

Syllabus

Course description

Course title	Fundamentals of Physics
Course code	40183
Scientific sector	FIS/03
Degree	Bachelor in Agricultural, Food and Mountain Environmental Sciences
Semester	2 nd
Year	I
Academic year	2019/20
Credits	6
Modular	No

Total lecturing hours	36
Total exercise hours	24
Attendance	Recommended
Prerequisites	Mathematics, Chemistry
Course page	https://www.unibz.it/

Specific educational objectives	The course aims to give to the attendants a scientific basis in static + kinematic mechanics and thermodynamics, as well as practical methods and the ability to solve problems related to the same topics.
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Lecturer	Niko Münzenrieder niko.muenzenrieder@unibz.it
Scientific sector of the lecturer	FIS/03
Teaching language	English
Office hours	
Teaching assistant (if any)	
List of topics covered	<ol style="list-style-type: none"> 1. <u>Introduction.</u>: physical quantities; units; vectors. 2. <u>Basic mechanics</u> e.g.: Mechanical forces; energy; hydrostatic pressure, conservation laws 3. <u>Kinematics.</u>: Laws of motion; oscillations 4. <u>Thermodynamics</u> e.g.: thermal properties; ideal gases; first and second law of thermodynamics.
Teaching format	Classroom lessons and exercises.

Learning outcomes	<u>Knowledge and understanding</u> Knowledge and understanding of physical laws of: <ol style="list-style-type: none"> 1. Mechanics 2. Thermodynamics <u>Applying knowledge and understanding</u>
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	<p>3. Ability to analyze and solve problems on mechanics, and thermodynamics.</p> <p><u>Making judgements</u></p> <p>4. Students are expected to develop the ability to judge the plausibility of results.</p> <p><u>Communication skills</u></p> <p>5. Further development of a quantitative, technical, and scientific terminology to express ideas and opinions about physical phenomena.</p> <p><u>Ability to learn</u></p> <p>6. Development of an analytic attitude enabling the student to divide a problem into sub-tasks which can be solved using previously acquired knowledge.</p>
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Assessment	<p>Formative assessment</p> <table border="1"> <thead> <tr> <th>Form</th> <th>Details</th> <th>ILOs assessed</th> </tr> </thead> <tbody> <tr> <td>In-class exercises</td> <td>Continuously as part of course-accompanying exercises</td> <td>1-7</td> </tr> </tbody> </table> <p>Summative assessment</p> <table border="1"> <thead> <tr> <th>Form</th> <th>Details</th> <th>ILOs assessed</th> </tr> </thead> <tbody> <tr> <td>Written</td> <td>Closed book exam</td> <td>1-7</td> </tr> </tbody> </table>	Form	Details	ILOs assessed	In-class exercises	Continuously as part of course-accompanying exercises	1-7	Form	Details	ILOs assessed	Written	Closed book exam	1-7
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Written	Closed book exam	1-7											
Assessment language	English												
Evaluation criteria and criteria for awarding marks	<p>The written exam consists in two parts: a first part (problem 1) with a series of qualitative questions based on the understanding of the covered topics, as well as a second part (problems 2-6) consisting of several numerical problems to be solved, which cover aspects of the various topics covered.</p> <p>Judged will be:</p> <ul style="list-style-type: none"> - the correctness of the approach and the mathematical steps of the solution, the calculation of numerical results and the correct use of physical quantities and units; - the correctness of the provided answers and of the presented, as well as the terminology used. <p>Every problem has the same maximum score of 6. The final score is the sum of the scores associated to each exercise. To pass the exam the final score must be greater or equal to 18. If the final score is greater than 30, a "with honors" is awarded.</p>												

	The student can have access to the exam with pen, pencil and a portable calculator. A short list of constants is provided to the students along with the text of the exam
Required readings	Blackboard / lecture slides
Supplementary readings	<ul style="list-style-type: none"> • <i>Physics for Scientists and Engineers</i>, Paul A. Tipler, Macmillan, 6th edition, 2007. • <i>Physics for Scientists and Engineers with Modern Physics</i>, Douglas C. Giancoli, Pearson, 4th edition, 2008.