



COURSE: Fundamentals of Turbomachinery Fluid Mechanics

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Language: italian

ECTS: 6

n. of hours: 54

Academic year: 2015-16

Campus: PZ

Semester: 1

TOPICS

Steady and un-steady Q1D compressible flows. Acoustics.

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

A. Bonfiglioli: course notes available on the instructor's website.

ON-LINE EDUCATIONAL MATERIAL

web address: <http://oldwww.unibas.it/utenti/bonfiglioli/www.html>

LEARNING OUTCOMES

Give the student the fundamental tools needed to analyze Q1D steady and un-steady compressible inviscid flows.

REQUIREMENTS

Fundamentals of Fluid Mechanics

EVALUATION METHODS (please tick one or more options)

Intermediate verifications

X Written examination

Discussion of a project work

Practical test

X Oral examination

Other methods (please specify) _____

DETAILED CONTENT

Governing conservation equations for Q1D compressible flows.

Flow in converging-diverging nozzles. Normal shock-waves.

Fanno, Rayleigh and isothermal 1D flow.

Un-steady compressible gas-dynamics in 1D. Moving shock waves, shock reflection.

Characteristic formulation of the un-steady 1D Euler equations: centred expansion fan and simple waves. Shock tube.

Acoustics.

EXAMINATION SESSIONS (FORECAST)

15.2.2016; 25.3.2016; 20.5.2016; 29.7.2016; 23.9.2016; 25.11.2016

SEMINARS BY EXTERNAL EXPERTS YES NO X

FURTHER INFORMATION
