	41	09	04	06	09	59%

Performance overall Class Three Toppers

ROLL NO.	NAME	SGPA
21241A0245	PALLETI SRI PADMA LATHA REDDY	8.80
21241A0257 22245A0205	SIRIPURAM MANISREE K SUPRIYA	8.45
21241A0259	SRIYA KANURI	8.30

Department of Electrical & Electronics Engineering

II B.Tech - II Sem (EEE)

SECTION	Courses	Environmental Science	Probability and Statistics	Database for Engineers	Principles of Digital Electronics	AC Machines	Control Systems	Power Distribution and Protection	Principles of Digital Electronics Lab	AC Machines Lab	Control Systems Lab
	Course codes	GR20A2001	GR20A2005	GR20A2006	GR20A2027	GR20A2031	GR20A2032	GR20A2034	GR20A2035	GR20A2036	GR20A2037
	TOTAL	69	69	69	69	69	69	69	69	69	69
	PASS	67	43	66	59	54	53	64	66	62	67
	PASS(%)	97.10	62.31	95.65	85.50	78.26	76.81	92.75	95.65	89.85	.10
	FACULTY NAME	D Manasa	Dr V N Rama Devi	G. Sathish	Dr. T. Suresh Kumar	Dr B PhaneedraBabu B /G. Sandhya Rani	V. Usha Rani	Dr. V. Vijayarama Raju	R. Anil Kumar M. N. Sandhya Rani	Dr. V. Vijayarama Raju M. Rekha	D. Karuna Kumar/V. Usha Rani
	FACULTY ID	1767	654	1665	1494	1563/888	1045	361	657/882	361/933	760/1045

No.

H.T. No.	2	1	2	4	1	A	0	2	2	8

68996

Name of the Examination IInd B.Tech IInd semester Lab internal Exam.

Course AC Machines Lab   Branch   EEE   Date 31-07-23

Signature of the Invigilator

⑨

6. Draw the V and inverted V- curves of a synchronous motor.

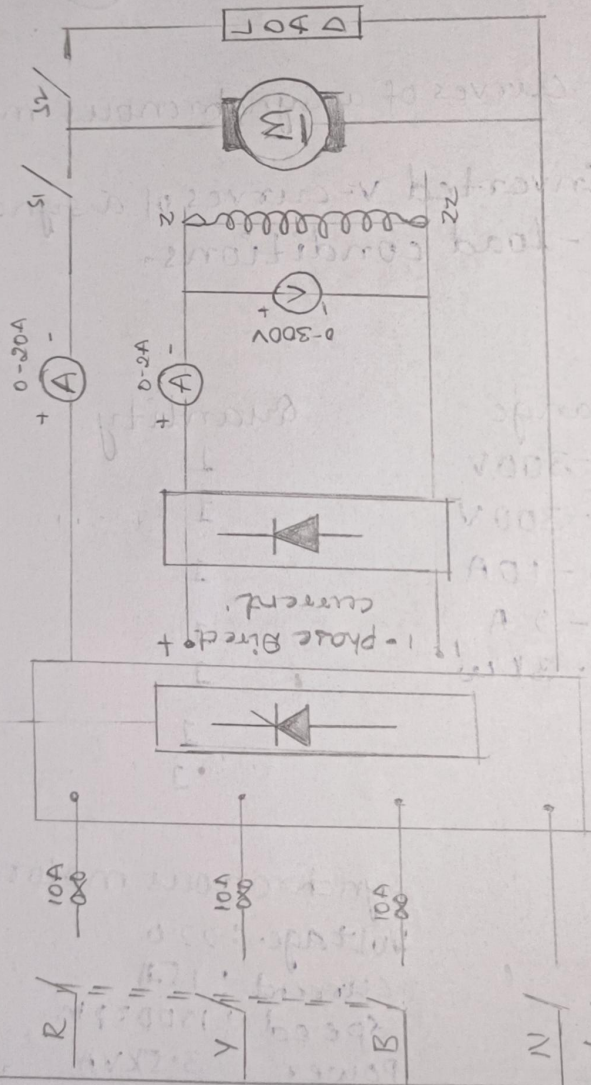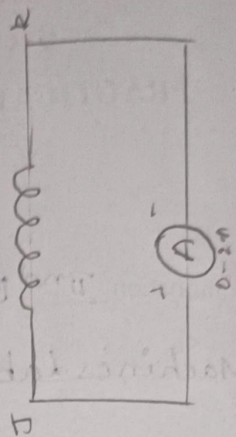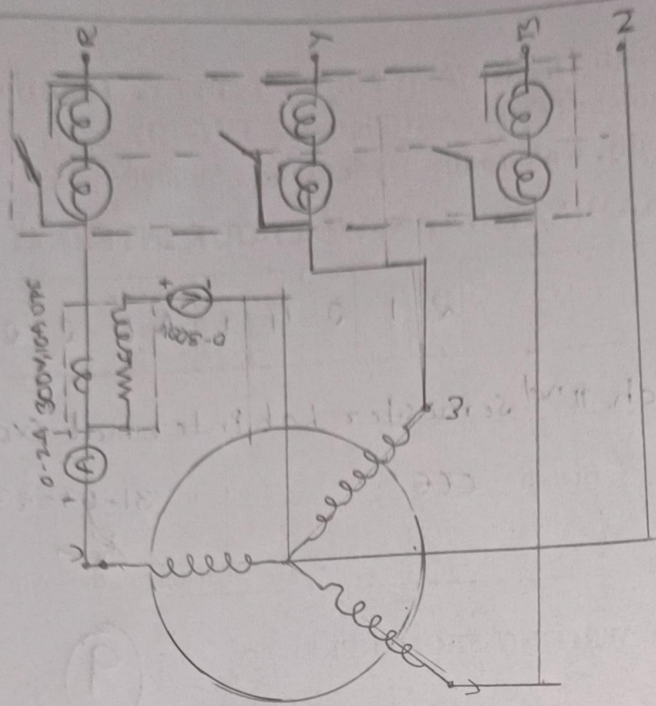Aim: To draw the V and inverted v-curves of a synchronous motor at load and no - load conditions.

Apparatus:

Name	Range	Quantity.
Voltmeter DC	0-300V	1
Voltmeter AC	0-300 V	1
Ammeter DC	0-10A	1
Ammeter DC	0-2A	1
Wattmeter	0-3kw	1
Frequency board		1
Phase sequence board,		1

Name plate details:

DC Motor
Voltage: 220V
Current: 19A
speed : 1500rpm.

Synchronous motor.
Voltage : 220
Current : 15A
Speed : 1500rpm
Power : 3.5KVA

Synchronizing switch

R

Y

B

N

0-2A 300V/0-10V exc

0-5A

0-2A

F

0-2A
Ⓐ 0-2A
L

D 70L

M

0-300V

0-20A

0-2A

1-phase Bridge rectifier current

R

Y

B

N

10A

10A

10A

3-phase supply, 415V 50Hz

Procedure:

1. Connect the circuit as shown in the circuit diagram.

2. Switch ON S_1 switch.

3. Keep the DC fine and coarse potentiometers and synchronous machine auto transformer at zero position.

4. Now switch on the power supply and with DC potentiometer apply rated speed and check phase voltage, frequency and phase sequence across the synchronizing switch.

5. Now with the synchronous auto transformer (increase the excitation of synchronous machine) and check the phase voltage at AP.S.E.B supply board and synchronous machine across the synchronizing switch.

6. Now check the frequency and sequence of synchronous machine

7. Now check weather the bulb is glowing dark or light if it is light increase the speed of DC motor.

8. Now the bulb glows dark.

9. Now switch on the synchronous motor

10. Now the for power supply synchronous machine is parallel. If we remove power supply it starts acting as synchronous motor.

11. Now switch OFF S_1 switch (DC motor supply is OFF)

12. Gradaully decrease the excitation of motor and note down the value of I_f, I_a, w, V.

13. Gradually increase the excitation of motor and note down the values of I_f, I_a, w, V.

14. Keep in mind that it should not exceed rated current
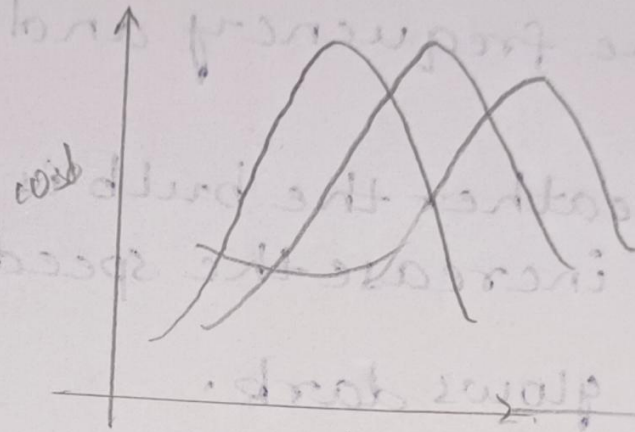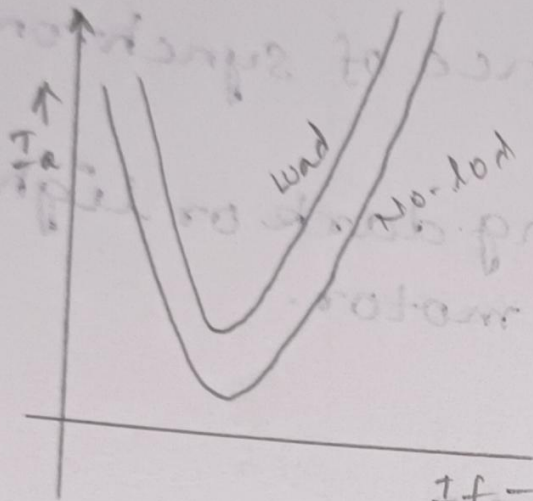
Formula used:

$$P = \sqrt{3}\, V_a I_a \cos\phi$$

$$\cos\phi = \dfrac{P}{\sqrt{3}\, V_a I_a}$$

* Switch off the supply and put dc potentiometers and auto-transformer at zero position

Result: The V and A curves of the synchronous motor has been drawn.

Gokaraju Rangaraju Institute of Engineering & Technology
(Autonomous College Affiliated to JNTUH)   (8 Pages)
Bachupally, Kukatpally, Hyderabad - 500090

PRACTICAL EXAMINATION ANSWER BOOK INTERNAL

No.
68971

H.T. No.	2	1	2	4	1	A	0	2	4	6

Name of the Examination __II Btech, II Sem   Lab internals Examination__

Course __ACM LAB__   Branch __EEE__   Date __31/07/2023__

Signature of the Invigilator

START WRITING FROM HERE

8. Determine the sub transient reactance ~~sequence impendance~~ of salient pole Sychronous machine by conducting ⑥ Suitable test on it.

Objective: To determine the sub transient reactane pole Sychronaus machine.

Apparatus:

1. 0-300 DC voltmeter
2. 0-200 ac voltmeter
3. 0-100 dc voltmetr
4. Tachonometr - 0-2000 rpm

4. 0-20A dc ammeter
5. 0-2A ac ammeter
6. 0-10A ac ammeter.
8. 1 phase Sychronous machine.
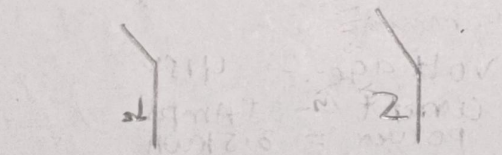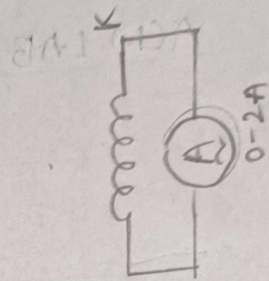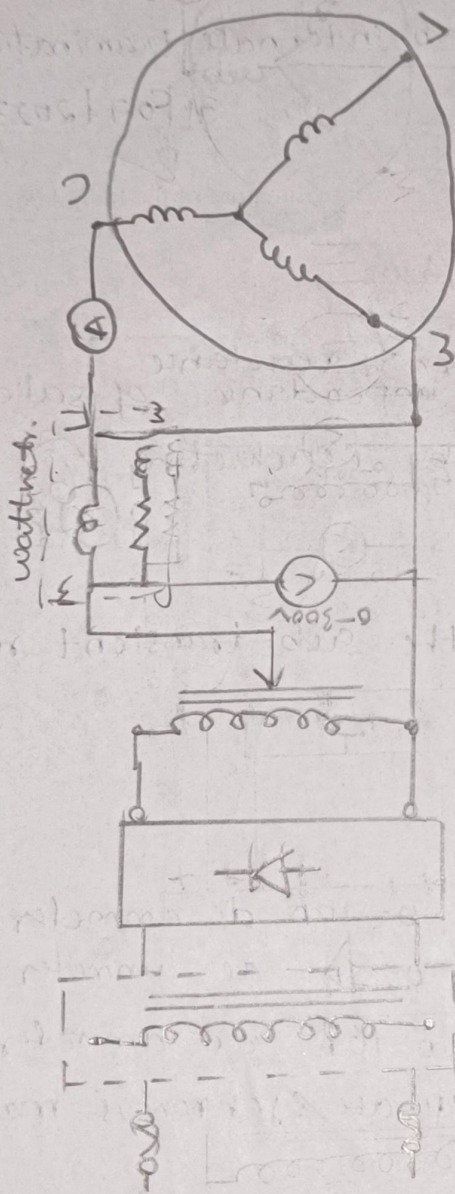
Name Plate Details:
DC motor
voltage - 220
current - 10 Amps
speed - 1500 rpm.
power - 3.5 KWA

Sychrones
voltage - 415V
current - 5 Amps
power = 3.5 KWA
i) Sub-stator transitht.

Objective: To determine the positive, negative and zero sequence impedance of 3 phase Synchronous Machine.

Determine the positive sequence impedance of 3 pole Synchronous Machine Suitable kit on it.

Apparatus:

1. 0-300 DC voltmeter
2. 0-2A AC voltmeter
3. 0-10A DC voltmeter
4. 3 phase synchronous machine

Procedure:

1. Connect the circuit as shown in figure.

2. keep (or) maintain dc auto-transformer and Sychronous machine at Zero position.

3. keep potentiometer and fleid winding at zero position.

4. And gradually increase the auto transformer speed until voltage reaches rated 230v.

5. And note down the Readings voltage, current Phase Sequence.

6. Switch off the supply and change the connections of give circuit.

7. Now gradully increase the speed upto rated current.

8. Note down the readings of all given in machine.

9. Make sure that salient pole of synchronous machine should be safe.

10. Switch off the supply and keep potentiometer at zero.

Conclusion: The Determination of Sub -tansited of salient pole is Synchronice machine is proved.

No. **68957**

H.T. No.	2	1	2	4	1	A	0	2	5	3

Name of the Examination __AC Machines Lab Internal Examination.__

Course __##### ACM Lab__ Branch __EEE__ Date __31/7/23__

Signature of the Invigilator

START WRITING FROM HERE

Aim :- To predetermine the regulation of an alternator by Synchronous impedance method and MMF method. ②

Procedure

⊛ Push the start button, and then the motor will start rotating.

⊛ adjust the course and fine

⊛ Do the connections as per the circuit diagram.

⊛ adjust the course until it reaches the rated rpm / voltage.

⊛ Add some bulbs as the load

they start glowing brighter as the voltage start increasing slowly.

③ Increase the load one-by-one as so by giving enough time so that there is no extra pressure falling on it when we turn on all the loads in a single time.

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STUDENT FEEDBACK

Faculty : VEGESINA VIJAYA RAMA RAJU

Subject : AC Machines Lab (B.Tech, II/IV B.Tech II Semester, EEE Sec-A)

Academic Year : 2022 - 2023

Phase : Phase-3

Sl.No	Question	Excellent	Good	Average	Poor	Q.Wise Total	Q.Wise %
1	Preparation and delivery of the lessons by the teacher	23	29	7	0	193	82.00
2	Subject Knowledge	26	26	7	0	196	83.00
3	Clarity in Communication	24	28	7	0	194	82.00
4	Using Modern Teaching Aids of ICT	26	25	8	0	195	83.00
5	Creating interest on the course in the class	25	27	7	0	195	83.00
6	Maintaining discipline in the class	25	25	9	0	193	82.00
7	Encouraging and clearing doubts in the class	25	28	6	0	196	83.00
8	Punctuality	24	28	7	0	194	82.00
9	Accessibility of the teacher	25	26	8	0	194	82.00
10	Overall grading of the teacher	25	25	9	0	193	82.00
	Total	248	267	75	0		
	Total Points	992	801	150	0	1943	82.00

No.Of Students Posted	59
Total Percentage Awarded to The Faculty	82.00
Grade of Faculty	Good

*Excellent (4) : >=90 %   *Good (3) : >=75 & <90%

*Average (2) : >=60 & <75 % *Poor (1) : Below 60 %

Formula: Total Obtained Points/(Max Points(i.Excellent-4) * No.Of.Students * NoOfQuestions)