

6.00 credits


30.0 h + 30.0 h

Q2

Teacher(s)

Teaching methods	All teaching is done face-to-face. However, some courses and/or introductory sessions and exercises may be given by video due to the number of registrants and the limited capacity of the auditoriums.
Content	1. Introduction and reminders : chemistry; carbon; VSEPR theory; representing a molecule; hydrocarbons; major functional groups in organic chemistry. 2. Isomerism : Constitutional isomers; stereoisomerism; stereogenic center and stereogenic carbon atom; properties of enantiomers; geometric isomerism; conformational isomerism; the cycloalkanes. 3. Reactivity : Reactions in organic chemistry; nucleophiles and electrophiles; change in electron density on an atom or group of atoms; acidity and basicity in organic chemistry; factors that influence acidity and basicity; effect of solvent. 4. Multiple bonds : Preamble; stability of alkenes; reactivity of alkenes; Addition of HX to alkene; hydration of an alkene; alcoholysis of an alkene; halogenation of an alkene; hydroboration of an alkene; oxidation of an alkene; alkynes. 5. Aromatic chemistry : Aromaticity; the electrophilic substitution reactions on aromatic ring; Halogenation, nitration, sulfonation, alkylation, and acylation of aromatic compounds. 6. Substitution and elimination reactions : Preamble; Alkanes and haloalkanes; The second-order and first-order nucleophilic substitution reaction; Elimination reactions; Substitution and elimination competition. 7. Alcohols, ethers and epoxides : preamble; properties of alcohols and ethers; synthesis of alcohols; oxidation of alcohols; oxidation and reduction in organic chemistry; synthesis and reactivity of ethers; synthesis and reactivity of epoxides. 8. Carboxylic acids and derivatives : preamble; physical properties and reactivity; the activated and deactivated forms of a carboxylic acid; acid chloride; acid anhydride; esters; amides. Exercise sessions and labs illustrate key concepts seen in the theory course.

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Bachelor in Biology	BIOL1BA	6		
Bachelor in Bioengineering	BIR1BA	6		