

ECG 740 – Computer Analysis Methods for Power Systems

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Office Hours: T&Th: 1:00-2:30 and 4:00-5:00, W: 11:00-12:00

Book Title: Allen J. Wood, Bruce F. Wollenberg, Gerald B. Sheblé, *Power Generation, Operation, and Control*, 3rd Edition, Wiley, April 2016, ISBN: 979-1-119-27750-7

References:

1. J.J. Grainger and W.D. Stevenson, Jr., *Power System Analysis*, McGraw-Hill, 1994.
2. D.P. Kothari and I.J. Nagrath, *Modern Power System Analysis*, McGraw-Hill, ISBN 978-0-07-340455-4
3. *Power system analysis and design* / J. Duncan Glover, Mulukutla Sarma, Boston PWS Pub., 1994
4. *Computer analysis methods for power systems* / G.T. Heydt, Macmillan Pub. Co, 1986.
5. *Computer modeling of electrical power systems* / J. Arrillaga and N.R. Watson, John Wiley, 2001.
6. *IEEE Transactions on Power Systems*
7. *IEEE Transactions on Power Delivery*

Course Content:

- Power system overview (1, 2,+)
- Economic Dispatch of electric generators (3)
- Generation scheduling, or unit commitment (4)
- Generation scheduling with limited energy supply (5)
- Transmission system effects and power flow analysis (6)
- Power system security (7)
- Optimal power flow (8)
- State estimation in power systems (9)
- Control of generation (10)
- Symmetrical fault analysis (+)
- Symmetrical Components and unsymmetrical Faults (+)

Computer Usage:

Matlab, PowerWorld

Tests:

Midterm Exam	Part in class and part take-home	20 Pts
Assignments	Require computer usage	20 Pts
Individual Projects	Requires short report and 10 min class presentation	20 Pts
Final Exam	Part in class and part take-home	40 Pts
Total		100 Points

Grading:

A ≥ 85 > B ≥ 70 > C ≥ 60 > D ≥ 50

Notes:

- Late assignments will not be accepted.
- Class attendance and participation is highly encouraged.

Student Resources and University Policies:



Academic Misconduct—Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the *Student Academic Misconduct Policy* (approved December 9, 2005) located at: <https://www.unlv.edu/studentconduct/student-conduct>.



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Disability Resource Center (DRC)—The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu/>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.



Final Examinations—The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule. See the schedule at: <http://www.unlv.edu/registrar/calendars>.



Incomplete Grades—The grade of I—Incomplete—can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student's control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving "I" grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.



Religious Holidays Policy—Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.



Rebelmail—By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students' e-mail prefixes are listed on class rosters. The suffix is always @unlv.nevada.edu. **Emailing within WebCampus is acceptable.**



Library Resources—Students may consult with a librarian on research needs. Subject librarians for various classes can be found here: https://www.library.unlv.edu/contact/librarians_by_subject. UNLV Libraries provides resources to support students' access to information. Discovery, access, and use of information are vital skills for academic work and for successful post-college life. Access library resources and ask questions at <https://www.library.unlv.edu/>.



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Tutoring and Coaching—The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit <http://www.unlv.edu/asc> or call 702-895-3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TBE second floor.



Transparency in Learning and Teaching—The University encourages application of the transparency method of constructing assignments for student success.

Please see these two links for further information:

- <https://www.unlv.edu/provost/teachingandlearning>
 - <https://www.unlv.edu/provost/transparency>
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