Vivekanand College, Kolhapur (Autonomous)

Syllabus Completion ReportAcademic Year – 2020-21.

Sem-I, III, and V

Department of Chemistry

Name of the Teacher — Dr. Mrs.S.D.Shirke

Name of the Class	Units Allotted	Units Completed	Remark
B.Sc.I (DIV-A) + Div. C	• 1. Stereochemistry • 2. Aromatic Hydrocarbons • 3. Alcohol and phenols • 4. Ethers	• 1. Stereochemistry • 2. Aromatic Hydrocarbons • 3. Alcohol and phenols • 4. Ethers.	
B.Sc.I (Div- B)	• 1. Stereochemistry • 2. Aromatic Hydrocarbons • 3. Alcohol and phenols • 4. Ethers	• 1. Stereochemistry • 2. Aromatic Hydrocarbons • 3. Alcohol and phenols • 4. Ethers	
	•	•	
B.Sc.II	• 1. Amino acids, Peptides and Proteins • 2. Amines and Diazonium salts	• 1. Amino acidc, Peptides and Proteins • 2. Amines and Diazonium salts	
B.Sc.III	• 1. NMR –spectroscopy • 2. Sugar and jagary Manufacturing	• NMR –spectroscopy • 2. Sugar and jagary Manufacturing 1	Completed
M.Sc.I	• --------	------	------
M.Sc.II	• 1. Advanced Synthetic methods- Use of Following in Synthesis	• 1. Advanced Synthetic methods- Use of Following in Synthesis	Completed

Dr. Mrs. S. D. Shirke

Head

Head
Dept. of Chemistry
Vivekanand College, Kolhapur

Vivekanand College, Kolhapur (Autonomous)

Syllabus Completion ReportAcademic Year – 2020-21.

Sem-II, IV, and VI

Department of Chemistry

Name of the Teacher — Dr. Mrs.S.D.Shirke

Name of the Class	Units Allotted	Units Completed	Remark
B.Sc.I (DIV-A) + Div. C	1. Stereochemistry 2. Aromatic Hydrocarbons 3. Alkanes 4. Alkenes	1. Stereochemistry 2. Aromatic Hydrocarbons 3. Alkanes 4. Alkenes ----	
B.Sc.I (Div- B)	• 1. Stereochemistry • 2. Aromatic Hydrocarbons • 3. Alkanes 4. Alkenes	• 1. Stereochemistry • 2. Aromatic Hydrocarbons • 3. Alkanes 4. Alkenes -------	
	•	•	
B.Sc.II	• No Organic chemistry is involved in this semester	• -------	
B.Sc.III	• 1. Natural Products • 2. Pharmaceuticals •	• 1. Natural Products • 2. Pharmaceuticals •	Completed
M.Sc.I	• --------	------	------
M.Sc.II	• Agrochemicals	• Agrochemicals	Completed

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Dept. of Chemistry
Vivekanand College Kolhapur

Vivekanand College, Kolhapur (Autonomous)
Syllabus completion Report 2020-21
Department- Chemistry
Name of the Teacher – Dr. A. A. Patravale

Class	Subject	Total Units	Completed Units	Remaining units
B. Sc. I Sem I	Chemistry	1	Annual Practicals	**Nil**
M. Sc. I Sem I	Chemistry	**1**	**UNIT-II** **a) Aromatic Electrophilic Substitutions** Introduction, the arenium ion mechanism, orientation and reactivity in Nitration, Sulphonation, Friedel-Crafts and Halogenation in aromatic systems, energy profile diagrams. The ortho/para ratio, ipso attack, concept of aromaticity, orientation in their ring systems. Diazo-coupling, Vilsmeir Haak reaction, Von Richter rearrangement. Nucleophilic aromatic substitution reactions SN1, SN2. **b)Non benzenoid aromatic Compounds** Aromaticity in Non- benzenoids compounds Annulenes and heteroannulenes, fullerence C60, tropone, tropolone, azulene, fulvene, tropylium salts, ferrocene.	**Nil**
M. Sc. II Sem II	Organic Chemistry	**1**	**a) Atomic absorption Spectroscopy:** Advantages and disadvantages of AAS, Instrumentation, Single and double beam AAS, detection limit and sensitivity, b) **Inductively coupled plasma (ICP) Spectroscopy:** Interferences, applications. Graphite furnace atomic absorption spectroscopy. Introduction, Nebulisation Torch, Plasma, Instrumentation, Interferences, and Applications. Problems: Simple problems based on AAS and ICP	**Nil**
M. Sc. II Sem III	Organic Chemistry	**1**	**a) Drug design** Development of new drugs, procedures followed in drug design, concepts of prodrugs and soft drugs. Theories of drug activity, Quantitative structure activity relationship. Theories of drug activity, Quantitative structure activity relationship. History and development of QSAR. Concepts of drug receptors **b) Study of the Following types of drugs:**	**Nil**

			a) Antibiotics: Preparation of semi synthetic penicillin, conversion of penicillin into cephalosporin, general account of tetracycline & macrocyclic antibiotics(no synthesis) b) Antimalerials: Trimethoprim c) Analgesic & Antipyretics: Paracetamol, Meperidine, methadone, Aminopyrine.	
		1	**Paper XII Drugs and Heterocycles Unit III** **a) Small ring Heterocycles** Three membered and four membered Heterocycles- synthesis and reactions of aziridines, oxiranes, thiranes, azetidines, oxitanes and thietanes. **b) Benzo fused five membered Heterocycles** Synthesis and reactions of benzopyrroles, benzofurans and benzothiophenes.	**Nil**
M. Sc. II Sem IV	Organic Chemistry	1	**Manufacture of following perfume** 2-Phenylethanol, detergents, vanillin and other food flavours, synthetic musk, Acetic acid and butenaldehyde from ethanol butyl acetate.furfural, from bagasse, citric acid from molasses, Application of oro and marker process. Nicotine from tobacco waste and citral from lemon grass, synthetic detergents, glycerol	**Nil**
M. Sc. I Sem I	Organic Chemistry Praticals	10	**Organic Praticals** Lab safty and fire fighting demo Organic Preparation 4 Organic Estimation -4	**Nil**
M. Sc. I Sem II	Organic Chemistry Praticals	10	**Organic Praticals** Binarya Mixture ananlysis compound I to VII organic Estimation	**Nil**

Name & Signature of Teacher

Name & Signature of HOD

Head
Dept. of Chemistry
Vivekanand College, Kolhapur

Vivekanand College, Kolhapur (Autonomous)

SYLLABUS COMPLETION REPORT – DEPARTMENT OF CHEMISTRY

ACADEMIC YEAR 2020-21

Class	Subject	Total Units	Completed Units	Remaining Units
B.ScIst Year (Sem I)	**Organic Chemistry**	**2**	**Unit I: Fundamentals of Organic Chemistry (09 Lectures)** Physical Effects, Electronic Displacements: Inductive Effect, Electromeric Effect, Resonance and Hyperconjugation. Cleavage of Bonds: Homolysis and Heterolysis. Structure, shape and reactivity of organic molecules: Nucleophiles and electrophiles. Reactive Intermediates: Carbocations, Carbanions and free radicals. Strength of organic acids and bases. **Unit IV: Alkenes** (Upto 5 Carbons) **(07 Lectures)** *Preparation:* Elimination reactions: Dehydration of alkenes and dehydrohalogenation of alkyl halides (Saytzeff's Rule); cis alkenes (Partial catalytic hydrogenation) and trans alkenes (Birch reduction). *Reactions:* cis-addition (alk. KMnO4) and trans-addition (bromine), Addition of HX (Markownikoff's and anti-Markownikoff's addition), Hydration, Ozonolysis, oxymercuration-demercuration, Hydroboration-oxidation.	**NIL**
B.ScIstYear (Sem II)			**Unit II: Halides (12 Lectures)** **Alkyl Halides** (Upto 5 Carbons) Types of Nucleophilic Substitution (SN1, SN2 and SNi) reactions. *Preparation:* from alkenes *and* alcohols. *Reactions:* hydrolysis, nitrite & nitro formation, nitrile & isonitrile formation. Williamson's ether synthesis: Elimination vs substitution. **Aryl Halides** *Preparation:* (Chloro, bromo and iodo-benzene case): from phenol, Sandmeyer & Gattermann reactions. *Reactions (Chlorobenzene):* Aromatic nucleophilic substitution (replacement by –OH group) and effect of nitro substituent. Benzyne Mechanism: KNH2/NH3 (or NaNH2/NH3). Reactivity and Relative strength of C-Halogen bond in alkyl, allyl, benzyl, vinyl and aryl halides. **Unit IV: Ethers (03 Lectures)** *Preparation*, *Reactions of ethers* Cleavage of ethers with HI. 12 **Unit V: Aldehydes and Ketones (06 Lectures)** Formaldehye, acetaldehyde, acetone and benzaldehyde) *Preparation:* from acid chlorides and from nitriles. *Reactions* – Reaction with HCN, ROH, NaHSO3. Iodoform test. Aldol Condensation, Cannizzaro's reaction, Wittig reaction, Benzoin condensation. Clemensen reduction and Wolff Kishner reduction. Meerwein-Pondorff Verley reduction.	**NIL**
B.ScIIrd Year (Sem	Organic Chemistry	**1**	**Unit I: Carboxylic acids and their derivatives** (8) **A] Carboxylic acids (aliphatic and aromatic)**	**NIL**

III)			*Preparation:* Acidic and Alkaline hydrolysis of esters. *Reactions:* Hell -Vohlard - Zelinsky Reaction. **B] Carboxylic acid derivatives (aliphatic):** (Upto 5 carbons) *Preparation:* Acid chlorides, Anhydrides, Amides from acids and their interconversion, preparation of Esters with mechanism. *Reactions:* Comparative study of nucleophilicity of acyl derivatives; Reformatsky Reaction, Perkin condensation with mechanism and their applications.	
B.ScIIIrd Year (Sem V)	Organic Chemistry	**3**	**Unit I. Name reactions. [08]** Statement, General Reaction, Mechanism and Synthetic applications 1. Diels -Alder reaction 2. Oppenauer Oxidation 3. Meerwein –Pondorff-Verley reducti 4. Schmidt rearrangement 5. Hofmann rearrangement 6. Wittig reaction 7. Wagner- Meerwein rearrangement 8. Favorskii rearrangement . 9. Michael reaction 10.Dieckmann's reaction or condensation 11. Problem based on above reactions. **Unit II. Reagents in Organic Synthesis. [06]** Preparation and Applications of following reagents. 1. Lithium aluminium hydride LiAlH4 2. Osmium tetraoxide 3. Dicyclohexyl Carbodiimide (DCC) 4. Raney Nickel 5. 2,3-Dichloro -5,6-dicyano – 1,4-benzoquinone (DDQ) 6. Polyphosphoric acid (PPA) 7. Diazomethane 8. Cerric ammonium nitrate (CAN) 9. N-Bromosuccinamide (NBS) 10.Selenium dioxide (SeO2)	**NIL**
B.ScIIIrd Year (Sem VI)	Organic Chemistry	**2**	**Unit I. Introduction to Spectroscopy [03]** Meaning of spectroscopy, Nature of electromagnetic radiation -wave length, frequency, energy, amplitude, wave number, and their relationship, different units of measurement of wavelength frequency, different regions of electromagnetic radiations Regions of electromagnetic radiation. 12 Interaction of radiation with matter-absorption, emission, florescence and scattering, Types of spectroscopy and advantages of spectroscopic methods. Energy types and energy levels of atoms and molecules. **Unit II. UV Spectroscopy [05]** 1. Introduction, 2. Beer-Lamberts law, absorption of U.V. radiation by organic molecule leading to different excitation. 3. Terms used in U.V. Spectroscopy- Chromophore, Auxochrome, Bathochromic shift, hypsochromic shift, hyperchromic and hypochromic effect. 4. Modes of electromagnetic transitions. 5. Effect of conjugation on position of U.V. band. 6. Calculation of λ-max by Woodward and Fisher rules for dienes and enones systems. 7. Colour and visible spectrum. 8. Applications of U.V. Spectroscopy	**NIL**

Mr. S.S.Kadam
(Assistant Professor)

VIVEKANAND COLLEGE ESTD JUNE 1964 KOLHAPUR-416003

Dr. D.B Patil
(Head of Dept)

Head
Dept. of Chemistry
Vivekanand College, Kolhapur

SYLLABUS COMPLETION REPORT – Department of Chemistry

ACADEMIC YEAR 2020-21

Teacher Name: Dr. Kedar A. Undale				
Class	**Subject**	**Total Units**	**Completed Units**	**Remaining Units**
B.ScIst Year (Sem I)	Chemistry	-		**NIL**
B.ScIstYear (Sem II)	Physical & Analytical Chemistry	**2**	1) Chemical Equilibria 2) Thermodynamics 3) Dairy Chemistry	**NIL**
B.Sc.II, Sem-III	Physical Chemistry	**2**	1) Phase Equilibria 2) Solutions	**NIL**
B.Sc.II, Sem-III & IV	Physical, Organic and Analytical Chermistry	**5**	1) Molecular Spectroscopy 2) Chromatoigraphy 3) Synthetic Reagents 4) Renewable Energy Sources 5) Fermentation Industry	**NIL**
M. Sc. II Sem III	Organic Chemistry	**1**	1) Pericyclic Reactions	**NIL**
M. Sc. II Sem IV	Organic Chemistry	**1**	1) Newer Methods of Stereoselective Synthesis	**NIL**

Dr. K. A. Undale
(Assistant Professor)

VIVEKANAND COLLEGE KOLHAPUR-416003.

Dr. D. B. Patil
(Head of Department)

Head
Dept. of Chemistry
Vivekanand College, Kolhapur

Vivekanand College, Kolhapur (Autonomous)

Syllabus Completion Report

Academic Year - 2020-21

Sem-I

Department - Chemistry

Name of the Teacher — Mr. A.T. Mane

Name of the Class	Units Allotted	Units Completed	Remark
M.Sc.I	a) Stereochemistry and bonding in main group compounds b) Metal ligand equilibria in solution	a) stereochemistry and bonding in main group compounds b) Metal ligand equilibria in solution	Completed
M.Sc.I	**Unit** Electroanalytical Techniques	**Unit** Electroanalytical Techniques	Completed

Mr. A. T. Mane

VIVEKANAND COLLEGE KOLHAPUR-416003 ESTD. JUNE 1964

Dr. D.B.Patil

Head

Dept. of Chemistry

Vivekanand College, Kolhapur

Vivekanand College, Kolhapur (Autonomous)

Syllabus Completion Report

Academic Year - 2020-21

Sem-II

Department - Chemistry

Name of the Teacher — Mr. A.T. Mane

Name of the Class	Units Allotted	Units Completed	Remark
M.Sc.I	**Unit II:** a)Organometallic Chemistry of transition elements b) Reaction mechanism of transition metal complexes	**Unit II:** Organometallic Chemistry of transition elements b) Reaction mechanism of transition metal complexes	Completed
M.Sc.I	**Unit IV**: a)Spectroscopic term symbols b) Nuclear and radiochemistry	**Unit IV**: a)Spectroscopic term symbols b) Nuclear and radiochemistry	Completed

Mr. A. T. Mane

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR-416003.

Dr. D.B.Patil

Head

Dept. of Chemistry

Vivekanand College, Kolhapur

SYLLABUS COMPLETION REPORT – Department of Chemistry

ACADEMIC YEAR 2020-21

Teacher Name: Dr. Sanjay S. Ankushrao

Class	Subject	Total Units	Completed Units	Remaining Units
B.Sc Ist Year (Sem I)	Inorganic Chemistry	**2**	**Unit –III: Ionic Bonding** 3.1 Definition and formation of ionic bond. General characteristics of ionic bonding 3.2 Energetic in Ionic bond formation 3.3 Born-Haber cycle for NaCl and its applications. 3.4 Polarizing power and polarizability. 3.5 Fajan's Rule. 3.6 Ionic character in covalent compounds. 3.7 Bond moment, dipole moment and percentage ionic character. **Unit –IV: Covalent bonding -Valence Bond Theory (VBT)** 4.1 Valence Bond Theory: Introduction, Assumptions, Applications and Limitations. 4.2 Concept of hybridization, different types of hybridization and geometry of molecule. • Linear geometry $BeCl_2$ (sp hybridization) • Planer trigonal geometry BF_3 (sp^2 hybridization) • Tetrahedral geometry $SiCl_4$ (sp^3hybridization) • Trigonal bipyramidal geometry PCl_5 (sp^3d hybridization) • Octahedral geometry SF_6 (sp^3d^2hybridization) • Pentagonal bipyramidal geometry(IF_7) (sp^3d^3hybridization) 4.3 Valence Shell Electron Pair Repulsion (VSEPR) Theory H_2O, ClF_3, ICl_4-	**NIL**

B.Sc Ist Year (Sem II)	Physical Chemistry	**3**	**Unit -I: Chemical Energetics** Introduction, Enthalpy of reaction, standard enthalpy changes, various types of enthalpy changes viz, enthalpy of formation, enthalpy of neutralization, enthalpy of ionization, enthalpy of solution (integral and differential enthalpy of solutions), enthalpy of hydration ,enthalpy of phase transitions; Calculation of bond energy, bond dissociation energy and resonance energy from thermochemical data, Variation of enthalpy of reaction with temperature- Kirchoff,s equation. **Unit II: Thermodynamics** Introduction, Spontaneous and nonspontaneous process with examples, Statements of second law of thermodynamics, Carnot's cycle and its efficiency, **Unit III: Entropy and Third law** Concept of entropy, physical significance of entropy, entropy as a state function of V & T, P & T, entropy of mixing of gases, entropy change accompanying phase transition, Third law of thermodynamics, calculation of absolute entropies.	**NIL**

B.Sc. II, Sem-IV	Inorganic Chemistry	**1**	**B] Crystal Field Theory (12)** Assumptions of CFT, Crystal field splitting of 'd' orbital in octahedral, tetrahedral and square planar complex, Crystal field stabilization energy (CFSE), Comparison of CFSE for *Oh* and *Td* complexes, Crystal field effects for weak and strong fields ligands, Tetrahedral symmetry, Factors affecting the Magnitude of 10 Dq, Spectrochemical series, Jahn-Teller distortion, Limitations of CFT.	**NIL**

B.Sc III[rd] Year (Sem V)	Analytical Chemistry & Inorganic Chemistry	**3**	**Qualitative and Quantitative Aspects of Analysis** Sampling techniques of solid, liquid and gases; Types of errors, determinate and indeterminate errors, constant and proportionate errors, Accuracy and precision, measures of dispersion and central tendency: mean, median, average deviation, relative average deviation, standard deviation, variance, coefficient of variation, Numerical problems. **Titrimetric Analysis** General Introduction, types of titrations, **Acid-Base titrations:** Neutralization Indicators (Acid-Base Indicators), Theory of indicators w.r.t. Ostwald's color change interval and Ostwald's Quinoid theory, Construction of titration curves and choice of indicators in the titration of : (i) strong acid and strong base (ii) strong acid and weak base (iii) weak acid and strong base (iv) weak acid and weak base. **Complexometric titrations:** General introduction, types of EDTA titrations, metallochromic indicators w.r.t. Eriochrome Black-T. **Redox titrations:** General introduction, theory of redox indicators, Use of diphenyl amine and ferroin as redox indicators. **Bio-Inorganic Chemistry** Introduction, Essential and trace elements in biological process, Metalloporphyrins with special reference to hemoglobin and myoglobin, Role of metal ions present in biological systems with special reference to Na^+, K^+, $Mg^{2+}$and Ca^{2+}ions, Na/K pump, Role of Mg^{2+} ions in energy production and chlorophyll, Role of Ca^{2+} in blood clotting, stabilization of protein structures and structural role (bones).	**NIL**
B.Sc III[rd] Year			**Unit-3 Infra-Red (IR) Spectroscopy** Introduction, Principle ofI.R. Spectroscopy, IR Instrumentation, schematic diagram, Fundamental	NIL

(Sem VI)			modes of vibrations, Condition for absorption of IR radiations, Regions of I.R. Spectrum, fundamental group region, finger print region, Hooks Law for Calculation of vibrational frequency, IR Sampling, Factors affecting on IR absorption frequency, Characteristic of I.R. absorption of following functional groups Alkanes, alkenes, alkynes, Alcohol and phenols, Ethers, Carbonyl compounds, Amines, Nitro com, Aromatic Compounds **Introduction to Industrial Chemistry** General introduction, Indian Scenario of chemical industries, types of chemical industry, basic requirements of chemical industries, chemical production and raw materials; unit processes and unit operations and its types; modes of manufacturing-batch, semi-batch and continuous process; **Introduction to various departments in industry:** Quality control, Quality assurance, process development, Research and Development, Analytical development, Environmental health and safety. **Industrial legislations**-copy right act, patent act, trademarks; MSDS of hazardous chemicals. **Manufacturing of Heavy Chemicals** General introduction and Indian Scenario of Heavy chemicals, Manufacture of NH_3 by modified Haber–Bosch process, Physico-chemical principles and uses of NH_3. Manufacture of H_2SO_4 by contact process, Physicochemical principles, and uses of H_2SO_4. Manufacture of HNO_3 by Ostwald`s process, Physicochemical principles involved and uses of HNO_3..	

Dr. S. S. Ankushrao
(Assistant Professor)

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR-416003

Dr. D.B.Patil
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Dept. of Chemistry
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Vivekanand College, Kolhapur (Autonomous)

Syllabus Completion Report

Academic Year – 2020-21

Sem-I, Sem-III, Sem-V

Department- Chemistry

Name of the Teacher – **Dr. S. D. Shinde**

Name of the Class	Units Allotted	Units Completed	Remark
B.Sc.I (Div A + B+C)	-	-	-
B.Sc.II	-	-	-
B.Sc.III	▪ Metals, Semiconductors and Superconductors.	▪ Metals, Semiconductors and Superconductors.	Completed
M.Sc.I	▪ Electronic, Electric and Optical behaviour of Inorganic materials ▪ Metal ligand equilibria in solution	▪ Electronic, Electric and Optical behaviour of Inorganic materials ▪ Metal ligand equilibria in solution	Completed

Dr. Mrs. S. D. Shinde

Dr.D.B.Patil

Head

Dept. of Chemistry

Vivekanand College, Kolhapur

Vivekanand College, Kolhapur (Autonomous)

Syllabus Completion Report

Academic Year – 2020-21

Sem-II, Sem-IV, Sem-VI

Department- Chemistry

Name of the Teacher – **Dr. Dr. S. D. Shinde**

Name of the Class	Units Allotted	Units Completed	Remark
B.Sc.I	-	-	-
B.Sc.II	▪ Valence Bond Theory [VBT] ▪ Lanthanoids and Actinoids ▪ Transition Elements (3d series) ▪ Molecular Orbital Theory [MOT]	▪ Valence Bond Theory [VBT] ▪ Lanthanoids and Actinoids ▪ Transition Elements (3d series) ▪ Molecular Orbital Theory [MOT]	Completed
B.Sc.III	▪ Chelation ▪ Inorganic Reaction mechanism ▪ Nuclear Chemistry ▪ Nanomaterials	▪ Chelation ▪ Inorganic Reaction mechanism ▪ Nuclear Chemistry ▪ Nanomaterials	Completed
M.Sc.I	▪ Studies and applications of Lanthanides and Actinides ▪ Reaction mechanism of transition metal complexes	▪ Studies and applications of Lanthanides and Actinides ▪ Reaction mechanism of transition metal complexes	Completed

Dr. Mrs. S. D. Shinde

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR-416003

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Vivekanand College, Kolhapur (Autonomous)
Syllabus Completion Report 2020-21
Department- Chemistry
Name of the Teacher – Dr. D. S. Gaikwad

Class	Subject	Unit Alloted	Units Completed	Units remained
B. Sc.I Sem I	**Chemistry**	Ionic Equilibria	Ionic Equilibria	**Nil**
M.Sc. I Sem I	**Chemistry**	Paper No. II Organic Chemistry-II Unit-IV Stereochemistry	Introduction of stereochemistry, Symmetry, Chirality, Prochiral relationship, homotopic, enantiotopic and disteriotopic groups and faces. Stereochemistry of the compounds containing Nitrogen, Sulphur and phosphorous. Conformational analysis: Cyclohexane derivatives, stability and reactivity, Conformational analysis of Mono and disubstituted cyclohexanes.	**Nil**
M.Sc.II Sem III	**Organic Chemistry**	Applications of following metal in organic synthesis	Introduction to organometallic chemistry, applications of metals in organic synthesis such as Pd, Mg, Rh, Tl, Si, use of Cu in Click chemistry.	**Nil**
		Drugs and Heterocycles a) Six membered Heterocycles with two and more Heteroatoms.	Synthesis and Reactions of Six and seven membered Heterocycles with two and more Heteroatoms	**Nil**
		13C NMR spectroscopy and combined Spectral problems	General introduction to 13C NMR spectroscopy; chemical shift values [aliphatic, olefinic, alkyne, aromatic, heteroaromatic and carbonyl compounds]; proton coupled, proton decoupled 13C NMR spectra, advanced 13C NMR techniques (NOE, DEPT, Off resonance, HETCOR), Heteronuclear coupling, problems associated with 13C NMR. Structural problems based on combined spectroscopic techniques (including reaction sequences)	**Nil**
M. Sc.I Sem. II	**Chemistry**	**Organic Chemistry-II**	a) Study of following reactions Mechanism of condensation reaction involving enolates, Dieckmann, Wagner-Meerwein, Robinson annulations. b) Alkylation and Acylation Introduction, Types of	**Nil**

			alkylation and alkylating agents: C-Alkylation and Acylation of active methylene compounds and their applications.	
M.Sc.II Sem IV	**Organic Chemistry**	Vitamins	Biological functions of vitamin B1, B2, B5, B6 and Biotin (Vitamin H).	**Nil**
M.Sc.II Sem IV	**Organic Chemistry**	Alkaloids	Introduction, occurrence, isolation and functions of alkaloids, Structure, stereochemistry and synthesis of the following: Morphine, Reserpine, Atropine and Conin	**Nil**

Dr. D. S. Gaikwad

Dr. D. B. Patil.
Head of the Department

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR-416003.

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