



COURSE: Physics I (mechanics and thermodynamics)			
ACADEMIC YEAR: 2016-17			
TYPE OF EDUCATIONAL ACTIVITY: Basic			
TEACHER: Maria Ragosta			
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Language: Italian			
ECTS: 12	n. of hours: 120	Campus: Potenza Engineering School Program: Environmental and Civil Engineering; Mechanical Engineering	Semester: I and II

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The course is designed to enable the student to develop the ability to reason about physical phenomena using important science process skills such as explaining causal relationships, applying and justifying the use of mathematical routines, designing experiments, analyzing data and making connections across multiple topics within the course.

PRE-REQUIREMENTS

High school preparation in algebra, geometry e trigonometry.

SYLLABUS

Unit 1 - Scientific method. Scalars and vectors.

Unit 2 - Kinematics of a material point.

Unit 3 - Dynamics of a material point.

Unit 4 - Kinematics and dynamics of particle systems.

Unit 5 - Rotational motion and equilibrium.

Unit 6 - Fluids.

Unit 7 - Thermodynamics.

TEACHING METHODS

Theoretical lessons, Classroom tutorials.

EVALUATION METHODS

Intermediate verifications or Written examination, Oral examination.

The written examination concerns the resolution of four exercises on the units 1 -5. It has a duration of 2 hours. The evaluation is expressed in thirtieths (18/30 minimum threshold for overcoming). The vote obtained in the written test determines the final vote with a weight of 7.5 .

The oral examination covers the topics of the units 5-7 (compulsory part) and the remaining items of the program (optional part). The evaluation is expressed in thirtieths (18/30 minimum threshold for overcoming). The vote obtained in the oral examination determines the final vote with a weight of 4.5.

During the course, two intermediate verifications are carried out. They can substitute the written examination. The first intermediate verification (with selective character): It takes place at the beginning of the second semester (early March) and concerns the resolution of four exercises on the units 1-3. It has a duration of 2 hours. The evaluation is expressed in thirtieths (18/30 minimum threshold for overcoming).

The second intermediate verification (only for the students who have passed the first): It takes place at the end of



May and it concerns the resolution of four exercises on the units 4-5. It has a duration of 2 hours. The evaluation is expressed in thirtieths (18/30 minimum threshold for overcoming).

To students who are sufficient in both these intermediate verifications, it is given the vote on the written part of the exam as the arithmetic average of the two scores obtained in the verification tests. The following oral examination must take place by the end of July.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

Textbooks (in italian):

Gettys W. E., F.J. Keller, M.J. Skove. Fisica classica e moderna. 1. Meccanica, termodinamica, onde. ed. McGraw-Hill
Halliday D., R. Resnick, J. Walker. Fondamenti di Fisica. Casa Editrice Ambrosiana
Tipler P.A., Mosca G. Corso di fisica 1 - Meccanica Onde e Termodinamica Ed. Zanichelli
Giancoli – Fisica 1 - Casa Editrice Ambrosiana (esclusa parte sulla termodinamica)
Young H. D., Freedman R. A., Ford A. L. Principi di fisica vol.1. Meccanica, Onde e Termodinamica con MasteringPhysics® Ed. Pearson Academy

Textbooks (in english)

Gettys W. E., F.J. Keller, M.J. Skove. Physics: classical and modern. Vol.1. Ed. McGraw-Hill
Halliday D., R. Resnick, J. Walker. Fundamentals of Physics. Ed. Wiley
Tipler P. A., Mosca G. Physics for Scientists and Engineers. Mechanics. Ed.W. H. Freeman

The texts listed above are just some examples of suggested books of Mechanics and Thermodynamics. The request is that each student has a textbook, recommended for university courses of Engineering.

On-line educational material (in Italian)

During the course, for the units 1-5, on the web page of the teacher, they will be made available exercises proposed during past written examinations, with the resolutions (<http://oldwww.unibas.it/utenti/ragosta/index.html>)

INTERACTION WITH STUDENTS

All the notices concerning the course, the examinations, the educational materials are distributed in the classroom and are made available on-line through the teacher's web page and by FB closed group.

Office hours: Wednesday from 15.00 to 17.00 and on Thursdays from 11.00 to 13.00 at the office 66, V floor, Engineering School, Macchia Romana campus, Potenza.

Students also may use email address of the teacher and his cell phone number for further contacts.

EXAMINATION SESSIONS (FORECAST)¹

Written examination

01-Feb-2017; 05-Apr-2017; 21-Jun-2017; 27-Sept-2017; 15-Nov-2017.

The oral examinations are held in dates between two subsequent written examinations.

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION

¹ Subject to possible changes: check the web site of the Teacher or the Department/School for updates.