**S V R K GOVERNMENT DEGREE COLLEGE :: NIDADAVOLE**

**TABLE – A – CURRICULAR PLAN – LECTURER WISE.0**

**NAME OF THE LECTURER** : **Dr V.V.Ravindra**
**DEPARTMENT** : CHEMISTRY **CLASS:II BZC** **YEAR: 2021-2022** **SEMESTER: III** **Paper:3**

| SERIAL NUMBER | MONTH & WEEK | HOURS AVAILABLE | SYLLABUS TOPIC | ADDITIONAL INPUT /VALUE ADDITION | CURRICULAR ACTIVITY | | | | CO-CURRICULAR ACTIVITIY | | | | REMARKS |
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| | | | | | ACTIVITY | HOURS ALLOTED | WHETHER CONDUCTED | IF NOT, ALTERNATIV E DATE | ACTIVITY | HOURS ALLOTED | WHETHER CONDUCTED | IF NOT, ALTERNATIV E DATE | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Nov | 3 rd week | 4 Hrs | **UNIT I: ORGANIC CHEMISTRY**<br>Chemistry of Halogenated Hydrocarbons:Alkyl Halides: Methods of preparation and properties, nucleophilic substitution reactions– SN1, SN2 and SNi mechanisms with stereo chemical aspects and effect of solvent etc.; nucleophilic substitution vs. elimination, Williamson's synthesis. Aryl Halides: Preparation (including preparation from diazonium salts) and properties, nucleophilic aromatic substitution; SN Ar, Benzyne mechanism. Relative reactivity of alkyl, allyl, benzyl, vinyl and aryl halides towards nucleophilic substitution reactions. | Distinction between Nuclear Halogen and side chain halogen | Lecture/ICT /Practical | 4 Hrs | | | | | | | |
| | 4th week | 4 Hrs | **1. Alcohols & Phenols**<br>Alcohols: preparation, properties and relative reactivity of 1°, 2°, 3° alcohols, Bouvet Blanc Reduction; Oxidation Of Diols By Periodic Acid Andlead Tetraacetate,Pinacol- Pinacolone Rearrangement; | Dihydric ,Tri hydric alcohols Introduction | Lecture/ICT /Practical | 3 Hrs | | | Assign ment | 1 Hr | | | |

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| Dec | 1st week | 4 Hrs | Phenols: Preparation And Properties; Acidity And Factors Affecting It, Ring substitution reactions, Reimer–Tiemann and Kolbe's–Schmidt Reactions, Fries and Claisen Rearrangement with mechanism; | | Lecture/ICT /Practical | 4 Hrs | | | | | | | |
| | 2nd week | 4Hrs | **UNIT II:** Carbonyl Compounds: Structure, reactivity, preparation and properties; Nucleophilic Addition, Nucleophilic Addition-elimination reactions with ammonia derivatives Mechanisms of Aldol and Benzoin Condensation, | Analysis of aldehydes and ketones | Lecture/ICT /Practical | 3 Hrs | | | Student seminar | 1Hr | | | |
| | 3rd week | 4Hrs | Claisan-Schmidt, Perkin, Cannizzaro and Wittig reaction, Beckmann Haloform Reaction And Baeyer Villiger oxidation, α- substitution reactions, oxidations and reductions (Clemmensen, wolf –kishner, with LiAlH4 &NaBH4). | | Lecture/ICT /Practical<br>Mid exam | 3Hrs<br>1Hrs | | | | | | | |
| | 4th week | 4 Hrs | Addition Reactions Of α, β-unsaturated carbonyl compounds: Michael Addition. Active Methylene Compounds: Keto-enol tautomerism. Preparation And Synthetic Applications Diethyl malonate and ethyl acetoacetate. | | Lecture/ICT /Practical | 4 Hrs | | | | | | | |
| Jan | 1st week | 4 Hrs | UNIT III: Carboxylic Acids and their Derivatives : General methods of preparation, physical properties and reactions of monocarboxylic acids, effect of substituent acidic strength. Typical reactions of carboxylic acids, hydroxy acids and unsaturated acids | Uses of carboxylic acids and their derivatives. | Lecture/ICT /Practical | 3 Hrs | | | Assign ment | 1Hr | | | |
| | 2nd week | 4Hrs | . Preparation And Reactions Of Acid Chlorides, anhydrides, esters and amides; Comparative study of nucleophilic substitution at acyl group-Mechanism of acidic and alkaline hydrolysis of esters, Claisen Condensation, Reformatsky reactions and Curtius Rearrangement | | Lecture/ICT /Practical | 4 Hrs | | | | | | | |

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| | 3 rd week | 4Hrs | Reactions involving H, OH and COOH groups- salt formation, anhydride formation, acid chloride formation, amide formation and esterification (mechanism). Degradation of carboxylic acids by Huns-Diecker reaction, decarboxylation by Schimdt reaction, Arndt- Eistert synthesis, halogenation by Hell- Volhard- Zelinsky reaction. | | Lecture/ICT /Practical | 4 Hrs | | | | | |
| | 4 th week | 4Hrs | UNIT IV: SPECTROSCOPY<br>Molecular Spectroscopy:Interaction of electromagneticradiation with molecules and varioustypesof spectra;<br>Rotation spectroscopy: Selection rules, intensities of spectral lines, determination of bond lengths of diatomic and linear triatomic molecules, isotopic substitution.<br>Vibrational Spectroscopy: Classical Equation Of Vibration, computation of force constant, Harmonic and anharmonic oscillator, Morse Potential curve, vibrational degrees of freedom for polyatomic molecules, modes of vibration.<br>. | Electromagneti c radiation ,,Properties of light, Effect of magnetic field on nucleus. | Lecture/ICT /Practical | 3 Hrs | | | Quiz | 1 Hr | |
| eb | 1 st week | 4Hrs | Selection rules for vibrational transitions, Fundamental Frequencies, overtones and hot bands. Electronic spectroscopy: Energy levels of molecular orbitals (σ, π, n). Selection rules for electronic spectra. Types of electronic transitions in molecules, effect of conjugation. Concept of chromophore. bathochromic and hypsochromic shifts. Beer-Lambert's law and its limitations. | | Lecture/ICT /Practical<br>Mid exam | 3 Hrs<br>1 Hr | | | | | |
| | 2 nd week | 4Hrs | Nuclear Magnetic Resonance (NMR) spectroscopy: Principles of nuclear magnetic resonance, equivalent and non-equivalent protons, position of signals. Chemical shift, NMR splitting of signals -spin-spin coupling, coupling constants. Applications of NMR with suitable examples - ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromo ethane, ethyl acetate, toluene and acetophenone | | Lecture/ICT /Practical | 4 Hrs | | | | | |

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| 3 rd week | 4Hrs | UNIT V Application of Spectroscopy to Simple Organic Molecules<br>Application of visible, ultraviolet and Infrared spectroscopy in organic molecules. Application of electronic spectroscopy and Woodward rules for calculating λmax of conjugated dienes and α,β - unsaturated compounds | | Lecture/ICT /Practical | 3 Hrs | | | Assign ment | 1Hr | | | |
| 4 th week | 4Hrs | Rivision | | Lecture/ICT /Practical | 4 Hrs | | | | | | | |

SIGNATURE OF THE LECTURER

SIGNATURE OF THE HEAD OF THE DEPARTMENT

SIGNATURE OF THE PRINCIPAL