SYLLABUS

Basic data of the subject	
University	**University of Applied Sciences in Ferizaj**
Academic unit	**Faculty of Engineering and Informatics**
Program	**Industrial Engineering with Informatics**
Title of the subject	**Physics**
Level	**Bachelor**
Course Status	**Core**
Year of studies	**I, Semester II**
Number of hours per week	**3**
Value of Credits - ECTS	**5**
Time / location	
Course lecturer	
Contact details	
Course Description	*Physics is an important subject for the technical sciences and it is rightly considered that technique is an application of the laws of physics. Physics will introduce students with the methods of study and with the results obtained, both of practical and experimental nature. It highlights the application and relation of the laws of physics with other technical sciences that have emerged from physics. It has the task to enable the students to do practical and research work on a variety of physical problems, to know the equipment and to evaluate the importance of the results.*
Objectives of the course	*The purpose of this course is to equip students with knowledge of physics, which will help them apply it in their practical work.*
Expected learning outcomes	*Upon completion of this module the students will be able to:* • *Apply the gained knowledge in practice, that will serve them to successfully follow professional courses during they studies* • *Use research methods, whether observational, theoretical or experimental* • *Work in groups while conducting research* • *Have good communication skills and present the graphical representation of the laws of physics.* • *Write good paper works*
Prerequisites	*There are no prerequisites to start learning the database. However, it is recommended that students have basic knowledge of Physics and Mathematics.*

Contribution to the student load (which must correspond with learning outcomes)			
Activity	**Hour**	**Day/Week**	**In total**
Lectures with numerical exercises	3	15	45
Internship			
Contacts with teacher / consultations			
Field exercises			
Midterm, seminars and projects.	3	2	6
Homework			
Self-learning time student (at the library or at home)	3	15	45
Final preparation for the exam	7	2	14
Time spent on evaluation (tests, quiz and final exam)			
Projects and presentations.	3	5	15
Total			**125**

Teaching methodology	*Ectures and exercises combined with case studies and classroom discussions.*
Assessment methods	*The student can choose to be evaluated one of the two forms of evaluation, given below:* *1. Form 1: Evaluation with colloquiums and project* *2. Form 2: Evaluation with the final exam.* *3. Form 1: In the first form of assessment* *Assessment with colloquiums and project "the student is assessed in four activities that are carried out during the lectures: 1. Colloquium 1 (30%), individual assessment 2. Colloquium 2 (30%), individual assessment 3. Class activity (10%), individual assessment 4. Project and laboratory exercises (30%). Additional clarification: If the student in each activity above reaches the maximum points, then he will be evaluated with 100 points. Students who pass the exam according to form 1 of the assessment, are released from the obligation to take the final exam. Only if the student is not satisfied with the grade achieved according to form 1, then he can undergo the final exam to obtain a higher grade.* *Form 2: In the second form of evaluation, "Evaluation with the final exam", the student will undergo the exam which is held after the end of the course lectures, and is organized in the exam deadlines, determined by the University senate. Through the final exam, the student can achieve a maximum of 70% of the points from the total of 100 points.* *The rest of the 30% points must be completed by the Project work and laboratory exercises, an activity carried out during the lectures. In Colloquium 1, Colloquium 2 and Final Exam, the assessment of students will be done through an assessment form, which must be completed individually by the student.*

	The evaluation form will contain objective and subjective questions through which the student's learning outcomes will be evaluated: *Objective questions will be of the following types: (5) multiple choice task, (4) Correct/Not Correct, (5) Completion (open questions) Matching; questions that will be used to assess the student's abilities to recall and recognize the concepts and material of the course. ·* *The subjective questions will be of the Essay/written task type that will be used to evaluate the student's understanding and abilities to apply the knowledge gained in the analysis, synthesis and evaluation of the problem, from the answers prepared by the student to the question posed. .* *Activity in the class means the student's engagement in dealing with the discussed issues and solving the tasks in the class, during the lectures. Project and laboratory exercises (30%), individual evaluation: it is an activity that each student applies the acquired knowledge in a concrete project. It is carried out by a student who has the obligation to carry out the activity, document and present it to the subject professor.* *For the form of realism and documentation of the activity, all students listen and can ask questions and will be evaluated with the same points, and the laboratory exercises must be defended and evaluated with (20%), while the evaluation of the presentation skills of the individual activity and includes 10 %.* *Rating:* *91-100 points - graded 10 (ten)* *81-90 points - graded 9 (nine)* *71-80 points - grade 8 (eight)* *61-70 points - grade 7 (seven)* *51-60 points - grade 6 (Six)* *0-50 points – The student repeats the exam.*
The ratio of theory and practice	70% theory with exercises and 30% laboratory work.
Literature	
Basic Literature	1. *Pal A Tipler, Physics Course I and II, prepared and translated by the Polytechnic University of Tirana, Tirana.* 2. *Dr. Skender Skenderi, Dr. Ahmet Veseli, "Physics for students who listen to the one-year Physics course". University of Prishtina.* 3. *Dr. Skender Skenderi, Dr. Rashid Maliqi, "Summary of assignments from Physics", University of Prishtina*

Additional Literature	*Kenneth Krane, "Modern Physics"*
Designed learning plan	
Week:	**Lectures and exercises to be held**
Week one	*Introduction to Physics.* *Basic Sizes* *International System of Units.*
Week two	*Understanding basic sizes* *Length, mass,* *Time, speed* *Haste, strength,* *Numerical exercises for explained units*
Week three	*Kinematics* *Movements and acceleration* *Separation of movement and their calculation* *Numerical exercises for explained units.*
Week four	*Dynamics* *Understanding the Force* *Basic laws of mechanics* *Newton's law of gravity* *Numerical exercises for explained units*
Week five	*Dynamics* *Gravity force – Weight* *Work, energy and power* *Law on energy conservation and its implementation* *Numerical exercises for explained units*
Week six	*Tremors* *Harmonious swaying motion* *Harmonic mechanical-kinematic swing motion* *Dynamics of harmonic oscillations* *Equation of harmonic oscillations* *Numerical exercises for explained units*
Week seven	*Test 1*
Week eight	*Tremors - Continuation* *Tremors of mathematical and physical pendulum* *Tremors of physical pendulum* *Tremors that are extinguished* *Non periodic tremors* *Numerical exercises for explained units*
Week nine	*Mechanical waves* *Characteristics of waves* *Wave speed* *Mechanical wave equation* *The connection between mechanical waves and uniform circular motion* *Reflection and refraction of waves* *Numerical exercises for explained units*

Week ten	*Optics* *Geometric optics* *Reflection of light* *Flat and spherical mirrors* *Equation of spherical mirrors* *Breaking the light through tiles and prisms* *Full reflection* *Fracture on spherical surface* *Thin lentils* *Numerical exercises for explained units*
Week eleven	*Optics- Continuation* *Lentil equations* *Optical instruments* *Lens and microscope* *Breaking in prism* *Numerical exercises for explained units*
Week twelve	*Optics- Continuation* *Wave optics* *Light interference* *Light diffraction and polarization* *Interferential light intensity* *Interference of two virtual sources* *Numerical exercises for explained units*
Week thirteen	*Atomic Physics* *The structure of the atom* *Raterford models* *Bohr postulates* *Speed, radius and energy of electron around the nucleus* *Energy level and spectral series of the hydrogen atom* *Particle/ wave dualism of microcells* *Numerical exercises for explained units*
Week fourteen	*The law of radioactive dismounting* *Types of spontaneous radioactive dismounting* *α, β and gamma rays* *Nuclear reactions* *Conservation laws in nuclear reactions* *The nucleus of the atom* *Nuclear energy* *Fission and fusion* *Numerical exercises for explained units*
Week fifteen	*Test 2*
Academic policies and rules of conduct	
Regular participation in lectures and exercises is necessary, as well as active participation in the discussion and laboratory exercises leading to the result. Cell phones should be turned off or put on silent mode.	