

ECE 613: Protection of Power Systems

Instructor:

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Time / Classroom: Tuesdays, 6:00pm – 9:05pm / Faculty Memorial Hall / Rm205

Office hours: 326 ECEC (or classroom) by appointment, within a half hour window after class.

Course Outline & Summary

This is a graduate level introductory course on the subject of power system protection. Main topics covered are, principles and philosophy of protective relaying, relay types and operating principles, power and current directional relays, differential relays, distance and wire pilot relays, heating and harmonic effects and computerized protective device coordination.

Prerequisite: ECE-610

#	Topic / Activity	Reading Assignments	
		[a]	[b]
1	Philosophy of Protective Relaying	Ch 1	Ch 1
2	Basics and Operating Principles	Ch 2	Ch 9
3	Directional, Balance and Differential Relays	Ch 3	
4	Distance Relays Test 1	Ch 4	
5	Wire-Pilot Relays	Ch 5	
6	Current Transformers	Ch 7	Ch 6
7	Voltage Transformers Test 2	Ch 8	Ch 6
8	Relay Response / Sample Problem I	Ch 9	
9	Principles of Unit Protection / Sample Problem II		Ch 13
10	Feeder Protection / Sample Problem III		Ch 14
11	AC Generator & Motor Protection Test 3	Ch 10	Ch 17, 18
12	Transformer, Bus and Line Protection	Ch 11, 12, 13, 14, 15	Ch 15, Ch 16
13	No Class (<i>Thursday classes meet</i>)		
14	Computerized Protection, Device Coordination Test 4	two papers ¹	Ch 19
15	T4 review and study		
16	Final Exam		

References:

- [a] Russell C. Mason, “The Art and Science of Protective Relaying”, published by GE:
<http://www.gedigitalenergy.com/multilin/notes/artsci/artsci.pdf>
- [b] L. Hewitson, M. Brown, R. Balakrishnan, "Practical Power System Protection", Copyright 2005, IDC Technologies, Published by Elsevier(paperback edition). ISBN: 9780750663977

Overall Course Grade:

4 Tests (15% each) + Final (30%) + Homeworks (10%)

- [100-88] A
- [87 – 85] B+
- [84-75] B
- [74-71] C+
- [70-60] C ----- minimum passing grade is 60

Academic Integrity:

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are

¹ Separate material will be provided for this topic.

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working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>.

*Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. **Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.** If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu*

Best Practices:

You are also referred to the “Best Practices” document developed and published on the Provost’s website : http://www5.njit.edu/provost/sites/provost/files/lcms/docs/Best_Practices_related_to_Academic_Integrity.pdf.