Faculty: Faculty of Science	
Department: Physics	**Program:** B.Sc.
Semester: Second semester	**Academic year:** 2022/2023

Course Plan

First: Course Information

Course Title:	**General Physics Lab 2**	**Course ID: 0302112**	
Credit Hours:	**1 hour**	**Theoretical: 0**	**Expremintal:1**
Level in JNQF	**6**		
Prerequisite: 0300122	**SectionNumber:**	**Lecture Time:**	
Type Of Course:	☐ ***Obligatory Faculty Requirement*** ☐ ***Elective University Requirement*** ☐ ***Obligatory University Requirement*** ☐ ***Faculty Requirement*** ☐ ***Course Elective Specialty Requirement*** ■ ***Obligatory Specialization*** ☐		
Type Of Learning :	■ ***Face-to-Face Learning*** ☐ ***Blended Learning(2 Face-to-Face + 1Asynchronous)*** ☐ ***Online Learning (2 Synchronous+1Asynchronous)***		

Second: Instructor's Information

Name:	**Academic Rank:**	
Office Number:	**Phone Number:**	**Email:**
Office Hours:		

Third: Short Description of the Course

Students perform 10 experiments of 3 hr/week duration the basic equipment like millimeter, power supply, beadboard, resistors, are introduced. The session will end with a simple application of these instruments on a simple circuits, where Ohms law is going to be applied, Equipotential and electric field lines, capacitors in parallel and series connection, charging and discharging capacitor, Kirchhoff's law, variation of resistance with temperature, Tangent galvanometer, Time constant.

Fourth: Objectives

1. **To understand different technical skills in the field of experimental physics**
2. **To learn how to write high quality reports**
3. **To conduct different fundamental experiments in the field of electricity and magnetism**

Fifth: Learning Source

Designated Book:	**General Physics Lab 2 manual**		**1st Edition**
Author:	**Physics Department at Zarqa university**	**Print:**	**Year: 2014**
Additional Sources: **Website:**	- **Physics for Scientists and Engineers, 8th Ed, Raymond A. Serway** 2-http://cas.umkc.edu/physics/kruger/AdvancedPhysicsLab/experiments/microwave.pdf 3- http://lambdasys.com/products/category/6 4- https://sun.iwu.edu/~gspaldin/Expt'lSyl.html		
Teaching Type:	■ **Classroom** ☐ **Laboratory** ☐ **Workshop** ☐ **MS Teams** ☐ **Moodle**		

Sixth: Learning Outcomes

Number	***Course learning output***	***CILOs Code***	***Assessment method**** *Choose at least two methods*	***Scores out of 100*** State the total score identified for each CILO	***Minimum acceptable Score/percentage (%)*** *The percentage should not be less than 50%* ***
Knowledge					
K1	**Basic knowledge:** **Electric field/electric field mapping/equipotential surfaces/Ohm's law/connection of resistances (series and parallel)/Kirchhoff's**	PK1	Quiz Final exam	10	5(50%)

	rules/Resistivity/variation of resistance vs. temperature/Wheatstone bridge/Power transfer/RC circuit (charging and discharging)/time constant/earth's magnetic field/Electrochemical equivalent.				
K2	**Basic Factual Knowledge:** **Writing high quality of technical reports, self-motivated and independent experimentalist and gaining computer skills (generating plots, data analysis, using breadboard,colour code)**	PK2	Reports	30	30(100%)
K3	**Concepts and Theories:** Basics of Electricity and magnetism theories (0302122)	PK3	Quiz Final exam	15	5(50%)
Skills					
S1	**Problem solving skills:** • **Student can build critical-thinking skills as a problem solving.** • **Using breadboard, measuring tools, color code chart, weighing, reading measurements,…,etc.** • **Students can have an excellent practice, in the way that how to summarize their experimental effort in a technical report and how to establish high standard technical/practical skills.** This type of methodology can be helpful for how to get a great success in the carrier as a researcher or in academia or in industry.	PS1	Quiz Final exam	10	5(50%)
S2	**Modeling and Design:** The student makes a realistic experimental validation of theoretical models for different phenomena in Electricity that was already established in literature. So, the student has to run through	PS2	Quiz Final exam		

	several steps that include theory, establishing of the experiment design and carrying out the experiment.				
S3	**Application of Methods and Tools:** Carrying out different experiments in physics using different techniques and analyzing the results using different types of analytical methods.	PS3	Quiz Final exam	14	7(50%)
S4	**Specific cognitions skill:** Applying Statistical tools to test results and drawing conclusions.	PS4	Quiz Final exam	10	5(50%)
Competences					
C1	**Analytic skills:** Assist the technical factors that affect the operation of different materials properties.	PC1	Quiz Final exam	5	3(60%)
C2	**Strategic thinking**: Formulate plans designed to achieve maximum useful of the special techniques that the student uses to solve experimentally physical problems.	PC2			
C3	-Thinking of more than one answer. - Respond the questions with many alternative questions - Generate ideas, answers, or varied questions - See a problem from different perspective. - Look for many different alternatives or directions. - Able to change the way of approach or thought. - Think of unusual ways to express their selves - Work and develop a product or idea	PC3			

	- Add or detail of object, idea or situation so that it becomes more interesting				
C4	**Communication**: -Apply different physical principles in different disciplines of science, engineering, and medicine. - Enhance the observation of individual to the natural phenomena. - Assist the student to participate in life science studies -Collaboration (contribution to a positive social environment).	PC4			
C5	**Teamwork and Leadership:** -Increase the cooperative behavior between the different research groups of different applications. -To work in stressful environment and within constraints. - To communicate effectively. - a learner performs within the process of a particular learning or assessment activity, such as extracting relevant information from a complex situation, drawing vector or force diagrams, creating other illustrations, or making an inference based on a previously achieved result -Use the efficient IT capabilities. - Management the tasks efficiently. -To acquire entrepreneurial skills. - Refer to relevant literature effectively. - Searching for the information	PC5		6	3(50%)

	and going to self-learning a new topic				

Seventh: Course Structure

Lecture Date	Teaching Outcome	Topics	Teaching *Procedures	Teaching ***Methods	References***
16/3/2023		Review of course topics, introduction, Procedure of writing reports Plots, experimental errors and assessments	Direct teaching	Lecture discussion	
23/3/2023	PK1,PK2,PS1,PS3,PS4;PS5;	**Experiment 1: Electric field mapping and equipotential surfaces**	Direct teaching, Lab work, demonstration	Practical work	Exp. 1
30/3/2023	PK1,PK2,PS1,PS3,PS4;PS5;PC1,PC2	**Experiment 2: Ohm's Law**	Direct teaching	Practical work	Exp. 2
6/4/2023	PK1,PK2,PS1,PS3,PS4;PS5;	**Experiment 3: Kirchhoff's Rules**	Direct teaching	Practical work	Exp.3
13/4/2023	PK1,PK2,PS1,PS3,PS4;PS5	**Experiment 4: measurement of resistivity**	Direct teaching	Practical work	Exp. 4
20/4/2023	PK1,PK2,PS1,PS3,PS4;PS5	**Experiment 5: Variation of resistance with temperature**	Direct teaching	Practical work	Exp. 5
27/4/2023	PK1,PK2,PS1,PS2P,S4;PS5;PC1,PC2	**Experiment 6: Wheatstone Bridge**	Direct teaching	Practical work	Exp.6
4/5/2023	PK1,PK2,PS1,PS3,PS4;PS5;	**Experiment 7: Charging and discharging of a capacitor**	Direct teaching	Practical work	Exp.7
11/5/2023	PK1,PK2,PS1,PS3,PS4;PS5;	**Experiment 8: Power transfer**	Direct teaching	Practical work	Exp.8
18/5/2023	PK1,PK2,PS1,PS3,PS4;PS5	**Experiment 9: Magnetic field of the Earth**	Direct teaching	Practical work	Exp.9
1/6/2023	PK1,PK2,PS1,PS3,PS4;PS5;PC1,PC2	**Experiment 10: Electrochemical equivalent of Copper**	Direct teaching	Practical work	Exp. 10
1/6/2023	PK1,PK2,PS1,PS3,PS4;PS5;PC1,PC2	**Review lab**	Direct teaching	Practical work	---
8/6/2023	PK1,PK2,PS1,PS3,PS4;PS5;PC1,PC2	**free lab**	Direct teaching	Practical work	---
	Final Exam	**T.b.d (1 week before the final exam of non-practical courses)**			

Education procedures: (Direct, synchronous, asynchronous). * * Teaching methods: Lecture, video…..). * * Reference:

Pages of the book, recorded lecture, video….)

Eighth: Assessment methods

Methods	Fully Electronic Education	Integrated Teaching	Direct Teaching	K1	K2	K3	S1	S3	S4	C1	C5
Reports			**30**		**30**						
Quiz			**20**	**4**		**4**	**4**	**4**	**4**		
Final			**50**	**6**		**11**	**6**	**10**	**6**	**5**	**6**
Total out of 100			**100**	**10**	**30**	**15**	**10**	**14**	**10**	**5**	**6**

Ninght: Course Polices

- Meeting the deadline for the lecture.
- Commitment to interaction and participation.
- Interactive lectures will be given in person or through a platform (MS Teams).
- Duties and tests will be given in person or through a platform (Moodle).
- Commitment to the right appearance in front of the camera with the proper background.
- University regulations for attendance and absence from lectures and examinations are in force.
- Academic Integrity: Fraud or moral impersonation are unacceptable and are punishable according to university regulations and instructions.

Approval	Name	Date	Signature
Head of Department			
Faculty Dean			