



COURSE: Physics I (mechanics and thermodynamics)

ACADEMIC YEAR: 2019-20

TYPE OF EDUCATIONAL ACTIVITY: Basic

TEACHERS: Maria Ragosta, Guido Masiello

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web

Ragosta:

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mobile (optional):

Language: Italian

ECTS: 12

n. of hours: 120

Campus: Potenza
School of Engineering
Undergraduate courses in:
Mechanical Engineering
Environmental and Civil
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 and 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 particles 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 pages of the teachers, they will be made available exercises proposed during past written examinations, with the resolutions

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' web pages and by social network group.

Office hours:

Ragosta: Tuesday and Wednesday from 15.00 to 17.00 (after appointment) and Thursdays from 11.00 to 13.00 at the office 66, V floor, Engineering School, Macchia Romana campus, Potenza.

Masiello: Monday, Thursday from 15.00 to 17.00 and Friday 11.00 to 13.00 (after appointment) at the office 45, V floor, Engineering School, Macchia Romana campus, Potenza.

Students also may use email address and cell phone number for further contacts.

EXAMINATION SESSIONS (FORECAST)¹

Written examination

012-02-2020; 15-04-2020; 13-05-2020; 24-06-2020; 23-09-2020; 18-11-2020.

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.