



Instructors:	Seungdeog Choi Email: seungdeog@ece.msstate.edu Office: Simrall 411 and WebEx
Office Hours:	Office Hours: TTh: 9:15 AM ~ 10:00 AM Other hours available through appointment In-person in Simrall or virtually in WebEx
TA	Tyler May email: tcm313@msstate.edu Office Hours: M W 2:00 PM – 3:00 PM
TA	Mohammad Imtiaz Hossain email: mh3463@msstate.edu Office hours: Th: 4pm-6pm & F: 11am-12pm(Simrall 424)
Lecture Time:	Lecture TTh: 12:30 PM - 1:45 PM
Lecture room:	SIMRAL 102
Lab Times:	Face-to-face lab time will be assigned based on the enrolled lab section
Lab room:	SIMRAL 418
Distance	(available if approved)
Section:	Both lecture and lab are asynchronous – Videos available on through BCOE Distance Site
Prerequisites:	Grade of C or better in ECE 3413
Corequisites:	Credit or registration in ECE 3313
Textbook:	(Recommended) Electric Machinery Fundamentals, by S. J. Chapman, Fifth Edition, McGraw-Hill, 2015. (Recommended) Electric Machines and Drives 1st Edition, Ned Mohan
Website:	canvas.msstate.edu

Course Description and Objectives

(Prerequisite: Grade of C or better in ECE 3413 and credit or registration in ECE 3313). Three hours lecture. Three hours laboratory. Synchronous generators; power transmission lines and cables; power transformers; induction and direct current motors; power electronic and programmable controllers; National Electric Code and electrical safety

After successfully completing this course, the students will be able to:

1. Identify safety concerns for energy systems (3f)
 2. Understand and explain how the electric power system functions, power plants, generators, transformers, transmission lines, motors (3b, 3k).
 3. Analyze an AC power circuit (single-phase and three-phase), concepts of real and reactive powers in such systems, the principles of interaction among electric, magnetic and mechanical fields, principles of operation of transformers, autotransformers, voltage regulators, AC machines including synchronous generators and motors and induction motors and generators, DC motors and generators (3a, 3b, 3e).
 4. Reveal power and energy systems career paths (3i).
 5. Gain a fundamental understanding of renewable technologies (3c, 3h, 3j)
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Lecture topics (45 hours contract)

- Application of Electric Machine System (3 hours)
- Review of Electro Mechanical System (2 hours)
- Review of Basic Electrical Circuit (2 hours)
- Review of Magnetic Circuit (2 hours)
- Basic Electro Mechanical Energy Conversion and Transformer (3 hours)
- AC Machine Fundamental (10 hours)
- Synchronous Generator (10 hours)
- Induction Machine (10 hours)
- DC Machine (3 hours)

Methods of Evaluation and Standards of Achievement

Types of graded assignments include:

- Tests** – there will be three tests during the semester after completion of each major topic. These tests are held during class hours (or university examination schedule) for both face-to-face. Distance and coast students are expected to take the exam **within 1 week** as the on-campus exam is scheduled. If it will be the final exam, they are expected to take exam, at least, **two days before** the university final grades due. The test dates will be distributed on the first day of class with any changes announced with a minimum of one-week notice.
- Homework** – assigned continuously throughout the semester
- Lab** - The purpose of this laboratory is to study the application of power-related concepts consisting of 3-phase power, transformer, generator, and motor. Laboratory measurements will be recorded and reported for two main purposes: It gives the student the opportunity to perform a test on power equipment, and it gives the student the opportunity to enhance his or her technical communication skills.
- Quizzes** – assigned continuously throughout the semester. Distance students do not need a proctor for quizzes. Distance students must scan the quiz and submit it through CANVAS (find assignment tab in CANVAS) with the specified timeframe to receive a grade. Late submission or email submission will not be accepted.
- Class Participation** – attendance and participation in lab is compulsory.

A note on proctors (for Distance students): The proctor must be approved at least two weeks prior to tests and the final exam via submission of a Distance-Education Proctor Approval Form. If the same proctor is used for multiple exams, multiple forms need not be submitted. Online students can also take the exam through Webex or any other online tools. This need approval from the instructor in advance.

Grade Composition		Grading Scale	
Assignment Type	Percentage	Minimum Grade	Average
Test #1	20%	A	>89%
Test #2	20%	B	>79%
Final exam	20%	C	>69%
Laboratory	20%	D	>59%
Small quiz (Squiz)	4% (distance 5%)	F	<59%
Class participation	1% (distance 0%)		
Homework quiz (Hquiz)	15%		



Test Plans

- Test #1: **Tuesday, Sept 24th** (regular class time);
- Test #2: **Tuesday, Oct. 29th** (regular class time);
- Final exam #3: **Monday, Dec. 10th, 2024**, (12:00 PM to 3:00 PM, The final exam will be administered according to the University exam schedule);
Plan ahead to avoid any conflicts with these three important dates.

ECE 3614 CLASS INFORMATION

Expectations for the Classroom and Communication

The following policies for course communication apply for **ALL students**:

- You are required to check your MSU email account regularly. This is considered an official means of communication by MSU for distance education students.
- The course materials will be accessed through Canvas.
- All class announcements will be posted on the Canvas website.
- Assignment submissions will utilize Canvas unless otherwise specified by the instructor.
- You are required to have access to a computer that connects to the internet.
- Students should direct correspondence to the instructor directly related to the class via the mail feature in Canvas.
- Students should not discuss specific exam questions.
- Students are encouraged to discuss homework together in a group, but the assignment should be completed individually.
- Email to the instructor must be sent from your official MSU email account (@msstate.edu).

The following policies for course communication apply to **students enrolled in the Distance section**:

- Faculty office hours will be hosted in WebEx. Students can join using a computer or smartphone app.
- Students can correspond with each other via the general course discussion board. Please note that collaboration on individual assignments is not acceptable.
- Students should expect to log in to Canvas no less than 3 times per week to access course information, lectures, and updates.
- Please send an email for a phone or online appointment.

Grading Policies

*Instructor-provided class materials are the only resources allowed while taking quizzes. **All quizzes, homework, and exams are INDIVIDUAL assignments. If you share quiz questions, copy another student's work, or allow another student to copy your work, then you are guilty of academic dishonesty.***

*Students shall not bring or have any computing equipment in the exam (**except calculator**), including mobile phones, books, dictionaries, electronic organizers, notes or paper, and other materials as shall be authorized by the professor.*



Test/Exam Policies:

- Students can use one formula sheet while completing exams. Quiz and homework problems are not allowed in the formula sheet. Minimum 50% exam problems will be similar to quiz, in-class examples, and homeworks.
- Distance students are expected to take the exam on the same day as the on-campus exam is scheduled. A proctor is required for each exam. The proctor must be approved at least two weeks prior to the exam via submission of a Distance-Education Proctor Approval Form. If the same proctor is used for multiple exams, multiple forms need not be submitted.

Quiz Policies:

- **Small Quiz** (S_quiz) will be continuously given directly during class.
- **Homework quiz** (H_quiz) will be provided about every two weeks on the concepts from the assigned homework. H_Quiz is not an open book. Equation sheets are not allowed.
- Distance students do not need a proctor for S_quiz and H_quiz.
- Distance students should prepare papers before the start of any classes to take S_Quiz and H_quiz. S_quiz might need three pages, and H_quiz might need three pages of papers, assuming A4 size. Distance and Coast students must scan the S_quiz and H_Quiz and submit through CANVAS (find assignment tab in CANVAS) **within 1 week** of the scheduled class to receive a grade. Late submission or email submission will not be accepted.

Always bring engineering calculator to the class to take quiz.

Class participation policy:

- Students are expected to ask questions (expected at least one question in every four classes on average) directly during the class to receive up to 0.5% grade out of 1% grade. Students are expected to actively participate in the class to receive 1% of the grade. Distance students are not required unless a facility is provided by the university to support real-time participation but strongly recommended to send emails for questions.

Makeup Exam / Quiz Policy:

- The student will be given “makeup opportunity” if there was an excused absence on exam/quiz date (university policy: AOP 12.09). The student will be also given “makeup opportunity” if the student has informed the instructor **within 24 hours of the student’s return to campus**.

Homework and Other Policies:

- Basic lecture notes will be available in the CANVAS through the announcement page. Please print and bring it to the class. The lecture note in the CANVAS is not complete but will be an effective guide for your study during the class.
- Homework will be regularly assigned through CANVAS. However, you do not have to submit homework in this class.
- Solve all of the homework problems and be sure that you understand them. There will be H_quiz about every two weeks from the concept of assigned homework.

Electronic Device Policy

- During fac-to-face lecture, all cell phones and pagers must be turned off to avoid interruptions that prevent other students from concentrating on the material presented and laptops and tablets are not allowed.
- Please always bring a calculator to take a quiz and exam. FYI, the quiz will be continuously provided.



Minimum Technology Requirements

The following minimum technology requirements are necessary **for all students** to complete the course:

- Computer with web browser, Microsoft Office, and Adobe Reader
- Internet access

If quizzes are administered online via Canvas, **ensure you have adequate internet access and power for your computer BEFORE you begin the quiz.** You will only be able to start the quiz one time. There are no time extensions available.

Distance students will also need:

- Webcam and microphone (computer or smartphone) to upload video responses to assignments or participate in virtual lab meetings / office hours.
- Video recording and editing software (Camtasia is available to download free from MSU ITS)

Technical Assistance

If you have questions about this course, please contact the instructor via Canvas messaging. For technical support (e.g., computer support, Canvas issues), please contact help@ece.msstate.edu or enr-dist-support@lists.msstate.edu or www.bagley.msstate.edu/distance.

Laboratory Policies

Course materials for the lab meetings will be found at CANVAS. Students are responsible for printing out/bringing a laptop, reading and understanding the materials for the respective experiments before the laboratory meeting.

Full Reports

The report format for this laboratory does not follow the template provided by the department. Instead, a template for the report that you must write will be provided for you prior to the first experiment, which is Lab 03 – AC Circuits. From then on, only the data tables in Word format will be provided if you would like to record your data electronically, and each subsequent report should be in the form of the report you submit for Lab 03. Again, do not copy any sources, especially the laboratory handouts, verbatim. For Lab-01, a two-page summary should be submitted.

Points and Grading

The laboratory is worth a total of 200 points for the course (Contact course instructor for more information about the point distribution for the course). Each full report is worth 20 points. According to departmental policy, all lab reports must be submitted in order to pass the lab and the course. In addition, you must be in attendance for each experiment.

Late Policy

A due date will be given for each report in the lab handout. A deduction of 2 points per business day will be issued on any report not received on or prior to its due date. Any report turned in late by 1 week, or more will not get any credit.

Submission: All reports must be submitted electronically in pdf through CANVAS.

Attendance Policy for face-to-face instruction

Students registered in face-to-face sections are expected to attend all class meetings. Please refer Academic Operating policy 12.09. (<http://www.policies.msstate.edu/policypdfs/1209.pdf>Links to an external site.), regarding attendance expectations and accommodations.



Note that official, university-approved and documented absences are not subjected to attendance penalties. It is the student's responsibility to initiate a request of making up course work in a timely manner. Unless impractical, all communication regarding official, university-approved and documented absences and make-up work should take place prior to the absence. Students are responsible for all material covered during class and any in-class announcements.

Attendance Policy for distance instruction

Distance students are expected to "attend" every class meeting by watching assigned lecture videos and reading assigned material. Both lecture and lab meetings are asynchronous, which means you can "attend" (e.g., watch videos) at a time convenient for your weekly schedule. However, you must attend class and turn in assignments according to the weekly class schedule and assignment due dates.

Copyright

Copyrighted materials within the course are only for the use of students enrolled in the course for purposes associated with this course and may not be retained or further disseminated.

Course materials must not be posted on any website or added to any database without the instructor's written permission. Do not distribute test problems, homework, or any other materials. Do not post course materials on websites such as chegg.com, slader.com, etc. Violations of this policy will be referred to the Honor Court.

ChatGPT and use of AI

Generally, students are NOT permitted to use generative AI tools such as ChatGPT for assignments except those authorized specifically by their instructor in the assignment directions. The unauthorized use of a generative AI tool to complete an assignment constitutes academic dishonesty and may be reported as an Honor Code violation. All submitted work will be filtered through Turnitin's AI writing detection tool, and other screeners may also be used.

For assignments in which generative AI has been explicitly permitted by your instructor, students must give credit and cite any AI-generated material according to citation-specific rules (e.g., IEEE style), including in-text citations, quotations, and references. Any work with more than the allowable percentage of AI-generated material specified in the assignment instructions, if applicable, could be reported as an Honor Code violation. Students must also include the following statement in assignments to indicate use of a generative AI tool: "The author(s) acknowledges the use of [Tool Name] in the preparation of this assignment for [brainstorming, grammatical correction, citation, etc.]." Failure to acknowledge use of generative AI could be reported as an Honor Code violation.

UNIVERSITY POLICIES

MSU Syllabus via Canvas

The Mississippi State University Syllabus contains all policies and procedures that are applicable to every course on campus and online. The policies in the University Syllabus describe the official policies of the University and will take precedence over those found elsewhere. It is the student's responsibility to read and be familiar with every policy. The University Syllabus may be accessed at any time on the Provost website under Faculty and Student Resources and at <https://www.provost.msstate.edu/faculty-student-resources/university-syllabus>



<u>Week</u>	<u>Date</u>	<u>Topic / Event</u>
1	Aug. 22	Application of Electric Machine System
2	Aug. 27 Aug. 29	Review of Electro Mechanical System. Review of Basic Electrical Circuit,
3	Sept. 3 Sept. 5	Review of Basic Electrical Circuit Review of Magnetic Circuit, H Quiz
4	Sept. 10 Sept. 12	Basic Electro Mechanical Energy Conversion and Transformer. Transformer
5	Sept. 17 Sept. 19	Transformer Review and H_Quiz .
6	Oct. 24 Sept. 26	Test #1 AC Machine Fundamental.
7	Oct. 1 Oct. 3	AC Machine Fundamental, AC Machine Fundamental.
8	Oct. 8 Oct. 10	AC Machine Fundamental, H_Quiz NO CLASS (Fall break),
9	Oct. 15 Oct. 17	Synchronous Generator, Synchronous Generator,
10	Oct. 22 Oct. 24	Synchronous Generator Review and H_Quiz
11	Oct. 29 Oct. 31	Test #2 Synchronous Generator and Synchronous Motor,
12	Nov. 5 Nov. 7	Synchronous Motor Induction Machine,
13	Nov. 12 Nov. 14	Induction Machine, H_Quiz Induction Machine,
14	Nov. 19 Nov. 21	Induction Machine, Induction Machine, H_Quiz
15	Nov. 26 Nov. 28	DC Machine NO CLASS (Thanksgiving holiday)
16	Dec. 3	Evaluation, Review, and H_Quiz .
Exam Wk	Dec 10	Test #3



LAB TOPICS

Lab schedule and syllabus will be separately posted on the CANVAS