

Academic Year 2019-20

**B.P.H.E. Society's
Ahmednagar College, Ahmednagar
Internal Quality Assurance Cell
CO, PO, and PSO Attainment Sheet**

Department Name Chemistry

Program Name M.Sc.

Program Outcomes(PO)

PO1	Learn the terms, theories, assumptions, methods, principles, theorem statements and classification
PO2	Fix out the problem and resolve it using theories and practical knowledge.
PO3	Inculcate knowledge for carrying projects and advanced research related skills.
PO4	Actively participate in team on case studies and field-based situations.
PO5	Analyze and interpret ideas, evidences and experiences with learned scientific reasoning
PO6	Aware and implement the subject facts that can be applied for the personal and social development
PO7	Use digital literacy to retrieve and evaluate subject related information
PO8	Get moral and ethical values for society as well as in research
PO9	Give analytical reasoning to interpret research data
PO10	Improve their managerial skills and abilities in subject related activities.
PO11	Inculcate continuous learning habit through all available resources.
PO12	Participate in multicultural society and communicate the subject knowledge for the betterment of society

Program Specific Outcome(PSO)

PSO1	Demonstrate a comprehensive knowledge of all disciplines.
PSO2	To assess and evaluate facts, claims and arguments using their scientific knowledge
PSO3	To define a problem, analyse, interpret and draw conclusion by planning, implementing and reporting the results of an experiment.

Academic Year :	2019-20
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Class		M.Sc. I Organic & Drug Chemistry	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHP-110			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Physical Chemistry I	CO1	3	2	1	0	1	2	3	0	1	1	2	0	2	3	2	
Semester No	I	CO2	3	3	2	0	2	1	2	0	2	1	2	1	2	2	3	
Teacher Name	Dr. R. K. Dongare	CO3	2	3	3	2	2	3	2	0	2	0	2	1	2	3	2	
Course Outcomes		CO4	2	2	1	2	3	2	2	1	3	1	2	1	3	3	3	
	CO1	Students should be able to remember the concepts of thermodynamic parameters, quantum mechanical postulates, rate laws of chemical reactions and computation of macroscopic properties of matter.	CO5	3	3	2	3	3	2	3	2	3	2	3	2	3	3	
	CO2	Students should understand the basics like state function and path function, Schrodinger wave equation, kinetics of fast reactions, partition functions and ensembles.	Average	2.60	2.60	1.80	1.40	2.20	2.00	2.40	0.60	2.20	1.00	2.20	1.00	2.40	2.80	2.60
	CO3	Students should be able to apply the knowledge of various quantum mechanical methods to determine the different molecular properties and built the concept of the relation between thermodynamics and quantum mechanics																
	CO4	Students should be able to analyze the rates of various chemical reactions both theoretically and experimentally and also observe the effect of catalyst and determine energies of activation of such reactions																

	CO5	Students should be able to evaluate variation of thermodynamic parameters for multi component systems and their variation with other extensive properties, Schrodinger wave equation and its application to hydrogen and hydrogen like atoms.
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Class		M.Sc. I Organic & Drug Chemistry	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHP-210			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Physical Chemistry II	CO1	3	2	2	1	1	2	3	0	1	1	2	0	2	3	2	
Semester No	II	CO2	2	3	2	2	2	1	2	0	2	2	2	1	2	2	3	
Teacher Name	Dr. R. K. Dongare	CO3	2	3	3	2	2	3	2	0	2	1	2	1	2	3	2	
Course Outcomes		CO4	2	2	1	2	3	2	2	1	3	2	2	1	3	3	3	
	CO1	Remember basic concepts of molecular spectroscopy, selection rules, intensity of spectral lines, radioactive decay and decay kinetics.	CO5	3	3	2	3	3	2	3	2	3	3	3	2	3	3	3
	CO2	Understand principles and applications of rotational, vibrational, Raman, electronic and Mossbauer spectroscopy. Understand concepts of nuclear and radiation Chemistry. Applications of Radioisotopes	Average	2.40	2.60	2.00	2.00	2.20	2.00	2.40	0.60	2.20	1.80	2.20	1.00	2.40	2.80	2.60
	CO3	Apply various spectroscopic techniques for gaining insights into molecular structure																
	CO4	Analyse vibrating diatomic molecule, simple harmonic and anharmonic oscillator, Scattering of light, Raman Spectrum, interaction of γ radiation with matter and radiation dosimetry.																
	CO5	Evaluate bond length, vibrational frequency, force constant and dissociation energy using spectral data																

Class		M.Sc. I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO – 250			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Organic Chemistry-II		CO1	3	2	2	1	2	0	1	0	2	1	1	0	1	1	2
Semester No	II		CO2	2	2	1	0	1	0	1	0	1	1	1	0	2	2	2
Teacher Name	Dr. S.R.Deshmukh		CO3	3	3	2	1	1	0	2	0	3	1	1	1	1	2	2
Course Outcomes			CO4															
	CO1	Students will be able to understand - 1. MOT and will be able to extend this in predicting reaction mechanism and stereochemistry of electrocyclic ,cycloaddition and sigmatropic reactions,	CO5															
	CO2	2. The concepts in free radical reactions, mechanism and the stereo chemical outcomes.	Average	2.67	2.33	1.67	0.67	1.33	0.00	1.33	0.00	2.00	1.00	1.00	0.33	1.33	1.67	2.00
	CO3	3. The basic principle of spectroscopic methods and their applications in structure elucidation of organic compounds using given spectroscopic data or spectra.																
	CO4																	
	CO5																	

Class		M.Sc. I Organic & Drug Chemistry	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHP-107			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Physical Chemistry Practicals		CO1	3	2	2	1	1	2	3	1	1	2	2	2	2	3	2
Semester No	I & II		CO2	2	3	2	2	2	1	2	2	2	2	2	2	2	2	3
Teacher Name	Dr. R. K. Dongare		CO3	2	3	3	2	2	3	2	2	2	2	2	2	3	2	
Course Outcomes			CO4	3	3	2	2	3	2	2	1	3	2	2	2	3	3	3
	CO1	Students will grasp the concept of reaction rate and its significance in Chemical Kinetics.	CO5	3	3	2	3	3	2	3	2	3	3	3	2	3	3	3
	CO2	Students will learn how to use experimental data to deduce rate laws and rate constants.	Average	2.60	2.80	2.20	2.00	2.20	2.00	2.40	1.60	2.20	2.20	2.20	2.00	2.40	2.80	2.60

	CO3	Students will be familiar with the fundamental principles of colorimetry and spectrophotometry including Beer's law, Lambert- Beer's law and the relationship between absorbance and concentration.
	CO4	Students will be able to operate the instruments like spectrophotometer and colorimeter
	CO5	Students will be able to determine the densities of the solutions and can calculate molar volumes

Class		M. Sc II Organic and Drug	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CHO 351		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Structure Determination of Organic Compounds by spectroscopic Methods	CO1															
Semester No		III	CO2															
Teacher Name		Dr. S. B. Kasar	CO3															
Course Outcomes			CO4															
	CO1	Students should know the basic principle of various techniques like PMR, CMR and Mass spectrometry	CO5															
	CO2	Students should be able to predict chemical shift values, multiplicity, coupling constant, mass fragmentation pattern etc	Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	CO3	student should be able to analyze 2d spectra, COSY, HETCOR																
	CO4	student should be able to solve combined problems based on I.R. U. V. PMR , CMR, Mass spectra data																
	CO5	student should be able to interpret the given spectra																

Class		M.Sc II Organic and Drug	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO 451			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Organometallic Reagents in Organic Synthesis	CO1																
Semester No	IV	CO2																
Teacher Name	Dr. S. B. Kasar	CO3																
Course Outcomes		CO4																
	CO1	students should know role of transition metal in organic synthesis	CO5															
	CO2	students should be able to identify different coupling reactions	Average	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	CO3	student should be able to draw mechanism of different coupling reactions like suzuki, nigishi, stille ets																
	CO4	students should be able to do organic functional group transformation																
	CO5	students should be able to suggest reagent or combination of different reagents in various reaction																

Class		M.Sc I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHI-227			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Basic practical chemistry	CO1	3	2	2	1	2	0	1	0	2	1	1	0	1	1	2	
Semester No	Dr.Kawade V.A. Mrs.Tikone S.G.	CO2	2	2	1	0	1	0	1	0	1	1	1	0	2	2	2	
Teacher Name		CO3	3	3	2	1	1	0	2	0	3	1	1	1	1	2	2	

Course Outcomes		Student should answer the cell constant, Define coordination complex, specific conductance, resistance, equilibrium constant, chromatography, absorbance, Beer's law, solubility product, etc.	CO4	2	3	2	1	2	1	2	1	1	1	1	2	2	1	1
CO1	Student should understand the concept of Ion – Exchange Chromatography	CO5	3	2	2	2	2	1	2	2	2	2	2	3	1	2	2	2
CO2	Student will able to do the synthesis of complex and study the kinetics.	Average	2.60	2.40	1.80	1.00	1.60	0.40	1.60	0.60	1.80	1.20	1.40	0.80	1.60	1.60	1.80	
CO3	Student should know the Inorganic characterization techniques.																	
CO4	Student should know the how to apply Conductometry technique for the characterization of complexes.																	
CO5	Student should able to Apply knowledge to a) design experiment for given aim or modify experiment to enhance results. b) to find out lacuna in experimental procedure.																	

Class	M.Sc Organic and Drug Chemistry	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHG-190		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Introduction to Chemical Biology-I	CO1	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3
Semester No	I	CO2	3	3	3	2	3	2	3	3	3	3	3	3	3	3	3
Teacher Name	Dr. P.S.Vaddadi ; Dr. S.D.Rupwate	CO3	2	3	3	3	3	2	3	3	3	3	3	3	2	3	3
Course Outcomes		CO4	3	3	2	1	2	2	3	2	3	2	3	2	3	3	3

	CO1	Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.	CO5	3	3	3	3	1	2	3	3	3	3	3	3	3	2	2
	CO2	Students will be able to function as a member of an interdisciplinary problem solving team	Average	2.80	3.00	2.80	2.40	2.40	2.00	3.00	2.80	3.00	2.80	3.00	2.80	2.80	2.80	2.80
	CO3	To impart the students thorough idea in the chemistry of carbohydrates, amino acids, proteins and nucleic acids etc.																
	CO4	Be able to describe the chemical basis for replication, transcription, translation and how each of these central processes can be expanded to include new chemical matter.																
	CO5	Develop skills to critically read the literature and effectively communicate research in a peer setting.																

Class		M.Sc Organic and Drug Chemistry	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHG-290			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Introduction to Chemical Biology-II		CO1	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3
Semester No	II		CO2	3	3	3	2	3	2	3	3	3	3	3	3	3	3	3
Teacher Name	Dr. P.S.Vaddadi ; Dr. S.D.Rupwate		CO3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3
Course Outcomes			CO4	3	3	3	1	2	2	3	2	3	2	3	2	3	3	3
	CO1	Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.	CO5	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3
	CO2	Students will be able to function as a member of an interdisciplinary problem solving team.	Average	3.00	3.00	3.00	2.40	2.80	2.00	3.00	2.80	3.00	2.80	3.00	2.80	3.00	3.00	3.00

CO3	To impart the students thorough idea in the chemistry of carbohydrates, amino acids, proteins and nucleic acids etc.
CO4	Be able to describe the chemical basis for replication, transcription, translation and how each of these central processes can be expanded to include new chemical matter.
CO5	Describe the importance of chemical biology research and interdisciplinary work.

Class	<u>M.Sc. I Organic & Drug Chemistry</u>	Course Outcomes	Program Outcomes												PSOs			
Subject Code	CHP-107		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Subject Name	Organic Chemistry Practicals	CO1	3	3	1	0	1	2	3	2	3	3	2	2	3	3	2	
Semester No	I & II	CO2	3	3	2	0	2	1	2	0	2	2	2	1	2	3	3	
Teacher Name	S.A. Gunjal	CO3	2	3	3	2	3	3	2	0	2	1	2	1	3	3	2	
Course Outcomes		CO4	2	2	1	2	3	2	2	1	3	1	2	1	3	3	3	
	CO1	Students will grasp the concept of various purification techniques.	CO5	3	3	2	3	3	2	3	2	3	2	3	2	3	3	
	CO2	Students will learn how to use different purification techniques for purification of products.	Average	2.60	2.80	1.80	1.40	2.40	2.00	2.40	1.00	2.60	1.80	2.20	1.40	2.80	3.00	2.60
	CO3	Understand the theoretical aspects behind separation, purification and synthesis of organic compounds.																
	CO4	Acquire the experimental skills for separation, purification, identification and synthesis of organic compounds																
	CO5	Students will be able to determine the densities of the solutions and can calculate molar volumes																
		Design experimental set up for performing the organic reactions Describe the mechanistic aspects of organic reactions																

Class		M.Sc. I Organic & Drug Chemistry	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO-150			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Basic Organic Chemistry		CO1	3	3	1	0	1	2	3	2	3	3	2	2	3	2	2
Semester No	I		CO2	3	3	2	0	2	1	2	1	2	2	2	1	2	3	3
Teacher Name	S.A. Gunjal		CO3	2	3	3	2	3	3	2	0	2	1	2	1	3	3	2
Course Outcomes			CO4	2	2	1	2	3	2	3	1	3	1	2	3	3	3	3
	CO1	Understand the concepts of chemical bonding, various structural effects, acids and bases, intermediates and aromaticity.	CO5	3	3	2	3	3	2	3	2	3	2	3	2	3	3	3
	CO2	Learn the concepts of stereochemistry.	Average	2.60	2.80	1.80	1.40	2.40	2.00	2.60	1.20	2.60	1.80	2.20	1.80	2.80	2.80	2.60
	CO3	Understand and identify the types of organic reactions.																
	CO4	Advanced knowledge of various stereochemical aspects.																
	CO5	Establish mechanistic knowledge of aliphatic and aromatic substitutions, and oxidationreduction reactions.																

Class		M.Sc-I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHI-130			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Inorganic Chemistry-I		CO1	3	2	2	1	1	1	2	1	2	3	2	2	1	2	1
Semester No	Semester – I		CO2	1	3	1	2	1	2	1	1	1	2	2	1	2	2	2
Teacher Name	Dr. Kawade V.A. and Mrs. Tikone S. G.		CO3	2	2	2	3	3	3	3	2	2	1	2	2	2	2	1
Course Outcomes			CO4	2	1	3	2	2	2	1	2	1	2	2	3	3	2	3
	CO1	Student should visualize/ imagine molecules in 3 dimensions.	CO5	1	2	2	2	1	1	2	3	2	1	1	2	2	1	2
	CO2	Student will able to explain representation of group	Average	1.80	2.00	2.00	2.00	1.60	1.80	1.80	1.80	1.60	1.80	1.80	2.00	2.00	1.80	1.80
	CO3	Student should explain the Application of Group theory to Infrared Spectroscopy																
	CO4	Student should understand the detail chemistry of S and P block elements w.r.t. their compounds, their reactions and applications.																

CO5	To learn the advance chemistry of boranes, fullerene, zeolites, polymers etc.
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Class		M.Sc-I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHI-230	CO1		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Inorganic Chemistry,	CO2	2	3	3	1	2	3	2	2	1	2	1	1	2	1	2	
Semester No	Semester – II	CO3	1	2	2	3	2	1	3	1	2	1	3	2	3	1	3	
Teacher Name	Dr. Kawade V.A. and Mrs. Tikone S. G.	CO4	3	1	1	2	1	2	2	3	2	3	2	1	2	2	1	
Course Outcomes		CO5	2	2	3	2	2	3	2	1	3	2	2	3	1	1	1	
	CO1	Student should able to find out the no of microstates and meaningful term symbols, construction of microstate table for various configuration	1	2	2	1	3	1	1	2	1	2	1	2	2	3	2	
	CO2	Student should understand interelectronic repulsion.	1.80	2.00	2.20	1.80	2.00	2.00	2.00	1.80	1.80	2.00	1.80	1.80	2.00	1.60	1.80	
	CO3	Hund's rules for arranging the terms according to energy.																
	CO4	Student should able to explain the Importance of bioinorganic chemistry.																
	CO5	Student should able to explain the Role of metals in Metalloprotein and metalloenzymes.																

Class		M.Sc-I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHG – 190 (P)	CO1		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	General Chemistry-I (Elective Option-A: Inorganic Material Analysis, Synthesis and Applications)	CO2	3	2	2	1	2	0	1	0	2	1	1	0	1	1	2	
Semester No	I	CO3	2	2	1	0	1	0	1	0	1	1	1	0	2	2	2	
Teacher Name	Dr.Kawade V.A. Mrs.Tikone S.G.	CO3	3	3	2	1	1	0	2	0	3	1	1	1	1	2	2	

Course Outcomes			CO4	2	3	2	1	2	1	2	1	1	1	1	2	2	1	1
	CO1	Student will able to prepare solution of required conc. and the handle laboratory equipment properly.	CO5	3	1	2	3	2	2	3	2	1	3	2	1	2	2	3
	CO2	Student should be Perform experiment accurately and able to perform calculation.	Average	2.60	2.20	1.80	1.20	1.60	0.60	1.80	0.60	1.60	1.40	1.20	0.80	1.60	1.60	2.00
	CO3	Student will able to Explain experiment and principal of experiment in detail.																
	CO4	Student should able to perform calculations and discuss results and write conclusions of the experiment.																
	CO5	Student should able to Apply knowledge to a) design experiment for given aim or modify experiment to enhance results. b) to find out lacuna in experimental procedure.																

Academic Year :	2019-20
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Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO-347			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Single stage preparations	CO1	1	2	3	3	2	2	2	2	0	2	2	2	1	2	1	
Semester No	III & IV	CO2	1	3	2	1	3	1	2	0	2	1	1	1	1	1	3	
Teacher Name		CO3	2	2	1	1	3	1	1	2	2	1	2	2	2	2	3	
Course Outcomes		CO4	2	3	2	2	2	2	1	1	2	1	2	1	1	1	2	
	CO1	Students are made aware of safety techniques and handling of chemicals.	CO5															
	CO2	Students are made aware of carrying out different types of reactions and their workup methods.	Average	1.50	2.50	2.00	1.75	2.50	1.50	1.50	1.25	1.50	1.25	1.75	1.50	1.25	1.50	2.25
	CO3	This practical course is designed to make student aware of green chemistry and role of green chemistry in pollution reduction.																
	CO4	Students are trained to different purification techniques in organic chemistry and isolation of natural products by different methods.																
	CO5																	

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO-352			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Organic Stereochemistry	CO1	2	2	1	1	1	0	1	0	1	1	2	2	1	2	2	
Semester No	III	CO2	2	1	2	0	2	0	1	0	1	1	2	2	2	2	2	
Teacher Name	Dr. S.R.Deshmukh	CO3	1	1	2	1	2	0	1	0	1	1	2	2	1	1	2	
Course Outcomes		CO4	2	1	2	0	2	0	1	0	1	1	2	2	2	2	2	

	CO1	Students will be able to understand a) Stereochemistry of six membered rings	CO5	1	2	1	1	1	0	1	0	1	1	2	2	2	2	2
	CO2	b) Stereochemistry of rings other than six membered, Fused Bridged and caged rings.	Average	1.60	1.40	1.60	0.60	1.60	0.00	1.00	0.00	1.00	1.00	2.00	2.00	1.60	1.80	2.00
	CO3	c) Resolution of racemic modification																
	CO4	d) Geometrical Isomerism and Stereochemistry of olefins																
	CO5	e) Determination of stereochemistry organic compounds using NMR																

Class		M. Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO-353	PO1		PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Subject Name	Heterocyclic chemistry	CO1	2	1	2	1	1	2	0	0	1	1	2	1	2	3	2	
Semester No	III	CO2	1	2	2	1	2	1	1	0	2	1	2	1	1	2	3	
Teacher Name	A. S. Wadhawa	CO3	2	1	2	1	2	1	2	2	2	1	2	2	2	3	2	
Course Outcomes		CO4	2	2	1	2	0	2	2	1	3	1	2	1	3	2	3	
	CO1	Students will be able to understand Synthesis, reactivity, aromatic character and importance of-	CO5	1	2	2	3	3	2	3	2	3	2	3	3	3	3	
	CO2	a) Five and six membered heterocycles with one and two hetero atoms	Average	1.60	1.60	1.80	1.60	1.60	1.60	1.60	1.00	2.20	1.20	2.20	1.60	2.20	2.60	2.60
	CO3	b) Condensed five and six membered heterocycles																
	CO4	c) Condensed five membered heterocycles																
	CO5	d) Five and six membered heterocycles with more than two hetero atoms																

Class		M.Sc II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO 448	PO1		PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	

Subject Name	Ternary Mixture Separation and Isolation of Natural Products		CO1	3	2	2	1	1	2	3	0	1	1	2	1	2	3	2
Semester No	IV		CO2	3	2	2	1	2	1	3	0	2	1	2	1	1	2	3
Teacher Name	Mr. V. M. Kasab		CO3	2	3	2	3	2	3	2	2	2	1	2	2	2	3	2
Course Outcomes			CO4	2	2	1	2	3	2	2	1	3	1	2	1	3	2	3
	CO1	Students should be able to understand and employ concept of type determination and separation for ternary mixture	CO5	3	2	2	3	3	2	3	2	3	2	3	3	3	3	3
	CO2	Students should be able to perform micro scale chemical elemental analysis	Average	2.60	2.20	1.80	2.00	2.20	2.00	2.60	1.00	2.20	1.20	2.20	1.60	2.20	2.60	2.60
	CO3	Students should be able to purify the impure compounds and achieve the desired purity of the desired molecule																
	CO4	Students should be able to choose the appropriate technique to Isolate desired Natural Product																
	CO5	Students should be able to analyse and prove the presence desired Isolated natural product																

Class	M.Sc II	Course Outcomes	Program Outcomes												PSOs			
Subject Code	CHO 451		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Subject Name	Organometallic Reagents in Organic Synthesis	CO1	3	2	2	1	1	2	3	0	1	1	2	0	2	3	2	
Semester No	IV	CO2	3	3	2	0	2	1	2	0	2	1	2	1	1	2	3	
Teacher Name	Dr. S. B. Kasar	CO3	3	3	2	3	2	3	2	0	2	0	2	1	2	3	2	
Course Outcomes			CO4	2	2	1	2	3	2	2	1	3	1	2	1	3	3	3
	CO1	students should know role of transition metal in organic synthesis	CO5	3	3	2	3	3	2	3	2	3	2	3	2	3	3	3
	CO2	students should be able to identify different coupling reactions	Average	2.80	2.60	1.80	1.80	2.20	2.00	2.40	0.60	2.20	1.00	2.20	1.00	2.20	2.80	2.60

	CO3	student should be able to draw mechanism of different coupling reactions like suzuki. nigishi, stille ets
	CO4	students should be able to do organic functional group transformation
	CO5	students should be able to suggest reagent or combination of different reagents in various reaction

Class		M.Sc II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO 351			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Structure Determinations of Organic Compounds by Spectroscopic Methods		CO1	3	2	2	1	1	2	3	0	1	1	2	0	2	3	2
Semester No	III		CO2	3	3	2	0	2	1	2	0	2	1	2	1	2	2	3
Teacher Name	Dr. S. B. Kasar		CO3	3	3	2	3	2	3	2	0	2	0	2	1	2	3	2
Course Outcomes			CO4	2	2	1	2	3	2	2	1	3	1	2	1	3	3	3
	CO1	This course typically focus on equipping students with advanced knowledge and skills in the field of spectroscopy	CO5	3	3	2	3	3	2	3	2	3	2	3	2	3	3	3
	CO2	Students should gain deep understanding of PMR, CMR and Mass spectrometry	Average	2.80	2.60	1.80	1.80	2.20	2.00	2.40	0.60	2.20	1.00	2.20	1.00	2.40	2.80	2.60
	CO3	students should be deduce functional groups, connectivity, and stereochemistry																
	CO4	students should be able to solve combined problems on U.V. I. R. and NMR data																
	CO5	students should be proficient in interpreting spectroscopic data sets involving multidimensional NMR and mass spectra																

Class		M.Sc II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO 447			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

Subject Name	Organic Practical Two stage preparation	CO1	3	2	2	1	1	2	3	0	1	1	2	0	2	3	2
Semester No	III & IV	CO2	2	2	2	1	2	1	2	0	2	1	2	1	2	2	3
Teacher Name	Dr. S. B. Kasar	CO3	3	3	2	3	2	3	2	0	2	0	2	1	2	3	2
Course Outcomes		CO4	2	2	1	2	3	2	2	1	3	1	2	1	3	3	3
CO1	students should develop advanced skills in planning and conducting synthesis	CO5	3	3	2	3	3	2	3	2	3	2	3	2	3	3	3
CO2	students should gain deep understanding of the principles and theories in double stage synthesis	Average	2.60	2.40	1.80	2.00	2.20	2.00	2.40	0.60	2.20	1.00	2.20	1.00	2.40	2.80	2.60
CO3	student should gain problem solving skill during synthesis																
CO4	students should prioritize safe practices and ethical conduct in the lab																
CO5	students should be proficient in analyzing and interpreting experimental data																

Class	M. Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO-350		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Organic Reaction Mechanism	CO1	1	0	2	3	1	3	1	0	1	1	2	0	2	3	2
Semester No	III	CO2	3	2	1	0	2	2	2	0	2	1	2	1	2	2	3
Teacher Name	D. D. Gaikwad	CO3	1	0	2	3	2	3	2	0	2	0	2	1	2	3	2
Course Outcomes		CO4	1	2	1	2	3	2	2	1	3	1	2	1	3	3	3
CO1	students learn advance synthetic chemistry.	CO5	0	3	2	3	3	2	3	2	3	2	3	2	3	3	3
CO2	They get acquainted with the research work.	Average	1.20	1.40	1.60	2.20	2.20	2.40	2.00	0.60	2.20	1.00	2.20	1.00	2.40	2.80	2.60
CO3	students are trained to work independently in the laboratory.																
CO4	This course offers them to understand theoretical as well as practical sessions in depth.																
CO5	Organic transformations, Hammett studies link them synthetic and theoretical chemistry simultaneously.																

Class		M. Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO-450			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Chemistry of Natural Products		CO1	3	2	1	3	2	0	1	0	1	1	2	0	2	3	2
Semester No	IV		CO2	2	1	1	0	2	2	2	0	2	1	2	1	2	2	3
Teacher Name	D. D. Gaikwad		CO3	1	0	2	3	2	3	2	0	2	0	2	1	2	3	2
Course Outcomes			CO4	2	2	1	2	1	2	2	1	3	1	2	1	3	3	3
	CO1	This course offers the students to learn natural processes.	CO5	0	3	2	3	3	2	3	2	3	2	3	2	3	3	3
	CO2	Biogenesis and synthetic studies can be compared while designing and planning the synthesis.	Average	1.60	1.60	1.40	2.20	2.00	1.80	2.00	0.60	2.20	1.00	2.20	1.00	2.40	2.80	2.60
	CO3	Biomimetic studies help the students for better understanding of the course.																
	CO4	synthetic part of this course provides in-depth understanding the advanced reagents and catalysts.																
	CO5	overall study of this course provides them opportunity to go for higher studies.																

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO-452			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Concepts and Applications of Medicinal Chemistry		CO1	3	2	2	1	1	2	3	0	1	1	2	0	2	3	2
Semester No	IV		CO2	2	2	2	1	2	1	2	0	2	1	2	1	2	2	3
Teacher Name	S.A. Gunjal		CO3	3	3	2	3	2	3	2	0	2	0	2	1	2	3	2
Course Outcomes			CO4	2	2	1	2	3	2	2	1	3	1	2	1	3	3	3
	CO1	Students should learn the concepts of Structure and activity Relationship.	CO5	3	3	2	3	3	2	3	2	3	2	3	2	3	3	3
	CO2	They are introduced to various drugs and their mode of action.	Average	2.60	2.40	1.80	2.00	2.20	2.00	2.40	0.60	2.20	1.00	2.20	1.00	2.40	2.80	2.60
	CO3	They learn Beta lactam antibacterial agents and their MOA.																

	CO4	Students should learn Drug-Receptor interactions.
	CO5	They are introduced to various agents like antiviral, antimicrobial, antifungal and their MOA.

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CHO-453			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Designing Organic Synthesis and Asymmetric Synthesis		CO1	1	0	2	3	1	2	2	2	1	1	2	1	2	3	3
Semester No	IV		CO2	2	2	3	1	2	1	2	0	2	1	2	1	2	2	3
Teacher Name	S. V. Rohokale		CO3	1	0	2	3	2	3	2	3	2	0	2	1	2	3	2
Course Outcomes			CO4	2	2	1	2	3	2	2	2	3	2	2	1	3	3	3
	CO1	Students should learn the concepts of Structure and activity Relationship.	CO5	3	3	2	3	3	2	3	2	3	2	3	2	3	3	3
	CO2	They are introduced to various drugs and their mode of action.	Average	1.80	1.40	2.00	2.40	2.20	2.00	2.20	1.80	2.20	1.20	2.20	1.20	2.40	2.80	2.80
	CO3	Asymmetric synthesis gives idea about planning the scheme.																
	CO4	Students should learn the use of chiral catalysts and auxillaries.																
	CO5	They are introduced to various agents used for stereoselective reactions.																

CO-PO Mapping

		Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		
FY	FY	1 CHP-110	2.60	2.60	1.80	1.40	2.20	2.00	2.40	0.60	2.20	1.00	2.20	1.00		
		2 CHP-210	2.40	2.60	2.00	2.00	2.20	2.00	2.40	0.60	2.20	1.80	2.20	1.00		
		3 CHO – 250	2.67	2.33	1.67	0.67	1.33	0.00	1.33	0.00	2.00	1.00	1.00	0.33		
		4 CHP-107	2.60	2.80	2.20	2.00	2.20	2.00	2.40	1.60	2.20	2.20	2.20	2.00		
		7 CHI-227	2.60	2.40	1.80	1.00	1.60	0.40	1.60	0.60	1.80	1.20	1.40	0.80		
		8 CHG-190	2.80	3.00	2.80	2.40	2.40	2.00	3.00	2.80	3.00	2.80	3.00	2.80		
		9 CHG-290	3.00	3.00	3.00	2.40	2.80	2.00	3.00	2.80	3.00	2.80	3.00	2.80		
		10 CHP-107	2.60	2.80	1.80	1.40	2.40	2.00	2.40	1.00	2.60	1.80	2.20	1.40		
		11 CHO-150	2.60	2.80	1.80	1.40	2.40	2.00	2.60	1.20	2.60	1.80	2.20	1.80		
		12 CHI-130	1.80	2.00	2.00	2.00	1.60	1.80	1.80	1.80	1.60	1.80	1.80	2.00		
		13 CHI-230	1.80	2.00	2.20	1.80	2.00	2.00	2.00	1.80	1.80	2.00	1.80	1.80		
		14 CHG – 190 (P)	2.60	2.20	1.80	1.20	1.60	0.60	1.80	0.60	1.60	1.40	1.20	0.80		
		SY	SY	1 CHO-347	1.50	2.50	2.00	1.75	2.50	1.50	1.50	1.25	1.50	1.25	1.75	1.50
				2 CHO-352	1.60	1.40	1.60	0.60	1.60	0.00	1.00	0.00	1.00	1.00	2.00	2.00
3 CHO-353	1.60			1.60	1.80	1.60	1.60	1.60	1.60	1.00	2.20	1.20	2.20	1.60		
4 CHO 448	2.60			2.20	1.80	2.00	2.20	2.00	2.60	1.00	2.20	1.20	2.20	1.60		
5 CHO 451	2.80			2.60	1.80	1.80	2.20	2.00	2.40	0.60	2.20	1.00	2.20	1.00		
6 CHO 351	2.80			2.60	1.80	1.80	2.20	2.00	2.40	0.60	2.20	1.00	2.20	1.00		
7 CHO 447	2.60			2.40	1.80	2.00	2.20	2.00	2.40	0.60	2.20	1.00	2.20	1.00		
8 CHO-350	1.20			1.40	1.60	2.20	2.20	2.40	2.00	0.60	2.20	1.00	2.20	1.00		
9 CHO-450	1.60			1.60	1.40	2.20	2.00	1.80	2.00	0.60	2.20	1.00	2.20	1.00		
10 CHO-452	2.60			2.40	1.80	2.00	2.20	2.00	2.40	0.60	2.20	1.00	2.20	1.00		
11 CHO-453	1.80			1.40	2.00	2.40	2.20	2.00	2.20	1.80	2.20	1.20	2.20	1.20		

CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
2.184	2.184	1.512	1.176	1.848	1.68	2.016	0.504	1.848	0.84	1.848	0.84
1.76	1.906667	1.466667	1.466666667	1.613333	1.466667	1.76	0.44	1.613333	1.32	1.613333	0.733333
1.386667	1.213333	0.866667	0.346666667	0.693333	0	0.693333	0	1.04	0.52	0.52	0.173333
2.6	2.8	2.2	2	2.2	2	2.4	1.6	2.2	2.2	2.2	2
2.6	2.4	1.8	1	1.6	0.4	1.6	0.6	1.8	1.2	1.4	0.8
2.501333	2.68	2.501333	2.144	2.144	1.786667	2.68	2.501333	2.68	2.501333	2.68	2.501333
2.2	2.2	2.2	1.76	2.053333	1.466667	2.2	2.053333	2.2	2.053333	2.2	2.053333
2.6	2.8	1.8	1.4	2.4	2	2.4	1	2.6	1.8	2.2	1.4
1.906667	2.053333	1.32	1.026666667	1.76	1.466667	1.906667	0.88	1.906667	1.32	1.613333	1.32
1.512	1.68	1.68	1.68	1.344	1.512	1.512	1.512	1.344	1.512	1.512	1.68
1.608	1.786667	1.965333	1.608	1.786667	1.786667	1.786667	1.608	1.608	1.786667	1.608	1.608
2.6	2.2	1.8	1.2	1.6	0.6	1.8	0.6	1.6	1.4	1.2	0.8
1.5	2.5	2	1.75	2.5	1.5	1.5	1.25	1.5	1.25	1.75	1.5
0.832	0.728	0.832	0.312	0.832	0	0.52	0	0.52	0.52	1.04	1.04
1.344	1.344	1.512	1.344	1.344	1.344	1.344	0.84	1.848	1.008	1.848	1.344
2.6	2.2	1.8	2	2.2	2	2.6	1	2.2	1.2	2.2	1.6
1.157333	1.074667	0.744	0.744	0.909333	0.826667	0.992	0.248	0.909333	0.413333	0.909333	0.413333
1.157333	1.074667	0.744	0.744	0.909333	0.826667	0.992	0.248	0.909333	0.413333	0.909333	0.413333
2.184	2.016	1.512	1.68	1.848	1.68	2.016	0.504	1.848	0.84	1.848	0.84
0.88	1.026667	1.173333	1.613333333	1.613333	1.76	1.466667	0.44	1.613333	0.733333	1.613333	0.733333
1.173333	1.173333	1.026667	1.613333333	1.466667	1.32	1.466667	0.44	1.613333	0.733333	1.613333	0.733333
2.184	2.016	1.512	1.68	1.848	1.68	2.016	0.504	1.848	0.84	1.848	0.84
1.512	1.176	1.68	2.016	1.848	1.68	1.848	1.512	1.848	1.008	1.848	1.008

Percentage CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
84	84	84	84	84	84	84	84	84	84	84	84
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333
52	52	52	52	52	#DIV/0!	52	#DIV/0!	52	52	52	52
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100
89.33333	89.33333	89.33333333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333
100	100	100	100	100	100	100	100	100	100	100	100
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333
84	84	84	84	84	84	84	84	84	84	84	84
89.33333	89.33333	89.33333333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100
52	52	52	52	52	#DIV/0!	52	#DIV/0!	52	52	52	52
84	84	84	84	84	84	84	84	84	84	84	84
100	100	100	100	100	100	100	100	100	100	100	100
41.33333	41.33333	41.33333333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333
41.33333	41.33333	41.33333333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333
84	84	84	84	84	84	84	84	84	84	84	84
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333
84	84	84	84	84	84	84	84	84	84	84	84
84	84	84	84	84	84	84	84	84	84	84	84

CO-PSO MAPPING

	Course	PSO1	PSO2	PSO3
1	CHP-110	2.40	2.80	2.60
2	CHP-210	2.40	2.80	2.60
3	CHO – 250	1.33	1.67	2.00
4	CHP-107	2.40	2.80	2.60
7	CHI-227	1.60	1.60	1.80
8	CHG-190	2.80	2.80	2.80
9	CHG-290	3.00	3.00	3.00
10	CHP-107	2.80	3.00	2.60
11	CHO-150	2.80	2.80	2.60
12	CHI-130	2.00	1.80	1.80
13	CHI-230	2.00	1.60	1.80
14	CHG – 190	1.60	1.60	2.00
1	CHO-347	1.25	1.50	2.25
2	CHO-352	1.60	1.80	2.00
3	CHO-353	2.20	2.60	2.60
4	CHO 448	2.20	2.60	2.60
5	CHO 451	2.20	2.80	2.60
6	CHO 351	2.40	2.80	2.60
7	CHO 447	2.40	2.80	2.60
8	CHO-350	2.40	2.80	2.60
9	CHO-450	2.40	2.80	2.60
10	CHO-452	2.40	2.80	2.60
11	CHO-453	2.40	2.80	2.80

CO-PSO ATTAINMENT

	Course	PSO1	PSO2	PSO3
	CHP-110	2.016	2.352	2.184
	CHP-210	1.76	2.053333	1.906667
	CHO – 250	0.693333	0.866667	1.04
	CHP-107	2.4	2.8	2.6
	CHI-227	1.6	1.6	1.8
	CHG-190	2.501333	2.501333	2.501333
	CHG-290	2.2	2.2	2.2
	CHP-107	2.8	3	2.6
	CHO-150	2.053333	2.053333	1.906667
	CHI-130	1.68	1.512	1.512
	CHI-230	1.786667	1.429333	1.608
	CHG – 190 (P)	1.6	1.6	2
	CHO-347	1.25	1.5	2.25
	CHO-352	0.832	0.936	1.04
	CHO-353	1.848	2.184	2.184
	CHO 448	2.2	2.6	2.6
	CHO 451	0.909333	1.157333	1.074667
	CHO 351	0.992	1.157333	1.074667
	CHO 447	2.016	2.352	2.184
	CHO-350	1.76	2.053333	1.906667
	CHO-450	1.76	2.053333	1.906667
	CHO-452	2.016	2.352	2.184
	CHO-453	2.016	2.352	2.352

Percentage CO-PSO ATTAINMENT

	Course	PSO1	PSO2	PSO3
	CHP-110	84	84	84
	CHP-210	73.33333	73.33333	73.33333
	CHO – 250	52	52	52
	CHP-107	100	100	100
	CHI-227	100	100	100
	CHG-190	89.33333	89.33333	89.33333
	CHG-290	73.33333	73.33333	73.33333
	CHP-107	100	100	100
	CHO-150	73.33333	73.33333	73.33333
	CHI-130	84	84	84
	CHI-230	89.33333	89.33333	89.33333
	CHG – 190	100	100	100
	CHO-347	100	100	100
	CHO-352	52	52	52
	CHO-353	84	84	84
	CHO 448	100	100	100
	CHO 451	41.33333	41.33333	41.33333
	CHO 351	41.33333	41.33333	41.33333
	CHO 447	84	84	84
	CHO-350	73.33333	73.33333	73.33333
	CHO-450	73.33333	73.33333	73.33333
	CHO-452	84	84	84
	CHO-453	84	84	84

FY

SY