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	**B.Sc.**

Program Outcomes(PO)

PO1	A graduate student is expected to be capable of demonstrating comprehensive knowledge and understanding both theoretical and practical knowledge in all disciplines of Chemistry.
PO2	The course curriculum incorporates basics and advanced training in order to make a graduate student capable of expressing the subject through technical writing as well as through oral presentation.
PO3	The course curriculum also includes components that can be helpful to graduate students to develop critical thinking and to design, carry out, record and analyze the results of chemical reactions.
PO4	It is expected that the course curriculum will develop an inquisitive characteristics among the students through appropriate questions, planning and reporting experimental investigation.
PO5	The course curriculum has been designed to provide opportunity to act as team player by contributing in laboratory, field based situation and industry.
PO6	The course curriculum has been designed in such a manner as to enabling a graduate student to become a skilled project manager by acquiring knowledge about chemistry project management, writing
PO7	The course curriculum has been so designed to impart a good working knowledge in understanding and carrying out data analysis, use of library search tools, use of chemical simulation software and related computational work.
PO8	A graduate student requires understanding and developing ethical awareness or reasoning which is adequately provided through the course curriculum.
PO9	applying environmental friendly policies instead of environmentally hazard ones in every aspect.
PO10	advanced ICT technique and other available e-techniques, e-books and e-journals for personal
PO11	Chemistry based software, decent instruments and advanced technologies to synthesize,
PO12	for sustainable development. They are expected to maintain good laboratory practices and safety.
Program Specific Outcome(PSO)	
PSO1	and applied chemistry through theory and practical. These fundamental concepts would be
PSO2	analyze the results of chemical reactions. They can have that much potential and confidence that
PSO3	pertinent across the disciplines.

Academic Year :	2019-20

Class	F.Y. BSC	Course Outcomes	Program Outcomes												PSOs		
Subject Code	CH-101		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	PHYSICAL INORGANIC CHEMISTRY	CO1	2	2	3	1	2	3	1	2	2	3	3	2	3	2	1
Semester No	1	CO2	1	2	3	2	3	3	2	3	3	2	1	2	1	2	2
Teacher Name	Dr. A.K. KULKARNI	CO3	2	1	3	3	0	2	3	0	3	1	2	3	2	3	3
Course Outcomes		CO4	3	2	2	2	3	2	3	3	1	1	2	3	3	2	3
CO1	Students should learn gas laws deviation of ideal gas from real gas, concept of Z	CO5	3	3	1	3	3	3	2	1	2	2	3	1	2	1	2
CO2	Student should learn properties of liquids such as viscosity boiling point,	Average															
CO3	student can learn properties of surface, adsorption types of adsorption																
CO4	Applications of adsorption																
CO5	Student should learn concept of mole preparions of solution oxidation reduction reduction reactions																

Class	FY BSc	Course Outcomes					Program Outcomes								PSOs		
Subject Code	CH-102		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	PHYSICAL INORGANIC CHEMISTRY	CO1	1	2	2	1	1	2	1	1	2	2	3				
Semester No	2	CO2	2	2	3	2	1	2	1	2	2	1	1				
Teacher Name	Dr. A.K. Kulkarni	CO3	2	1	3	1	2	2	3	2	3	2	3				
Course Outcomes		CO4	1	1	2	0	2	3	2	3	2	2	3				

CO1	Students should learn thermodynamic systems, properties, process, laws of thermodynamics, temperature scales and energy interactions, heat of reactions, temperature dependent heat of reaction	CO5	2	2	3	2	2	2	3	1	2	2	2				
CO2	Determine heat, work, internal energy, enthalpy for flow &non-flow process using First and Second Law of Thermodynamics. Determine change in internal energy, change in enthalpy and change in entropy.	Average	1.60	1.60	2.60	1.20	1.60	2.20	2.00	1.80	2.20	1.80	2.40	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
CO3	To study strucrure of atom, Concept of Debroglies hypothesis, uncertainty principle																
CO4	Students should learn quantum mechanical approach to atomic structure,																
CO5	Periodicity of elements various theories for chemical bonding																

Class		F.Y.B. Sc.	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-103		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Chemistry Paper – III Practical Course	CO1	1	1	2	1	2	1	2	3	1	2	3	3	3	3	2
Semester No		First & Second Term	CO2	3	3	2	3	3	2	1	2	1	1	2	2	2	1	1
Teacher Name		Dr. Kawade V.A.	CO3	2	1	1	1	1	3	2	1	1	3	1	1	1	2	3
Course Outcomes			CO4	2	3	3	2	2	2	3	3	3	1	1	1	1	3	2
	CO1	Student should able to do inorganic qualitative analysis	CO5	1	2	1	2	1	0	1	0	2	3	1	2	2	1	2
	CO2	Student should explain the acidic and basic radicals	Average	1.80	2.00	1.80	1.80	1.80	1.60	1.80	1.80	1.60	2.00	1.60	1.80	1.80	2.00	2.00
	CO3	Student should know the preparation of different concentration solution																
	CO4	Student should know the CT for different radicals																
	CO5	Student should able to classify the different groups.																

Class		F.Y.B.Sc	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-201		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Inorganic Chemistry	CO1	2	1	3	1	1	2	3	1	2	3	1	1	1	1	3
Semester No		II	CO2	2	2	2	2	1	1	2	3	3	3	1	2	3	2	2
Teacher Name		Mrs.Tikone S.G.	CO3	2	3	3	3	1	2	3	1	2	2	3	2	2	2	1
Course Outcomes			CO4	3	3	3		2	2	2	1	1	1	2	2	2	2	2
	CO1	Students should learn quantum mechanical approach to atomic structure,	CO5															
	CO2	Student should learn Periodicity of elements	Average	2.25	2.25	2.75	2.00	1.25	1.75	2.50	1.50	2.00	2.25	1.75	1.75	2.00	1.75	2.00
	CO3	Student shoule learn various theories for chemical bonding																
	CO4	calculations used in analytical chemistry																
	CO5																	

Class		FY BSc	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-202		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Analytical Chemistry	CO1	1	2	3	2	3	1	3	3	2	1	1	1	1	1	3
Semester No		2	CO2	2	1	2	1	2	1	2	1	1	3	2	2	3	2	3
Teacher Name		Dr. A.K. Kulkarni	CO3	3	2	1	1	1	2	3	3	1	3	2	3	1	3	2
Course Outcomes			CO4	1	3	2	3	2	3	1	2	3	2	1	2	2	2	1
	CO1	Students should understood the fundamentals of analytical chemistry, Basics of sampling, applications	CO5	1	2	0	1	2	3	1	0	1	2	3	0	2	1	1
	CO2	To study preparations of solutions, determine units of solutions, stichiometeric calculations in analytical Chemistry	Average	1.60	2.00	1.60	1.60	2.00	2.00	2.00	1.80	1.60	2.20	1.80	1.60	1.80	1.80	2.00
	CO3	To study type, elements, functional group of organic compounds, mixture separation, and to study methods for the purifications of organic compounds																

	CO4	To study principles techniques and applications of adsorption, TLC, Column, SFC, Gas, HPLC, Chromatographic techniques
	CO5	Understand concept of pH, EMF calculations, Instrumentation of pH meter, applications of pH meter.

Class		FYBSC	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH- 203		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Chemistry Practical –II	CO1	1	3	1	3	1	3	1	1	1	1	1	1	2	2	3
Semester No		II	CO2	2	1	1	2	3	1	2	3	2	2	2	2	1	3	1
Teacher Name		Dr. Kawade V.A.	CO3	2	2	2	1	1	2	3	2	1	3	2	2	2	2	3
Course Outcomes			CO4	3	2	3	2	2	1	1	2	2	2	2	3	1	2	2
	CO1	Student should know the Inorganic Estimations using volumetric analysis	CO5	2	1	2	3	1	2	3	3	2	1	3	2	3	1	3
	CO2	Student should know the Synthesis of Inorganic compounds	Average	2.00	1.80	1.80	2.20	1.60	1.80	2.00	2.20	1.60	1.80	2.00	2.00	1.80	2.00	2.40
	CO3	Student should know the Analysis of commercial products																
	CO4	Student should know the procedure of Purification of organic compounds																
	CO5	Student should able to do Preparations and mechanism of reactions involved																

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Class		S.Y.BSc Chemistry
Subject Code		CH 211
Subject Name		Physical and Analytical Chemistry
Semester No		I
Teacher Name		Ghumare G. N. and Kasab V. M.
		It is expected that the course curriculum will develop an inquisitive characteristics among the students through appropriate questions, planning and reporting experimental investigation.
	CO1	Students understand few Analytical Chemistry concepts and some terms involved in Analytical chemistry
	CO2	Students will understand Errors in chemical analysis and ways to quantify and minimize and quantify them
	CO3	Students will be ready to solve numeric problems in topic named Errors in chemical analysis.
	CO4	Students will gain the necessary knowledge of chemistry involved in Inorganic qualitative analysis and will be ready to understand the topic from practical/ experimental perspective

Course Outcomes	Program Outcomes												PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	1	2	2	2	2	3	2	3	2	2	2	2
CO3	3	3	2	1	2	2	3	2	2	2	3	1	3	3	2
CO4	3	3	2	2	2	2	3	2	3	2	2	1	2	2	2
CO5	3	3	2	3	3	3	3	2	2	3	3	3	3	3	3
Average	2.8	2.8	2.4	2	2.4	2.4	2.8	2.2	2.6	2.4	2.8	2	2.6	2.6	2.4

	CO5	Students will develop interest to this vast topic also know popularly Analytical science and realize its vast application in various fields

Class		S.Y.B.Sc
Subject Code		CH-212
Subject Name		Inorganic and Organic Chemistry
Semester No		I
Teacher Name		S.A.Gunjal and S. G. Tikone
Course Outcomes		
	CO1	Explain / discuss synthesis of alkyl / aryl halides.
	CO2	To correlate reagent and reactions.
	CO3	Able to differentiate between alcohols and phenols
	CO4	Explain and apply LCAO principle for the formation of MO's from AO's.
	CO5	Explain Werner's theory of coordination compounds.

Course Outcomes	Program Outcomes												PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
CO2	2	3	3	1	1	2	2	2	3	2	3	2	2	2	2
CO3	3	3	2	1	2	2	3	1	2	2	3	1	3	3	2
CO4	1	3	2	2	1	2	3	2	3	2	1	1	2	1	2
CO5	3	3	2	3	3	1	3	2	2	3	3	3	3	3	3
Average	2.20	2.80	2.40	2.00	2.00	2.00	2.80	2.00	2.60	2.40	2.60	2.00	2.60	2.40	2.40

Class		S. Y. B. Sc.
Subject Code		CH-221
Subject Name		Physical and Analytical chemistry
Semester No		II
Teacher Name		Ghumare G.N.and Kasab V. M.
Course Outcomes		

Course Outcomes	Program Outcomes												PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	3	3	2	1	2	2	2	1	1	2	1	2	1
CO2	3	1	1	2	3	2	2	1	3	2	2	3	3	2	3
CO3	2	2	2	2	3	2	1	3	2	3	1	2	2	1	2
CO4	1	3	2	3	2	1	2	3	0	3	2	2	2	3	1

	CO1	To understand the concept of Gibbs free energy and Helmholtz free enery.	CO5	2	2		2	3	3	3	0	3	2	3		2	1	2
	CO2	To study the variation of Gibbs free energy with pressure and temperature and Helmholz free energy with volume and temperature. Criteria of chemical equilibrium and Physical equilibrium.	Average	1.8	2	2	2.4	2.6	1.8	2	1.8	2	2.2	1.8	2.25	2	1.8	1.8
	CO3	To study the solutions of liquids in liquids, Raoults law and Henrys law. Vapour pressure-composition diagrams, Distillation of immiscible liquids.																
	CO4	To learnthe calibration of volumetric apparatus.																
	CO5	To study the non-instrumental volumetric analysis.																

Class		S.Y.B.Sc	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-222		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Inorganic and Organic Chemistry	CO1	3	2	2	1	1	2	3	1	1	2	2	2	2	3	2
Semester No		II	CO2	2	3	2	2	2	1	2	2	2	2	2	2	2	2	3
Teacher Name		S.A.Gunjal and S. G. Tikone	CO3	2	3	3	2	2	3	2	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	student will able to Identify and draw the structures aldehydes and ketones from their names or from structure name can be assigned	CO5	3	3	2	3	3	2	3	2	3	3	3	2	3	3	3
	CO2	student will able to To correlate reagent and reactions of aldehydes and ketones	Average	2.6	2.8	2.2	2	2.2	2	2.4	1.6	2.2	2.2	2.2	2	2.4	2.8	2.6
	CO3	student will able to Explain /Discuss important reactions of carboxylic acids and their derivatives																
	CO4	student will able to Perform inter conversion of functional groups.																
	CO5	student will able to Explain / discuss stability with respect to potential energy of different conformations of cyclohexane																

Class		SY BSC
Subject Code		CH 223
Subject Name		CHEMISTRY PRACTICAL
Semester No		I and II
Teacher Name		Dr. A. K. Kulkarni
Course Outcomes		
	CO1	Students should able to understand and perform and interpret graph of first /second order kinetics
	CO2	Students should able to learn experimentally heat of reaction phenol water system in the labouratory
	CO3	Student perform separation of binary mixture from given organic compounds and determine elements and physical constant
	CO4	To study and apply th principle of inorganic qualitative analysis for binary mixture
	CO5	Student should analyse Na2CO3 from soda, aspirin from APC tablets, complexometric titrations

Course Outcomes	Program Outcomes												PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	2	3	3	2	2	2	2	2	1	1	2	1	2	1
CO2	3	1	1	2	3	3	2	1	3	1	2	3	3	2	3
CO3	1	1	2	2	2	2	1	3	2	3	2	2	2	1	2
CO4	1	3	2	2	2	1	2	3	0	3	3	2	2	3	1
CO5	2	2	1	2	3	3	3	0	3	2	2	1	2	1	2
Average	2	2	2	2	3	3	3	0	3	2	2	1	2	1	2

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Class		T. Y. B. Sc.
Subject Code		CH-331
Subject Name		Physical Chemistry
Semester No		III
Teacher Name		Ghumare G. N.
Course Outcomes		
	CO1	To study the chemical kinetics, rate law, rate equation and determination of order of reaction, effect of temperature on rate of reaction.
	CO2	To learn in detail about investigation of molecular structure, Impotant equations, applications of polarizability and dipole moment.
	CO3	To study the microwave, infrared and Raman molecular spectra.
	CO4	To understand the concept of electrolytic conductance and its applications.
	CO5	To study the phase equilibria.

Course Outcomes	Program Outcomes												PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	1	2	2	2	2	3	2	3	2	2	2	2
CO3	3	3	2	2	2	1	3	3	3	2	3	1	3	3	3
CO4	3	3	3	2	2	1	3	3	3	2	3	1	2	2	2
CO5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	3.00	3.00	2.80	2.20	2.40	2.00	2.80	2.80	3.00	2.40	3.00	2.00	2.60	2.60	2.60

Class	T.Y.B.Sc	Course	Program Outcomes	PSOs

Subject Code		CH-332	Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Inorganic Chemistry	CO1	1	2	2	1	1	1	3	1	1	3	1	1	3	2	3
Semester No		I	CO2	3	1	2	1	2	2	2	3	2	1	2	1	2	2	2
Teacher Name		Dr. Kawade V.A. and Dr. Nagawade A. V.	CO3	2	2	1	3	2	1	1	2	2	2	3	2	2	1	2
Course Outcomes			CO4	1	2	2	3	2	3	2	2	2	1	1	3	1	2	3
	CO1	To understand the theories of covalent bond formation, assumptions and limitations of VBT	CO5	3	2	1	2	2	3	2	3	1	1	3	0	1	2	1
	CO2	To understand the need of concept of MOT, LCAO principal and its approximation, the formation of bonding and antbonding MO's	Average	2.00	1.80	1.60	2.00	1.80	2.00	2.00	2.20	1.60	1.60	2.00	1.40	1.80	1.80	2.20
	CO3	To understand the different types of isomer in coordination compounds.																
	CO4	To understand the concept of CFT for the coordination compounds																
	CO5	To understand the meaning of various terms involved in coordination chemistry.																

Class		T. Y. B. Sc	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH 333		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Organic Chemistry	CO1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Semester No		III	CO2	3	3	3	1	2	2	2	2	3	2	3	2	2	2	2
Teacher Name		Dr. S. B. Kasar	CO3	3	3	2	2	2	1	3	3	3	2	3	1	3	3	3

Course Outcomes																		
			CO4	3	3	3	2	2	1	3	3	3	2	3	1	2	2	2
	CO1	This course typically focus on making students understand strength of acids and based	CO5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	CO2	Students should gain basic understanding of stereochemistry	Average	3.00	3.00	2.80	2.20	2.40	2.00	2.80	2.80	3.00	2.40	3.00	2.00	2.60	2.60	2.60
	CO3	students should understand substitution at aliphatic carbon																
	CO4	students should be able understand elimination reactions																
	CO5	students should be able to understand aromatic electrophillic substitution reaction																

Class		T.Y.B.Sc. Chemistry	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-334		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Analytical Chemistry	CO1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Semester No		III	CO2	3	3	1	1	2	2	2	2	3	2	3	2	2	2	2
Teacher Name		Dr. S.R. Deshmukh	CO3	1	3	2	2	2	1	3	3	3	2	3	1	3	3	3
Course Outcomes			CO4															
	CO1	Students will be able to understand a) Principles of Spectrophotometric analysis and properties of electromagnetic radiations, applications and numerical problems	CO5															

	CO2	b) Principles of Atomic absorption spectroscopy and Measurement of absorbance of atoms by AAS, Application and numerical problems.	Average	2.33	3.00	2.00	2.00	2.33	2.00	2.67	2.67	3.00	2.33	3.00	2.00	2.67	2.67	2.67
	CO3	c) Principles of Flame Emission Spectroscopy andMeasurement of emission of atomic species, Application and numerical problems.																
	CO4																	
	CO5																	

Class		T.Y.B.Sc Chemistry	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-335		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Industrial Chemistry	CO1	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3
Semester No		III	CO2	3	1	1	1	2	2	2	2	3	2	3	2	2	2	2
Teacher Name		Mr. Kasab V. M.	CO3	1	3	2	2	2	1	3	3	3	2	3	1	2	3	3
Course Outcomes			CO4	2	3	3	2	2	1	3	3	3	2	3	1	2	2	2
	CO1	Students will understand Agrochemicals	CO5	3	3	3	3	1	3	3	3	1	1	3	3	3	3	`
	CO2	Students will understand chemistry involved in preparation of basic chemicals	Average	2.40	2.60	2.40	2.20	2.00	2.00	2.80	2.80	2.40	2.00	3.00	2.00	2.40	2.60	2.50
	CO3	Students will understand Petrochemicals and Ecofriendly fuels																
	CO4	Students gain the knowledge of chemistry involved in food and starch industry																
	CO5	Students will understand that chemistry involved in cement and glass industry.																

Class	T.Y.BSc Chemistry
Subject Code	CH-336-C
Subject Name	Introduction to Biochemistry and Molecular Biology
Semester No	III
Teacher Name	Dr. Vaddadi P.S. ; Dr. Rupwate S.D.

Course Outcomes

	CO1	Cell Biochemistry: The student needs to understand types of cell, Concepts of biomolecules,Bonds that link monomeric units to form macromolecules.
	CO2	Carbohydrates and Lipids: The student needs to know the types of carbohydrates and lipids with examples
	CO3	Amino acid, Proteins and Enzymes: The student needs to know the structure and types of amino acids. Structural heirarchy of proteins, classes of enzymes with subclasses and examples.
	CO4	Biochemical techniques: The student needs to know the principle, working procedure and applications of various techniques used in biochemical studies.
	CO5	Vitamins, Coenzymes & Hormones: The student needs to know the types of vitamins, Coenzymes of vitamin B complex, types of endocrine glands and their hormones

Course Outcomes	Program Outcomes												PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	1	2	2	2	2	3	2	3	2	2	2	2
CO3	3	3	2	2	2	1	3	3	3	2	3	1	3	3	3
CO4	3	3	3	2	2	1	3	3	3	2	3	1	2	2	2
CO5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Average	3.00	3.00	2.80	2.20	2.40	2.00	2.80	2.80	3.00	2.40	3.00	2.00	2.60	2.60	2.60

Class		T. Y. B. Sc.	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-341		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Physical Chemistry	CO1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Semester No		IV	CO2	3	3	3	1	1	3	2	2	2	2	3	2	2	2	2
Teacher Name		Ghumare G. N.	CO3	3	2	2	1	2	1	3	3	2	2	3	1	3	3	1
Course Outcomes			CO4	2	3	3	2	2	2	1	3	3	2	2	1	2	2	2
	CO1	To learn the construction of electrochemical cells. Nernst equation for E.M.F. of electrodes and electrochemical cells.	CO5	3	1	3	3	3	3	3	3	2	1	3	3	3	3	3
	CO2	To understand the construction and working of chemical cells and concentration cells. Applications of e.m.f. measurements.	Average	2.00	2.40	2.80	2.00	2.20	2.40	2.40	2.80	2.40	2.00	2.80	2.00	2.60	2.60	2.20
	CO3	To study the laws of crystallography and crystal structure analysis.																
	CO4	To study the phenomenon of radioactivity and kinetics of radioactive decay.																
	CO5	To study the applications of radioisotopes and measurement of radioactivity.																

Class		T.Y.B.Sc	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-342		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Inorganic Chemistry	CO1	1	2	2	1	1	1	3	1	2	2	2	2	1	2	1

Semester No		II	CO2	2	3	1	2	1	1	3	2	2	1	1	2	3	1	3
Teacher Name		Dr. Kawade V.A. and Dr. Nagawade A. V.	CO3	2	1	2	3	1	1	2	2	3	1	1	1	1	2	2
Course Outcomes			CO4	3	2	3	2	2	2	3	2	2	3	2	1	3	2	3
	CO1	To understand the chemistry of meaning of term f-block elements, Inner transition elements, lanthanides, actinides	CO5	3	1	2	1	2	3	1	0	1	2	3	3	2	3	2
	CO2	To understand the different types of solids	Average	2.20	1.80	2.00	1.80	1.40	1.60	2.40	1.40	2.00	1.80	1.80	1.80	2.00	2.00	2.20
	CO3	To understand the types of catalysis reaction (Homogeneous and Heterogeneous) and its examples																
	CO4	To understand the role of metal in biological system																
	CO5	To understand the meaning of metal & semiconductor, and difference between metal, semiconductor and insulator																

Class		T. Y. B. Sc	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH 343		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Organic Chemistry	CO1	3	3	2	3	3	3	3	3	3	3	2	3	3	3	3
Semester No		IV	CO2	3	3	3	1	2	2	2	2	3	2	3	2	2	2	2
Teacher Name		Dr. S. B. Kasar	CO3	3	3	3	1	2	2	3	3	3	2	2	1	3	3	3
Course Outcomes			CO4	3	3	3	2	2	1	3	3	3	2	3	1	2	1	2
	CO1	This course typically focus on equipping students with basic knowledge and skills in the field of spectroscopy	CO5	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3

	CO2	Students should gain basic understanding of U. V. , I. R. and PMR	Average	3.00	3.00	2.80	2.00	2.40	2.00	2.80	2.80	3.00	2.40	2.60	2.00	2.60	2.40	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 able to predict basic values in U. V. , I. R. and PMR																

Class		T.Y.B.Sc. Chemistry	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-344		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Analytical Chemistry	CO1	3	3	2	3	3	3	3	3	3	3	2	3	3	3	3
Semester No		IV	CO2	3	3	3	1	2	2	2	2	3	2	3	2	2	2	2
Teacher Name		Dr. S.R. Deshmukh	CO3	3	3	3	1	2	2	3	3	3	2	2	1	3	3	3
Course Outcomes			CO4															
	CO1	Students will be able to understand a) Principles of solvent extraction, Various types of techniques of solvent extraction, applications and numerical problems	CO5															
	CO2	b) Principles Principle of chromatographic methods, Technique and applications of- Column Chromatography, Thin layer Chromatography, Paper Chromatography, Ion exchange Chromatography	Average	3.00	3.00	2.67	1.67	2.33	2.33	2.67	2.67	3.00	2.33	2.33	2.00	2.67	2.67	2.67

	CO3	c) Principle and theory of electrophoresis, Different types of electrophoresis techniques and Applications of electrophoresis
	CO4	
	CO5	

Class		T.Y.BSc Chemistry
Subject Code		CH 345
Subject Name		Industrial Chemistry
Semester No		IV
Teacher Name		Kasab V. M.
Course Outcomes		
	CO1	Students will understand Polymer Chemistry, synthesis, properties and applications of some commercially important polymers.
	CO2	Students will understand chemistry involved in Sugar Industry and fermentation industry and its importance.
	CO3	Students will understand soaps, detergents, cosmetics, dyes, paints and pigments, develop knowledge of students from chemistry perspective towards the said commercially important substances

Course Outcomes	Program Outcomes												PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO2	3	3	3	1	2	3	2	2	3	2	3	2	2	2	2
CO3	3	3	2	1	2	1	3	3	2	2	3	1	3	3	3
CO4	3	3	3	2	2	2	3	3	3	2	2	1	2	2	2
CO5	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3
Average	2.80	3.00	2.80	2.00	2.40	2.40	2.80	2.80	2.60	2.40	2.80	2.00	2.60	2.60	2.60

	CO4	Students gain the knowledge of chemistry involved in pharmaceuticals and will get familiar with different terms involved in medicines, introduce chemical reactions used to manufacture some simple Medicinal drugs
	CO5	Students will understand that industries are ought to generate some waste. Students will develop interest and will be provided with some skills to minimize waste and manage the waste products

Class		T.Y.BSc Chemistry	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-346-C		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Introduction to Biochemistry and Molecular Biology	CO1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Semester No		IV	CO2	3	3	3	1	2	2	2	2	3	2	3	2	2	2	2
Teacher Name		Dr. Vaddadi P.S. ; Dr. Rupwate S.D.	CO3	3	3	2	1	2	1	3	3	3	2	3	1	3	3	3
Course Outcomes			CO4	3	3	3	2	2	1	3	3	3	2	2	1	2	2	2
	CO1	Carbohydrate, Lipid and Amino acid metabolism: The student needs to know the significance of metabolism and energetics.	CO5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	CO2	Electron Transport Chain and Oxidative Phosphorylation: The student needs to know the concepts of biological oxidation , Oxidative phosporylation, inhibitors and uncouplers of ETC	Average	3.00	3.00	2.80	2.00	2.40	2.00	2.80	2.80	3.00	2.40	2.80	2.00	2.60	2.60	2.60

	CO3	Nucleic acids: Understanding the structures of purines, pyrimidines, nucleosides and nucleotides , structural features of nucleic acid types and their role. Central dogma of molecular biology.
	CO4	Replication, Transcription and Translation: The student needs to know the experiment that showed the salient features of semi conservative DNA replication, stepwise events involved in replication of DNA, transcription of RNA and Translation of Proteins
	CO5	Introduction to genetic engineering: The student needs to know the overview of the steps involved in insulin gene cloning, and applications of genetic engineering in various fields

Class		T. Y. B. Sc.	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-347		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Physical Chemistry Practical	CO1	2	2	2	1	1	1	3	1	2	2	2	2	1	2	1
Semester No		Annual	CO2	2	3	2	2	1	2	3	2	2	2	1	2	2	1	2
Teacher Name		Ghumare G. N.	CO3	2	1	2	3	1	2	2	2	3	1	1	1	1	2	2
Course Outcomes			CO4	2	2	3	2	2	2	3	2	2	3	2	2	3	2	3
	CO1	To determine the rate of reaction and activation energy of chemical reactions	CO5	2	1	2	1	2	3	1	0	1	2	3	2	2	3	2

	CO2	To learn the techniques of colorimetry, refractometry, conductometry, PH metry and its applications	Average	2.00	1.80	2.20	1.80	1.40	2.00	2.40	1.40	2.00	2.00	1.80	1.80	1.80	2.00	2.00
	CO3	To determine the molecular weight of polymer by viscosity method																
	CO4	To determine the critical solution temperature of partially miscible liquids and effect of impurity on it																
	CO5	to measure the radioactivity of radioactive material by G.M. counter																

Class		T.Y.B.Sc	Course Outcomes	Program Outcomes												PSOs		
Subject Code		CH-348		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name		Inorganic chemistry Practical	CO1	2	2	2	1	1	1	3	1	2	2	2	2	1	2	1
Semester No		Annual pattern	CO2	2	3	2	2	1	2	3	2	2	2	1	1	2	1	2
Teacher Name		Mrs. Tikone S.G.	CO3	2	1	2	3	1	2	2	2	3	1	1	1	1	2	2
Course Outcomes			CO4	1	2	3	2	2	2	3	2	2	3	2	2	3	2	3
	CO1	Student should able to do inorganic qualitative analysis	CO5	1	1	2	2	2	3	1	0	2	2	3	2	2	3	2
	CO2	Student should explain the acidic and basic radicals	Average	1.60	1.80	2.20	2.00	1.40	2.00	2.40	1.40	2.20	2.00	1.80	1.60	1.80	2.00	2.00
	CO3	Student should know the preparation of different concentration solution																
	CO4	Student should know the CT for different radicals																
	CO5	Student should able to classify the different groups.																

Class		T. Y. B. Sc
Subject Code		CH 349
Subject Name		Organic Chemistry Practicals
Semester No		IV
Teacher Name		Dr. S. B. Kasar
Course Outcomes		
	CO1	This course typically focus on making students understand organic qualitative analysis (Binary Mixture)
	CO2	Students should be able to perform Organic Estimation
	CO3	Students should be able to perform Organic prepration
	CO4	Students should be able to perform Organic Estimation
	CO5	Students should be able to handle diffrent glassware used in organic chemistry practical

Course Outcomes	Program Outcomes												PSOs		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	1	3	2	3	1	3	3	3	2	2	2	3	2	2	3
CO2	3	3	3	1	2	2	1	2	3	2	3	2	2	2	2
CO3	3	3	3	2	3	2	1	3	3	2	2	1	3	3	3
CO4	3	2	3	2	1	1	2	3	3	1	3	1	2	1	2
CO5	3	3	3	3	3	2	3	2	3	3	2	1	3	3	3
Average	2.60	2.80	2.80	2.20	2.00	2.00	2.00	2.60	2.80	2.00	2.40	1.60	2.40	2.20	2.60

CO-PO Mapping

			Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
		1	CH-101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		2	CH-102	1.60	1.60	2.60	1.20	1.60	2.20	2.00	1.80	2.20	1.80	2.40	#DIV/0!
		3	CH-103	1.80	2.00	1.80	1.80	1.80	1.60	1.80	1.80	1.60	2.00	1.60	1.80
		4	CH-201	2.25	2.25	2.75	2.00	1.25	1.75	2.50	1.50	2.00	2.25	1.75	1.75
		5	CH-202	1.60	2.00	1.60	1.60	2.00	2.00	2.00	1.80	1.60	2.20	1.80	1.60
FY	FY	6	CH- 203	2.00	1.80	1.80	2.20	1.60	1.80	2.00	2.20	1.60	1.80	2.00	2.00
		1	CH 211	2.80	2.80	2.40	2.00	2.40	2.40	2.80	2.20	2.60	2.40	2.80	2.00
		2	CH-212	2.20	2.80	2.40	2.00	2.00	2.00	2.80	2.00	2.60	2.40	2.60	2.00
		3	CH-221	1.80	2.00	2.00	2.40	2.60	1.80	2.00	1.80	2.00	2.20	1.80	2.25
		4	CH-222	2.60	2.80	2.20	2.00	2.20	2.00	2.40	1.60	2.20	2.20	2.20	2.00
SY	SY	5	CH 223	2.00	2.00	2.00	2.00	3.00	3.00	3.00	0.00	3.00	2.00	2.00	1.00
		1	CH-331	3.00	3.00	2.80	2.20	2.40	2.00	2.80	2.80	3.00	2.40	3.00	2.00
		2	CH-332	2.00	1.80	1.60	2.00	1.80	2.00	2.00	2.20	1.60	1.60	2.00	1.40
		3	CH 333	3.00	3.00	2.80	2.20	2.40	2.00	2.80	2.80	3.00	2.40	3.00	2.00
		4	CH-334	2.33	3.00	2.00	2.00	2.33	2.00	2.67	2.67	3.00	2.33	3.00	2.00
		5	CH-335	2.40	2.60	2.40	2.20	2.00	2.00	2.80	2.80	2.40	2.00	3.00	2.00
		6	CH-336-C	3.00	3.00	2.80	2.20	2.40	2.00	2.80	2.80	3.00	2.40	3.00	2.00
		7	CH-341	2.00	2.40	2.80	2.00	2.20	2.40	2.40	2.80	2.40	2.00	2.80	2.00
		8	CH-342	2.20	1.80	2.00	1.80	1.40	1.60	2.40	1.40	2.00	1.80	1.80	1.80
		9	CH 343	3.00	3.00	2.80	2.00	2.40	2.00	2.80	2.80	3.00	2.40	2.60	2.00
		10	CH-344	3.00	3.00	2.67	1.67	2.33	2.33	2.67	2.67	3.00	2.33	2.33	2.00
		11	CH 345	2.80	3.00	2.80	2.00	2.40	2.40	2.80	2.80	2.60	2.40	2.80	2.00
		12	CH-346-C	3.00	3.00	2.80	2.00	2.40	2.00	2.80	2.80	3.00	2.40	2.80	2.00
		13	CH-347	2.00	1.80	2.20	1.80	1.40	2.00	2.40	1.40	2.00	2.00	1.80	1.80
		14	CH-348	1.60	1.80	2.20	2.00	1.40	2.00	2.40	1.40	2.20	2.00	1.80	1.60
TY	TY	15	CH 349	2.60	2.80	2.80	2.20	2.00	2.00	2.00	2.60	2.80	2.00	2.40	1.60

CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
0	0	0	0	0	0	0	0	0	0	0	0
0.32	0.32	0.52	0.24	0.32	0.44	0.4	0.36	0.44	0.36	0.48	#DIV/0!
0.84	0.9333333	0.84	0.84	0.84	0.746667	0.84	0.84	0.746667	0.933333	0.746667	0.84
0.93	0.93	1.136666667	0.826667	0.516667	0.723333	1.033333	0.62	0.826667	0.93	0.723333	0.723333
0.490667	0.6133333	0.490666667	0.490667	0.613333	0.613333	0.613333	0.552	0.490667	0.674667	0.552	0.490667
2	1.8	1.8	2.2	1.6	1.8	2	2.2	1.6	1.8	2	2
1.605333	1.6053333	1.376	1.146667	1.376	1.376	1.605333	1.261333	1.490667	1.376	1.605333	1.146667
1.378667	1.7546667	1.504	1.253333	1.253333	1.253333	1.754667	1.253333	1.629333	1.504	1.629333	1.253333
0.84	0.9333333	0.933333333	1.12	1.213333	0.84	0.933333	0.84	0.933333	1.026667	0.84	1.05
1.213333	1.3066667	1.026666667	0.933333	1.026667	0.933333	1.12	0.746667	1.026667	1.026667	1.026667	0.933333
2	2	2	2	3	3	3	0	3	2	2	1
1.56	1.56	1.456	1.144	1.248	1.04	1.456	1.456	1.56	1.248	1.56	1.04
1.36	1.224	1.088	1.36	1.224	1.36	1.36	1.496	1.088	1.088	1.36	0.952
1.56	1.56	1.456	1.144	1.248	1.04	1.456	1.456	1.56	1.248	1.56	1.04
0.84	1.08	0.72	0.72	0.84	0.72	0.96	0.96	1.08	0.84	1.08	0.72
1.248	1.352	1.248	1.144	1.04	1.04	1.456	1.456	1.248	1.04	1.56	1.04
3	3	2.8	2.2	2.4	2	2.8	2.8	3	2.4	3	2
1.04	1.248	1.456	1.04	1.144	1.248	1.248	1.456	1.248	1.04	1.456	1.04
0.792	0.648	0.72	0.648	0.504	0.576	0.864	0.504	0.72	0.648	0.648	0.648
1.56	1.56	1.456	1.04	1.248	1.04	1.456	1.456	1.56	1.248	1.352	1.04
1.08	1.08	0.96	0.6	0.84	0.84	0.96	0.96	1.08	0.84	0.84	0.72
1.904	2.04	1.904	1.36	1.632	1.632	1.904	1.904	1.768	1.632	1.904	1.36
3	3	2.8	2	2.4	2	2.8	2.8	3	2.4	2.8	2
2	1.8	2.2	1.8	1.4	2	2.4	1.4	2	2	1.8	1.8
1.6	1.8	2.2	2	1.4	2	2.4	1.4	2.2	2	1.8	1.6
2.6	2.8	2.8	2.2	2	2	2	2.6	2.8	2	2.4	1.6

CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	20	20	20	20	20	20	20	20	20	20	#DIV/0!
46.66666667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667
41.33333333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333	41.33333
30.66666667	30.66667	30.66667	30.66667	30.66667	30.66667	30.66667	30.66667	30.66667	30.66667	30.66667	30.66667
100	100	100	100	100	100	100	100	100	100	100	100
57.33333333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333
62.66666667	62.66667	62.66667	62.66667	62.66667	62.66667	62.66667	62.66667	62.66667	62.66667	62.66667	62.66667
46.66666667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667
46.66666667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667	46.66667
100	100	100	100	100	100	100	#DIV/0!	100	100	100	100
52	52	52	52	52	52	52	52	52	52	52	52
68	68	68	68	68	68	68	68	68	68	68	68
52	52	52	52	52	52	52	52	52	52	52	52
36	36	36	36	36	36	36	36	36	36	36	36
52	52	52	52	52	52	52	52	52	52	52	52
100	100	100	100	100	100	100	100	100	100	100	100
52	52	52	52	52	52	52	52	52	52	52	52
36	36	36	36	36	36	36	36	36	36	36	36
52	52	52	52	52	52	52	52	52	52	52	52
36	36	36	36	36	36	36	36	36	36	36	36
68	68	68	68	68	68	68	68	68	68	68	68
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100

CO-PSO MAPPING

		Course	PSO1	PSO2	PSO3
	1	CH-101	0.00	0.00	0.00
	2	CH-102	#DIV/0!	#DIV/0!	#DIV/0!
	3	CH-103	1.80	2.00	2.00
	4	CH-201	2.00	1.75	2.00
	5	CH-202	1.80	1.80	2.00
FY	6	CH- 203	1.80	2.00	2.40
	1	CH 211	2.60	2.60	2.40
	2	CH-212	2.60	2.40	2.40
	3	CH-221	2.00	1.80	1.80
	4	CH-222	2.40	2.80	2.60
SY	5	CH 223	2.00	1.00	2.00
	1	CH-331	2.60	2.60	2.60
	2	CH-332	1.80	1.80	2.20
	3	CH 333	2.60	2.60	2.60
	4	CH-334	2.67	2.67	2.67
	5	CH-335	2.40	2.60	2.50
	6	CH-336-C	2.60	2.60	2.60
	7	CH-341	2.60	2.60	2.20
	8	CH-342	2.00	2.00	2.20
	9	CH 343	2.60	2.40	2.60
	10	CH-344	2.67	2.67	2.67
	11	CH 345	2.60	2.60	2.60
	12	CH-346-C	2.60	2.60	2.60
	13	CH-347	1.80	2.00	2.00
	14	CH-348	1.80	2.00	2.00
TY	15	CH 349	2.40	2.20	2.60

CO-PSO ATTAINMENT

Course	PSO1	PSO2	PSO3
CH-101	0	0	0
CH-102	#DIV/0!	#DIV/0!	#DIV/0!
CH-103	0.84	0.933333	0.933333
CH-201	0.826667	0.723333	0.826667
CH-202	0.552	0.552	0.613333
CH- 203	1.8	2	2.4
CH 211	1.490667	1.490667	1.376
CH-212	1.629333	1.504	1.504
CH-221	0.933333	0.84	0.84
CH-222	1.12	1.306667	1.213333
CH 223	2	1	2
CH-331	1.352	1.352	1.352
CH-332	1.224	1.224	1.496
CH 333	1.352	1.352	1.352
CH-334	0.96	0.96	0.96
CH-335	1.248	1.352	1.3
CH-336-C	2.6	2.6	2.6
CH-341	1.352	1.352	1.144
CH-342	0.72	0.72	0.792
CH 343	1.352	1.248	1.352
CH-344	0.96	0.96	0.96
CH 345	1.768	1.768	1.768
CH-346-C	2.6	2.6	2.6
CH-347	1.8	2	2
CH-348	1.8	2	2
CH 349	2.4	2.2	2.6

Percentage CO-PSO ATTAINMENT

Course	PSO1	PSO2	PSO3
CH-101	#DIV/0!	#DIV/0!	#DIV/0!
CH-102	#DIV/0!	#DIV/0!	#DIV/0!
CH-103	46.66667	46.66667	46.66667
CH-201	41.33333	41.33333	41.33333
CH-202	30.66667	30.66667	30.66667
CH- 203	100	100	100
CH 211	57.33333	57.33333	57.33333
CH-212	62.66667	62.66667	62.66667
CH-221	46.66667	46.66667	46.66667
CH-222	46.66667	46.66667	46.66667
CH 223	100	100	100
CH-331	52	52	52
CH-332	68	68	68
CH 333	52	52	52
CH-334	36	36	36
CH-335	52	52	52
CH-336-C	100	100	100
CH-341	52	52	52
CH-342	36	36	36
CH 343	52	52	52
CH-344	36	36	36
CH 345	68	68	68
CH-346-C	100	100	100
CH-347	100	100	100
CH-348	100	100	100
CH 349	100	100	100