

EASTERN MEDITERRANEAN UNIVERSITY
DEPARTMENT OF PHYSICS

COURSE CODE	PHYS111	COURSE LEVEL	First year
COURSE TITLE	General Physics	COURSE TYPE	FACULTY CORE
CREDIT VALUE	(2, 2) 3	ECTS VALUE	6 credits
PREREQUISITES	None	COREQUISITES	Basic Mathematics
DURATION OF COURSE	One semester	SEMESTER and YEAR	Spring 2022-2023

INSTRUCRORS	ASSISTANT
Zahra Amirabi (01,02) zahra.amirabi@emu.edu.tr	HUSEYIN KARYAL Groups 01 and 02 huseyin.karyal@emu.edu.tr

Web-link: http://physics.emu.edu.tr/
TEXTBOOK (REQUIRED) J. Walker, K. Franklin. and P. Muir , Introduction to Biological Physics for The Health Life Sciences.

CATALOGUE DESCRIPTION

Physical quantities, measurements, units and unit conversion. Vectors and motion in one dimensions. Particle dynamics and Newton's laws of motion. Motion in a circle. Static and stability. Work and energy. Fluid mechanics, pressure, buoyancy, equation of continuity and Bernoulli equation Electric fields, Coulomb's law and electric potential. Atomic physics, Bohr model of the atom. Nuclear physics, nuclear decays. X-ray production. Magnetic fields.

AIMS & OBJECTIVES

- To introduce the fundamental concepts of classical mechanics, electricity, and magnetism.
- To provide students with a deeper understanding of fundamental laws and concepts of natural phenomena.
- To improve students' problem solving skills.
- To strengthen students' creative and systematic thinking capability.

GENERAL LEARNING OUTCOMES (COMPETENCES)

On successful completion of this course, all students will have developed **knowledge** and **understanding** of:

- The concepts, theories, techniques and generalizing principles of classical mechanics, electricity and magnetism;
- The mathematical forms of the laws and physical relationships and their application in solving problems;
- Diagrammatic and graphical representation of physics problems and physical data;
- Validation of theory through experiment/observation.

On successful completion of this course, all students will have developed **their skills in**:

- Correctly using symbols and units;
- Analytically/critically applying the theoretical concepts and methods covered in the course, and formulating appropriate equations to Solve problems;
- Using efficiently and effectively the textbook and other printed/electronic literature relevant to the course;
- Using good scientific English for written and oral communication.

On successful completion of this course, all students will have developed their **appreciation** of, and respect for **values and attitudes** to:

- The discipline of physics as a fundamental branch of science that provides qualitative and quantitative explanations about the physical world;
- Being an open-minded, curious, creative and reasoned skeptic;

Being aware of ethical issues in science.

GRADING CRITERIA

A (excellent) ~85% and above	Excellent understanding of the concepts and the principles as demonstrated by correct and accurate knowledge and application of theory/laws in solving problems. Response to problems is clear, legible, concise and accurate. Excellent performance.
B (good) ~70% and above	Better than average understanding of the concepts and the principles as demonstrated by correct and accurate knowledge and application of theory/laws in solving problems, but doesn't have the depth and outstanding quality of an "A". Response to problems is fairly clear, legible, but occasionally contains some inaccuracies. Performance exceeds the minimum requirements
C (average) ~60 % and above	An average understanding of the concepts and the principles as demonstrated by reasonably correct knowledge and application of theory/laws in solving problems, but doesn't have any depth. Response to problems is reasonably clear, legible, but contains inaccuracies. It reveals a sufficient understanding of the material, but lacks depth in understanding and approach/application. Content and form don't go beyond basic expectations and/or display some substantial errors. Acceptable but non-exceptional performance that doesn't go beyond the minimum requirements.
D (barely sufficient) ~50% and above	Minimal knowledge and barely sufficient understanding of the concepts and the principles as demonstrated by approximately correct application of theory/laws in solving problems. Response to problems is not very clear and is barely legible, and contains many inaccuracies. It reveals a minimum (confused) understanding of the material, and lacks depth in understanding and approach/application. Content and form do not adequately meet the basic expectations, and/or display significant errors. Performance demonstrates severe problems in one or more areas.

F (fail) Below 50%	Work does not meet the most minimal standards. It reveals no understanding of the material, lack of basic academic skills and knowledge, or completely incomprehensible writing. Performance is not acceptable
NG nil grade	Not enough information to assign a letter grade. 1. Overall attendance to the classes <50% will lead automatically to the grade NG. All repeating students who fulfilled the attendance requirement of a course once, i.e, whose previous grade is not NG\W are exempted from the attendance requirement. 2. Laboratory participation < 3 will lead automatically to the grade NG. 3. Missing any two main exams will lead automatically to the grade NG.

LECTURES	TOPICS TO BE COVERED
	MECHANICS
Week 1#	Kinematics -conversion
Week 2#	Force and Newton's Laws of Motion
Week 3#	Motion in a Circle
Week 4#	Statics
Week 5#	Energy
Week 6#	Momentum
	<i>MIDTERM EXAM</i>
	BULK MATERIALS
Week 8#	Pressure -Buoyancy
Week 9#	Fluid Dynamics of Non-viscous Fluids
	ELECTROSTATICS
Week 10#	Static Electricity
Week 10#	Electric Force and Electric Field
Week 10#	Electrical Potential and Energy
	OPTICS
	The nature of Light
	Geometric Optics
	The eyes and Vision
	RADIATION AND HEALTH
Week 11#	Atoms and Atomic Physics
Week 11#	The nucleus and Nuclear Physics
Week 12#	Production of Ionising Radiation
	Biological Effects of Ionising Radiation
	Medical Imaging
	Magnetism and MRI
	<i>FINAL EXAM</i>

ASSESSMENT

40%	Midterm Exam (mid-term duration, paper-based midterm examination).
10%	Lab Exam (accompanying with final exam).
Topics: theoretical background of experiments conducted, analysis of experimental data, experimental setup.	
5%	Lab Participation.
45%	Final Exam (final duration, paper-based final examination)

IMPORTANT NOTES

Active participation to lectures is a must for successful completion of this course. Nonrepeating students failing to attend lectures, tutorials, laboratories and exams on a regular basis may receive an NG grade.

Per the department's decision, repeating students will **not** be granted lab exemptions this semester.

- Attendance in the **Lab-exam** is mandatory for all students.
- Attendance in the **Lab-Sessions** is mandatory for all students.

Make-up exam:

According to the Examinations and Evaluation Regulation of Eastern Mediterranean University by Law students who have NOT attended any of the Midterm or Final exams have to provide a valid excuse for not attending the exam within 3 working days after the exam in order to be granted the right to enter the make-up examination. For any student missing more than one of the main exams (Midterm and Final or the corresponding make-up exam) the grade NG will be assigned.

Objections:

Graded exam papers will be available for inspection upon request. According to the regulations of The University, any objections or re-grade requests should be made within a week of the announcement of grades.

ACADEMIC HONESTY - PLAGIARISM

Cheating is copying from others or providing information, written or oral, to others. Plagiarism is copying without acknowledgement from other people's work. According to university by laws cheating and plagiarism are serious offences punishable with disciplinary action ranging from simple failure from the exam or project, to more serious action (letter of official warning suspension from the university for up to one semester). Disciplinary action is written in student records and may appear in student transcripts.

IMPORTANT NOTICE TO ALL STUDENTS REPEATING THE COURSE FOR A BETTER GRADE; WHATEVER GRADE YOU RECEIVE AT THE END OF THIS SEMSTER WILL REPLACE YOUR PREVIOUS GRADE.

GROUP	DAY/PERIOD	EXPERIMENT 1	EXPERIMENT 2	EXPERIMENT 3	EXPERIMENT 4	EXPERIMENT 5
01	3/7-8	15 MARCH	29 MARCH	12 APRIL	10 MAY	24 MAY
02	2/5-6	16 MARCH	30 MARCH	13 APRIL	11 MAY	25 MAY