



COURSE: PHYSICS I: MECHANICS AND THERMODYNAMICS

TEACHER: Maria Ragosta

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Language: Italian

ECTS: 12

n. of hours: 120

Academic year: 2014-15

Campus: Potenza

Semester: I - II

TOPICS

Scientific method. Scalars and vectors. Kinematics and dynamics of a material point. Kinematics and dynamics of particle systems. Fluids. Thermodynamics.

TEACHING METHODS (please tick one or more options)

X Theoretical lessons

X Tutorials in classroom

Tutorials in laboratory

Project works

Technical visits

Other activities (please specify) _____

TEXTBOOKS

(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

Mencuccini C., Silvestrini V. Fisica I: Meccanica e termodinamica. Liguori Ed.

Giancoli – Fisica 1 - Casa Editrice Ambrosiana

(english)

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

ON-LINE EDUCATIONAL MATERIAL

web address: <http://oldwww.unibas.it/utenti/ragosta/didattica.html>

LEARNING OUTCOMES

At the successful completion of the course, students should be able to describe and to explain the physical principles of mechanics and thermodynamics, apply these principles to situations of the physical world with logical and mathematical approach, analyze and solve related physical problems using the calculus-based approach.

REQUIREMENTS

High school preparation in algebra e trigonometry

EVALUATION METHODS (please tick one or more options)

X Intermediate verifications

X Written examination

Discussion of a project work

Practical test

X Oral examination

Other methods (please specify) _____

DETAILED CONTENT

Measurement, Motion along a straight line, Vectors, Motion in two and three dimensions, Force and motion, Kinetic energy and work, Potential energy and conservation of energy, Systems of particles, Collisions, Rotation, Rolling, torque, and angular momentum, Equilibrium and elasticity, Oscillations, Fluids, Temperature, Heat, and the first law of thermodynamics, The kinetic theory of gases, Entropy and the second law of thermodynamics

SEMINARS BY EXTERNAL EXPERTS YES NO X

FURTHER INFORMATION



Università degli Studi della Basilicata
Scuola di Ingegneria
