DIPARTIMENTO DI SCIENZE

COURSE: CHEMISTRY and TECHNOLOGY of POLYMERS			
ACADEMIC YEAR: 2017-2018			
TYPE OF EDUCATIONAL ACTIVITY: Free choice			
TEACHER: Prof. Vincenzo Villani			
e-mail: vincenzo.villani@unibas.it		website:	
phone: 0971205464		mobile (optional):	
Language: Italian			
ECTS: (lessons e tutorials/practice)	n. of hours: (lessons e tutorials/practice)	Campus: Potenza Department of Science Program: CHIMICA (LM-54)	Semester: I **02/10/2017** **al** **31/01/2018**

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES
Knowledge: Rheology and Processing of polymer materials.
Ability: Characterization, Models and Technological applications.

PRE-REQUIREMENTS
Fundamentals of Macromolecular Chemistry and Science of Polymer Materials

SYLLABUS

Non-Newtonian viscous fluids
Viscoplasticity
Constitutive relations
Brookfield viscometer
Rotational rheometer
Melt Flow Index
Rubber elasticity
Polymer composites
Creep and Complinace
Relaxation module
Oscillatory deformation
Linear viscoelasticity
Spectrum of relaxation times
Dynamics of isolated polymer chain
Rouse chain
Polymer melt dynamics
Number of Deborah
Polymer Processing Technologies
Compression molding
Extrusion
Injection molding

TEACHING METHODS
Theoretical lessons.

EVALUATION METHODS
Intermediate verifications or oral examination.
The exam is divided into 3 parts that take place during the course; the test consists of 4 tracks open to play in 2 hours.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL
Villani Vincenzo, *Introduzione alla Scienza dei Materiali Polimerici*, Aracne Editrice
Nino Grizzuti, *Reologia dei Materiali Polimerici: Scienza ed Ingegneria*, Edizioni Nuova Cultura

INTERACTION WITH STUDENTS

Office hours: Monday, Wednesday and Friday from 11 to 17 in the studio or in lab of Macromolecular Chemistry. Moreover, the teacher is available on his e-mail.

EXAMINATION SESSIONS (FORECAST)
23/02/2018, 30/03/2018, 27/04/2018, 25/05/2018, 29/06/2018, 27/07/2018, 28/09/2018, 26/10/2018, 30/11/2018, 14/12/2018

SEMINARS BY EXTERNAL EXPERTS YES □ NO x