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<tr><td>Program</td><td colspan="6">B.Sc</td></tr>
<tr><td>Semester and Level</td><td colspan="6">Semester 1
Level 5</td></tr>
<tr><td>Course Code</td><td colspan="6">CYU5303</td></tr>
<tr><td>Course Title</td><td colspan="6">Organic Chemistry II</td></tr>
<tr><td>Credit value</td><td colspan="6">3</td></tr>
<tr><td>Core/Optional</td><td colspan="6">core</td></tr>
<tr><td>Prerequisites</td><td colspan="6">pass grade in CYU4303 and CYU4302 or eligibility in CMU2221</td></tr>
<tr><td rowspan="2">Hourly Breakdown</td><td colspan="2">Theory</td><td>Practical hours</td><td>Independent Learning</td><td>Assessments</td><td>Total hrs</td></tr>
<tr><td>18 Sessions X 2 = 36 hrs</td><td>2DS +1RDS X 4 hrs = 12 hrs</td><td>▪ 5 days Lab X 7 hrs = 35 hrs
▪ Workshop X 7 hrs = 7 hrs</td><td>▪ Sessions (18 x 3) = 54 hrs</td><td>▪ 3 Continuous Assessments (CA) X 1 hr =3 hrs
▪ 1 Final Examination (FET) X 2 hrs = 2 hrs</td><td>149</td></tr>
<tr><td>Course Aim/s</td><td colspan="6">Aim of this course is to provide the knowledge on heterocyclic aromatic compounds, basic reactions of carbon-carbon and carbon-nitrogen bond formations in organic synthesis and introduction to spectroscopic methods in structure elucidation of organic molecules.</td></tr>
<tr><td>Programme Learning Outcomes (PLO) addressed by course</td><td colspan="6">PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen science disciplines offered for the BSc degree.
PLO2: Practical competence and Problem Analysis: Identify problems and apply knowledge acquired, and analyze such problems using qualitative and/or quantitative practical approaches.
PLO4: Individual and Team Work and Leader ship : Function effectively as an individual, and as a team member, sharing work and experiences, leading and managing assigned tasks adhering to ethical behavior and professional standards
PLO5: Investigating and Problem solving: Conduct investigations on problems using scientific methodology to provide valid conclusions.</td></tr>
<tr><td>Course Learning Outcomes (CLO):</td><td colspan="6">At the completion of this course student will be able to
CLO1: Describe the different types, synthesis and reactions of selected aromatic heterocyclic compounds (PLO1)
CLO2: Describe synthesis and reactions of organometallic compounds and explain base catalysed reactions in carbon-carbon bond formations in organic compounds (PLO1)
CLO3: Describe the formation of carbon-nitrogen bonds in aliphatic organic compounds and explain the use of some common reagents containing phosphorus, sulfur and boron in organic synthesis (PLO1)
CLO4: Solving structures of organic compounds using spectroscopic methods including NMR, MS, IR and UV spectroscopy (PLO1, PLO4 and PLO5)
CLO5: Develop the practical skills used in an organic Chemistry laboratory (PLO2)
CLO6: Maintain good laboratory practice and safety in a laboratory (PLO2)</td></tr>
<tr><td>Content
(Main topics, sub topics)</td><td colspan="6">Unit1: Aromatic Heterocyclic Chemistry
Introduction to heterocyclic compounds, Introduction to six membered and five membered aromatic heterocyclic compounds and Introduction to fused heterocyclic ring systems.
Unit 2: Synthetic Organic Chemistry (Part I)
Grignard and other useful organometallic reagents in organic synthesis, Introduction to base catalysed carbon-carbon bond formations (Aldol condensations, Claisen type reactions and use of enolates and nitriles) in organic synthesis and Aliphatic carbon-carbon bond formation via acid catalyzed reactions.</td></tr>
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<tr><td></td><td colspan="2">Unit 3: Synthetic Organic Chemistry (Part II)
Introduction to aliphatic carbon-nitrogen bond formations using nucleophilic and electrophilic nitrogen and organic synthesis with phosphorus, sulphur and boron reagents
Unit 4: Spectroscopic Methods in Structure Elucidation
Introduction to UV, IR, NMR and Mass spectroscopy techniques in structure elucidation of organic molecules</td></tr>
<tr><td>Teaching-Learning methods</td><td colspan="2">• Self- learning: Course material in print (18 Sessions), a MOODLE supplementary based course, Recommended readings
• Non-compulsory contact sessions –3 Day schools
• Continuous assessments: 2 NBT and 1 OBT
• Practical Assesment</td></tr>
<tr><td rowspan="3">Assessment Strategy</td><td>Overall Continuous Assessment Mark (OCAM): 40%</td><td>Final Assessment: 60 %</td></tr>
<tr><td>Practical Assessment Mark (P.A.M):
P.A.M. = 70% of the performance at the practical class and practical assessment test + 30% OBT marks

Theory Assessment Mark (T.A.M.):
T.A.M. = 60% of the higher NBT assignment test mark + 40% of the other NBT assignment test mark
Overall Continuous Assessment Mark (OCAM):
$\text{OCAM} = \frac{1}{3} \times \text{P.A.M} + \frac{2}{3} \times \text{T.A.M.}$

Qualification to sit the final examination:
$P.A.M. \geq 50\%$ and $T.A.M. \geq 35\%$

and $OCAM \geq 35\%$</td><td>If FEM ≥ 40,
then Z = FEM 60% + OCAM 40%
If 40> FEM ≥ 30,
then Z = FEM 60% + OCAM 40%,
Subjected to a maximum of 40
If FEM < 30, then Z = FEM

Details:
Final examination – 2h</td></tr>
<tr><td colspan="2">Overall mark(Z) = 40 % OCAM + 60 % Final Examination</td></tr>
<tr><td>Recommended Reading</td><td colspan="2">1. Organic Chemistry by Wade, L.G. 5th ed. Pearson Education 2003
2. Organic Chemistry by Solomons, T.W. Graham. 8th ed. Wiley 2004</td></tr>
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