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.	0150111		**Course name**		General Physics 1		
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		✓ **1 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	
Division number	**Time**	**Place**	**Number of students**	**Teaching style**	**Approved model**

Brief description

This course describe the basic principal of classical mechanics. First it describe the measurements of physics. The motion in one dimensions. Then it describe the vectors, scalars and application in two dimensions. This course concentrate on the Laws of motion that is Newton's Laws of motion with application to circular motion. The course continue on the laws of conservation of energy and momentum with application on collision. Finally some introduction on the rotation of rigid body motion.

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/8-01sc-classical-mechanics-fall-2016/			
The physical environment for teaching	✓ Class room	☐ labs	✓ Virtual educational platform	☐ Others
Necessary equipment and software				
Supporting people				

with special needs	
For technical support	

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 physical quantity related to the course.	**MS 1**
S2	**Solve** physical problems	**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%	**30%**	0	0
Final exam	40%	**40%**	50%	40%

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

Week	Subject	learning style*	Reference **
1	Physics & measurement: Length, Mass & Time, Dimensional analysis, Order of Magnitude	Lecture	1 – 22 Ref 1
2	Motion in One Dimension: Displacement, Velocity, Speed, Instantaneous Velocity and Speed, Acceleration, Constant Acceleration	Lecture	23 – 40 Ref 1
3	Vectors: Coordinate Systems, Vectors & scalars, Properties of Vectors	Lecture	53 – 64 Ref 1
4	Motion in Two Dimensions: Displacement, Velocity, Acceleration and Constant Acceleration, Projectile Motion , Uniform Circular Motion	Lecture	71-110 Ref 1

5	The Laws of Motion: The Concept of Force, Inertial Mass, Weight, Newton's First, Second and Third Law Forces of Friction	Lecture	104 – 129 Ref 1
6	Circular Motion: Uniform Circular Motion , Nonuniform Circular Motion	Lecture	144 – 151 Ref 1
7	Kinetic Energy & Work: Work Done by Constant Force, The Scalar Product of Two Vectors; Work done by Varying Force; Work done by a Spring; Work Energy Theorem .	Lecture	127-139 Ref 1
8	**Review and Mid-Term Exam**	Lecture	1 – 139 Ref 1
9	Potential Energy & Conservation of Energy: Potential Energy, Conservative and NonConservative Force; Conservation of Energy.	Lecture	202 – 218 Ref 1
10 & 11	Linear Momentum & Collision: Linear Momentum and its Conservation Impulse and Momentum & Collision in One Dimension.	Lecture	235 – 248 Ref 1
13	Two Dimensional Collisions; the Center of Mass Motion of a System of Particles	Lecture	248 – 275 Ref 1
14	Rotation of a Rigid Object about a Fixed Axis: Angular Position, Velocity and Acceleration Rotational Motion, Angular Acceleration	Lecture	276 – 304 Ref 1
15	**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	On Physics & measurement: Length, Mass & Time, Dimensional analysis, Order of Magnitude 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	Uniform Circular Motion. (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

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

12.	Quiz 2	On the subjects studied on the subject studied after midterm exam	Submitting on the E-learning
13.	Presentation of the subject: **Two Dimensional Collisions**	Internet sources and the reference book	Video
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**	-	