
COURSE Syllabus

Course Name: Wind Energy Systems Lab.

Course Number: 408433

General Course Information:

Course title	Wind Energy Systems Lab
Course number	408433
Credit hours (theory, practical)	1 hours (practical)
Contact hours (theory, practical)	3 hours (practical)
Prerequisites/corequisites	0408431 Wind Energy
Academic Program	Renewable energy engineering
Program code	RE
Awarding institution	Isra University
Faculty	Engineering
Department	Renewable energy engineering
Level of course	3 rd
Academic year /semester	2022/2023 (1st)
Awarded qualification	B.Sc
Other department(s) involved in teaching the course	-
Language of instruction	English
Date of production/revision	2022

Course Coordinator:

Coordinator's Name: Dr.Mohand Al-Ghriybah
Office No.: 3rd floor
Office Phone:
Office Hours: 9:00-10:00. : (Sun, Tus, Thr.)
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Other Instructors:

Instructor's Name:
Office No.:
Office Phone:
Office Hours:
Email:

Course Description:

This course covers introduction to wind energy sources. Basic characteristics of wind. The power extracted from the wind. Site characterization. Statistical methods of wind analysis. Fundamental principles of wind turbines and types of turbines. Performance of wind energy conversion systems. Commercial and economic benefits

This Laboratory covers introduction to the basics of aerodynamic characteristics of wind; dynamic behavior of wind turbine rotors and the generated wind energy, wind energy measurements.

Text Book: Author(s), Title, Publisher, Edition, Year, Book website.

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References: Author(s), Title, Publisher, Edition, Year, Book website.

1. Text book, Laboratory manual, class handouts, some instructor keynotes, calculator and access to a personal computer and internet.

Course Educational Objectives (CEOs):

1.	Provide the student with the basic skills of implementing the setting to conduct the testing procedures of wind turbines.	
2.	Provide the student with the basic skills of conducting different testing procedures of the different modes of wind turbines.	
3.	Provide the student with the proficiency of constructing the experimental performance characteristics of the different modes of wind turbines and correlate practical	

Intended Learning Outcomes (ILO's):

	Intended Learning Outcomes (ILO's)	Relationship to CEOs	Contribution to PLOs
A	Knowledge and Understanding:		
A1	Proficiently deal with the measuring instruments usually involved in wind turbines.	3,4	3,4
B	Intellectual skills:		
B1	Recognize and differentiate between the different types of wind turbine.	3,4	3,4
C	Subject specific skills:		
C1	Use the testing data to calculate the need parameters of the tested wind turbines.	3,4	3,4
D	Transferable skills:		
D1	Correlate practical and theoretical results of the testing wind turbines	3,4	3,4

Topic Outline and Schedule:

Topic	Weeks	Achieved ILOs
Study of the power generated by the aerogenerator depending on the wind speed	1,2	3,4
determination of the typical parameters of the aerogenerator	3,4	3,4
Determination of the maximum power output of the aerogenerator	5,6	3,4
Study of the power generated by the aerogenerator depending on the incident	7,8	3,4
Final exam		

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Experiments

Course Policies:

A- Attendance policies:

The maximum allowed absences is 15% of the lectures.

B- Absences from exams and handing in assignments on time:

First Exam and second exam can be retaken based on approval of excuse by the instructor's discretion.

Not handing assignment on time will incur penalties.

C- Academic Health and safety procedures

D- Honesty policy regarding cheating, plagiarism, and misbehaviour:

Cheating, plagiarism, misbehaviour will result in zero grade and further disciplinary actions may be taken.

E- Grading policy:

- All homework is to be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.

F- Available university services that support achievement in the course: **Labs, Library.**

Required equipment:

Assessment Tools implemented in the course:

- ☐ First Written Exam.
- ☒ mid
- ☒ Final Written Exam.
- ☐ Quizzes.
- ☒ Homework.
- ☐ Integrative Projects.
- ☐ Case Study.

- ☐ Written Reports.
- ☒ Participation in Lecture.
- ☒ Practice in the Lab.
- ☐ Illustrative Presentations.
- ☐ Oral Exams.
- ☐ Others (identify):

Program Learning Outcome (PLOs):

Program Learning Outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviours that students acquire as they progress through the program. A graduate of the () program will demonstrate	
a.	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
b.	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
c.	An ability to communicate effectively with a range of audiences
d.	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
e.	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
f.	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
g.	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Responsible Persons and their Signatures:

Course Coordinator	Dr.Mohanad Al-Ghriybah	Completed Date	/ /2022
		Signature	
Received by (Department Head)	Dr. Zakaria al omari	Received Date	/ /
		Signature	