

EENG 4330
Electric Machines
Spring 2024
Syllabus

Instructor: Dr. Seyed Mahdi Ghamkhari

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Class Location: ENG 3212

Office Hours: Mondays 2:00 pm to 3:00 pm Faculty Suite – 3100 H

Prerequisites: EENG 3304

Course Description

Rotating electric machines and their magnetic field interactions are considered. Electrical circuit models are used to quantify machine and power system interactions. Power, torque, speed, and performance of various DC and AC machines are calculated. Introduction to synchronous and induction machines.

Textbooks

Stephan Chapman, "Electric Machinery and Power System Fundamentals", 1st edition, McGraw-Hill Higher Education, 2001, ISBN: 978-0072291353

Link to purchase

https://www.amazon.com/Electric-Machinery-Power-System-Fundamentals/dp/0072291354/ref=sr_1_1?keywords=978-0-07-229135-3&qid=1692207208&sr=8-1

Duncan Glover, Thomas Overbye, and Mulukutla S. Sarma, "Power System Analysis and Design", 6th edition, Cengage Learning, 2017, ISBN: 978-1305632134

Link to purchase

https://www.cengage.com/c/student/9781305632134/?filterBy=Student&_gl=1*mf2ex*_ga*MTgzNTYxMjE4LjE3MDU1MTA2NjE.*_ga_1Z1VMVSHXM*MTcwNTUxMDY2MS4xLjEuMTcwNTUxMDY2MS4wLjAuMA..

Course Components

Assignments (Homework/Quizzes/Projects): 40%

Midterm Exam: 30%

Final Exam: 30%

Conversion of the numerical grade to letter grade

A: 90 – 100%

B: 80 – 89%

C: 70 – 79%

D: 60 – 69%

F: 0 – 59%

Note: Final grades will be rounded to the nearest whole number. For example, 81.5 or 81.6 would be rounded to 82, but 81.4 would be rounded to 81.

Dates

Last Day to Drop without Creating a Record: 1/31/24

Last Day to Drop or Withdraw: 3/29/24

Guideline

- Students must have the required prerequisites of the course.
- Late submissions to the assignments are not accepted and a grade of zero will be allocated.
- Makeup exams will not be given to students who are absent from the exams.
- Canvas is the platform for course announcements and assignments.
- Announcements are made on Canvas.
- Assignments are posted on Canvas and students' responses to the assignments should be uploaded on Canvas.
- Students are highly recommended to configure their Canvas account so that they could be notified immediately once an announcement or assignment is posted.
- Students should communicate with the instructor using their UTPB Email address.
- Requests for re-grading must be received no later than one week following the return of the assignment.
- Students are encouraged to take notes from the materials presented in the class.

UTPB Student Conduct and Discipline

<https://www.utpb.edu/life-at-utpb/student-services/dean-of-students/student-conduct-and-discipline-utpb-revised-2020-final.pdf>

Attendance

Attendance in class is required.

Students with Disabilities

The University of Texas Permian Basin in compliance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act provides "reasonable accommodations" to students with disabilities. Only those students, who an instructor has received an official Letter of Accommodation (LOA) sent by the office of ADA for students, will be provided ADA academic accommodations.

ADA Office for Students

MR. Paul Leverington

Address: Mesa Building 4242, 4901 E. University, Odessa, Texas 79762

Phone: 4325524696

Email: ada@utpb.edu

Topics:

1. Electromagnetic Fundamentals
2. Three-Phase Circuits
3. Transformers
4. Synchronous Machines
5. Induction Motors
6. Transmission Lines
7. Power Flow Analysis
8. Fault Analysis

Outline

Week 1-2: Electromagnetic Fundamentals

Week 3-4: Three-Phase Circuits

Week 5-6: Transformers

Week 7-8: Synchronous Machines

Week 9: Spring Break

Week 10: Induction Motors

Week 11-12: Transmission Lines

Week 13-14: Power flow Analysis

Week 15: Fault Analysis

Disclaimer: The subject matter and dates for the course may evolve slightly and should be considered tentative. Updates will be announced.

Version

01/16/2024