

" CHEMISTRY II" COURSE DESCRIPTION

Leucio Rossi

Programme of "Chemistry II" – Organic Chemistry Course: Fundamental concepts of nomenclature, formulae, preparation and properties of organic compounds.		
<ul style="list-style-type: none"> • Code: • type of course unit: Compulsory • level of course unit: 1st cycle in Industrial Engineering • year of study: 2nd year; semester: 2nd semester 		
Number of ECTS credits: 9 (workload is 225 hours; 1 credit = 25 hours)		
Teacher: Leucio Rossi		
1	Course objectives	The objective of the course is to develop an understanding and appreciation of both structure and chemical transformations of organic molecules. Students will acquire basic concepts of electronic structure and be able to apply them to solve problems from various areas of organic chemistry, including stereochemistry, reactivity patterns and synthesis. Improvements in learning strategies, critical-thinking, and problem-solving skills are an expected outcome.
2	Course content and Learning outcomes (Dublin descriptors)	<p>Topics of the module include:</p> <ul style="list-style-type: none"> ▪ The common and important functional groups in organic compounds; ▪ The nomenclature of organic compounds; ▪ The standard organic chemistry reaction mechanisms: substitution, elimination, and addition reactions; ▪ The structures and stereoisomerism of organic compounds; <p>On successful completion of this module, the student should:</p> <ul style="list-style-type: none"> ▪ Build a good foundation in organic chemistry knowledge; ▪ Recognize and name in a systematic manner simple organic compounds; ▪ Classify organic compounds and represent them appropriately using line structures; ▪ Construct three-dimensional models of organic compounds; ▪ Use mechanistic principles to recognize nucleophiles and electrophiles, acids, and bases, and correctly draw the mechanisms of selected reactions; also use mechanisms to predict the regio- and stereoselectivity of products; ▪ Understand the following simple reaction mechanisms: electrophilic addition reactions to carbon-carbon multiple bond, electrophilic aromatic substitution, nucleophilic aliphatic substitution reactions, elimination reactions, nucleophilic addition to carbonyl compounds, nucleophilic substitution reactions with acid derivatives; ▪ Create multi-step syntheses by combining reactions
3	Prerequisites and learning activities	The student must know the basic concepts of General Chemistry. Successful completion of General Chemistry course is prerequisite
4	Teaching methods and language	<p>Lectures and exercises Language: Italian Ref. Text books</p> <ul style="list-style-type: none"> * Chimica organica 8 ed – J. McMurry – Piccin (2012); * Chimica organica con modelli molecolari – Brown; Foote; Anslyn – EdiSES (2009); * Chimica organica – H. Hart; C.M. Hadad; L.E. Craine; D.J. Hart. - Zanichelli (2012)
5	Assessment methods and criteria	Oral exam