Università degli Studi della Basilicata

DIPARTIMENTO DI MATEMATICA, INFORMATICA ED ECONOMIA

COURSE: Physics, Cinematics, Dynamics (module I)	
ACADEMIC YEAR:2019-2020	
TYPE OF EDUCATIONAL ACTIVITY: (Basic)	
TEACHER: Valerio Tramutoli	
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Language: Italian	

ECTS: 6	n. of hours: 48	Campus: Potenza Dept./School: DIMIE Program: Science and Techniques of Informatics	Semester: First

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

- **Knowledge:** Basics of vector algebra, Newton's laws of dynamics, Energy, Kinetic and Potential Energy, Mechanical Energy Conservation, Conservative and dissipative forces. The theory of Gravitation. Elasticity. Statics.
- **Skills**: Ability to formalize and solve problems of mechanics. Capability to deal with problems, which require usage of basic concepts of Physics and tools of linear algebra, analytical geometry and calculus.

PRE-REQUIREMENTS

Basics of algebra, analytical geometry and trigonometry. Basics of integral and differential calculus.

SYLLABUS

Vectors, Cinematics, Dynamics and Newton's laws. Inertial systems. Characteristics of Force: gravity, friction, fundamental forces and gravitation. Mechanical work and Energy. Kinetic Energy. Conservative forces. Potential Energy. Statics

TEACHING METHODS

Theoretical lessons , classroom tutorials and practical tests.

EVALUATION METHODS

Written examination, eventually followed by an oral discussion.

The examination is integrated with that concerning the second module on Physics (Electromagnetism). The written examination consists of 4 exercises to be solved in a time of 2.5 hours. The written exam is passed if the total score reach 14. If not, the examination has to be repeated. At the end of the written examination there is an interview for the assessment of the final grade. Students who have marked more than 18 can ask to skip the interview, in that case the final mark is that of the written examination. A final mark is formed, which applies to both modules.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- C. Mencuccini, V. Silvestrini. Fisica I Meccanica e Termodinamica. Liguori Editore.
- D. Halliday, R., Resnick, J. Walker. Fondamenti di Fisica, Casa Editrice Ambrosiana.

INTERACTION WITH STUDENTS

On the very first day of lessons, the teacher organizes the classroom by presenting the main objectives of the course together with textbooks. A list is formed of students who intend to enrol. They are asked to register as students of the course by sending an email to the teacher.

Tutorial activities and interaction with the teacher are programmed each Tuesday and Thursday, 10 to 11 a.m. and in whatever other day (Saturday included) by appointment. Students can interact with the teacher also via e-mail.

EXAMINATION SESSIONS (FORECAST)[1]

20/12/2019, 31/01/2020, 21/02/2020, 12/06/2020,06/07/2020, 11/09/2020, 9/10/2020, 4/12/2019

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

SEMINARS BY EXTERNAL EXPERTS	YES □	NO X

FURTHER INFORMATION