



Course Specifications

Course Title:	General Physics (2)
Course Code:	2032102-4
Program:	Bachelor in Physics
Department:	Physics Department
College:	College of Science
Institution:	Taif University

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A. Course Identification

1. Credit hours: 4
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 4th level / 2nd year
4. Pre-requisites for this course (if any): None
5. Co-requisites for this course (if any): None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	7	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	50
2	Laboratory/Studio	20
3	Tutorial	
4	Others (specify)	
	Total	70

B. Course Objectives and Learning Outcomes

1. Course Description

This course cover important parts in Mechanics – Angular Motion and centripetal force – Mechanical properties matter – Heat – Thermal properties of matter – Vibratory motion – Sound waves

2. Course Main Objective

The concepts of classical mechanics related to projectile and circular motions and to elastic and inelastic collisions. Learn and apply the fluid statics, including the definition of fluid pressure, the description of Pascal and Archimedes principles and associated hydrostatic applications and pressure measurement designs.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Describe motions of straight trajectory on inclined planes and those of curved trajectories such as parabolic (projectile) and circular.	K3
1.2	Recognize momentum and energy conservation laws to describe elastic and inelastic collisions, and Measure physical quantities and properties with different instruments.	K3
2	Skills :	
2.1	Explain physical phenomena and concepts relevant to the course and their applications	S1
2.2	Develop physics problems solving skills.	S2
3	Values:	
3.1	Work efficiently within a teamwork frame to perform class and laboratory activities.	V2
3.2	Act responsibly and be able to prepare a written scientific report.	V3

C. Course Content

No	List of Topics	Contact Hours
1	Circular trajectory motion: Angular displacement, velocity and acceleration – Equations of angular motion – centrifugal acceleration	4
2	Parabolic trajectory motion: Projectile	3
3	Newton's laws applications and motion on tilted planes	3
4	The elastic property of a solid: Hook's law – Elasticity modulus	3
5	The amount of motion and Elastic and inelastic collisions	3
6	Three states of matter phase change diagram (solid and fluid- gas and liquid) - Pressure in fluids – Pascal principle – Archimedes principle	4
7	Compressible fluid and non-Compressible fluid- perfect fluid and specifications	3
8	Viscosity - effect of temperature on Viscosity	3
9	Surface tension - the poetic property	3
10	Flow of fluids- fluid movement –flow rate – continuity equation	4
11	Poiseuille law –motion and kinetic energy- pressure energy - Bernoulli equation and applications	6
12	Heat energy – Specific heat and heat capacity – Dissipated heat at constant temperature (liquid evaporation solid melting) -applications	4
13	Vibrations and Waves: Simple harmonic motion and pendulum – Wave propagation – Waves along strings – Stationary waves.	4
14	Sound waves in air – Sound velocity – Resonance in air tubes – Doppler effect.	3
Part 2 (Laboratory)		
No	List of Topics	Contact Hours
1	General introduction	2
2	Archimedes principle	2
3	Density of a solid	2

4	Joule equivalent	2
5	Sound velocity	2
6	Surface tension coefficient	2
7	Viscosity coefficient	2
8	Specific heat of a solid	2
9	Young modulus	2
10	Reports evaluation and practical exam	2
Total		70

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Describe motions of straight trajectory on inclined planes and those of curved trajectories such as parabolic (projectile) and circular.	<ul style="list-style-type: none"> Lectures Discussion 	<ul style="list-style-type: none"> Class performance (Interacting discussion with answers to oral questions).
1.2	Recognize momentum and energy conservation laws to describe elastic and inelastic collisions. Describe the application of continuity law and Bernoulli equation to various aspects of moving fluids in life, such as flowing blood in the human body.	<ul style="list-style-type: none"> Lectures Discussion 	<ul style="list-style-type: none"> Evaluation of homework, quizzes and reading reports.
2.0	Skills		
2.1	Explain physical phenomena and concepts relevant to the course and their applications	<ul style="list-style-type: none"> Lecture 	<ul style="list-style-type: none"> Written Exam.
2.2	Justify how physics is essential for technology advances.	<ul style="list-style-type: none"> Small group work discussions 	<ul style="list-style-type: none"> Midterm and final exams
3.0	Values		
3.1	Work efficiently within a teamwork frame to perform class and laboratory activities.	<ul style="list-style-type: none"> Groups discussions 	<ul style="list-style-type: none"> Lab reports Projects
3.2	Act responsibly and be able to prepare a written scientific report.	<ul style="list-style-type: none"> Lab work Groups discussions 	<ul style="list-style-type: none"> Lab reports

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midterm exam I	6 th	20%
2	Activities	Periodically	10%
3	Lab reports	10 th /Weekly	20%
4	Final Lab Exam	10 th	10%
5	Final exam	12 th	40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

- Each faculty member is assigned a group of students for continuous academic advice during six office hours weekly (6 hrs./week).
- Also teaching staff are available for individual student consultations during office hours.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	“Physics for Scientists and Engineers”, by Serway R. and Faughn J. Publisher: Brooks/Cole; 8th edition (2010)
Essential References Materials	Fundamentals of Physics”, by Halliday, Resnick and Walker, Ninth Edition, John Wiley & Sons, Inc (2011)
Electronic Materials	Web Sites on the internet that are relevant to the topics of the course & general physics websites such as: http://hyperphysics.phy-astr.gsu.edu/hbase/hframe.html www.sciencedirect.com
Other Learning Materials	Lecture notes and PowerPoints presentations prepared by the lecturer

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show Laptop
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Not applicable for this course

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student Feedback on Effectiveness of Teaching.	Students	Indirect
Evaluation of Teaching	-Instructor -Program coordinator -Departmental council -Faculty council	Indirect

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Improvement of Teaching	-Program leaders -Relevant committee	Direct
Quality of learning resources	- Students - Instructor - Faculty	Indirect
Extent of achievement of course learning outcomes,	- Program leaders - Instructor	Direct
Course effectiveness and planning for improvement.	- Program leaders - Instructor	Indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department Council / Committee of academic development
Reference No.	
Date	October 2, 2022