

**Dr. Mahesh Chand Curriculum Plan**  
(Even Semester, 2020-2021)

**B.Sc. Life Sciences, 3<sup>rd</sup> Year (Semester-VI)**

**Name of paper: ORGANOMETALLICS, BIOINORGANIC CHEMISTRY, POLYNUCLEAR HYDROCARBONS AND UV, IR SPECTROSCOPY**

**UPC: 42177926**

**Section B: Organic Chemistry- Polynuclear and heteronuclear aromatic compounds:**

Contents	Allocations of Lectures	Month wise schedule to be followed	Tutorials/ Assignments/ Presentations
Structure elucidation of naphthalene, preparation and properties of naphthalene and anthracene, Properties of the following compounds with reference to electrophilic and nucleophilic substitution: Duran, Pyrrole, Thiophene, and Pyridine.	12 Lectures	I <sup>st</sup> week of January, 2021 to I <sup>st</sup> week of February, 2021	<ul style="list-style-type: none"> <li>• Related Problems</li> </ul>
<b>Active methylene compounds:</b> <i>Preparation:</i> Claisen ester condensation. Keto-enol tautomerism. <i>Reactions:</i> Synthetic uses of ethylacetoacetate (preparation of non-heteromolecules having upto 6 carbon).	6 Lectures	II <sup>nd</sup> week of February, 2021 to last week of February, 2021	<ul style="list-style-type: none"> <li>• Related Problems</li> </ul>
<b>Application of Spectroscopy to Simple Organic Molecules:</b> Application of visible, ultraviolet and Infrared spectroscopy in organic molecules. Electromagnetic radiations, electronic transitions, $\lambda_{max}$ & $\epsilon_{max}$ , m chromophore, auxochrome, bathochromic and hypsochromic shifts. Application of electronic spectroscopy and Woodward rules for calculating $\lambda_{max}$ or conjugated dienes, unsaturated compounds.	6 Lectures	I <sup>st</sup> & II <sup>nd</sup> week of March, 2021	<ul style="list-style-type: none"> <li>• Related Problems</li> <li>• Class Test</li> <li>• Assignments</li> </ul>
Infrared radiation and types of molecular vibrations, functional group and fingerprint region. IR spectra of alkanes, alkenes and simple alcohols (inter and intramolecular hydrogen bonding), aldehydes, ketones, carboxylic acids and their derivatives (effect of substitution on $>C=O$ stretching absorptions).	6 Lectures	III <sup>rd</sup> & IV <sup>th</sup> week of March, 2021	<ul style="list-style-type: none"> <li>• Related Problems</li> <li>• Previous year Question Papers</li> </ul>