

Course Information

Course Number: ECEN 667
Course Title: Power Systems Stability
Section: All: 600 (On Campus), 700 (Distance Learning [DE])
Time: Tuesday and Thursday, 8:00 to 9:15 am (online for DE)
Location: ETB 1003 (and online)
Credit Hours: 3
Course material will be available to registered students in Canvas
Course Public Website: <https://overbye.engr.tamu.edu/ecen-667-fall-2023/>

Instructor Details

Instructor: Prof. Tom Overbye
Office: 308C, WEB
Phone: 979-458-5001 (email is best)
E-Mail: overbye@tamu.edu
Office Hours: Mondays 10:00 to 11:00 am (Tentative) or by appointment

TA: Sanjana Kunkolienkar
Office: 308N, WEB
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Office Hours: Wednesdays 2:00 PM – 4:00 PM or by appointment

Course Description

Steady-state, dynamic and transient stability of power systems; solution techniques; effect of generator control systems.

Course Prerequisites

ECEN 460 (or equivalent at another university), or concurrent enrollment in ECEN 615, or consent of instructor.

Course Learning Outcomes

Topic	Approx. # of hours
Introduction to power system structures and simulation	3
Electromagnetic transients	2
Synchronous machine modeling	6
Excitation system modeling	2

Turbine-Governor modeling	3
Time-scales and reduced-order models	2
Interconnected multi-machine modeling	5
Transient stability analysis	5
Linearized modeling and the control problem	3
Signal analysis	5
Power System Stabilizer (PSS) design	4
Applications of Synchrophasor Measurements	3

Textbook and/or Resource Materials

P. W. Sauer, M. A. Pai, J. H. Chow, *Power System Dynamics & Stability*, John Wiley and Sons, 2018 [ISBN-13: 978-1119355779] (the first edition, from 1997 and updated in 2006, is also fine)

Grading Policy

The course will have two exams as well as graded homework and perhaps a longer project. The final grade will be based 35% on the first exam, 35% on the second exam, and 30% on the homework and project. Both exams are closed-book, closed-notes. You may bring in one notesheet (8.5" by 11" both sides) and may use calculators. For Section 600 (on campus) the exams will be during regular class time.

All grading in the course is based on a percentage with final grades determined based on this percentage. If your final average falls within the below ranges you are guaranteed to receive at least the letter grade indicated: A: 90-100; B: 80-89; C: 70-79; D: 60-69; F: 59 or lower. At the discretion of the instructor these ranges may be extended downward (i.e., providing you with a higher final grade).

Graded Class Participation

Class participation is not graded, though students might be required to present results from their course project, either during class or at a mutually agreed upon time for off campus students using Zoom.

Graded Attendance

Class attendance is not graded. However, see below for the university attendance policy.

Late Work Policy

For full credit students must turn in homework and projects by the day that they are due (i.e., by 11:59pm Central Time). Late work is allowed, but with a penalty that will not exceed 25% per day it is late. Work submitted by a student as makeup work for an excused absence is not considered late work and it is exempted from this late work policy. Details on what constitutes an excused absence are detailed in TAMU Student Rule 7 (<https://student-rules.tamu.edu/rule07/>).

Course Schedule

Tentative date for the first exam is Tuesday October 3, 2023 at 8:00 am

Tentative date for the second exam is Thursday November 30, 2023 at 8:00 am

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

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

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

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" ([Student Rule 7, Section 7.4.1](#)).

"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](#).)

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](#)).

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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.

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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.

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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](#).

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Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus

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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.