COURSE OUTLINE
WINTER 2020

	Date	Initials
Prepared by Instructor	March 18, 2020	YJ
Approved by Head	22-Mar-20	amk

1. Calendar Information

ENEL 487
Electrical Engineering Energy Systems

Fundamental of energy resources and electric power generation, transmission and distribution; steady-state models for generators, load, transformers, and transmission lines; three phase systems, per unit representation; transmission line parameters; power flow analysis.

Course Hours: 3 units; H(3-1T-3/2)
Academic Credit: 3
Calendar Reference: http://www.ucalgary.ca/pubs/calendar/current/electrical-engineering.html#7626

2. Learning Outcomes

At the end of this course, you will be able to:

1. Understand the basics of electric energy generation and transmission systems
2. Understand the steady-state models of major power system components such as transformers and transmission lines
3. Apply power-flow analysis methods to typical power systems and determine the flow of active and reactive power from generation sites to the load centres
4. Perform simple power system simulations
5. Understand electricity pricing in Alberta

3. Timetable

Section	Day(s) of the Week	Time	Location
LEC 01	MWF	10:00 - 10:50	ES 162
LAB B01, B02	TBA	TBA	
TUT T01	M	12:00 - 12:50	MFH 160

4. Course Instructors

Course Coordinator

Section	First Name	Family Name	Phone	Office	Email
All	Pouyan (Yani)	Jazayeri	403-220-8714	ICT 344	spjazaye@ucalgary.ca

Teaching Assistants

First Name	Family Name	Phone	Email
Daniel	Jaimes		daniel.manfrejaimes@ucalgary.ca
Mohammad	Mansouri		mohammad.mansourihab@ucalgary.ca
Muhammad	Rashid		muhammad.rashid2@ucalgary.ca

5. Examinations

The following examinations will be held in this course:

1. **Quizzes**: Duration 45 minutes. Two quizzes were held during the tutorial sessions. The remaining two quizzes will be administered as D2L quizzes on March 30 and April 15. The quizzes are designed to be finished in 45 minutes. The questions will be made available for 12 hours (9 am to 9 pm) on the Quiz date. Questions are automatically graded by D2L but students are also required to submit their work to D2L Dropbox.
2. **Midterm Examination**: N/A.
3. **Final Examination**: This will also be administered as a D2L quiz, which will be designed to be finished in three hours. The exam will be made available for 24 hours and will be due at the registrar-scheduled completion time of 11:30 AM MDT on Wednesday, April 29. Questions are automatically graded by D2L but students are also required to submit their work to D2L Dropbox.

6. Use of Calculators in Examinations

Non-programmable calculators without formulae storage or text display features may be used during examinations/quizzes.

7. Final Grade Determination

The final grade in this course will be based on the following components:

Component	Learning Outcome(s) Evaluated	Weight
Labs	1-4	10%
Quizzes	1-3	40%
Final Examination	1-5	40%
"Final Exam Question" Assignment	1-5	10%

Total: 100%

Notes:

a) A minimum grade of 40% on the final exam is required in order to pass the course as a whole.

b) Conversion from a score out of 100 to a letter grade will be done using the conversion chart shown below. This grading scale can only be changed during the term if the grades will not be lowered.

Letter Grade	Total Mark (T)
A+	$T \geq 95.0\%$
A	$90.0\% \leq T < 95.0\%$
A-	$85.0\% \leq T < 90.0\%$
B+	$80.0\% \leq T < 85.0\%$
B	$75.0\% \leq T < 80.0\%$
B-	$70.0\% \leq T < 75.0\%$
C+	$65.0\% \leq T < 70.0\%$
C	$60.0\% \leq T < 65.0\%$
C-	$55.0\% \leq T < 60.0\%$
D+	$50.0\% \leq T < 55.0\%$

D	45.0% ≤ T < 50.0%
F	T < 45.0%

8. Textbook

The following textbook(s) is required for this course:

Title	Power System Analysis and Design
Author(s)	J. D. Glover, M. S. Sarma, T. J. Overbye
Edition, Year	6th, 2016
Publisher	Cengage Learning

9. Course Policies

Advising Syllabus

All Schulich School of Engineering students have access to a D2L site titled “Engineering Student Centre”. Students have a responsibility to familiarize themselves with the policies available on this site.

Emergency Evacuation/Assembly Points

In the event of an alarm sounding, all classrooms and labs must be evacuated immediately. Please respond to alarms promptly by leaving the building by the closest available exit. Faculty and students must remain outside the building until the 'all clear' has been given by a Fire Marshall. In case of emergency, call 220-5333.

Assembly Points have been identified across campus. These areas have been selected as they are large enough to hold a significant number of people and will provide an evacuated population access to washroom facilities and protection from the elements. More information on assembly points can be found at

http://www.ucalgary.ca/emergencyplan/assemblypoints.

WELLNESS AND MENTAL HEALTH RESOURCES

The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, https://www.ucalgary.ca/wellnesscentre/services/mental-health-services) and the Campus Mental Health Strategy website (http://www.ucalgary.ca/mentalhealth/).

10. Additional Course Information

• The lab experiments in this course will be simulation-based. The software for the labs is free to download. The details of lab experiments will be announced as the term progresses.

• Practice problems from the textbook will be posted on the course D2L page throughout the semester. Solutions to the problems will also be provided. Students are strongly encouraged to attempt all the questions in the practice sets.