

Course Syllabus

1. **Catalog Description** (3 credits):

Development of power system equivalents by phase, network analysis, load flow, symmetrical components, sequence networks, and fault analysis.

2. **Pre-requisites:** EEL 3211C

3. **Course Objectives:**

The main course goal is to provide students with a complete overview of interconnected power system analysis and design. At the completion of the course students should be able to develop appropriate models for an interconnected power system, and know how to perform power flow, short circuit and transient stability analysis. Students should also be able to write a basic power flow, short circuit and transient stability computer program.

4. **Instructor:**

Arturo Bretas

Office location: 427 NEB

E-mail address: arturo@ece.ufl.edu

Web site: E-Learning (Canvas)

Office hours: Office hours: Tues. & Thurs. (10:00 - 11:00 am) @ Zoom

5. **Teaching Assistant:**

Terry Zou (tieruizou@ufl.edu)

Office hours: Monday and Wednesday (04:00 - 05:00 pm) @ Zoom

Nader Aljohani (eng89nader@ufl.edu)

Office hours: Monday and Wednesday (05:00 - 06:00 pm) @ Zoom

6. **Meeting Times:** Tuesday (01:55 - 02:45 pm) - Thursday (01:55 - 03:50 pm)

7. **Meeting Location:** Zoom

8. **Textbook:** J.D. Glover, T.J. Overbye and M.S. Sarma, *Power Systems Analysis and Design*, 6th edition, Cengage Learning, 2015, ISBN number: 978-1-305-63213-4.

Optional Reference:

J. Grainger & W.D. Stevenson, Jr., *Power System Analysis*, New York: McGraw-Hill, 1994.

Monticelli, A. *State Estimation in Electric Power Systems: A Generalized Approach*. Vol. 507. Springer Science & Business Media, 1999.

9. Tentative Course Outline:

1. (Text Chapter 1, 2) Introduction, Fundamentals

2. (Text Chapter 4, 5) Transmission-line parameter computation & modeling, Transmission Line Steady-State Operation
3. (Text Chapter 6) Load Models, Power Flows, Economic Dispatch, Unit Commitment
4. (Text Chapter 1,2, 8, 10 / Monticelli) DC / AC State Estimation
5. (Text Chapter 7 & 8) Symmetrical Faults & Symmetrical Components
6. (Text Chapter 9) Unsymmetrical Faults
7. (Text Chapter 13) Transient Stability

10. **Exams:** 2 exams (Different Exams for Undergraduate and Graduate Students)

11. Homework Assignments:

(Undergrad Students): Chapters 1,2,4,5,6,10, 7, 8, 9, 13 (one problem / HM)

(Graduate Students): Chapters 1,2,4,5,6,10, 7, 8, 9, 13 (two problems / HM)

Evaluation:

- In-class exams 80%
- Homework 20%. Some simple programming skill may be required. (Different Homework assignments for Undergraduate and Graduate Students)
- +/- grading will be used for the final course grade

12. Attendance and Expectations:

Attendance is expected but not required. Cell phones and other electronic devices are to be silenced. No text messaging during class or exams.

Online Course Recording

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled student who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are

agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Attendance Policy, Class Expectations, and Make-Up Policy

This class will be presented online using Zoom and requires access to a working webcam and stable internet connection. I prefer that students keep their camera on during the class so that I can see you as I would during normal face-to-face classes. Studies show that if we can see each other's faces then we will have more engagement, more student success, and more faculty success. However, this is not a requirement. I understand if on certain days you can't have your camera on due to internet bandwidth limitations, other family members, health issues, or any other reasons.

13. Grading:

Homework 20%

Exams 80% (MT - 16 Oct / F - 16 Dec @ 10:00 am - 12:00 pm)

14. Grading Scale:

A > 95, 90 < A- < 95

87 < B+ < 90, 83 < B < 87, 80 < B- < 83

77 < C+ < 80, 73 < C < 77, 70 < C- < 73

67 < D+ < 70, 63 < D < 67, 60 < D- < 63

0 < F < 60

15. Make-up Exam Policy:

If you have a University-approved excuse and arrange for it in advance, or in case of documented emergency, a make-up exam will be allowed and arrangements can be made for making up missed work. University attendance policies can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx> Otherwise, make-up exams will be considered only in extraordinary cases.

16. Honesty Policy:

All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

"...failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures (<http://www.dso.ufl.edu/sccr/procedures/honorcode.php> (Links to an external site.)Links to an external site.)."

17. Accommodation for Students with Disabilities:

Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

18. UF Counseling Services:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc> ([Links to an external site.](#)), and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the [Office of Title IX Compliance \(Links to an external site.\)](#), located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/> ([Links to an external site.](#)).

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml> ([Links to an external site.](#)).

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/> ([Links to an external site.](#)).

Library Support, <http://cms.uflib.ufl.edu/ask> (Links to an external site.). Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/> (Links to an external site.).

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/> (Links to an external site.).

Student Complaints Campus: <https://care.dso.ufl.edu> (Links to an external site.).

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process> (Links to an external site.).

19. Software Use:

All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.