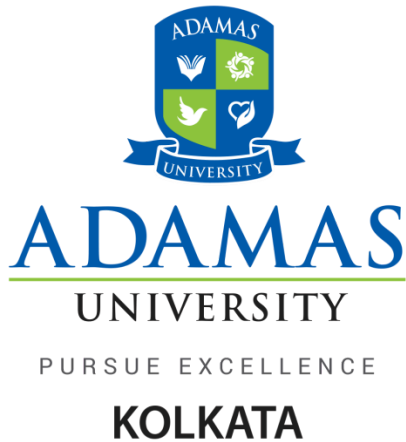




**SCHOOL OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING**

**B.Tech. in Electrical Machine I Lab
Course File (Lab)**

Course Code: EEE42205

Course Coordinator: Mr. Avik Datta



Year: II
Semester: III

6. Name of the Faculty: Mr. Avik Datta
7. Course :Electrical Engineering
8. Program : B.Tech
9. Target : 60 %

Course Code: EEE42205
L: 3
T: 0
P: 0
C: 3

THEORY COURSE FILE CONTENTS

Check list Course Outcomes Attainment

S. No.	Contents	Available (Y/N/NA)	Date of Submission	Signature of HOD
1.	Authenticated Syllabus Copy	Y		
2.	Individual Time Table	Y		
3.	Students' Name List (Approved Copy)	Y		
4.	Course Plan, PO, PSO, COs, CO-PO Mapping, COA Plan, Session Plan and Periodic Monitoring	Y		
5.	Previous Year End Semester Question Papers	Y		
6.	Question Bank (All Units - Part A, Part B & C)	N		
7.	Dissemination of Syllabus and Course Plan to Students	Y		
8.	Lecture Notes - Unit I, II & III	N		
9.	Sample Documents and Evaluation Sheet for Internal Assessment – Tutorials / Assignments / Class Test / Open Book Test / Quiz / Project / Seminar / Role Play if any (Before Mid Term)			
10.	Mid Term Examination A. Question Paper / Any Other Assessment Tools Used B. Sample Answer Scripts (Best, Average, Poor) if required C. Evaluation Sheet D. Slow Learners List and Remedial Measures			
11.	Lecture Notes – Unit IV & V			
12.	Sample Documents and Evaluation Sheet for Internal Assessment – Tutorials / Assignments / Class Test / Open Book Test / Quiz / Project / Seminar / Role Play if any (After Mid Term)			
13.	Course End Survey (Indirect Assessment) & Consolidation			
14.	End Term Examination A. Question Paper & Answer Key B. Sample Answer Scripts (Best, Average, Poor) if required C. Evaluation Sheet			



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	D. Slow Learners List and Remedial Measures.			
15.	Content Beyond the Syllabus (Proof)			
16.	Innovative Teaching Tools Used for TLP			
17.	Details of Visiting Faculty Session / Industry Expert / Guest Lecture / Seminar / Field Visit / Webinars / Flipped Class Room / Blended Learning / Online Resources etc.			
18.	Consolidated Mark Statement			
19.	CO Attainment (Mid Term + Internal Assessment + End Term)			
20.	Gap Analysis & Remedial Measures			
21.	CO - PO Attainment			
22.	Class Record (Faculty Logbook)			

Signature of HOD/ Dean

Signature of Faculty

Date:

Date:



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Syllabus Copy

EEE42205	Electrical Machine I Lab	L	T	P	C
Version 1.0		3	0	0	3
Pre-requisites/Exposure	Electrical and Electronics Technology				
Co-requisites	Basic idea of electromagnetism and magnetic circuit				

Course Objectives

To prepare the students to have a basic knowledge of transformers and D.C. Machines.

Course Content

1. Load Characteristics Of A D.C. Series Motor
2. Speed Control Of A 3 Phase Induction Motor By Voltage Control Method.
3. No Load & Blocked Rotor Test Of A 3 Phase Squirrel Cage Induction Motor.
4. Polarity Test On Single Phase Transformer.
5. Scott Connection Of A Three Phase Transformer
6. Speed Control Of A D.C. Shunt Motor.
7. Study Or Performance Of Wound Rotor Induction Motor Under Load.
8. Study Of Open Delta Or V-V Connection Of 2 Separet Transformers.
9. Iron And Windage Loss Measurement Of A 3 Phase Squirrel Cage Induction Motor.
10. Load Characteristics Of A D.C. Shunt Motor
11. Open Circuit And Short Circuit Test Of A Single Phase Transformer.

Text Books:

1. P. S. Bhimbra, *Electric Machines*, 2nd Ed., Khanna Publishing, 2017.
2. D. P. Kothari and I. J. Nagrath, *Electric Machines*, 4th Ed., McGraw Hill Education, 2010.
3. Charles I. Hubert, *Electric Machines: Theory, Operation, Applications, Adjustment and Control*, Pearson Education India, 2003.
4. Alexander S. Langsdorf, *Theory of Alternating Current Machinery*, McGraw Hill Education, 1984.
5. Bhag S. Guru and Huseyin R. Hiziroglu, *Electric Machinery and Transformers*, 3rdEd., Oxford University Press, 2001.

Reference Books:

1. Irving L. Kosow, *Electric Machinery and Transformers*, 2ndEd., Pearson Education, 2007.



Year: II
Semester: III

6. Name of the Faculty:	Mr. Avik Datta	Course Code: EEE42205
7. Course	:Electrical Engineering	L: 3
8. Program	: B.Tech	T: 0
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		C: 3

2. P. K. Mukherjee and S. Chakravorti, *Electrical Machines*, Dhanpat Rai Publications, 2011.

Web Resources:



Year: II
Semester: III

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Course Code: EEE42205

7. Course :Electrical Engineering

L: 3

8. Program : B.Tech

T: 0

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C: 3

Faculty Individual Time Table

ADAMAS UNIVERSITY, KOLKATA								
SCHOOL OF ENGINEERING AND TECHNOLOGY								
DEPARTMENT OF ELECTRICAL ENGINEERING								
Programme: B.Tech								
Course Code & Course: EEE42205 & Electrical Machine I Lab Faculty Coordinator: Mr. Avik Datta								
Day & Time	09.30 - 10.25	10.30 – 11.25	11.30-12.25	12.30-1.30	1.30-2.25	2.30-3.25	3.30-4.25	4.30-5.25
Monday				L U N C H				
Tuesday			-					
Wednesday								
Thursday								
Friday								

Signature of HOD

Signature of Class Coordinator

Date:

Date:



Year: II
Semester: III

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Students Name List

Roll Number	Registration Number	Full Name
UG/02/BTEE/2020/001	AU-2020-0004481	Saptarshi Bhattacharjee
UG/02/BTEE/2020/002	AU/2020/0004560	Arkajyoti Das

Signature of HOD/Dean

Signature of Class Coordinator

Date:

Date:

COURSE PLAN

Target	60% (marks)
Level-1	50% (population)
Level-2	60% (population)
Level-3	70% (population)

1. Method of Evaluation

UG	PG
Internal Assessment (30%) (Quizzes/Tests, Assignments & Seminars etc.)	Internal Assessment (30%) (Quizzes/Tests, Assignments & Seminars etc.)
Mid Semester Examination (20%)	Mid Semester Examination (20%)
End Semester Examination (50%)	End Semester Examination (50%)

*Keep as per Program (UG/PG)

2. Passing Criteria

Scale	PG	UG
Out of 10 Point Scale	CGPA – “5.00” Min. Individual Course Grade – “C” Passing Minimum – 40	CGPA – “5.00” Min. Individual Course Grade – “C” Passing Minimum – 35

*Keep as per Program (UG/PG)



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3. Pedagogy

- **Direct Instruction**
- Kinesthetic Learning
- **Flipped Classroom**
- Differentiated Instruction
- Expeditionary Learning
- Inquiry Based Learning
- Game Based Learning
- Personalized Learning

4. Topics introduced for the first time in the program through this course

- (New Topics Related to this Course – Syllabus Revision if any/Content Beyond Syllabus)

5. References:

Text Books	Web Resources	Journals	Reference Books
5	0	0	2

Signature of HOD/Dean

Date:

Signature of Faculty

Date:



Year: II
Semester: III

6. Name of the Faculty:	Mr. Avik Datta	Course Code:	EEE42205
7. Course	:Electrical Engineering	L:	3
8. Program	: B.Tech	T:	0
9. Target	: 60 %	P:	0
		C:	3

GUIDELINES TO STUDY THE SUBJECT

Instructions to Students:

1. Go through the 'Syllabus' in the LMS in order to find out the Reading List.
2. Get your schedule and try to pace your studies as close to the timeline as possible.
3. Get your on-line lecture notes (Content, videos) at Lecture Notes section. These are our lecture notes. Make sure you use them during this course.
4. check your LMS regularly
5. go through study material
6. check mails and announcements on blackboard
7. keep updated with the posts, assignments and examinations which shall be conducted on the blackboard
8. Be regular, so that you do not suffer in any way
9. **Cell Phones and other Electronic Communication Devices:** Cell phones and other electronic communication devices (such as Blackberries/Laptops) are not permitted in classes during Tests or the Mid/Final Examination. Such devices MUST be turned off in the class room.
10. **E-Mail and online learning tool:** Each student in the class should have an e-mail id and a pass word to access the LMS system regularly. Regularly, important information – Date of conducting class tests, guest lectures, via online learning tool. The best way to arrange meetings with us or ask specific questions is by email and prior appointment. All the assignments preferably should be uploaded on online learning tool. Various research papers/reference material will be mailed/uploaded on online learning platform time to time.
11. **Attendance:** Students are required to have minimum attendance of 75% in each subject. Students with less than said percentage shall NOT be allowed to appear in the end semester examination.

This much should be enough to get you organized and on your way to having a great semester! If you need us for anything, send your feedback through e-mail avik.datta@adamasuniversity.ac.in. Please use an appropriate subject line to indicate your message details.

There will no doubt be many more activities in the coming weeks. So, to keep up to date with all the latest developments, please keep visiting this website regularly.



Year: II
Semester: III

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RELATED OUTCOMES

1. The expected outcomes of the Program are:

P01	Engineering Knowledge: Apply the knowledge of mathematics, science, engineering Fundamentals, and an engineering specialization to the solution of complex engineering problems.
P02	Problem Analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
P03	Design/ Development of Solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
P04	Conduct Investigations of Complex Problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
P05	Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
P06	The Engineer and Society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
P07	Environment and Sustainability: Understand the impact of professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
P08	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
P09	Individual and Team Work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
P010	Communication: Communicate effectively in complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
P011	Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and multidisciplinary environments.
P012	Life-Long Learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



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5. Course Outcomes Assessment Plan (COA):

Course Outcomes	Internal Assessment* (30 Marks)		Mid Term Exam (20 Marks)	End Term Exam (50 Marks)	Total (100 Marks)
	Before Mid Term	After Mid Term			
C01	7	NA	9	16	7
C02	8	NA	8	16	8
C03	5	4	7	16	5
Total	14	16	20	50	100

* Internal Assessment – Tools Used: Tutorial, Assignment, Seminar, Class Test etc.



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P: 0
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OVERVIEW OF COURSE PLAN OF COURSE COVERAGE

Course Activities:

S. No.	Description	Planned			Actual			Remarks
		From	To	No. of Session	From	To	No. of Session	
1.	Load Characteristics Of A D.C. Series Motor	02/09/2021	09/09/2021	01				
2.	Load characteristics of a D.C. shunt motor.	10/09/2021	17/10/2021	01				
3.	Speed control of a D.C. Shunt motor.	18/10/2021	25/10/2021	01				
4.	Parallel operation of two single phase transformers.	26/10/2021	03/11/2021	01				
5.	Determination of equivalent circuit parameters of a single phase transformer from open circuit and short circuit tests.	04/11/2021	11/11/2021	01				



Year: II
Semester: III

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L: 3

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T: 0

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P: 0

C: 3

6.	Study of Scott connected transformer.	12/11/202 1	19/11/202 1	01				
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Total No. of Instructional periods available for the course: 06

Signature of HOD/Dean

Signature of Faculty

Date:

Date:



Year: II
Semester: III

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P: 0

C: 3

SESSION PLAN

Session Plan				Actual Delivery			
Lect.	Date	Topics to be Covered	CO Mapped	Lect.	Date	Topics Covered	CO Achieved
1		Load characteristics of a D.C series motor.	CO1	1			
2		Load characteristics of a D.C. shunt motor.	CO1	2			
3		Speed control of a D.C. Shunt motor.	CO1	3			
4		Determination of equivalent circuit parameters of a single phase transformer from open circuit and short circuit tests.	CO2	4			
5		Parallel operation of two single phase transformers.	CO2	5			
6		Study of Scott connected transformer.	CO3	6			

Remarks:

Signature of Faculty

Date:



Year: II
Semester: III

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Remarks:
Signature of Faculty

PERIODIC MONITORING

Actual date of completion and remarks, if any

Components		From	To	From	To
Duration (Mention from and to Dates)					
Percentage of Syllabus covered		55 %		45 %	
Lectures	Planned	1	33	34	60
	Taken				
Tutorials	Planned	NA			
	Taken				
Test/Quizzes/ Mid Semester/ End Semester	Planned				
	Taken				
	CO's Addressed	CO1, CO2	CO1, CO2	CO3	CO3
	CO's Achieved				
Assignments	Planned	2	2	2	2
	Taken	2	2	2	2
	CO's Addressed	CO1, CO2	CO1, CO2	CO3	CO3
	CO's Achieved				
Signature of Faculty					
Head of the Department					
OBE Coordinator					

Signature of HOD/ Dean

Date

Signature of Faculty

Date



Year: II
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PERIODIC MONITORING

Attainment of the Course (Learning) Outcomes:

Components	Attainment level	Action Plan	Remarks
Assignment	C01:		
	C02:		
	C03:		
	C04:		
	C05:		
	C06:		
Quiz/Test etc.	C01:		
	C02:		
	C03:		
	C04:		
	C05:		
	C06:		
Mid Semester	C01:		
	C02:		
	C03:	--	
	C04:	--	
	C05:	--	
	C06:	--	
End Semester	C01:		
	C02:		
	C03:		
	C04:		
	C05:		
	C06:		
Any Other	C01:	NA	
	C02:		
	C03:		
	C04:		



Year: II
Semester: III

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Course Code: EEE42205

7. Course :Electrical Engineering

L: 3

8. Program : B.Tech

T: 0

9. Target : 60 %

P: 0

C: 3

	C05:	
	C06:	

Signature of HOD/ Dean

Signature of Faculty

Date

Date



Year: II
Semester: III

6. Name of the Faculty:	Mr. Avik Datta	Course Code:	EEE42205
7. Course	:Electrical Engineering	L:	3
8. Program	: B.Tech	T:	0
9. Target	: 60 %	P:	0
		C:	3

Previous Year Question Papers – Set 1



Year: II
Semester: III

6. Name of the Faculty:	Mr. Avik Datta	Course Code:	EEE42205
7. Course	:Electrical Engineering	L:	3
8. Program	: B.Tech	T:	0
9. Target	: 60 %	P:	0
		C:	3

Previous Year Question Papers – Set 2



Year: II
Semester: III

- 6. Name of the Faculty: Mr. Avik Datta**
- 7. Course :Electrical Engineering**
- 8. Program : B.Tech**
- 9. Target : 60 %**

Course Code: EEE42205

L: 3
T: 0
P: 0
C: 3

Lecture Notes – Sample



Year: II
Semester: III

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COURSE END SURVEY
INDIRECT ASSESSMENT

INDIRECT ASSESSMENT CONSOLIDATION

Evaluation Sheet (End Semester)

Signature of HOD/Dean

Date:

Signature of Faculty

Date:



Year: II
Semester: III

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Consolidated Mark Statement

Signature of Dean/HOD

Date:

Signature of Faculty

Date:



Year: II
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CO ATTAINMENT – GAP ANALYSIS & REMEDIAL MEASURES

Signature of HOD/Dean

Date:

Signature of Faculty

Date:

CO-PO ATTAINMENT

Signature of HOD/Dean

Date:

Signature of Faculty

Date:

PO ATTAINMENT OF THE COURSE

Signature of HOD/Dean

Date:

Signature of Faculty

Date:



Year: II
Semester: III

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INSTRUCTIONS FOR FACULTY

Instructions for Faculty

- Faculty should keep track of the students with low attendance and counsel them regularly.
- Course coordinator will arrange to communicate the short attendance (as per University policy) cases to the students and their parents monthly.
- Topics covered in each class should be recorded in the table of RECORD OF CLASS TEACHING (Suggested Format).
- Internal assessment marks should be communicated to the students twice in a semester.
- The file will be audited by respective Academic Monitoring and Review Committee (AMRC) members for theory as well as for lab as per AMRC schedule.
- The faculty is required to maintain these files for a period of at least three years.
- This register should be handed over to the head of department, whenever the faculty member goes on long leave or leaves the Colleges/University.
- For labs, continuous evaluation format (break-up given in the guidelines for result preparation in the same file) should be followed.
- Department should monitor the actual execution of the components of continuous lab evaluation regularly.
- Instructor should maintain record of experiments conducted by the students in the lab weekly.
- Instructor should promote students for self-study and to make concept diary, due weightage in the internal should be given under faculty assessment for the same.
- Course outcome assessment: To assess the fulfilment of course outcomes two different approaches have been decided. Degree of fulfilment of course outcomes will be assessed in different ways through direct assessment and indirect assessment. In Direct Assessment, it is measured through quizzes, tests, assignment, Mid-term and/or End-term examinations. It is suggested that each examination is designed in such a way that it can address one or two outcomes (depending upon the course completion). Indirect assessment is done through the student survey which needs to be designed by the faculty (sample format is given below) and it shall be conducted towards the end of course completion. The evaluation of the achievement of the Course Outcomes shall be done by analyzing the inputs received through Direct and Indirect Assessments and then corrective actions suggested for further improvement.
- **Submission Targets of Course Contents:**
 - o S. No. 1 to 8 : Before Starting the Course
 - o S. No. 9 & 10 : After Mid Semester Examination
 - o S. No. 11 to 18 : Immediately After End Semester Examination
 - o S. No. 19 to 22 : After Declaration of Result of the Course