COLLEGE OF ENGINEERING
GENERAL ENGINEERING

ELEC213/Electric circuits II Lab.

Fall 20xx

Instructor Information

Name:
Academic Title:
Office:
Phone:
E-mail:
Office Hours:
If you need to see me outside of the posted office hours, please set up an appointment with me, either by speaking to me before or after class, or by sending me an e-mail message.

TA Information

Name:
Office:
Phone:
E-mail:
Office Hours:

Class/Laboratory Schedule

Laboratory:

Coordinator Information

Name:
Office:
Tel:
E-mail:

Course Information

Catalog Description:
In this course, students are required to build electric circuits and make some measurements using instruments like Digital multimeter and Oscilloscope to experimentally verify several electric circuit analysis techniques and theorems given in theory lectures. Computer simulation will be used throughout the laboratory experiments.

Credits:
1

Contact Hours:
3 Lab hours.

Prerequisites:
Co-requisite: **ELEC 202 or ELEC 212** Concurrent

Textbook(s):

- Alexander and Sadiku "Fundamentals of Electric Circuits"
- Manual prepared by the instructor and the TA

References:
Nilsson and Riedel "Electric Circuits".

Course Objectives:
In this course, the student will be introduced to practical implementation of advanced electric circuit design, on top of putting in practice what he/she has learned previously in theory from Electric circuit II (ELEC 202 or ELEC 212).

Course Learning Outcomes (CLOs):

1. Analyze electric circuit using simulation software.
2. Develop experiments to verify circuit theory.
3. Conduct electric circuit experiment using the various measurement tools such as Digital Multimeters, Oscilloscopes etc.
4. Interpret the experimental results.
5. Draw conclusions from conducted experiments.

Relationship of Course Learning Outcomes (CLOs) to Student Outcomes (SOs):

Course Learning Outcomes (CLOs)	**Related Student Outcomes (SOs)**						
	1	**2**	**3**	**4**	**5**	**6**	**7**
1						✓	✓
2		✓				✓	
3						✓	
4						✓	
5						✓	

Student Outcomes (SOs)

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Topics Covered:
List of Laboratory Experiments Performed:

Lab No,	**Title**
Lab 1	Introduction to NI MultiSim Tools for AC Circuits
Lab 2	Sinusoidal Signal Parameters and Phase-Shift Measurement using Oscilloscope
Lab 3	Transient Response of RC, RL and RLC Circuits
Lab 4	Phasor relationships for circuit elements
Lab 5	AC Circuits Mesh and Nodal Analysis
Lab 6	AC Circuits Superposition Analysis
Lab 7	AC Circuits Thevenin and MPT Theorem Analysis
Lab 8	Frequency Response of RL, RC and RLC Circuits
Lab 9	Power Factor Correction for a series RL Load
Lab 10	AC Bridges

Method of Instruction

Class presentation, lab sessions, Blackboard and class tutorial.

Assessment Methods and Grading Policy

The following grading policy cannot be altered without the approval of the department board and head of department authorization.

Lab Report: 30%
(Inclusive of Lab Quizzes, In lab Performance etc.(optional))
Project: 10%
Midterm Exam(s): 30%
Final Exam: 30%

ABET Contribution of Course to Professional Component

Subject Area (Credit Hours)
College-Level Math & Basic Science: 5%
Engineering : 90%
Engineering Design : 5%
Broad Education : 0%

Computer/Software Usage

Multisim used for some problems solution and lab experiments.

Laboratory Projects

Laboratory work includes experiments on impedances, nodal analysis, superposition theorem, Thevenin theorem, maximum power transfer theorem, AC bridges, etc.

Course Ground Rules

- **Taking Notes:** Students are responsible for taking notes during the lecture. Exams will include some of the materials discussed in class in addition to those given in the textbook and class notes.
- **Attendance:** According to QU policies, attendance is mandatory; more than 25% absence will not qualify you for the course credit.
- **Late arrival:** Coming to class after 05 minutes, will result in absence.
- **Homework/Lab Reports:** Lab reports should be submitted through Blackboard before the due date. Deadlines for assignments are strict; 50% will be deducted for each day after the deadline (you get zero marks if two days pass the deadline). Students should review their marks on the blackboard, and if any inquiry should contact the TA by email within 48 hours after the grade has been posted; thereafter, there should be no discussion on the grades.
- **Blackboard:** Check the course website frequently on Blackboard for updates (e.g., announcements, lecture notes, etc.).
- **Communications:** Students must use the assigned university e-mail address rather than a personal e-mail address. Writing emails in a proper format is required (communication skills are part of the course)
- **Cheating and/or Plagiarism:** Strict rules will apply in accordance with Qatar University regulations and policies in case of any cheating and/or plagiarism. Check the undergraduate students' handbook for further details on University policies.
- **Mobiles/Smart Devices:** Switch off/silent mobiles during lecture time. Mobile phones/smart devices are not permitted in the classroom during exams.

University Code of Conduct

- In accordance with Article 6 of the Student Code of Conduct at Qatar University, academic violations include a range of actions, one of which pertains to submitting work that is not the individual's own production. This includes using creative artificial intelligence tools such as ChatGPT to produce content, images, videos, or programming code and presenting it as original work.
- Therefore, students are cautioned that using artificial intelligence tools such as ChatGPT or any similar tools to produce academic content and present it as their own work is considered plagiarism, exposing the student to disciplinary penalties as stipulated in Qatar University's Student Code of Conduct. In light of this, we urge all students to adhere to ethical standards in all assignments and academic work and to seek guidance from the course instructor when unsure about the proper and ethical use of artificial intelligence sources in completing assignments, duties, and academic tasks.

- As such, a student is expected not to engage in behaviors that compromise their integrity, as well as the integrity of QU. Further information regarding the University Code of Conduct may be found on the web at http://www.qu.edu.qa/students/code-of-conduct

Support for Students with Special Needs

It is Qatar University policy to provide educational opportunities that ensure fair, appropriate and reasonable accommodation to students who have disabilities that may affect their ability to participate in course activities or meet course requirements. Students with disabilities are encouraged to contact their Instructor to ensure that their individual needs are met. The University, through its Inclusion and Special Needs Support Center, will exert all efforts to accommodate individuals' needs.

Contact Information for Inclusion and Special Needs Support Center:
Tel-Female: (00974) 4403 7972
Tel-Male: (00974) 4403 7946
Location: Student Activities Building
Email: specialneeds@qu.edu.qa

Academic Support and Learning Resources

The University Student Learning Support Center (SLSC) provides academic support services to male and female students at QU. The SLSC is a supportive environment where students can seek assistance with academic coursework, writing assignments, transitioning to college academic life, and other academic issues. SLSC programs include: Peer Tutoring, the Writing Lab, Writing Workshops, and Academic Success Workshops. Students may also seek confidential academic counseling from the professional staff at the Center.

Contact Information for Students Support and Learning Resources:
Tel: (00974) 4403 3870
Fax: (00974) 4403 3871
Location: Female Student Activities Building
E-mail: learningcenter@qu.edu.qa

College of Engineering Learning Support

Contact Information for College of Engineering Learning Support:
Females
Tel: (+974) 4403 6380
Email: CENG.SuccessOasis.F@qu.edu.qa
Males
Tel: (+974) 4403 6388
Email: CENG.SuccessOasis.M@qu.edu.qa

Sessions' Booking
Females
1- One-to-one sessions' registration via Simplybook:
https://crulearningfemales.simplybook.me
2- Weekly sessions via email invitation from Engineering Success Oasis (ESO)

Males
1- One-to-one sessions' registration via Simplybook:
https://crulearningmales.simplybook.me
2- Weekly sessions via email invitation from Engineering Success Oasis (ESO)

Student Complaints Policy

Students at Qatar University have the right to pursue complaints related to faculty, staff, and other students. The nature of the complaints may be either academic or non-academic. For more information about the policy and processes related to this policy, you may refer to the student handbook.

Declaration

This syllabus and contents are subject to changes in the event of extenuating circumstances. The instructor (with the approval of the Head of Department) reserves the right to make changes as necessary. If changes are necessitated during the term of the course, the students will be notified by email communication and posting the notification on the online teaching tool Blackboard. It is the student's responsibility to check on announcements made while they were absent.

Faculty Name:
Last Modified:
Date: