Faculty: Faculty of Science	
Department: Physics	**Program: Bachelor's Program**
Semester: first semester	**Academic year: 2023/2024**

Course Plan

First: Course Information

Course Name:	Physics 3			*Course No. 0302203*	
Credit Hours:	*3 hrs*	*Theoretical*	*3*	*Practical*	*0*
Prerequisite:	0300122	*Class Number: 1*		*Lecture Time:*	
Level in JNQF	*7*				
Course Nature:	☐ *Mandatory Faculty Requirement* ☐ *Mandatory University Requirement* ☐ *Optional Specialty Requirement* ☐ *Optional University Requirement* ☐ *Ancillary Course* ☑ *Mandatory Specialization requirement*				
Type of Education:	☐ **Fully Direct (Fully Face-to-Face Education)** ☑ **Integrated Education (2 Face-to-Face + 1 Asynchronous)** ☐ **Electronic Education Fully (1 Asynchronous + 2 Synchronous)**				

Second: Instructor's Information

Course coordinator		
Instructor		
Name:	*Office Number:*	*Email:*
Office Hours:		

Third: Short Description of the Course

Electricity and magnetism: Faraday's law and Lenz's law, self-inductance and mutual inductance, RLC-circuits, alternating current, transformers, rectifiers, filters, Maxwell's equations and electromagnetic waves. Universal gravitation: law of universal gravitation, gravitational field and potential energy, satellites. Fluid mechanics: pressure, Archimedes' principle, Bernoulli's equation, applications.

Fourth: Course objectives

Fifth: Learning Outcomes

Level descriptor according to (JNQF)	*CILOs Code*	*CILOs* If any CILO will not be assessed in the course, mark NA.	*Associated PILOs Code* *Choose one PILO for each CILO**	*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 :** Use the principles of Electricity and Magnetism	P. K1	Midterm exam Final exam	34	17 (50%)
	K2	**Basic Factual Knowledge:** Biot-Ssavart law, Ampere's law, Lorentz law and Fraday's law , electromotive force, Buoyant Force, Bernoulli equation	P. K1	Midterm exam Final exam	36	18 (50%)
	K3	**Concepts and Theories:**	**P-K3**	Midterm exam Final exam		
Skills	**S1**	**Problem solving skills:** Students solve problems. I'm intending to give them assignments and homework and to encourage group projects, but I can say that technology has become an integral part of their lives, and use computer programs to draw and solve mathematical equations, derivation and integration and they feel confident in this area.	P. S1	Midterm exam Quiz	10	5 (53%)
	S2	**Modeling and Design:** Problem solving (choice of practices based on the situation and the representation or model). -Applying the relevant laws to the problems				

	S3	**Application of Methods and Tools:** - Use the special techniques (to solve the circuits) field and its applications. - Integrate the concepts and principles of physics and its role in life sciences. - Interpret any phenomena according to physical laws.				
	S4	**Specific cognitions skill** :Assess the factors that affect of the diode	P. S1	Quiz Final	10	5 (50%)
Competencies	**C1**	**Analytic skills**: Relate the theoretical information to practical work to increase the understandings of the basic knowledge	P. C3	Assignment Final exam	10	5 (50%)
	C2	**Strategic thinking**: Demonstrate critical thinking/analytical reasoning ability by using the mathematical descriptions of physical systems and to calculate measurable quantities that provide an understanding of the physical environment in terms of the concepts listed in the course content.				

	C3	**Creative thinking and innovation:** -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 - 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 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).				
	C5	**Teamwork and Leadership:** **-Increase the cooperative behavior between the different research groups of different applications.**				

		-To work in stressful environment and within constraints.				

*Refer to document (CC-2023-02) and page 2 in document (CC-2023-01)
** Refer to document (CC-2023-05)
****80% of the students** must achieve the minimum acceptable percentage or higher for each CILO

Sixth: Learning Source

Designated Book:	Physics for Science and Engineering	
Author: Serway Jwett	***Print:*** 9th edition	***Year: 2010***
Additional Sources: Website:	Paul A. Tipler 4th edition	
Teaching Type:	☑ ***Classroom*** ☐ ***Laboratory*** ☐ ***Workshop*** ☐ **MS Teams** ☑ **Moodle**	

Seventh: Course Structure

Lecture Date	Topics	Teaching Procedures*	Teaching Methods**	Covered CILOs	References***
16/10/2023	Review of course topics and assessments	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2	
18/10/2023	**Ch. 29: Magnetic fields** Analysis Model: Particle in a Field (Magnetic)	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,C1;C2;	Pages 1-2
21/10/2023	Motion of a Charged Particle in a Uniform Magnetic Field	**Asynchronous**	Short videos Assignment1	K1,K2,S1,S3,S4;S5;C1,C2	Pages 3-4
23/10/2023	Applications Involving Charged Particles Moving in a Magnetic Field	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S4;S5;	62-67
25/10/2023	Magnetic Force Acting on a Current-Carrying Conductor	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,	67-71

28/10/2023	Torque on a Current Loop in a Uniform Magnetic Field	**Asynchronous**	Short videos Quiz1	K1,K2,S1,S3,S4;S5;	62-71
30/10/2023	The Hall Effect	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2, S1,S3;C1,C2	75-78
1/11/2023	Chapter review and worked examples	Direct teaching	Lecturing Discussion Whiteboard Power point	S1,S3;C1,C2	84-86
4/11/2023	**Ch. 30: Source of the Magnetic fields** The Biot–Savart Law	**Asynchronous**	Short videos Assignment2	K1,K2,S1,S3,S4;S5;C1,C2	86-90
6/11/2023	The Biot–Savart Law: Examples	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S4;S5;C1,C2	18-19 34-38
8/11/2023	The Magnetic Force Between Two Parallel Conductors	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S4;S5	
11/11/2023	Ampère's Law	**Asynchronous**	Short videos Quiz2	K1,K2,S1,S2,S5	198-201
13/11/2023	The Magnetic Field of a Solenoid	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S2,S4;S5;C1,C2	202-204
15/11/2023	Gauss's Law in Magnetism	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S5;C1,	211-218
18/11/2023	Magnetism in Matter	**Asynchronous**	Short videos Assignment3		219-222
20/11/2023	Chapter review and worked examples I	Direct teaching	Lecturing Discussion Whiteboard Mathematica simulation Power point	K1,K2,S1,S3,S4;S5;C1,C2	225-227
22/11/2023	Chapter review and worked examples I	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S3;S5;	303-306

25/11/2023	**Ch. 31: Faraday's Law** Faraday's Law of Induction	**Asynchronous**	Short videos Assignment4	K1,K2,S1,S3,S4;S5;C1,C2	315-318
27/11/2023	Some Applications of Faraday's Law	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S4;S5;	326-330
29/11/2023	Motional emf	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S4;	326-330
2/12/2023	Lenz's Law	**Asynchronous**	Short videos Quiz3	K1,K2,S1,S3,S4;S5;C1,C2	332-337
4/12/2023	**Mid term**	**Direct teaching**	**Written Exam**	**K1,K2,S1,S3,S4;S5;C1,C2**	
6/12/2023	Induced emf and Electric Fields Generators and Motors	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S4;S5;C1,C2	
9/12/2023	Eddy Currents	**Asynchronous**	Short videos Assignment5	K1,K2,S2	332-337
11/12/2023	Chapter review and worked examples I	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S4;S5;C1,C2	353-359
13/12/2023	Chapter review and worked examples I	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S4;S5;C1,C2	406-413
16/12/2023	**Ch. 32: Inductance** Self-Induction and Inductance	**Asynchronous**	Short videos Assignment6	K1,K2,S1,S3,S4;S5	406-413
18/12/2023	RL Circuits	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,	406-413
20/12/2023	Energy in a Magnetic Field	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S4;S5;C1,C2	401-406
23/12/2023	Mutual Inductance	**Asynchronous**	Short videos Quiz4	K1,K2,S1,S3,S4;S5;C1,C2	401-406
25/12/2023					

27/12/2023	Oscillations in an LC Circuit The RLC Circuit	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,S4;S5;C1,C2	485-505
30/12/2023	Chapter review and worked examples I	**Asynchronous**	Short videos Quiz5	K1,K2,S1,S3,S4;S5;C1,C2	485-505
1/1/2024					
3/1/2024	**Ch. 14: Fluid Mechanics** Pressure	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,	485-505
6/1/2024	Variation of Pressure with Depth Pressure Measurements	**Asynchronous**	Short videos Assignment7	K2,K3,;S5;C1,C2	
8/1/2024	Buoyant Forces and Archimedes's Principle	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S2,	281-290
10/1/2024	Fluid Dynamics	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2,S1,S3,	281-290
13/1/2024	Bernoulli's Equation	**Asynchronous**	Short videos Quiz6	K1,K2,S1,S3,S4;S5	281-290
15/1/2024	Chapter review and worked examples I	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2;C1,C2	
17/1/2024	Chapter review and worked examples I	Direct teaching	Lecturing Discussion Whiteboard Power point	K1,K2;C1,C2	
21/1/2024 - 1/2/2024	Final Exam				

Education procedures: (Direct, synchronous, asynchronous). * * Refer to document (CC-2023-04) ***Reference: Pages of the book, number of the chapter, recorded lecture, video….)

Eighth: Assessment methods

Methods	Fully Electronic Education	Integrated Teaching	Direct Teaching	Specific Course Output to be measured *State the score identified for each CILO for each method of assessment out of 100 **If any CILO will not be assessed in the course, mark NA.										
				K1	K2	S1	S2	S3	S4	C1	C2	C3	C4	C5
Mid-term Exam			35	15	15	5								
Final Exam			50	19	21				5	5				
Quiz1			5			5								
Quiz2			5						5					
Assignment			5							5				
Total out of 100			100	34	36	10			10	10				

* Refer to document (CC-2023-03)

Ninth: Course Policies

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

Approval	Name	Date	Signature
Head of Department	Dr. Riad		
Faculty Dean	Dr. ALia		