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COURSE: Mathematical Physics

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TEACHER: Lidia R. R. Palese

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Language italian

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ECTS: 6

n. of hours:60

Academic year: 2014-2015

Campus:Potenza

Semester: I

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#### TOPICS

VECTORS ALGEBRA. KINEMATICS OF RIGID BODY. KINEMATIC OF ARTICULATE SYSTEMS.

STATICS OF A RIGID BODY. STATIC OF OLONOMIC SYSTEMS.

D'ALEMBERT PRINCIPLE AND LAGRANGE'S EQUATIONS.

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#### TEACHING METHODS (please tick one or more options)

Theoretical lessons

Tutorials in classroom

Tutorials in laboratory

Project works

Technical visits

Other activities (please specify) \_\_\_\_\_

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#### TEXTBOOKS

Alberto Strumia Meccanica Razionale I,II Nautilus , Bologna

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#### ON-LINE EDUCATIONAL MATERIAL

web address: : <http://www.dm.uniba.it/~palese>

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#### LEARNING OUTCOMES

Provide the basis of Statics and Dynamics necessary to understand the subsequent courses of Engineering degree.

At the end of the course the student should be able to apply theoretical knowledge to concrete cases.

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#### REQUIREMENTS

Mathematical Analysis and Geometry 1

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#### EVALUATION METHODS (please tick one or more options)

Intermediate verifications

Written examination

Discussion of a project work

Practical test

Oral examination

Other methods (please specify) \_\_\_\_\_

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#### DETAILED CONTENT

FUNDAMENTALS OF VECTOR ALGEBRA.

FREE VECTORS THEORY. APPLIED VECTORS THEORY.

CENTER OF MASS.

MOMENT OF INERTIA. INERTIA MATRIX. PRINCIPAL AXIS OF INERTIA.

KINEMATICS OF A PARTICLE.

KINEMATICS OF A RIGID BODY. RELATIVE KINEMATICS .

RIGID PLANE MOTIONS .

KINEMATICS OF ARTICULATE SYSTEMS.

STATICS OF FREE AND CONSTRAINED RIGID BODY.

STATIC OF ARTICULATE SYSTEMS: CARDINAL EQUATIONS.

STATICS OF OLONOMIC SYSTEMS: PRINCIPLE OF VIRTUAL WORKS .

D'ALEMBERT PRINCIPLE AND LAGRANGE'S EQUATIONS.

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SEMINARS BY EXTERNAL EXPERTS YES  NO

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Università degli Studi della Basilicata  
**Scuola di Ingegneria**

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FURTHER INFORMATION

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