
COURSE: CHEMISTRY and TECHNOLOGY of POLYMERS

ACADEMIC YEAR: 2018-2019

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
01/10/2018 al
20/12/18 - 20/01/19

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 Complianace

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)¹

22/02/2019, 29/03/2019, 26/04/2019, 24/05/2019, 28/06/2019, 26/07/2019, 27/09/2019, 25/10/2019, 29/11/2019,
13/12/2019

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION

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