

# Syllabus

## *Descrizione corso*

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| <b>Titolo insegnamento</b>              | Fisica   |
| <b>Codice insegnamento</b>              | 42605  |
| <b>Titolo aggiuntivo</b>                |  |
| <b>Settore Scientifico-Disciplinare</b> | FIS/03   |
| <b>Lingua</b>                           | Tedesco  |
| <b>Corso di Studio</b>                  | Corso di laurea professionalizzante in Tecnologie del Legno  |
| <b>Altri Corsi di Studio (mutuati)</b>  |  |
| <b>Docenti</b>                          |  |
| <b>Assistente</b>                       |  |
| <b>Semestre</b>                         | Secondo semestre   |
| <b>Anno/i di corso</b>                  | 1  |
| <b>CFU</b>                              | 5  |
| <b>Ore didattica frontale</b>           | 50   |
| <b>Ore di laboratorio</b>               | 0  |
| <b>Ore di studio individuale</b>        | 75   |
| <b>Ore di ricevimento previste</b>      | 15   |
| <b>Sintesi contenuti</b>                | <ul style="list-style-type: none"> <li>• Basics e.g.: physical quantities; units; dimensions of physical quantities; vectors.</li> <li>• Mechanics e.g.: Newtonian mechanics; mechanical forces; energy; power, momentum; conservation of energy.</li> <li>• Thermodynamics e.g.: phases of matter; thermal properties of matter; ideal gases; first and second law of thermodynamics.</li> <li>• Electrostatics e.g.: electric charges, Coulomb force; potentials, and fields; capacitors.</li> <li>• Electric current: DC/AC currents; Ohm's law; Joule's law.</li> <li>• Magnetism: permanent magnets; electromagnets magnetic forces and induction.</li> </ul> |
| <b>Argomenti</b>                        |  |

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| dell'insegnamento   |  |
| Parole chiave   |  |
| Prerequisiti  | Mathematics  |
| Insegnamenti propedeutici   |  |
| Modalità di insegnamento  | Frontal lectures and occasional exercises in class.  |
| Obbligo di frequenza  | Recommended.   |
| Obiettivi formativi specifici e risultati di apprendimento attesi                   | <p>This is a basic course on the fundamental of physics.</p> <p>The course aims to give the attendants a basic scientific understanding on mechanics, thermodynamics, electricity and magnetism.</p> <p>The lecture is linked to the associated course:<br/>42606 Laboratory of Physics applied to Mechanics</p> <p>Knowledge and understanding</p> <p>1. Knowledge and understanding of physical laws of:</p> <ul style="list-style-type: none"> <li>- Mechanics</li> <li>- Thermodynamics</li> <li>-Electricity and Magnetism</li> </ul> <p>Applying knowledge and understanding</p> <p>2. Ability to analyse and solve simple problems on mechanics, thermodynamics, electricity and magnetism.</p> <p>Making judgements</p> <p>3. Students are expected to develop the ability to judge the plausibility of results.</p> <p>Communication skills</p> <p>4. Further development of a quantitative, technical, and scientific terminology to express ideas and opinions about physical phenomena.</p> <p>Ability to learn</p> <p>5. Development of an analytic attitude enabling the student to divide a problem into sub-tasks which can be solved using previously acquired knowledge.</p> |
| Obiettivi formativi specifici e risultati di apprendimento attesi (ulteriori info.) |  |
| Modalità di esame   | <p>Formative assessment:</p> <p>Form: In-class exercises</p> <p>Length/duration: Continuously as part of course-accompanying</p>   |

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|   | <p>exercises</p> <p>ILOs assessed: 1-5</p> <p>Summative assessment:</p> <p>Form: oral</p> <p>Length/duration: 20 minutes</p> <p>ILOs assessed: 1-5</p>   |
| <b>Criteria di valutazione</b>                  | <p>The oral examination consists of 3 topics per person:</p> <ol style="list-style-type: none"> <li>1. Explanation of a topic from the lecture (correct answer is sufficient to pass).</li> <li>2. Application of a known principle from the lecture to a new problem (correct answer improves the mark).</li> <li>3. Discussion of an unknown problem related to the lecture (correct answer/convincing discussion is necessary to achieve a "cum Laude" distinction).</li> </ol> <p>All answers/discussion will be oral but may be supported by sketches and written formulae on paper.</p> <p>The following will be assessed:</p> <ul style="list-style-type: none"> <li>• The correctness of the approaches and steps to the solution, and the correct use of physical quantities and units</li> <li>• The correctness of the answers and arguments presented, and the terminology used.</li> </ul> <p>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> |
| <b>Bibliografia obbligatoria</b>                | <p>Blackboard.</p>   |
| <b>Bibliografia facoltativa</b>                 | <p>Various textbooks can be used as a reference, for example:</p> <ul style="list-style-type: none"> <li>• Physik für Bachelors, Johannes Rybach, Carl Hanser Verlag, 3. Auflage, 2007 (only in German).</li> <li>• Mechanics and Thermodynamics, Wolfgang Demtröder, Springer International Publishing, 2017.</li> <li>• Electrodynamics and Optics, Wolfgang Demtröder, Springer International Publishing, 2013.</li> <li>• Physics for Scientists and Engineers with Modern Physics, Douglas C. Giancoli, Pearson, 4th edition, 2008.</li> </ul>  |
| <b>Altre informazioni</b>                       |  |
| <b>Obiettivi di Sviluppo Sostenibile (SDGs)</b> |  |