Identification	**Subject**	PHSC 111 - Physics 1 - 6 ECTS credits	
	Department	Physics and Electronics	
	Program	Undergraduate	
	Term	Fall 2024	
	Instructor	Ph.D. Shirkhan Humbatov	
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	Phone:	+99477-631 32 83	
	Classroom/hours	08:30-15:35	
	Office hours		
Prerequisites	no		
Language	English		
Compulsory/Elective	Compulsory		
Description	This course covers the principles of mechanics, heat, fluids, oscillations, waves andsound. Emphasis is on conceptual development and numerical problem solving. A detailed schedule of topics can be found later in this syllabus.		
Required textbooks and course materials	**University physics with modern physics 14th edition global edition by Hugh D. Young, Roger A. Freedman and Lewis A Ford.**		
Course website	**Class assignments**: www.edmodo.com		
Course outline	This course of physics I provide a conceptually based exposure to the fundamental principles and processes of the physical world. Lectures include basic concepts of motion, forces, energy, heat, Newton's laws, fluids thermodynamics, thermal physics,work and energy, power. Upon completion, students should be able to describe. examples and applications of the principles studied.		
Course objectives	This course will help students to receive idea of the main physical phenomena and the major physical laws. The course of the general physics will give the chance to studentsto study motion laws, movement of a solid body, surface phenomena, will be able to analyze the types of motion, Newton's laws. At the end of course the students will be able to understand fundamentals of classical physics, to solve physical problems of mechanics and molecular physics.		
Learning outcomes	• What students should know by the end of the course: • Students should describe the types of motion, such as motion in one-dimension, projectile motion, circular motion and also differentiate each of them. • Students should apply Newton's Laws, can analyzing contact and field forces, also should know about simple harmonic motion, pendulum, temperature, pressure, Archimedes principle, Buoyant force, work and energy, the types of energy, fluids dynamics. • Students should solve each problem relating to these topics and answer the questions easily and correctly, path the quizzes and midterm or final exam successfully.		
Teaching methods	**Lecture**		+
	Seminar		+
	Assisted work		x
	Assisted lab work		x
	Others		
Evaluation	**Methods**	**Date/deadlines**	**Percentage (%)**
	Midterm Exam		30
	Class Participation and Attendance	At each lesson	5
	Quizzes	During the semester, total 2 quizzes, for each 10 point	20
	Activity	At each lesson	10
	Final Exam		35
	Total		100
Policy	▪ **Preparation for class** The structure of this course makes your individual study and preparation outside the class extremely important. The lecture material will focus on the major pointsintroduced in the text. Reading the assigned chapters and having some familiaritywith them before class will greatly assist your understanding of the lecture. Afterthe lecture, you should study your notes and work relevant problems and cases from the end of the chapter and sample exam questions. ▪ **Withdrawal (pass/fail)**		

	This course strictly follows grading policy of the School of Science and Engineering. Thus, a student is normally expected to achieve a mark of at least60% to pass. In case of failure, he/she will be required to repeat the course thefollowing term or year. ▪ **Cheating/plagiarism** Cheating or other plagiarism during the Quizzes, Mid-term and Final Examinations will lead to paper cancellation. In this case, the student will automatically get zero (0), without any considerations. ▪ **Professional behavior guidelines** The students shall behave in the way to create favorable academic and professional environment during the class hours. Unauthorized discussions and unethical behavior are strictly prohibited. **Attendance** Students who attend the whole classes will get 5 marks. for three absence student loses 1 mark. ▪ **Activity** Students who will be active during discussion of past lessons and who will be solve homework problems in a seminar will be awarded with one activity mark. ▪ **Quizzes** ▪ There will be 2 quizzes examination during the semester. The quizzes will be announced in the classroom two weeks before. Quiz is based on homework problems. The homework problems will be selected from questions and problems in the end of each chapter. The number of homework problems will be announced after finishing each chapter. ▪ The students who able to pass midterm and first quiz with max points automatically get max 10 point for the second quiz.

Tentative Schedule			
Week	**Date/Day (Tentative)**	**Topics**	**Textbook/Assignments**
1	**16.09.24-21.09.24**	**UNITS, PHYSICAL QUANTITIES, AND VECTORS** **Short description:** ✓ The Nature of Physics ✓ Standards and Units ✓ Uncertainty and Significant Figures ✓ Vectors and Vector Addition ✓ Components of Vectors ✓ Unit Vectors ✓ Products of Vectors	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 1. 2. Handnotes given by teacher
2	**23.09.24-28.09.24**	**MOTION ALONG A STRAIGHT LINE** **Short description:** ✓ Displacement, Time, and Average ✓ Velocity ✓ Instantaneous Velocity ✓ Average and Instantaneous Acceleration ✓ Motion with Constant Acceleration ✓ Freely Falling Bodies ✓ Velocity and Position by Integration	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 2. 2. Handnotes given by teacher
3	**30.09.24-05.10.24**	**MOTION IN TWO OR THREE DIMENSIONS** **Short description:** ✓ Position and Velocity Vectors ✓ The Acceleration Vector ✓ Projectile Motion ✓ Motion in a Circle ✓ Relative Velocity	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 3. 2. Handnotes given by teacher
4	**07.10.24-12.10.24**	**NEWTON'S LAWS OF MOTION** **Short description:** ✓ Force and Interactions ✓ Newton's First Law ✓ Newton's Second Law ✓ Mass and Weight ✓ Newton's Third Law ✓ Free-Body Diagrams	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 4. 2. Handnotes given by teacher
5	**14.10.24-19.10.24**	**WORK AND KINETIC ENERGY** **Short description:** ✓ Work ✓ Kinetic Energy and the Work–Energy ✓ Theorem ✓ Work and Energy with Varying Forces ✓ Power	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 6. 2. Handnotes given by teacher
	21.10.24-26.10.24	**POTENTIAL ENERGY AND ENERGY CONSERVATION** **Short description:** ✓ Gravitational Potential Energy ✓ Elastic Potential Energy ✓ Conservative and Nonconservative Forces ✓ Force and Potential Energy	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 7. 2. Handnotes given by teacher
7	**28.10.24-02.11.24**	**MOMENTUM, IMPULSE, AND COLLISIONS** **Short description:** ✓ Momentum and Impulse	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 8.

		✓ Conservation of Momentum ✓ Momentum Conservation and Collisions ✓ Elastic Collisions ✓ Center of Mass ✓ Rocket Propulsion	2. Handnotes given by teacher
8	**04.11.24-09.11.24**	Midterm Exam Problem solving	
9	**11.11.24-16.11.24**	**ROTATION OF RIGID BODIES** **Short description:** ✓ Angular Velocity and Acceleration ✓ Rotation with Constant Angular ✓ Acceleration ✓ Torque ✓ Torque and Angular Acceleration for a ✓ Rigid Body ✓ Rigid-Body Rotation About a Moving Axis ✓ Work and Power in Rotational Motion	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 9-10. 2. Handnotes given by teacher
10	**18.11.24-23.11.24**	Quiz Problem solving	
11	**25.11.24-30.11.24**	**FLUID MECHANICS** **Short description:** ✓ Gases, Liquids, and Density ✓ Pressure in a Fluid ✓ Buoyancy ✓ Fluid Flow ✓ Bernoulli's Equation ✓ Viscosity and Turbulence	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 12. 2. Handnotes given by teacher
12	**02.12.24-07.12.24**	**GRAVITATION** **Short description:** ✓ Newton's Law of Gravitation ✓ Weight ✓ Gravitational Potential Energy ✓ The Motion of Satellites ✓ Kepler's Laws and the Motion of Planets ✓ Spherical Mass Distributions ✓ Apparent Weight and the Earth's Rotation ✓ Black Holes	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 13. 2. Handnotes given by teacher
13	**09.12.24-14.12.24**	**PERIODIC MOTION** **Short description:** ✓ Simple Harmonic Motion ✓ Describing Oscillation ✓ Energy in Simple Harmonic Motion ✓ Applications of Simple Harmonic Motion ✓ The Simple Pendulum ✓ The Physical Pendulum ✓ Damped Oscillations	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 14. 2. Handnotes given by teacher
14	**16.12.24-21.12.24**	**MECHANICAL WAVES** **Short description:** ✓ Types of Mechanical Waves ✓ Periodic Waves ✓ Mathematical Description of a Wave ✓ Speed of a Transverse Wave ✓ Energy in Wave Motion ✓ Wave Interference, Boundary Conditions, ✓ and Superposition ✓ Sound Waves	1. **University physics with modern physics by Hugh D. Young, Roger A. Freedman and Lewis A Ford.,** Chapter 15. 2. Handnotes given by teacher
15	**23.12.24-28.12.24**	**KINETIC THEORY OF IDEAL GASES.** **Short description:** ✓ Kinetic theory of ideal gases.	1. **University physics with modern physics by Hugh D. Young, Roger A.**

		✓ Barometric medium ✓ Law of Boltzmann ✓ The Celsius ✓ Fahrenheit and Kelvin Temperature Scales	**Freedman and Lewis A Ford.,** Chapter 17-18. 2. Handnotes given by teacher
		Final Exam	