

Course (Unit) Title	Organic Chemistry II				
Course (Unit) Code	CHE203G2				
Credit Value	02				
Objective/s	<ul style="list-style-type: none"> • Outline different spectroscopic techniques • Elucidate the structure of organic compounds • Describe the synthesis and reaction mechanisms of various class of carbonyl compounds 				
Intended Learning Outcomes	<ul style="list-style-type: none"> • Acquire knowledge in different spectroscopic methods • Deduce the structure of organic compounds using spectroscopic techniques • Predict reaction mechanisms of carbonyl compounds 				
Contents	<p>Ultraviolet (UV) and visible spectroscopy Basic principles, instrumentation, types of electronic transitions, selection rules for conjugated olefins and carbonyl compounds, applications</p> <p>Infrared (IR) spectroscopy Basic principles, instrumentation, different types of vibrational modes, trends in characteristic functional group frequencies, interpretation of IR spectra and applications</p> <p>Nuclear magnetic resonance (NMR) spectroscopy Basic principles, instrumentation, chemical shifts, spin-spin coupling AMX, AB, AX couplings, interpretation of ¹H-NMR spectra and applications. Basic principles and interpretation of ¹³C-NMR, distortionless enhancement of polarization transfer (DEPT) spectra of simple compounds.</p> <p>Mass spectrometry Basic principles, instrumentation, different methods of fragmentation, interpretation of mass spectra and applications.</p> <p>Carbonyl compounds Synthesis and reactions of aliphatic and aromatic aldehydes and ketones, dicarbonyl compounds (diketones, ketoacids and ketoesters), α, β-unsaturated carbonyl compounds, carboxylic acids, esters and amides.</p>				
Teaching and Learning Methods / Activities	Lectures, Tutorials and Assignments				
Evaluation	<table> <tr> <td>In-course Assessments</td> <td>30%</td> </tr> <tr> <td>End of Course Examination</td> <td>70%</td> </tr> </table>	In-course Assessments	30%	End of Course Examination	70%
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Recommended References	<ul style="list-style-type: none">• Williams D.H. and Fleming I. <i>Spectroscopic methods in organic chemistry</i>. McGraw-Hill, 2008.• <u>Silverstein</u> R.M., <u>Webster</u> F.X., <u>Kiemle</u> D. and <u>Bryce</u> D. L. <i>Spectrometric Identification of Organic Compounds</i>, 8th Edition, Wiley, 2004• Finar I.L, <i>Organic Chemistry</i> vol. I. 6th Edition, Pearson Education Ltd. 2007• McMurry J. <i>Organic chemistry</i>. Cengage, learning, USA, 2015.
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