QF01/0408-4.0E	Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ physics Department

Study plan No.	2021/2022		**University Specialization**		Bachelor of physics		
Course No.	0150121		**Course name**		General Physics 2		
Credit Hours	3		**Prerequisite/ Co-requisite**		None		
Course type	☐ MANDATORY UNIVERSITY REQUIREMENT	☐ UNIVERSITY ELECTIVE REQUIREMENTS	☐ FACULTY MANDATORY REQUIREMENT	☐ Support course family requirements	✓ **Mandatory requirements**	☐ Elective requirements	
Teaching style	☐ Full online learning		✓ **Blended learning**		☐Traditional learning		
Teaching model	☐ 1 Synchronous: 1 asynchronous		✓ **2 face to face : 1 asynchronous**		☐2 Traditional		

Faculty member and study divisions' information (to be filled in each semester by the subject instructor)

Name	Academic rank	Office No.	Phone No.	E-mail	
Dr. Bashar S. Aljawarneh	Assistant Professor	129	429	BasharAljawarneh@gmail.com B. Aljawarneh @zuj.edu.jo	
Division number	**Time**	**Place**	**Number of students**	**Teaching style**	**Approved model**
1	[11:00 - 12:30] M, W	9143	7	Blended learning	2:1

Brief description

Charge and matter. Electric field. Gauss law. Electric potential. Capacitors and dielectrics. Electromotive force and electric circuits. Magnetic field. Ampere's law. Faraday's law of induction. Self-induction.

Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	Physics for Scientists and Engineers 9th ed. 2015, Serway			
Supportive learning resources (Books, databases, periodicals, software, applications, others)	1. Fundamental of Physics, by Haliday & Resnik 2015 2. University Physics, by Sears & Zemanisky, 2015.			
Supporting websites	• https://en.wikipedia.org/wiki/Physics • https://ocw.mit.edu/courses/physics			
The physical environment for teaching	✓ Class room	☐ labs	✓ Virtual educational platform	☐ Others
Necessary equipment and software				
Supporting people with special needs				
For technical support				

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Course learning outcomes (S= *Skills, C= Competences K= Knowledge,)*

No.	Course learning outcomes	The associated program learning output code
	Knowledge	
K1	**Define** the physical quantities, physical phenomena, and basic principles of physics related to the course	MK 1
K2	**Express** the physical laws related to the course using mathematics.	MK 4
K3	**Record** the physical quantity at the lab.	MK 2
	Skills	
S1	**Calculate** the electric field and the electric potential for a point charge and for simple continuous charge distributions using Coulomb's law and Gauss's law, the magnetic force and the magnetic field and comprehend Faraday's law of induction.	MS 1
S2	**Comprehend** the concepts of capacitance and resistance and be able to analyze multi-loop circuits and RC circuits using Kirchhoff's rules.	MS 3
S3	**Drive** physics laws.	MS 3
	Competences	
C1	**Cooperate** to work effectively in the group assignments.	MC 1
C2	**Show** responsibility for self-learning to be aware with recent developments in physics.	MC 4

Mechanisms for direct evaluation of learning outcomes

Type of assessment / learning style	Fully electronic learning	Blended learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
Midterm exam	30%	**30%**	40%	30%
Participation / practical applications	0	**0**	10%	30%
Asynchronous interactive activities	30%	**20%**	0	0
Final exam	40%	**50%**	50%	40%

Schedule of simultaneous / face-to-face encounters and their topics

Week	Subject	learning style*	Reference **
1,2	Electric Fields: Properties of electric charges, insulators and conductors, coulomb's law, electric field of point charges, electric field of a continuous charge distribution, electric field lines, motion of charged particles in a uniform electric field	Lecture	690 – 724 Ref 1
3,4	Gauss's Law: Electric flux, Gauss's law, applications of Gauss's law to charged insulators, conductors in electrostatic equilibrium	Lecture	725 – 745 Ref 1
5,6	Electrical Potential: Potential difference and electrical potential, potential difference in a uniform electric field, electric potential and potential energy due to point charges, Electric potential due to continuous charge distribution,	Lecture	746 – 776 Ref 1

	obtaining electric field from electric potential, potential of charged conductor		
	Review and Mid-Term Exam	Lecture	690 – 776 Ref 1
7,8	Capacitance and Dielectrics: Definition of capacitance, calculation of capacitance, combinations of capacitors, energy stored in a charged capacitor, capacitors with dielectrics	Lecture	777-807 Ref 1
9	Current and Resistance: Electric current, resistance and Ohm's law, electrical energy and power.	Lecture	808 – 832 Ref 1
10,11	Direct Current Circuits: Electromotive force, resistors in series and parallel, Kirchhoff's rules, resistance-capacitance circuits	Lecture	833 – 867 Ref 1
12, 13	Magnetic fields: Definition and properties of magnetic field, magnetic force on a current-carrying conductor, torque on a current loop in a uniform magnetic field, motion of a charged particle in a uniform magnetic field, the Hall effect	Lecture	868-904 Ref 1
14	Sources of the Magnetic Field: The Biot-Savart law, the magnetic force between two parallel conductors, Ampere's law, the magnetic field of a solenoid, magnetic flux, Gauss's law in magnetism	Lecture	905 – 934 Ref 1
15	Faraday's law: Faraday's law in induction, motional electromotive force, Lenz's law, induced electromotive forces and electric fields	Lecture	935 – 970 Ref 1
16	**Review and Final Exam**		

Schedule of asynchronous interactive activities (in the case of e-learning and blended learning)

Week	Task / activity	Reference	Expected results
1.	Background	Electric charge, force, and field Notes or any text book	Self-reading and Discussion
2.	Video 1 Solving exercises	E-learning	Discussion in the class
3.	Assignment 1: On the subjects studied on the first three weeks	(Lecture notes and Ref.1)	Submit a pdf or word sheet
4.	Quiz 1	On the subjects studied on the first three weeks	Submitting on the E-learning
5.	Video 2	Solving exercises	Discussion in the class
6.	Assignment 2: On the subjects studied in the weeks 4 and 5	(Lecture notes and Ref.1)	Submit a pdf or word sheet
7.	Self-reading	Insulators, conductors, and semiconductors . (Ref.1)	Talk
8.	Video3 : Solving exercises	E-learning	Discussion in the class
9.	Video 4 : Revision	E-learning	Video
10.	midterm exam	-	-
11.	Assignment 3: On the subjects studied in the weeks 6 and 7	(Lecture notes and Ref.1)	Submit a pdf or word sheet
12.	Quiz 2	On the subjects studied on the subject studied after midterm exam	Submitting on the E-learning
13.	Presentation of the subject:	Internet sources and the	Video

	Magnetic field and sources.	reference book	
14.	Video 5 Revision of all the course	E-learning	Video
15.	Assignment 1: On the subjects studied in the weeks 8 and 9	(Lecture notes and Ref.1)	Submit a pdf or word sheet
16.	**Final Exam**	-	