



Course title and number **ECEN 679: Computer Relaying**
Term **Spring 2023**
Class times and location **MW 4:10-5:25 PM, ETB 1003**

Course Description and Prerequisites

The course ECEN679 focuses primarily on design issues for computer relaying and distance relays as well as special topics on power system monitoring and control. The course offers not only fundamental concepts of power system protective relaying, but also insights on new trends in real world protection application in power engineering.

Instructor Information

Name **Prof. Mladen Kezunovic**
Telephone number **979-845-7509**
Email address kezunov@ece.tamu.edu
Office hours **Appointments for meetings in person by email, and for short questions, brief meetings by Phone/ZOOM**
Office location **Room 323C WEB**

Textbook and/or Resource Material

- [1] References provided in the course website
- [2] M. Kezunovic, et al., "Design, Modeling and Evaluation of Protective Relays for Power Systems," Springer, ISBN 978-3-319-20919-7, 2016.
- [3] Self-learning through many notes and handouts available on the topics.

Grading Policies and Scale

Grading is based on the project assignments and presentations as well as the quizzes. There will be no final exam for the course.

Standard Letter Grading Scale:

A = 90-100
B = 80-89
C = 70-79
D = 60-69
F = <60

Grading Assignments

Projects (Combined for Projects#1 and #2):

Oral Presentation = 5 Q/A after presentation = 5 Written Report = 50

Quiz

1st Quiz = 20 2nd Quiz = 20

Total = 100

Course Topics, Calendar of Activities, Major Assignment Dates

Required reading for the topics and assignments presented in the course outline can be found online in the Canvas website and through selections from “suggested reading list” and “publications”.

Week	Topic
1 (1/17-1/20)	Course Outline, Introduction, Definitions
2 (1/23-1/27)	Power System Protection Function Requirements
3 (1/30-2/3)	Computer Relay Hardware and Software
4 (2/6-2/10)	Digital Algorithms Based on Fundamental Frequency
5 (2/13-2/17)	Digital Algorithms Based on Traveling Waves
6 (2/20-2/24)	Relay Design Characteristics, Summary of Algorithms
7 (2/27-3/3)	Integrated/Coordinated System Solutions for Substations
8 (3/6-3/10)	Engineering and Testing of all-digital Substation System/Quiz #1
9 (3/13-3/17)	Spring Break
10 (3/20-3/24)	MERIT software introduction and Project #1 presentations
11 (3/27-3/31)	Adaptive and system-wide relaying, Protection Near Inverter Based Sources
12 (4/3-4/7)	Big Data Analytics for Fault Predictions Using Weather Impacts
13 (4/10-4/14)	Testing Tools and Methodologies in Protective Relaying
14 (4/17-4/21)	Synchrophasor Application in Protective Relaying
15 (4/24-4/28)	Unconventional Instrument Transformers, Project #2 Presentations
16 (05/01)	Quiz#2

Americans with Disabilities Act (ADA)

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Academic Integrity

For additional information please visit: <http://aggiehonor.tamu.edu>

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