Chim/Organic Chemistry

Academic year: 2016/2017
Faculty: GeoScience
Study courses: CONSERVATION AND RESTORATION OF CULTURAL HERITAGE
Study plans/Curricula: - PF1: stone materials and derivatives, architecture decorated surfaces, - PF4: materials in ceramic and glass, materials and fabricated metal products and alloys
Type: Master Degree
Total Credits: 6
Didactic Methods: lectures in class
Didactic Period: spring semester
Exam type: written test and/or oral
Professor in charge: Lucia D'Accolti

Training objectives

Prerequisites Basic concepts from general chesmitry.

Didactic Methods : lecture with .ppt presentation, case study in the industry

Course programme
PROGRAMME:
Lectures: (40 h)
Introduction, review of bonding, polarity, resonance, functional groups, free radicals. Alkane isomers, IUPAC naming, cycloalkanes, conformations, reactions. Stereoisomers and molecular chirality.Alkenes, alkynes and their reactions. Alo-alkane: characteristic reactions, and nucleophilic aliphatic substitution reactions. SN1 and SN2 mechanisms Elimination, E1 and E2 mechanisms, and knowing when substitution and elimination occur. Alcohols and their reactions, hydrogen bonding, ethers. Epoxides, Benzene, aromaticity, and naming benzene compounds Electrophilic aromatic substitution and phenols. Amines, naming and acid-base properties, amines as nucleophiles. Aldehydes and ketones, naming and reactions. Carboxylic acids Derivatives of carboxylic acids, naming and reactions. Natural substances: amino acids, proteins, lipids, sugars.
Numerical applications (12 h): use of polymeric materials for the preservation, consolidation, restoration, and protection of the stone, organic pigments and Binding agents.

Reference Texts