

Course Information

Course Number:	666
Course Title:	Power Systems Faults and Protective Relaying
Section:	600
Time:	MW 4:10-5:25pm
Location:	ZAC 361
Credit Hours:	Three

Instructor Details

Instructor:	Mladen Kezunovic
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Office Hours:	Per appointment

Course Description

Calculation of power system currents and voltages during faults; protective relaying principles, application and response to system faults.

Course Prerequisites

ECEN 460 or approval of instructor.

Course Learning Outcomes

- Learn basics of short circuit calculations
- Learn functionalities of most protective relays

Textbook and/or Resource Materials

- *Notes prepared by instructor*
- *P.M. Anderson, Analysis of Faulted Power Systems, Revised Edition, IEEE Press, 1995.*
- *J. Lewis Blackburn and Thomas J. Domin, Protective Relaying: Principles and Applications, Fourth Edition 4th Edition, CRC Press, 2014*

Grading Policy

- *The grades are: A=90-100%, B=80-89%, C=70-79%, D=60-69%*
- *The grade is formed from: Two quizzes=40%, Homework=10%, two term projects=50%.*

Late Work Policy- *Late work will not be accepted*

Work submitted by a student as makeup work for an excused absence is not considered late work and is exempted from the late work policy. Late work policies must clearly link to [Student Rule 7](#).

Course Schedule

WEEK	TOPICS
1. 1/19	<i>Introduction</i>
2. 1/24-1/28	<i>Fault Analysis Using Symmetrical Components</i>
3. 1/31-2/4	<i>Fault Analysis Using Symmetrical Components</i>
4. 2/7-2/11	<i>Computer Solution Methods</i>
5. 2/14-2/18	<i>Computer Solution Methods</i>
6. 2/21-2/25	<i>Sequence Impedances of Transmission Lines</i>
7. 2/28-3/4	<i>Sequence Impedances of Machines and Transformers</i>
8. 3/7-3/11	<i>Short Circuit Program Example, Exam #1 (Mar.11)</i>
9. 3/14-3/18	Spring Break
10. 3/21-3/25	<i>Protection Fundamentals (Project #1 due)</i>
11. 3/28-4/1	<i>Line Protection</i>
12. 4/4-4/8	<i>Pilot Protection</i>
13. 4/11-4/15	<i>Transformer Protection</i>
14. 4/18-4/22	<i>Generator Protection</i>
15. 4/25-4/29	<i>Bus Protection, Motor Protection, Exam #2 (Apr.29)</i>
16. 5/2	Project #2 due

Traditionally Delivered Course – 15 weeks

Technology Support – The course will use Canvas as the educational platform.

This service is provided by the Office for Academic Innovation.

For help, contact the Office for Academic Innovation at aihelp@tamu.edu or 979.458.3417.

University Policies

This section outlines the university level policies that must be included in each course syllabus. The TAMU Faculty Senate established the wording of these policies.

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

“The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence” ([Student Rule 7, Section 7.4.2](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See [Student Rule 24](#).)

Student Course Evaluations

Student course evaluations are administered online through AEFIS. For an instructor to be evaluated in AEFIS, the instructor must be listed in Compass with the instructor’s Name, UIN, and email address.

Academic Integrity Statement and Policy

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

“Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case” ([Section 20.1.2.3, Student Rule 20](#)). *You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.*

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below) Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University’s goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with [Counseling and Psychological Services \(CAPS\)](#).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University’s [Title IX webpage](#).

Statement on Mental Health and Wellness

Students who need someone to talk to can contact Counseling & Psychological Services (CAPS) or call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at [suicidepreventionlifeline.org](#).

Statement Regarding vaccines and face coverings

“To help protect Aggieland and stop the spread of COVID-19, Texas A&M University urges students to be vaccinated and to wear masks in classrooms and all other academic facilities on campus, including labs. Doing so exemplifies the Aggie Core Values of respect, leadership, integrity, and selfless service by putting community concerns above individual preferences. COVID-19 vaccines and masking — regardless of vaccination status — have been shown to be safe and effective at reducing spread to others, infection, hospitalization, and death.”