



SYLLABUS

EE 3385 Energy Conversion

CRN: 12813

Fall 2020, Online Course

Instructor:

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Online Class Hours: Course material and lecture notes (recorded) will be delivered in advance (see *Section IV*)

Online Office Hours: **Thursday, 3 PM — 4 PM** via WebEx (link will be provided)

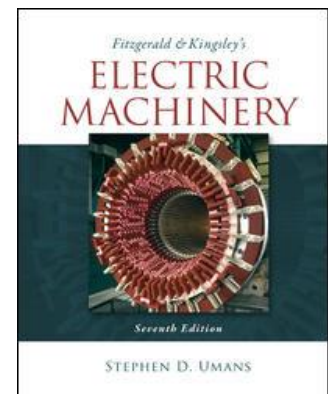
(For other times, by email appointment and online meeting will be held via WebEx. **Always write in the Email subject line “EE3385 Energy Conversion: your query”** using your UTEP email ID only while **corresponding with Instructor**. Please do not use your personal email ID)

I. GENERAL INFORMATION

- **Course ID:** Energy Conversion - EE 3385; CRN: 12813
- **Required Textbook:** Fitzgerald & Kingsley's Electric Machinery, 7th Edition, By Stephen D. Umans
- **Prerequisites:** EE 3321 Electromagnetic Field Theory, PHYS 2420

II. CATALOG DESCRIPTION

Fundamentals of electric machines. Basic principles of electromechanical energy conversion. Energy balance, force, and torque of electromagnetic system. Transformers in three-phase circuits. AC and DC machines including analysis, dynamic characteristics and equivalent circuits of induction and synchronous machines. Single- and two-phase motors.



III. COURSE LEARNING OUTCOMES

The students will learn basic concepts and principles of Electric Machines and Electromechanical Energy Conversion. Students completing EE 3385 will be able to:

- Understand the terminology used in conjunction with magnetic circuits and magnetic materials.

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- Understand the magnetically coupled windings that are at the heart of transformer performance.
- Apply the concepts and techniques of electromechanical energy conversion principles to a wide range of engineering applications.
- Apply various techniques and approximations involved in reducing a physical machine to simple mathematical models.
- Analyze the steady-state performance of polyphase synchronous machines.
- Study the behaviour of polyphase induction machines.
- Understand the versatility of dc machines and their use in a wide variety of applications.

IV. ONLINE COURSE FORMAT

The course format includes lectures, quizzes, exercises, problems, video clip, etc.

- Lecture notes (.pptx, pdf, etc.) and/or pre-recorded audio/video of the lecture will be delivered in course blackboard in advance.
- Students are supposed to read the provided lecture notes and must go through the pre-recorded audio/video to keep oneself update with the course material. **Hence, read the course materials in regular basis.**
- **Real-Time Class Hours T, R 1:30-2:50:** Students will be informed in advance if the Instructor wants to meet (online) all students at the same time during real-time class hours. *Otherwise - majority of the times, instructor will provide course related information to students via email and blackboard.*

V. GRADING POLICY

Grades will be given based on following distribution:

Homework and Assignment	15%
Quizzes	15%
In-class Semester Exam	30%
Comprehensive Final Exam	40%
Total	100%

Letter grades will be assigned as follows:

90-100	→	A
80-89	→	B
70-79	→	C
60-69	→	D
59 or below	→	F

VI. COURSE TOPICS

- Three-Phase Circuits Review
- Chapter 1: Magnetic Circuits and Magnetic Materials
- Chapter 2: Transformers
- Chapter 3: Electromechanical-Energy-Conversion Principles
- Chapter 4: Introduction to Rotating Machines

- Chapter 5: Synchronous Machines
- Chapter 6: Polyphase Induction Machines
- Chapter 7: DC Machines
- Chapter 9: Single- and Two-Phase Motors

VII. HOMEWORK / ASSIGNMENT

Assignments will be posted online (e.g., in blackboard) and/or informed via. Assignments could be theoretical, or simulation based, or numerical problems, or research paper (or related topic) presentation, etc. Students are expected to complete the assigned work in a timely manner demonstrating a professionally high standard. Late homework submission is not encouraged. ***If you submit an assignment late (after the due date and time), it will be graded out of 60% (i.e., you will instantly lose 40% points).*** If you fail to submit an assignment, you will receive zero (*no homework will be accepted after a week from the due date*).

VIII. QUIZZES

- Students should always be up to date with the lecture materials that are covered.
- Always be ready for the quizzes throughout the semester. **To give flexibility to students in this online course, details on quiz submission window will be provided including starting time and submission time.** *Quiz will NOT be conducted during the real-time class hours, i.e., T, R 1:30-2:50.*
- You will receive quiz questions via email or blackboard with instructions on submission procedure.
- **How to submit your quiz? →** You can use **AdobeScan app or OfficeLens** (available for iphone and android), or **CamScanner** (good if you have iphone). The app allows to scan documents and e-mail or upload them in different format. Your handwriting should be clear and readable. If you take photo, make sure there is a clarity. If you have other means of scanning document, you are welcome.

IX. IN-CLASS SEMESTER EXAMS, FINAL EXAM, AND MAKE-UP POLICY

There will be open-book exams. Detail will be provided prior to exam. There will be 2-3 in-class semester exams. Final Exam will be a comprehensive exam. *The main objective of assignment/HW/quizzes is to help students prepare towards the exams.* Procedure for the submission of Exam will be provided prior to the exam. **In general, Exam submission procedure will be similar to that of Quiz.**

There will be NO MAKE-UP quizzes, exams, homework, etc. However, **in case of pressing circumstances**, e.g., student having medical reason (evidence required from doctor) or military duties (with advanced notification) or compassionate reasons should inform the Instructor by sending email in advance prior to lecture or in emergency (i.e., in case a student is unable to inform the instructor in advance due to medical reason about his/her absence), the student must inform the instructor on the same week by Friday 5 pm via email with evidence (from doctor) as attachment.

X. INSTITUTIONAL POLICIES

Academic Honesty:

Cheating is unethical and not acceptable. Plagiarism is using information or original wording in a paper without giving credit to the source of that information or wording: it is also not acceptable. Do not submit work under your name that you did not do yourself. You may not submit work for this class that you did for another class.

If you are found to be cheating or plagiarizing, for example, but not limited to, in quiz, assignment, report submission, any assigned task, etc., you will be subject to disciplinary action, per UTEP catalog policy.

- Plagiarism, Cheating, and Academic Dishonesty are unacceptable and will NOT be tolerated.
- Student who is caught cheating/plagiarizing will receive a **failing grade** as well as additional disciplinary measures by the University.
- Any case involving academic dishonesty will be referred to the Engineering Dean's Office and the Office of the Dean of Students. See the Office of the Dean of Students' home page at www.utep.edu/dos/acadintg.htm for more information.
- Please review the statements below and UTEP's Web page on Policy on Academic Integrity at <http://sa.utep.edu/osccr/academic-integrity/>

Center for Accommodations and Support Services (CASS):

If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

XI. SOME OTHER IMPORTANT NOTES

- **Disclaimer:** Syllabus (that includes any content) may subject to change within reasonable limits according to instructor's discretion. Any changes will be announced in blackboard or in the class.
- **Students are expected to check the blackboard frequently** (*at least three times daily*) for course materials (e.g., Syllabus, Lecture Notes, announcements, etc.) and related information to see if any updates.
- **Students should also be checking emails frequently** (*at least three times daily*) as instructor can communicate via email.
- Usually the instructor sends email to all students keeping them in Bcc if it will be a group email.
- **Email Communication with a particular student:** **(1)** Instructor may send an email to a particular student to set up an online meeting or for any course related matter, and that student is supposed to answer the instructor's email as soon as possible (*which is Email-1*). **(2)** If the student does not reply to Email-1 within 24-hour period (*as students are expected to check email thrice a day*), the instructor will send a reminder email (*which is Email-2*). **(3)** If that student still does not reply to

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Email-2 within 2-business-day, there may be an impact on that student's grade.

- **Important note about Grades:** Students earn Grades.
- Students are supposed to contact instructor in advance for any query.

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