

<b>NATIONALLY HARMONISED B.Sc. CHEMICAL ENGINEERING PROGRAM</b>				
Course <i>Code</i>	Chem2062			
Course Name	Applied Organic Chemistry			
Degree Program	B. Sc. in Chemical Engineering			
Module	<b>Applied Chemistry</b>			
Module Coordinator	N.N.			
Lecturer	<b>Service course by Chemistry Department</b>			
ECTS Credits	<b>5 CP</b>			
Contact Hours (per week)	Lecture	Tutorial	Laboratory or Practice	Home study
	<b>2</b>	<b>0</b>	<b>3</b>	<b>2</b>
Students load per semester	<b>32</b>	<b>0</b>	<b>48</b>	<b>32</b>
Mode of delivery	<b>Parallel/ Semester wise</b>			
Course Objectives & Competences to be Acquired	<p>The objective of this course is to enable students:</p> <ul style="list-style-type: none"> <li>Understand the physical and chemical properties of different organic molecules.</li> <li>Give nomenclature of different Hydrocarbons</li> <li>Have knowledge on naturally occurring organic molecules</li> <li>Understand different ways of production of important organic molecules.</li> </ul> <p>After the completion of this course, the students will be equipped with the above mentioned knowledge.</p>			
Course Description/Course Contents	<p>Organic Molecules</p> <ul style="list-style-type: none"> <li>Common bonding situation, bond strength and bond length, structural isomerism, degree of unsaturation, physical properties and molecular structure, melting points, boiling points and solubilities</li> </ul> <p>Orbital and Bonding</p> <ul style="list-style-type: none"> <li>Atomic orbitals (AO), molecular orbital (MO), hybridization of AO to form bonds (single, double and triple), resonance and MO theory, types of resonance interactions, molecular orbital energies</li> </ul> <p>Basic and Acidity of Organic molecules</p> <ul style="list-style-type: none"> <li>The acid-base equilibrium, rate of acid-base reaction, effects of atoms bonded to hydrogen on acidity, inductive</li> </ul>			

	<p>effects, hydrogen bonding, resonance, table of acids and bases, substitution reaction</p> <p>Functional Groups and Nomenclature</p> <ul style="list-style-type: none"> <li>Alkane, Alkene and Alkyne, Alkyl halides, Alcohol, Ethers and Amines, Aromatic Hydrocarbons, phenols, aldehydes and ketones, etc.</li> </ul> <p>Stereochemistry</p> <ul style="list-style-type: none"> <li>Geometrical isomers, configuration of geometrical isomers, conformation (cyclic molecules), chirality, enantiomers (designating configuration and properties), etc.</li> </ul> <p>Structural determination of organic compounds using spectroscopy</p> <p>Overview of organic reactions</p> <ul style="list-style-type: none"> <li>Proton transfer, nucleophilic substitution reactions, elimination reactions, etc.</li> </ul> <p>Industrial Organic Chemistry</p> <ul style="list-style-type: none"> <li>Important Industrial organic chemicals</li> </ul> <p>Synthetic organic polymers</p> <ul style="list-style-type: none"> <li>Types of polymerization, structure of polymers, major thermoplastic addition polymers, elastomers, etc.</li> </ul> <p>Naturally occurring organic molecules:</p> <ul style="list-style-type: none"> <li>Carbohydrates</li> <li>Amino acids,</li> <li>peptides and proteins,</li> <li>nucleotides and nucleic acids, etc.</li> </ul>
Pre-requisites	None
Semester	Year II, Semester II
Status of Course	Compulsory
Teaching & Learning Methods	Lectures, laboratory practices
Assessment/Evaluation & Grading System	<ul style="list-style-type: none"> <li><b>Continuous Assessment .....50%</b></li> <li>laboratory .....30%</li> <li>Assignments.....10%</li> <li>Quizzes.....10%</li> <li><b>Final examination .....50%</b></li> </ul>
Course Policy	<p><b>Attendance:</b> As per nationally harmonized academic policy</p> <p><b>Assessments:</b> students are supposed to handle all assessments on time.</p> <p><b>Cheating/plagiarism:</b> it is strictly forbidden and any misconduct is accountable per the students' code of conduct.</p>
Literature	<b>Textbook</b>

	<p>Hornback, Joseph M., "Organic Chemistry," Brooks/Cole Publishing Company, Pacific Grove, CA (1998)</p> <p><b>Reference</b></p> <ol style="list-style-type: none"> <li>1. Inorganic chemistry F.A Cotton and G.Wilknison 1989</li> <li>2. Selected topics in inorganic chemistry. Malik.</li> <li>3. Tuli. 1983</li> <li>4. Concise inorganic chemistry. J.D. Lee. 1984</li> <li>5. Finar I. L., "Organic Chemistry- The Fundamental Principles" 1975, Vol-I, The English Language Book Society and Longman Group Limited.</li> <li>6. Volhardt K. Peter C. "Organic Chemistry" W.H.Freeman and Company.</li> </ol>
Approval section	Course team