	Department of Chemistry								
	1.1.1 Curricula developed and implemented have relevance to the local/ national / regional and global developmental needs which are reflected in Programme Outcomes (PSOs) and Course Outcomes (COs) of various programmes offered by the Institution								
S. No.	Course Code	Name of the Course	L	N	R	G	POs, PSOs, COs Addressed		
							POs	PSOs	COs
	2023-2024								
1	CU231CC1	Core Course I: General Chemistry - I				☑	PO 1 - To obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science. PO 4 - To enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career. PO 5 - To communicate effectively and collaborate successfully with peers to become competent professionals. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the atomic structure, periodic properties, bonding, electronic configuration and properties of compounds. CO 2 - To understand and classify the elements in the periodic table, types of bonds, reaction intermediates, electronic effects in organic compounds and types of reagents. CO 3 - To apply the theories to calculate energy of spectral transition, electronegativity, percentage ionic character and bond order. CO 4 - To analyse the relationship existing between electronic configuration, bonding, geometry of molecules, structure reactivity and electronic effects. CO 5 - To evaluate the trends in periodic properties, assess the properties of elements, and explain hybridization in molecules, nature of H – bonding and organic reaction mechanisms.
2	CU231CP1	Core Lab Course I: Quantitative Inorganic Estimation (titrimetry) and Inorganic Preparations				☑	PO 1 - To obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science. PO 2 - To create innovative ideas to enhance entrepreneurial skills for economic independence. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To explain the basic principles involved in titrimetric analysis and inorganic preparations. CO 2 - To compare the methodologies of different titrimetric analysis. CO 3 - To calculate the concentrations of unknown solutions in different ways and develop the skill to estimate the amount of a substance present in a given solution. CO 4 - To assess the yield of different inorganic preparations and identify the end point of various titrations.
3	CU231EC1	Elective Course I: Chemistry for Biological Sciences – I		☑	☑	☑	PO 1 - To obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the atomic structure, the preparation and uses of various compounds. CO 2 - To understand the efficiencies and uses of various drugs, fertilizers and fuels. CO 3 - To explain and apply various theories behind osmosis, catalysis and chromatography. CO 4 - To differentiate the structure and uses of antibiotics, anaesthetics, antipyretics and artificial sugars. CO 5 - To analyse various methods to separate chemical compounds.
4	CU231EP1	Elective Lab Course I : Chemistry Practical for Physical and Biological Sciences				☑	PO 1 - To obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science. PO 2 - To create innovative ideas to enhance entrepreneurial skills for economic independence. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To understand the principles of titrimetric methods. CO 2 - To gain knowledge on the usage of standard flask, pipette and burette. CO 3 - To design, carry out, record and interpret the results of various titrations and apply their skill in the estimation of various compounds. CO 4 - To analyze the suitable indicators for various titrations.
5	CU231NM1	Non Major Elective (NME): Food Chemistry	☑	☑			PO 2 - To create innovative ideas to enhance entrepreneurial skills for economic independence. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To remember and recall the different types of adulterants in food, edible oils used in foods and beverages. CO 2 - To understand the effect of chemicals in common food and their adverse impact on health. CO 3 - To apply various methods to detect various adulterants in food and to determine the values of oils and fats. CO 4 - To analyze the effects of contaminants and additives in food.
6	CU231FC1	Foundation Course: Basics of Chemistry				☑	PO 1 - To obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science. PO 4 - To enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career. PO 5 - To communicate effectively and collaborate successfully with peers to become competent professionals. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the basic concepts of periodic classification, chemical bonding, nomenclature of organic compound, isomerism and state of matter. CO 2 - To understand the periodic properties, types of bonding, hybridization, stereo isomerism, properties of matter and spectroscopy. CO 3- To apply the concepts of valence bond theory, hybridization, isomerism IUPAC nomenclature and spectroscopy to chemical compounds. CO 4 - To analyze the periodic properties of elements, magnetic properties, characteristic of solids and types of spectroscopic techniques. CO 5 - To evaluate quantum numbers and their significance and percentage of ionic character of compounds.
7	CU232CC1	Core Coure II : General Chemistry - II				☑	PO 1 - To obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science. PO 2 - To create innovative ideas to enhance entrepreneurial skills for economic independence. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 4 - To enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career. PO 5 - To communicate effectively and collaborate successfully with peers to become competent professionals. PO 6 - To absorb ethical, moral and social values in personal and social life leading to highly cultured and civilized personality. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfil the professional requirement and become self-dependent.	CO 1 - To explain the concept of acids, bases and ionic equilibria; periodic properties of s and p block elements, preparation and properties of aliphatic and aromatic hydrocarbons. CO 2 - To discuss the periodic properties of s and p- block elements, reactions of aliphatic and aromatic hydrocarbons and strength of acids. CO 3 - To classify hydrocarbons, types of reactions, acids and bases, examine the properties s and p-block elements, reaction mechanisms of aliphatic and aromatic hydrocarbons. CO 4 - To explain theories of acids, bases and indicators, buffer action and important compounds of s-block elements. CO 5 - To assess the application of acids, indicators, buffers, compounds of s and p- block elements and hydrocarbons .

8	CU232CP1	Core Lab Course II: Organic Estimation and Preparation of Organic Compounds				☑	PO 1 - To obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science. PO 2 - To create innovative ideas to enhance entrepreneurial skills for economic independence. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 4 - To enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career. PO 5 - To communicate effectively and collaborate successfully with peers to become competent professionals. PO 6 - To absorb ethical, moral and social values in personal and social life leading to highly cultured and civilized personality. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfil the professional requirement and become self-dependent.	CO 1 - To explain the basic principles involved in organic estimation. CO 2 - To know the methods of preparing organic compounds. CO 3 - To assess the yield of different organic preparations. CO 4 - To compare the methodologies in preparing various compounds.
9	CU232EC1	Elective Course II: Chemistry for Biological Sciences - II				☑	PO 1 - To obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science. PO 2 - To create innovative ideas to enhance entrepreneurial skills for economic independence. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 4 - To enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career. PO 5 - To communicate effectively and collaborate successfully with peers to become competent professionals. PO 6 - To absorb ethical, moral and social values in personal and social life leading to highly cultured and civilized personality. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfil the professional requirement and become self-dependent.	CO 1 - To remember the importance of amino acids and learn the . basic concepts of Ayurveda. CO 2 - To understand the importance of nucleic acids and vitamins. CO 3 - To know the biological functions of lipids, oils and fats. CO 4 - To understand the function and deficiency of metals in human system. CO 5 - To outline the various type of photochemical process.
10	CU232EP1	Elective Lab Course II: Systematic Analysis of Organic Compounds				☑	PO 1 - To obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science. PO 2 - To create innovative ideas to enhance entrepreneurial skills for economic independence. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 4 - To enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career. PO 5 - To communicate effectively and collaborate successfully with peers to become competent professionals. PO 6 - To absorb ethical, moral and social values in personal and social life leading to highly cultured and civilized personality. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfil the professional requirement and become self-dependent.	CO 1 - To learn to test the organic substances. CO 2 - To identify the functional group present in the organic compounds. CO 3 - To detect the elements present. CO 4 - To distinguish between aliphatic, aromatic. CO 5 - To saturated and unsaturated compounds analyze the given organic substance.
11	CU232NM1	Non Major Elective NME II: Cosemetics and Personal Grooming				☑	PO 1 - To obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science. PO 2 - To create innovative ideas to enhance entrepreneurial skills for economic independence. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 4 - To enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career. PO 5 - To communicate effectively and collaborate successfully with peers to become competent professionals. PO 6 - To absorb ethical, moral and social values in personal and social life leading to highly cultured and civilized personality. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfil the professional requirement and become self-dependent.	CO 1 - To remember the composition of various chemicals in cosmetic products. CO 2 - To understand the methods of beauty treatments and their advantages and disadvantages. CO 3 - To apply the functions of various chemicals in cosmetics. CO 4 - To analyze the advantages and hazards of cosmetics. CO 5 - To evaluate the quality of cosmetics on the basis of their chemical composition.
12	CU232SE1	Skill Enhancement Course SEC I: Dairy Chemistry			☑		PO 1 - To obtain comprehensive knowledge and skills to pursue higher studies in the relevant field of science. PO 2 - To create innovative ideas to enhance entrepreneurial skills for economic independence. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 4 - To enhance leadership qualities, team spirit and communication skills to face challenging competitive examinations for a better developmental career. PO 5 - To communicate effectively and collaborate successfully with peers to become competent professionals. PO 6 - To absorb ethical, moral and social values in personal and social life leading to highly cultured and civilized personality. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfil the professional requirement and become self-dependent.	CO 1 - To remember the composition of milk and its processing. CO 2 - To understand the physio-chemical properties, pasteurization process and manufacture of milk and milk products. CO 3 - To apply the procedure for milk processing and determine the adulterants present in dairy products. CO 4 - To analyze the ingredients, nutritive values and manufacture of special milks and dairy products. CO 5 - To evaluate fat, SNF, specific gravity, acidity, pH, surface tension, viscosity and physio-chemical properties of milk and milk products.
13	CC2031	Major Core III : General Chemistry - III		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To gain knowledge on aromatic compounds. CO 2 - To synthesise aromatic compounds. CO 3 - To remember the characteristics of group 13 and 14 elements. CO 4 - To predict the chemistry of nitrogen and oxygen family. CO 5 - To understand the different colloidal systems. CO 6 - To explain the various photochemical processes.
14	CC2032	Major Elective I a) : Pharmaceutical Chemistry		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the characteristics, classification and sources of drugs. CO 2 - To interpret the chemical structure and pharmacological activities of drugs. CO 3 - To compare the action of various drugs. CO 4 - To design common drugs and interpret their therapeutic uses. CO 5 - To identify common diseases, their causes and treatment.

15	CC2033	Major Elective I b) : Nano and Polymer Chemistry		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To know the different characterization techniques of nanomaterials. CO 2 - To understand the principles of polymer reactivity and stereo chemistry of polymerization. CO 3 - To apply the uses of nanomaterials in industrial and medicinal field. CO 4 - To classify the types of polymers and learn the kinetics of polymers. CO 5 - To analyse the special features of commercial polymers.
16	CC2034	Major Elective I c) : Applied Electro Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the basic principles involved in the electrolysis. CO 2 - To differentiate between electrometallurgy and hydrometallurgy. CO 3 - To interpret the different methods of electroplating. CO 4 - To compare the different power sources. CO 5 - To predict corrosion and types of coating. CO 6 - To explain the special features of electro-organic synthesis.
17	CA2031	Allied II Theory: Inorganic and Physical Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the structure and bonding in atoms and molecules. CO 2 - To know about different types of bonding. CO 3 - To understand the metallurgical processes and the methods of purification of metals. CO 4 - To understand the concepts of solid state chemistry and nuclear chemistry.
18	CC20S1	Soil Science and Agricultural Chemistry	☑	☑	☑		PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To understand the different types of soil. CO 2 - To analyze the fertility of the soil. CO 3 - To test soil sample from different field.
19	CC2041	Major Core IV : General Chemistry - IV			☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To know the mechanism of important name reactions. CO 2 - To apply the reaction mechanisms in the synthesis of components used in industrial and medicinal fields. CO 3 - To evaluate the characteristics of halogens and noble gases. CO 4 - To classify the non-aqueous solvents and know the theories of acids and bases. CO 5 - To list out the applications of first and second law of thermodynamics.
20	CC2042	Major Elective II a) : Green Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To know the principles of green chemistry. CO 2 - To design green synthesis. CO 3 - To interpret green method for organic synthesis. CO 4 - To synthesize various compounds by microwave and ultrasound assisted methods. CO 5 - To analyze the important techniques and directions in practicing green chemistry. CO 6 - To identify the importance of Green chemistry in day to day life.
21	CC2043	Major Elective II b) : Forensic Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy.	CO 1 - To list out the principles governing forensic science. CO 2 - To differentiate toxic chemicals. CO 3 - To create mobile forensic science laboratories. CO 4 - To categorize physical evidence. CO 5 - To predict the methods used for the collection of finger prints. CO 6 - To distinguish the cordage and rope metallic fragments.
22	CC2044	Major Elective II c) : Instrumental Methods of Analysis	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To recognize the principles of adsorption. CO 2 - To choose specific adsorbents for chemical reaction. CO 3 - To analyze the factors affecting chromatography. CO 4 - To categorize the different analytical methods. CO 5 - To evaluate λmax for organic compounds. CO 6 - To understand the concept of flame photometry. CO 7 - To apply IR spectroscopy to identify functional groups.
23	CC20P2	Major Practical II : Semi micro inorganic mixture analysis				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the principles of qualitative analysis. CO 2 - To detect the different anions. CO 3 - To eliminate the interfering anions. CO 4 - To detect the different cations.
24	CA2041	Allied II Theory: Physical Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the theories and the factors influencing rate of reaction. CO 2 - To understand the laws and theories that govern photochemistry. CO 3 - To apply the principles of physical properties for structural determination. CO 4 - To understand the different laws of thermodynamics. CO 5 - To analyse the importance of nano chemistry in various fields.

25	CA20P1	Allied II Practical : Volumetric and Organic Substance Analysis				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To recognize the indicators used in volumetric analysis. CO 2 - To estimate the amount of substance present in the sample solution. CO 3 - To develop practical skills. CO 4 - To understand and remember the concepts and theory of qualitative and quantitative analysis. CO 5 - To utilize the mathematical skills in doing calculations. CO 6 - To employ suitable methods to minimize errors.
26	CC20S2	Chemistry of Cosmetics	☑				PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods.	CO 1 - To understand the constituents and preparation of cosmetics. CO 2 - To know the harmful effects of the ingredients in Cosmetics.
27	CC2051	Major Core V : Organic Chemistry - I				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy.	CO 1 - To understand the concept of optical activity, stereoisomerism and stereo isomers. CO 2 - To remember the preparation and synthesis of carbonyl, Nitrogen containing and heterocyclic compounds. CO 3 - To apply the synthetic methods to synthesize new compounds. CO 4 - To analyze the synthetic importance of different organic compounds. CO 5 - To create alternate routes to prepare new compounds.
28	CC2052	Major Core VI : Inorganic Chemistry - I	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy.	CO 1 - To acquire knowledge on transition and inner transition elements. CO 2 - To name co-ordination compounds. CO 3 - To analyse the nature of bonding in co-ordination and organometallic compounds. CO 4 - To predict the geometry and colour and spin of co-ordination compounds. CO 5 - To minimize the errors in chemical analysis.
29	CC2053	Major Core VII : Physical Chemistry - I		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy.	CO 1 - To understand the basic principles of electrochemistry. CO 2 - To apply EMF measurements in different fields of chemistry. CO 3 - To analyze the working of electrical appliances in day to day life. CO 4 - To remember the principle and applications of the different spectral techniques. CO 5 - To interpret the IR, NMR and ESR spectra of simple molecules.
30	CC2054	Major Elective III a) : Bio Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the function and metabolism of biomolecules. CO 2 - To recall the importance of biomolecules. CO 3 - To compare DNA and RNA. CO 4 - To elucidate the structure of different biomolecules. CO 5 - To illustrate the industrial and medical applications of enzymes.
31	CC2055	Major Elective III b) : Dairy Chemistry	☑	☑			PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To recall the physical properties of milk. CO 2 - To identify the various factors affecting the quality of milk. CO 3 - To analyse the microbiology of milk. CO 4 - To propose various methods to pasteurize milk. CO 5 - To pply the techniques to manufacture special milks. CO 6 - To estimate the acidity, lactose fat and protein content of milk.
32	CC2056	Major Elective III c) : Analytical Chemistry	☑	☑			PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To develop skills in handling instruments and reagents. CO 2 - To learn the concepts of precipitation techniques and related analysis. CO 3 - To minimize errors and get results with maximum accuracy. CO 4 - To apply different chromatographic techniques for separation.
33	CC2061	Major Core VIII : Organic Chemistry - II		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To carry out research projects independently and in collaboration with other institutions and industries. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the synthetic methodology, reagents and rearrangements in organic chemistry. CO 2 - To elucidate the structure of carbohydrates, alkaloids and terpenoids. CO 3 - To synthesize dyes and compounds of synthetic importance. CO 4 - To analyse the strategies and terminologies involved in organic synthesis leading to new products. CO 5 - To apply the spectral techniques in structural determination.
34	CC2062	Major Core IX : Inorganic Chemistry -II		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To carry out research projects independently and in collaboration with other institutions and industries. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the types of nuclear reactions and their applications. CO 2 - To differentiate natural and artificial radioactivity. CO 3 - To classify crystal systems and their structures. CO 4 - To predict the role of bioinorganic compounds in biological systems. CO 5 - To use the solid materials for specific purposes.
35	CC2063	Major Core X : Physical Chemistry - II				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To carry out research projects independently and in collaboration with other institutions and industries. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the theories of reaction rate, adsorption and catalysis. CO 2 - To construct phase diagrams for one and two component systems. CO 3 - To recall colligative properties and their applications. CO 4 - To predict the point groups of molecules. CO 5 - To construct group multiplication table for simple molecules.

36	CC20P3	Major Practical III : Gravimetric Estimation and Organic Preparation				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To develop skill in doing gravimetric estimation. CO 2 - To minimize errors for accurate results. CO 3 - To prepare new organic compounds.
37	CC20P4	Major Practical IV : Organic Estimation ,Organic Analysis and Determination of Physical Constants				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the principles of estimation of organic compounds. CO 2 - To apply the scheme of organic analysis to detect functional groups. CO 3 - To determine the physical constants of organic compounds with maximum accuracy.
38	CC20P5	Major Practical V : Physical Chemistry Experiments				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the principles of physical chemistry experiments. CO 2 - To interpret the graphical data. CO 3 - To develop the practical skill and minimize errors. CO 4 - To determine and compare the strengths of different solutions using physical methods.
39	CC20PR	Project	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the procedure for selecting samples. CO 2 - To apply different techniques for preparing products. CO 3 - To interpret the experimental data using spectroscopic analysis. CO 4 - To analyze the results and record the data.
40	SEC203	Chemistry for Competitive Examinations				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 3 - To communicate proficiently and collaborate successfully with peers, colleagues and organizations.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To achieve time management skills for examination. CO2 - To equip the students to face competitive examination positively. CO 3 - To acquire the learning skill required to get success in competitive examination.
41	CP231CC1	Core Course I: Organic Reaction Mechanism – I	☑	☑	☑	☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 7 - To learn independently for lifelong executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To remember and understand the basic concepts of reaction mechanisms, stereochemistry and conformation in organic compounds. CO 2 - To apply the reaction mechanism, stereochemistry and conformation for the synthesis of organic compounds. CO 3 - To analyze the types of reaction mechanisms involved in synthetic organic transformation. CO 4 - To evaluate the suitable reaction mechanisms for the synthesis of organic compounds. CO 5 - To design and synthesize new organic compounds by correlating the stereochemistry of organic compounds.
42	CP231CC2	Core Course II: Structure and Bonding in Inorganic compounds	☑	☑	☑	☑	PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To recall and understand the structure and bonding in inorganic compounds. CO 2 - To apply the concepts of chemical bonding to predict the structure of inorganic compounds. CO 3 - To analyze the types of bonding, crystal defects and interpret the crystal lattices using diffraction techniques. CO 4 - To evaluate bond energy, lattice energy, properties of inorganic compounds. CO 5 - To create new crystal structures by adopting various crystal growth methods.
43	CP231CP1	Core Lab Course I: Organic Chemistry Practical	☑	☑	☑	☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the methods for the separation and estimation of organic compounds. CO 2 - To apply the theoretical concepts to identify and synthesize organic compounds. CO 3 - To analyze the elements and functional groups using microscale analysis. CO 4 - To evaluate the quality and quantity of organic compounds. CO 5 - To create organic compounds using various rearrangement reactions.
44	CP231EC1	Elective Course I a): Nano Materials and Nano Technology	☑	☑	☑	☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the basic concept of nano chemistry and its applications. CO 2 - To apply the principle of nanotechnology for the synthesis and characterization of nanomaterials in various fields. CO 3 - To analyze the physical and chemical properties of nanoparticles. CO 4 - To evaluate the properties of nanoparticles using various analytical techniques. CO 5 - To create and characterize novel nanomaterials.

45	CP231EC2	Elective Course I b) : Pharmaceutical Chemistry	☑	☑	☑	☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the concepts of pharmaceutical chemistry. CO 2 - To apply the principles of drug action and computers in drug formulation. CO 3 - To analyze the drug dosage forms in drug delivery system. CO 4 - To evaluate the structure activity relationship in drug formulation. CO 5 - To synthesize new drugs after understanding the concepts of SAR.
46	CP231EC3	Elective Course I c): Analytical Chemistry	☑	☑	☑	☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the principle and instrumentation of various analytical techniques. CO 2 - To apply the principle of analytical techniques to predict the purity, stability and concentrations of compounds. CO 3 - To analyse chemical compound using various analytical techniques. CO 4 - To evaluate the quality and quantity of chemical compounds. CO 5 - To understand the principle and instrumentation of various analytical techniques.
47	CP231EC4	Elective Course II a): Electrochemistry	☑	☑	☑	☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 7 - To learn independently for lifelong executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the behaviour of electrolytes in solution. CO 2 - To apply Butler-Volmer and Tafel equations to predict the kinetics of electrode reactions . CO 3 - To analyze the different electrochemical processes. CO 4 - To evaluate the theories of electrolytes, electrical double layer, electrodics and activity coefficient of electrolytes. CO 5 - To design new storage devices using the mechanism of electrochemical reaction.
48	CP231EC5	Elective Course II b): Molecular Spectroscopy	☑	☑	☑	☑	PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the advanced concepts of spectroscopy. CO 2 - To apply the different spectral techniques to elucidate the structure of compounds. CO 3 - To analyze the structure of compounds using spectroscopic techniques. CO 4 - To evaluate different electronic spectra of simple molecules using electronic spectroscopy. CO 5 - To develop the knowledge on principle, instrumentation and structural elucidation of simple molecules using Mass Spectrometry, EPR and Mossbauer Spectroscopy techniques.
49	CP231EC6	Elective Course II c) : Industrial Products	☑	☑	☑		PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the manufacturing processes of cement and glass. CO 2 - To apply different methods for manufacturing industrial products. CO 3 - To analyze the types of dyes, pigments and paints. CO 4 - To evaluate the composition versus quality of industrial products. CO 5 - To synthesize new industrial products.
50	CP232CC1	Core Course III: Organic Reaction Mechanism-II	☑	☑	☑	☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To develop innovative initiatives to sustain eco-friendly environment. PO 5 - To through active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources. PO 7 - To learn independently for lifelong executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To remember the basic principles of organic compounds. CO 2 - To understand the mechanism of various types of organic reactions. CO 3 - To apply the suitable reagents for the conversion of selective organic compounds. CO 4 - To analyze the principles of substitution, elimination, and addition reactions. CO 5 - To evaluate the reaction mechanisms and design new routes to synthesis of organic compounds.
51	CP232CC2	Core Course IV: Physical Chemistry-I	☑	☑	☑	☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To develop innovative initiatives to sustain eco-friendly environment. PO 5 - To through active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources. PO 7 - To learn independently for life long executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To recall the basic concepts of thermodynamics. CO 2 - To understand the classical and statistical concepts of thermodynamics. CO 3 - To apply the thermodynamic concepts to study the kinetics of chemical reactions. CO 4 - To analyze the thermodynamics for real gases ad mixtures. CO 5 - To evaluate the various kinetic methods of chemical reactions.
52	CP232CP1	Core Course II: Lab Course Inorganic Chemistry Practical I	☑		☑	☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To develop innovative initiatives to sustain eco-friendly environment. PO 5 - To through active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources. PO 7 - To learn independently for life long executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To recall and understand the basic principles in the analysis of cations from a given mixture. CO 2 - To apply the principles of semi micro qualitative analysis to categorize the cations. CO 3 - To analyze the cations by selecting suitable confirmatory tests and spot tests. CO 4 - To evaluate the amount of ions present in a binary mixture using complexometric titrations. CO 5 - To synthesize coordination compounds using appropriate ligands and metal ions.

53	CP232EC1	Elective Course III a): Medicinal Chemistry	☑	☑		☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To develop innovative initiatives to sustain eco-friendly environment. PO 5 - To through active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources. PO 7 - To learn independently for life long executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the drug properties based on its structure. CO 2 - To apply the relationship between drug's chemical structure and its therapeutic properties. CO 3 - To analyze the factors that affect the absorption, distribution, metabolism, and excretion in drug design. CO 4 - To evaluate the different theories of drug actions at molecular level. CO 5 - To design new drugs for the treatment of various diseases.
54	CP232EC2	Elective Course III b): Green Chemistry	☑	☑	☑	☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To develop innovative initiatives to sustain eco-friendly environment. PO 5 - To through active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources. PO 7 - To learn independently for lifelong executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant .	CO 1 - To recall the basic chemical techniques used in conventional industrial preparations and in green innovations. CO 2 - To understand the various techniques used in chemical industries and in laboratory. CO 3 - To apply the principles of PTC, ionic liquid, microwave and ultrasonic assisted organic synthesis. CO 4 - To analyze the advantages of organic reactions assisted by renewable energy sources and non-renewable energy sources. CO 5 - To evaluate, design and synthesize new organic compounds by green methods.
55	CP232EC3	Elective Course III c) : Transition Metal Chemistry				☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To develop innovative initiatives to sustain eco-friendly environment. PO 5 - To through active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources. PO 7 - To learn independently for life long executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To recall the general characteristics and understand the reaction mechanisms of transition metal compounds. CO 2 - To apply the reaction mechanisms in the synthesis of complexes. CO 3 - To analyze the various types of reactions involved in transition metal complexes. CO 4 - To evaluate the various parameters involved in the spectra of transition metal complexes. CO 5 - To design new routes for the synthesis of organometallic compounds.
56	CP232EC4	Elective Course IV a) : Bio Inorganic Chemistry	☑	☑	☑	☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To develop innovative initiatives to sustain eco-friendly environment. PO 5 - To through active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources. PO 7 - To learn independently for life long executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the importance trace elements in biological processes. CO 2 - To analyze the mechanism of biological redox systems. CO 3 - To interpret the role of nitrogen in biological systems. CO 4 - To identify the toxicity of metals and suggest suitable diagnostic agents for cancer treatment. CO 5 - To evaluate the kinetics and effect of pH, temperature on enzyme reactions.
57	CP232EC5	Elective Course IV b) : Material Science	☑	☑		☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To develop innovative initiatives to sustain eco-friendly environment. PO 5 - To through active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources. PO 7 - To learn independently for lifelong executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand and recall the synthesis and characteristics of crystal structures, semiconductors, magnets, nanomaterials and renewable energy materials. CO 2 - To apply and assess the structure of different materials and their properties. CO 3 - To analyse and identify new materials for energy applications. CO 5 - To validate the importance of crystal structures, piezoelectric and pyroelectric materials, nanomaterials, hard and soft magnets, superconductors, solar cells, electrodes, LED uses, structures and synthesis. CO 5 - To design and develop new materials with improved property for energy applications.

58	CP232EC6	Elective Course IV c): Organometallic Chemistry		☑		☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To develop innovative initiatives to sustain eco-friendly environment. PO 5 - To through active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources. PO 7 - To learn independently for lifelong executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the basic concepts of organometallic, supramolecular and bio-organometallic chemistry. CO 2 - To apply the basic concepts to understand the reactive mechanism of organometallic compounds as catalysts. CO 3 - To analyse the nature of bonds, types and various theories of organometallic compounds. CO 4 - To evaluate the different types of reactions in metal carbonyls, cluster and polymers. CO 5 - To synthesize cancer drugs from organometallic compounds and supramolecules in the biosystems.
59	CP232SE1	Skill Enhancement Course I :Health Science	☑			☑	PO 1 - To apply their knowledge, analyze complex problems, think independently, formulate and perform quality research. PO 2 - To carry out internship programmes and research projects to develop scientific and innovative ideas through effective communication. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To develop innovative initiatives to sustain eco-friendly environment. PO 5 - To through active career, team work and using managerial skills guide people to the right destination in a smooth and efficient way. PO 6 - To employ appropriate analysis tools and ICT in a range of learning scenarios, demonstrating the capacity to find, assess, and apply relevant information sources. PO 7 - To learn independently for lifelong executing professional, social and ethical responsibilities leading to sustainable development.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To recall and understand the importance of health, drugs, body fluids and vitamins. CO 2 - To apply the function of drugs, nutrients, vitamins and their mode of action. CO 3 - To analyze and identify blood group and matching. CO 4 - To evaluate the functions of drugs and vitamins. CO 5 - To develop skills to identify blood group and assist in first aid to provide health care to the community.
60	PG2031	Core VII : Organic Spectroscopy	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principle and applications of various spectroscopic techniques. CO 2 - To apply the spectroscopic concepts to determine the structure of organic compounds. CO 3 - To analyze the functional groups, molecular formula, structure and spectral data of compounds. CO 4 - To evaluate the purity, structure and molecular mass of compounds using various spectroscopic methods. CO 5 - To create and characterize novel organic compounds.
61	PG2032	Core VIII : Thermodynamics and Group Theory	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand the concepts and applications of thermodynamics and group theory. CO 2 - To apply thermodynamics and group theory to determine thermodynamic parameters, vibrations and hybrid orbitals. CO 3 - To analyze the thermodynamic functions, point groups and normal mode of vibration of molecules. CO 4 - To evaluate the thermodynamic parameters and delocalization energy in molecules.
62	PG2033	Elective III a) : Advanced Topics in Chemistry	☑	☑	☑	☑	PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principles and application of advanced areas in chemistry. CO 2 - To apply the principle of nanochemistry and green chemistry to design and synthesise novel compounds. CO 3 - To analyze the properties of nanoparticles, supramolecular interactions, therapeutic action of drugs and reactions in biomolecules. CO 4 - To evaluate atom economy in green synthesis, structure and therapeutic action of various drugs and role of singlet oxygen in biology. CO 5 - To create novel nanoparticles and compounds using green chemistry techniques.
63	PG2034	Elective III b) : Medicinal Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand the classification, nomenclature and therapeutic action of drugs. CO 2 - To apply the therapeutic values of drugs. CO 3 - To analyze the chemical constituents and its therapeutic values of drugs. CO 4 - To evaluate the role of metals in drugs.
64	PG20PR	Project and Viva	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand the procedure for selecting samples. CO 2 - To apply different techniques for preparing products. CO 3 - To interpret the experimental data using spectroscopic analysis. CO 4 - To analyze the results and record the data.
65	PC20S1	Chemistry for Lecturership exam - I		☑			PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To synthesize knowledge from different areas of chemistry to solve interdisciplinary problems. CO 2 - To prepare and practice for competitive exams with speed,accuracy and comprehensive coverage of syllabus topics. CO 3 - To analyze scientific data and draw logical conclusions. CO - 4 To solve complex numerical problems and apply theoretical concepts to practical scenarios.
66	PG2041	Core IX : Inorganic Photochemistry, Spectroscopy and Organometallics	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the principles and concepts of inorganic spectroscopy, photochemistry and organometallics. CO 2 - To apply the principles of spectroscopy, photochemistry and organometallic chemistry to inorganic compounds. CO 3 - To analyse the structure, reactions and functions of inorganic compounds. CO 4 - To evaluate the spectral data and properties of inorganic compounds.
67	PG2042	Core X : Photochemistry and Natural Products	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand various organic reactions and their mechanism. CO 2 - To apply the reaction mechanism in organic synthesis. CO 3 - To analyze the structure and mechanism of reactions. CO 4 - To evaluate the synthetic utility of reactions.
68	PG2043	Core XI : Polymer Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the concept of polymer chemistry. CO 2 - To apply the processing techniques in the manufacture of synthetic polymer. CO 3 - To analyze glass transition temperature, crystallinity and degradation in polymers. CO 4 - To evaluate molecular weight and size of the polymer.

69	PG2044	Elective IV a) : Energy for Future	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - Emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the importance of various sources of non-conventional energy. CO 2 - To apply the principle of energy conversion tothe production of energy for the future. CO 3 - To analyze the advantages and disadvantages of different non-conventional energy sources. CO 4 - To evaluate solar energy radiation, wind energy data and conversion efficiency of fuel cells. CO 5 - To create fuel cells.
70	PG2045	Elective IV b) : Nanochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the basic concept of nanochemistry and its applications. CO 3 - To apply the principle of nanotechnology for the synthesis and characterization of nanomaterials in various fields. CO 4 - To analyze the physical and chemical properties of nanoparticles. CO 5 - To evaluate the properties of nanoparticles using various analytical techniques. CO 5 - To create and characterize novel nanomaterials.
71	PG20P3	Practical III: Inorganic Chemistry - II	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principle for the separation, estimation and preparation of inorganic compounds. CO 2 - To apply the principle of volumetric and gravimetric analysis for the separation and estimation of metal ions in a mixture. CO 3 - To analyze the procedure for the estimation and preparation of inorganic compounds. CO 4 - To evaluate the amount of metal ions present in a mixture. CO 5 - To create novel inorganic complexes.
72	PG20P4	Practical IV : Physical Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the principle of conductometric and potentiometric titrations. CO 2 - To apply the principles of conductometry and potentiometry to determine the strength of unknown solutions. CO 3 - To analyze the strength of acids by adsorption method. CO 4 - To evaluate conductance ,dissociation constant and heat of solution.
73	PC20S2	Chemistry for Lecturership exam - II		☑			PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To synthesize knowledge from different areas of chemistry to solve interdisciplinary problems. CO 2 - To prepare and practice for competitive exams with speed,accuracy and comprehensive coverage of syllabus topics. CO 3 - To analyze scientific data and draw logical conclusions. CO - 4 To solve complex numerical problems and apply theoretical concepts to practical scenarios.
	2022-2023									
74	CC2011	Major Core I : General Chemistry - I		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the structure and naming of various organic compounds. CO 2 - To interpret various electronic effects and chemical bonding. CO 3 - To analyse the periodic properties of elements. CO 4 - To apply wave mechanical concept in other fields. CO 5 - To predict the properties of elements and the principle behind volumetric analysis.
75	CA2011	Allied I Theory: Chemistry for Life Sciences		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the structure and bonding in atoms and molecules. CO 2 - To analyse theypes of bonding and the ways of expressing concentration in molecules. CO 3 - To understand the concepts of biophysical analysis, catalysis and buffer action. CO 4 - To apply the concepts of photochemistry and chromatography to various chemical processes.
76	CNM201	Non Major Elective (NME): Applied Chemistry - I	☑	☑	☑		PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods.	CO 1 - To remember the importance of soaps and detergents. CO 2 - To analyse the characteristics and advantages of agrochemicals. CO 3 - To understand the process of manufacture of sugar and paper. CO 4 - To apply the chemical reactions to synthesize day to day articles.
77	CC2021	Major Core II : General Chemistry – II		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the preparation, properties of chemical compounds. CO 2 - To apply the theories in the preparation of compounds. CO 3 - To predict the type of bonding and geometry of chemical compounds. CO 4 - To learn the basics of metallurgy and the theories about gases. CO 5 - To analyse the properties of matter.
78	CC20P1	Major Practical I : Volumetric Analysis and Inorganic complex Preparation				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the concepts of quantitative analysis. CO 2 - To recognize the indicators, acid and bases used in volumetric analysis. CO 3 - To develop practical skill. CO 4 - To utilize the mathematical skills doing calculation. CO 5 - To employ suitable methods to minimize errors.
79	CA2021	Allied I Theory: Chemistry of Biomolecules	☑			☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the classification of biomolecules. CO 2 - To understand the structure, function and metabolism of biomolecules. CO 3 - To apply the chemistry of biomolecules in industry and medicine. CO 4 - To analyse and identify biomolecules.

80	CA20P1	Allied II Practical : Volumetric and Organic Substance Analysis				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To recognize the indicators used in volumetric analysis. CO 2 - To estimate the amount of substance present in the sample solution. CO 3 - To develop practical skills. CO 4 - To understand and remember the concepts and theory of qualitative and quantitative analysis. CO 5 - To utilize the mathematical skills in doing calculations. CO 6 - To employ suitable methods to minimize errors.
81	CNM202	Non Major Elective (NME) : Applied Chemistry - II		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To remember the refining of petroleum and manufacture of petroleum products. CO 2 - To analyse the therapeutic uses of pharmaceuticals. CO 3 - To understand the process of manufacture of cosmetics and perfumes. CO 4 - To analyse the characteristics of matches, explosives, paints and pigments.
82	CC2031	Major Core III : General Chemistry - III		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To gain knowledge on aromatic compounds. CO 2 - To synthesise aromatic compounds. CO 3 - To remember the characteristics of group 13 and 14 elements. CO 4 - To predict the chemistry of nitrogen and oxygen family. CO 5 - To understand the different colloidal systems. CO 6 - To explain the various photochemical processes.
83	CC2032	Major Elective I a) : Pharmaceutical Chemistry		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the characteristics, classification and sources of drugs. CO 2 - To interpret the chemical structure and pharmacological activities of drugs. CO 3 - To compare the action of various drugs. CO 4 - To design common drugs and interpret their therapeutic uses. CO 5 - To identify common diseases, their causes and treatment.
84	CC2033	Major Elective I b) : Nano and Polymer Chemistry		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To apply the uses of nanomaterials in industrial and medicinal field. CO 2 - To know the different characterization techniques of nanomaterials. CO 3 - To classify the types of polymers and learn the kinetics of polymers. CO 4 - To understand the principles of polymer reactivity and stereo chemistry of polymerization. CO 5 - To analyse the special features of commercial polymers.
85	CC2034	Major Elective I c) : Applied Electro Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the basic principles involved in the electrolysis. CO 2 - To differentiate between electrometallurgy and hydrometallurgy. CO 3 - To interpret the different methods of electroplating. CO 4 - To compare the different power sources. CO 5 - To predict corrosion and types of coating. CO 6 - To explain the special features of electro-organic synthesis.
86	CA2031	Allied II Theory: Inorganic and Physical Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the structure and bonding in atoms and molecules. CO 2 - To know about different types of bonding. CO 3 - To understand the metallurgical processes and the methods of purification of metals. CO 4 - To understand the concepts of solid state chemistry and nuclear chemistry.
87	CC20S1	Soil Science and Agricultural chemistry	☑	☑	☑		PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To understand the different types of soil. CO 2 - To analyze the fertility of the soil. CO 3 - To test soil sample from different field.
88	CC2041	Major Core IV : General Chemistry - IV			☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To know the mechanism of important name reactions. CO 2 - To apply the reaction mechanisms in the synthesis of components used in industrial and medicinal fields. CO 3 - To evaluate the characteristics of halogens and noble gases. CO 4 - To classify the non-aqueous solvents and know the theories of acids and bases. CO 5 - To list out the applications of first and second law of thermodynamics.
89	CC2042	Major Elective II a) : Green Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To know the principles of green chemistry. CO 2 - To design green synthesis. CO 3 - To interpret green method for organic synthesis. CO 4 - To synthesize various compounds by microwave and ultrasound assisted methods. CO 5 - To analyze the important techniques and directions in practicing green chemistry. CO 6 - To identify the importance of Green chemistry in day to day life.
90	CC2043	Major Elective II b) : Forensic Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy.	CO 1 - To list out the principles governing forensic science. CO 2 - To differentiate toxic chemicals. CO 3 - To create mobile forensic science laboratories. CO 4 - To categorize physical evidence. CO 5 - To predict the methods used for the collection of finger prints. CO 6 - To distinguish the cordage and rope metallic fragments.

91	CC2044	Major Elective II c) : Instrumental Methods of Analysis	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To recognize the principles of adsorption. CO 2 - To choose specific adsorbents for chemical reaction. CO 3 - To analyze the factors affecting chromatography. CO 4 - To categorize the different analytical methods. CO 5 - To evaluate λmax for organic compounds. CO 6 - To understand the concept of flame photometry. CO 7 - To apply IR spectroscopy to identify functional groups.
92	CC20P2	Major Practical II : Semi Micro Inorganic Mixture Analysis				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the principles of qualitative analysis. CO 2 - To detect the different anions. CO 3 - To eliminate the interfering anions. CO 4 - To detect the different cations.
93	CA2041	Allied II Theory: Physical Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the theories and the factors influencing rate of reaction. CO 2 - To understand the laws and theories that govern photochemistry. CO 3 - To apply the principles of physical properties for structural determination. CO 4 - To understand the different laws of thermodynamics. CO 5 - To analyse the importance of nano chemistry in various fields.
94	CA20P1	Allied II Practical : Volumetric and Organic Substance Analysis				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To recognize the indicators used in volumetric analysis. CO 2 - To estimate the amount of substance present in the sample solution. CO 3 - To develop practical skills. CO 4 - To understand and remember the concepts and theory of qualitative and quantitative analysis. CO 5 - To utilize the mathematical skills in doing calculations. CO 6 - To employ suitable methods to minimize errors.
95	CC20S2	Chemistry of Cosmetics	☑				PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods.	CO 1 - To understand the constituents and preparation of cosmetics. CO 2 - To know the harmful effects of the ingredients in Cosmetics.
96	CC2051	Major Core V : Organic Chemistry - I				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy.	CO 1 - To understand the concept of optical activity, stereoisomerism and stereo isomers. CO 2 - To remember the preparation and synthesis of carbonyl, Nitrogen containing and heterocyclic compounds. CO 3 - To apply the synthetic methods to synthesize new compounds. CO 4 - To analyze the synthetic importance of different organic compounds. CO 5 - To create alternate routes to prepare new compounds.
97	CC2052	Major Core VI : Inorganic Chemistry - I	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy.	CO 1 - To acquire knowledge on transition and inner transition elements. CO 2 - To name co-ordination compounds. CO 3 - To analyse the nature of bonding in co-ordination and organometallic compounds. CO 4 - To predict the geometry and colour and spin of co-ordination compounds. CO 5 - To minimize the errors in chemical analysis.
98	CC2053	Major Core VII : Physical Chemistry - I		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy.	CO 1 - To understand the basic principles of electrochemistry. CO 2 - To apply EMF measurements in different fields of chemistry. CO 3 - To analyze the working of electrical appliances in day to day life. CO 4 - To remember the principle and applications of the different spectral techniques. CO 5 - To interpret the IR, NMR and ESR spectra of simple molecules.
99	CC2054	Major Elective III a) : Bio Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the function and metabolism of biomolecules. CO 2 - To recall the importance of biomolecules. CO 3 - To compare DNA and RNA. CO 4 - To elucidate the structure of different biomolecules. CO 5 - To illustrate the industrial and medical applications of enzymes.
100	CC2055	Major Elective III b) : Dairy Chemistry	☑	☑			PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To recall the physical properties of milk. CO 2 - To identify the various factors affecting the quality of milk. CO 3 - To analyse the microbiology of milk. CO 4 - To propose various methods to pasteurize milk. CO 5 - To apply the techniques to manufacture special milks. CO 6 - To estimate the acidity, lactose fat and protein content of milk.
101	CC2056	Major Elective III c) : Analytical Chemistry	☑	☑			PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To develop skills in handling instruments and reagents. CO 2 - To learn the concepts of precipitation techniques and related analysis. CO 3 - To minimize errors and get results with maximum accuracy. CO 4 - To apply different chromatographic techniques for separation.

102	CC2061	Major Core VIII : Organic Chemistry - II		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To carry out research projects independently and in collaboration with other institutions and industries. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the synthetic methodology, reagents and rearrangements in organic chemistry. CO 2 - To elucidate the structure of carbohydrates, alkaloids and terpenoids. CO 3 - To synthesize dyes and compounds of synthetic importance. CO 4 - To analyse the strategies and terminologies involved in organic synthesis leading to new products. CO 5 - To apply the spectral techniques in structural determination.
103	CC2062	Major Core IX : Inorganic Chemistry -II		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To carry out research projects independently and in collaboration with other institutions and industries. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the types of nuclear reactions and their applications. CO 2 - To differentiate natural and artificial radioactivity. CO 3 - To classify crystal systems and their structures. CO 4 - To predict the role of bioinorganic compounds in biological systems. CO 5 - To use the solid materials for specific purposes.
104	CC2063	Major Core X : Physical Chemistry - II				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To carry out research projects independently and in collaboration with other institutions and industries. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the theories of reaction rate, adsorption and catalysis. CO 2 - To construct phase diagrams for one and two component systems. CO 3 - To recall colligative properties and their applications. CO 4 - To predict the point groups of molecules. CO 5 - To construct group multiplication table for simple molecules.
105	CC20P3	Major Practical III : Gravimetric Estimation and Organic Preparation				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To develop skill in doing gravimetric estimation. CO 2 - To minimize errors for accurate results. CO 3 - To prepare new organic compounds.
106	CC20P4	Major Practical IV : Organic Estimation ,Organic Analysis and Determination of Physical Constants				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the principles of estimation of organic compounds. CO 2 - To apply the scheme of organic analysis to detect functional groups. CO 3 - To determine the physical constants of organic compounds with maximum accuracy.
107	CC20P5	Major Practical V : Physical Chemistry Experiments				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the principles of physical chemistry experiments. CO 2 - To interpret the graphical data. CO 3 - To develop the practical skill and minimize errors. CO 4 - To determine and compare the strengths of different solutions using physical methods.
108	CC20PR	Project	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the procedure for selecting samples. CO 2 - To apply different techniques for preparing products. CO 3 - To interpret the experimental data using spectroscopic analysis. CO 4 - To analyze the results and record the data.
109	SEC203	Chemistry for Competitive Examinations				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 3 - To communicate proficiently and collaborate successfully with peers, colleagues and organizations.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To achieve time management skills for examination. CO2 - To equip the students to face competitive examination positively. CO 3 - To acquire the learning skill required to get success in competitive examination.
110	PG2011	Core I : Structure and Bonding	☑	☑	☑	☑	PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand the structure and bonding in inorganic compounds. CO 2 - To apply the concepts of chemical bonding to predict the structure of compounds. CO 3 - To analyze the types of bonding, crystal lattices and crystal defects. CO 4 - To evaluate bond energy, lattice energy and properties of inorganic compounds.
111	PG2012	Core II : Reaction Mechanism and Stereochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the basic concepts of reaction mechanisms, stereochemistry and conformation in organic compounds. CO 2 - To apply the reaction mechanism, stereochemistry and conformation for the synthesis of organic compounds. CO 3 - To analyse the types of reaction mechanisms involved in synthetic organic transformation. CO 4 - To create novel organic compounds.

112	PG2013	Core III : Chemical Kinetics and Electrochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the concepts of chemical kinetics, catalysis, photochemistry and electrochemistry. CO 2 - To apply the mechanism of kinetics and catalysis to chemical reactions. CO 3 - To analyze the principles and applications of kinetics, catalysis, photochemistry and electrochemistry. CO 4 - To evaluate the kinetics and mechanism of chemical reactions.
113	PG2014	Elective I a) : Analytical Chemistry	☑	☑	☑	☑	PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principle and instrumentation of various analytical techniques. CO 2 - To apply the principle of analytical techniques to predict the purity, stability and concentrations of compounds. CO 3 - To analyse chemical compound using various analytical techniques. CO 4 - To evaluate the quality and quantity of chemical compounds.
114	PG2015	Elective I b) : Electrochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the principle of electrochemistry. CO 2 - To apply the concepts of electrochemistry in industries. CO 3 - To analyze the different electrochemical processes. CO 4 - To create fuel cells.
115	PG2021	Core IV : Coordination Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the various theories and reaction mechanisms related to coordination compounds . CO 2 - To apply the theories and reaction mechanisms to determine the properties of complexes. CO 3 - To analyze the reaction mechanism of coordination compounds. CO 4 - To evaluate the magnetic and spectral properties of complexes. CO 5 - To create novel complexes and catalyst.
116	PG2022	Core II : Reaction Mechanism and Stereochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the mechanisms of organic reactions. CO 2 - To apply the reaction mechanisms to synthesize organic compounds. CO 3 - To analyze the type of reactions in organic compounds. CO 4 - To evaluate nucleophilic, electrophilic substitution and elimination reactions in aromatic and aliphatic compounds. CO 5 - To create novel organic compounds.
117	PG2023	Core VI : Quantum Chemistry and Spectroscopy	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the concepts of quantum chemistry, spectroscopy and surface chemistry. CO 2 - To apply the principles of quantum mechanics to simple systems, spectroscopy to characterize compounds and surface chemistry to determine the surface area of surface films and liquids. CO 3 - To analyse molecules using quantum mechanics and spectroscopic techniques. CO 4 - To evaluate eigen values, bond angles, electron density and surface area of simple molecules.
118	PG2024	Elective II a): Research Methodology	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the sources of literature survey and analytical techniques for documentation of research and cheminformatics for molecular representation. CO 2 - To apply the features of literature survey in research and analytical techniques to characterize compounds. CO 3 - To analyse the sources of research information and chemical compounds. CO 4 - To evaluate the results using analytical techniques. CO 5 - To create a journal article.
119	PG2025	Elective II b) : Nuclear Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the principles of radioactivity and nuclear reactions. CO 2 - To apply radioactivity in industries and daily life. CO 3 - To analyze the types of nuclear reactions and nuclear reactors. CO 4 - To evaluate radioactivity of chemical compounds.
120	PG20P1	Practical I : Inorganic Chemistry - I	☑	☑	☑	☑	PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the methods for the separation and estimation of inorganic compounds. CO 2 - To apply the theoretical concepts to identify inorganic compounds. CO 3 - To analyze inorganic compounds using semi-micro qualitative analysis and paper chromatography. CO 4 - To evaluate the quantity of inorganic compounds.
121	PG20P2	Practical II : Organic Chemistry	☑	☑	☑	☑	PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the methods for the separation and estimation of organic compounds. CO 2 - To apply the theoretical concepts to identify and synthesise organic compounds. CO 3 - To analyse the elements and functional groups using microscale analysis. CO 4 - To evaluate the quality and quantity of organic compounds. CO 5 - To create organic compounds using various rearrangement reactions.
122	PG2031	Core VII : Organic Spectroscopy	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the principle and applications of various spectroscopic techniques. CO 2 - To apply the spectroscopic concepts to determine the structure of organic compounds. CO 3 - To analyze the functional groups, molecular formula, structure and spectral data of compounds. CO 4 - To evaluate the purity, structure and molecular mass of compounds using various spectroscopic methods. CO 5 - To create and characterize novel organic compounds.

123	PG2032	Core VIII : Thermodynamics and Group Theory	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the concepts and applications of thermodynamics and group theory. CO 2 - To apply thermodynamics and group theory to determine thermodynamic parameters, vibrations and hybrid orbitals. CO 3 - To analyze the thermodynamic functions, point groups and normal mode of vibration of molecules. CO 4 - To evaluate the thermodynamic parameters and delocalization energy in molecules.
124	PG2033	Elective III a) : Advanced Topics in Chemistry	☑	☑	☑	☑	PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the principles and application of advanced areas in chemistry. CO 2 - To apply the principle of nanochemistry and green chemistry to design and synthesise novel compounds. CO 3 - To analyze the properties of nanoparticles, supramolecular interactions, therapeutic action of drugs and reactions in biomolecules. CO 4 - To evaluate atom economy in green synthesis, structure and therapeutic action of various drugs and role of singlet oxygen in biology. CO 5 - To create novel nanoparticles and compounds using green chemistry techniques.
125	PG2034	Elective III b) : Medicinal Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the classification, nomenclature and therapeutic action of drugs. CO 2 - To apply the therapeutic values of drugs. CO 3 - To analyze the chemical constituents and its therapeutic values of drugs. CO 4 - To evaluate the role of metals in drugs.
126	PG20PR	Project and Viva	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the procedure for selecting samples. CO 2 - To apply different techniques for preparing products. CO 3 - To interpret the experimental data using spectroscopic analysis. CO 4 - To analyze the results and record the data.
127	PC20S1	Chemistry for Lecturership exam - I		☑			PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To synthesize knowledge from different areas of chemistry to solve interdisciplinary problems. CO 2 - To prepare and practice for competitive exams with speed,accuracy and comprehensive coverage of syllabus topics. CO 3 - To analyze scientific data and draw logical conclusions. CO - 4 To solve complex numerical problems and apply theoretical concepts to practical scenarios.
128	PG2041	Core IX : Inorganic Photochemistry, Spectroscopy and Organometallics	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the principles and concepts of inorganic spectroscopy, photochemistry and organometallics. CO 2 - To apply the principles of spectroscopy, photochemistry and organometallic chemistry to inorganic compounds. CO 3 - To analyse the structure, reactions and functions of inorganic compounds. CO 4 - To evaluate the spectral data and properties of inorganic compounds.
129	PG2042	Core X : Photochemistry and Natural Products	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand various organic reactions and their mechanism. CO 2 - To apply the reaction mechanism in organic synthesis. CO 3 - To analyze the structure and mechanism of reactions. CO 4 - To evaluate the synthetic utility of reactions.
130	PG2043	Core XI : Polymer Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the concept of polymer chemistry. CO 2 - To apply the processing techniques in the manufacture of synthetic polymer. CO 3 - To analyze glass transition temperature, crystallinity and degradation in polymers. CO 4 - To evaluate molecular weight and size of the polymer.
131	PG2044	Elective IV a) : Energy for Future	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the importance of various sources of non-conventional energy. CO 2 - To apply the principle of energy conversion tothe production of energy for the future. CO 3 - To analyze the advantages and disadvantages of different non-conventional energy sources. CO 4 - To evaluate solar energy radiation, wind energy data and conversion efficiency of fuel cells. CO 5 - To create fuel cells.
132	PG2045	Elective IV b) : Nanochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the basic concept of nanochemistry and its applications. CO 2 - To apply the principle of nanotechnology for the synthesis and characterization of nanomaterials in various fields. CO 3 - To analyze the physical and chemical properties of nanoparticles. CO 4 - To evaluate the properties of nanoparticles using various analytical techniques. CO 5 - To create and characterize novel nanomaterials.
133	PG20P3	Practical III: Inorganic Chemistry - II	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principle for the separation, estimation and preparation of inorganic compounds. CO 2 - To apply the principle of volumetric and gravimetric analysis for the separation and estimation of metal ions in a mixture. CO 3 - To analyze the procedure for the estimation and preparation of inorganic compounds. CO 4 - To evaluate the amount of metal ions present in a mixture. CO 5 - To create novel inorganic complexes.
134	PG20P4	Practical IV : Physical Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the principle of conductometric and potentiometric titrations. CO 2 - To apply the principles of conductometry and potentiometry to determine the strength of unknown solutions. CO 3 - To analyze the strength of acids by adsorption method. CO 4 - To evaluate conductance, dissociation constant and heat of solution.

135	PC20S2	Chemistry for Lecturership exam - II		☑			PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To synthesize knowledge from different areas of chemistry to solve interdisciplinary problems. CO 2 - To prepare and practice for competitive exams with speed,accuracy and comprehensive coverage of syllabus topics. CO 3 - To analyze scientific data and draw logical conclusions. CO - 4 To solve complex numerical problems and apply theoretical concepts to practical scenarios.
	2021-2022								
136	CC2011	Major Core I : General Chemistry - I		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the structure and naming of various organic compounds. CO 2 - To interpret various electronic effects and chemical bonding. CO 3 - To analyse the periodic properties of elements. CO 4 - To apply wave mechanical concept in other fields. CO 5 - To predict the properties of elements and the principle behind volumetric analysis.
137	CA2011	Allied I Theory: Chemistry for Life Sciences		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the structure and bonding in atoms and molecules. CO 2 - To analyse the types of bonding and the ways of expressing concentration in molecules. CO 3 - To understand the concepts of biophysical analysis, catalysis and buffer action. CO 4 - To apply the concepts of photochemistry and chromatography to various chemical processes.
138	CNM201	Non Major Elective (NME) :Applied Chemistry - I	☑	☑	☑		PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods.	CO 1 - To remember the importance of soaps and detergents. CO 2 - To analyse the characteristics and advantages of agrochemicals. CO 3 - To understand the process of manufacture of sugar and paper. CO 4 - To apply the chemical reactions to synthesize day to day articles.
139	CC2021	Major Core II : General Chemistry – II		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the preparation, properties of chemical compounds. CO 2 - To apply the theories in the preparation of compounds. CO 3 - To predict the type of bonding and geometry of chemical compounds. CO 4 - To learn the basics of metallurgy and the theories about gases. CO 5 - To analyse the properties of matter.
140	CA2021	Allied I Theory: Chemistry of Biomolecules	☑			☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the classification of biomolecules. CO 2 - To understand the structure, function and metabolism of biomolecules. CO 3 - To apply the chemistry of biomolecules in industry and medicine. CO 4 - To analyse and identify biomolecules.
141	CC20P1	Major Practical I : Volumetric Analysis and Inorganic Complex Preparation				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the concepts of quantitative analysis. CO 2 - To recognize the indicators, acid and bases used in volumetric analysis. CO 3 - To develop practical skill. CO 4 - To utilize the mathematical skills doing calculation. CO 5 - To employ suitable methods to minimize errors.
142	CA20P1	Allied I Practical : Volumetric and Organic Substance Analysis				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To recognize the indicators used in volumetric analysis. CO 2 - To estimate the amount of substance present in the sample solution. CO 3 - To develop practical skills. CO 4 - To understand and remember the concepts and theory of qualitative and quantitative analysis. CO 5 - To utilize the mathematical skills in doing calculations. CO 6 - To employ suitable methods to minimize errors.
143	CNM202	Non Major Elective (NME): Applied Chemistry - II		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To remember the refining of petroleum and manufacture of petroleum products. CO 2 - To analyse the therapeutic uses of pharmaceuticals. CO 3 - To understand the process of manufacture of cosmetics and perfumes. CO 4 - To analyse the characteristics of matches, explosives, paints and pigments.
144	CC2031	Major Core III : General Chemistry - III		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To gain knowledge on aromatic compounds. CO 2 - To synthesize aromatic compounds. CO 3 - To remember the characteristics of group 13 and 14 elements. CO 4 - To predict the chemistry of nitrogen and oxygen family. CO 5 - To understand the different colloidal systems. CO 6 - To explain the various photochemical processes.
145	CC2032	Major Elective I a) : Pharmaceutical Chemistry		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the characteristics, classification and sources of drugs. CO 2 - To interpret the chemical structure and pharmacological activities of drugs. CO 3 - To compare the action of various drugs. CO 4 - To design common drugs and interpret their therapeutic uses. CO 5 - To identify common diseases, their causes and treatment.

146	CC2033	Major Elective I b) : Nano and Polymer Chemistry		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To apply the uses of nanomaterials in industrial and medicinal field. CO 2 - To know the different characterization techniques of nanomaterials. CO 3 - To classify the types of polymers and learn the kinetics of polymers. CO 4 - To understand the principles of polymer reactivity and stereo chemistry of polymerization. CO 5 - To analyse the special features of commercial polymers.
147	CC2034	Major Elective I c) : Applied Electro Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the basic principles involved in the electrolysis. CO 2 - To differentiate between electrometallurgy and hydrometallurgy. CO 3 - To interpret the different methods of electroplating. CO 4 - To compare the different power sources. CO 5 - To predict corrosion and types of coating. CO 6 - To explain the special features of electro-organic synthesis.
148	CA2031	Allied II Theory: Inorganic and Physical Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the structure and bonding in atoms and molecules. CO 2 - To know about different types of bonding. CO 3 - To understand the metallurgical processes and the methods of purification of metals. CO 4 - To understand the concepts of solid state chemistry and nuclear chemistry.
149	CC20S1	Soil Science and Agricultural chemistry	☑	☑	☑		PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To understand the different types of soil. CO 2 - To analyze the fertility of the soil. CO 3 - To test soil sample from different field.
150	CC2041	Major Core IV : General Chemistry - IV			☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To know the mechanism of important name reactions. CO 2 - To apply the reaction mechanisms in the synthesis of components used in industrial and medicinal fields. CO 3 - To evaluate the characteristics of halogens and noble gases. CO 4 - To classify the non-aqueous solvents and know the theories of acids and bases. CO 5 - To list out the applications of first and second law of thermodynamics.
151	CC2042	Major Elective II a) : Green Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To know the principles of green chemistry. CO 2 - To design green synthesis. CO 3 - To interpret green method for organic synthesis. CO 4 - To synthesize various compounds by microwave and ultrasound assisted methods. CO 5 - To analyze the important techniques and directions in practicing green chemistry. CO 6 - To identify the importance of Green chemistry in day to day life.
152	CC2043	Major Elective II b) : Forensic Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy.	CO 1 - To list out the principles governing forensic science. CO 2 - To differentiate toxic chemicals. CO 3 - To create mobile forensic science laboratories. CO 4 - To categorize physical evidence. CO 5 - To predict the methods used for the collection of finger prints. CO 6 - To distinguish the cordage and rope metallic fragments.
153	CC2044	Major Elective II c) : Instrumental Methods of Analysis	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To recognize the principles of adsorption. CO 2 - To choose specific adsorbents for chemical reaction. CO 3 - To analyze the factors affecting chromatography. CO 4 - To categorize the different analytical methods. CO 5 - To evaluate λmax for organic compounds. CO 6 - To understand the concept of flame photometry. CO 7 - To apply IR spectroscopy to identify functional groups.
154	CC20P2	Major Practical II : Semi micro Inorganic Mixture Analysis				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the principles of qualitative analysis. CO 2 - To detect the different anions. CO 3 - To eliminate the interfering anions. CO 4 - To detect the different cations.
155	CA2041	Allied II Theory: Physical Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the theories and the factors influencing rate of reaction. CO 2 - To understand the laws and theories that govern photochemistry. CO 3 - To apply the principles of physical properties for structural determination. CO 4 - To understand the different laws of thermodynamics. CO 5 - To analyse the importance of nano chemistry in various fields.

156	CA20P1	Allied II Practical : Volumetric and Organic Substance Analysis				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To recognize the indicators used in volumetric analysis. CO 2 - To estimate the amount of substance present in the sample solution. CO 3 - To develop practical skills. CO 4 - To understand and remember the concepts and theory of qualitative and quantitative analysis. CO 5 - To utilize the mathematical skills in doing calculations. CO 6 - To employ suitable methods to minimize errors.
157	CC20S2	Chemistry of Cosmetics	☑				PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods.	CO 1 - To understand the constituents and preparation of cosmetics. CO 2 - To know the harmful effects of the ingredients in cosmetics.
158	CC1751	Major Core V : Organic Chemistry - III		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To identify the methods of preparation, properties and reaction mechanism of phenols. CO 2 - To prepare and analyze the reactions of poly nuclear hydrocarbons. CO 3 - To recognize the classification, preparation and properties of heterocyclic compounds. CO 4 - To evaluate the importance and structure of carbohydrates. CO 5 - To understand the inter conversions of carbohydrates. CO 6 - To study the pharmacological activities of drugs. CO 7 - To synthesize various drugs. CO 8 - To evaluate the synthetic uses of drugs.
159	CC1752	Major Core VI : Inorganic Chemistry - II		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To identify the p-block elements in the periodic table. CO 2 - To analyze the properties of p- block elements. CO 3 - To compare inorganic and organic polymers. CO 4 - To explain the different metallurgical processes. CO 5 - To compare the stability of different atomic nuclei. CO 6 - To illustrate principle of atom bomb and nuclear reactor.
160	CC1753	Major Core VII : Physical Chemistry - II		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To list out various types of dilute solutions. CO 2 - To determine the various colligative properties. CO 3 - To calculate the molar mass using colligative properties. CO 4 - To illustrate the different types of systems using thermodynamics. CO 5 - To interpret and correlate the laws of thermodynamics. CO 6 - To calculate the various kinds of energy. CO 7 - To compare the entropy change of difficult processes. CO 8 - To assess the absolute entropy of solids, liquids and gases. CO 9 - To create the group multiplication table. CO 10 - To assign point groups to simple molecules.
161	CC1754	Major Elective III a) : Green Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To know the principles of green chemistry. CO 2 - To design green synthesis. CO 3 - To interpret green method for organic synthesis. CO 4 - To synthesize various Compounds by Microwave and ultrasound assisted methods. CO 5 - To analyze the important techniques and directions in practicing green chemistry. CO 6 - To identify the importance of Green chemistry in day to day life.
162	CC1754	Major Elective III b) : Applied Chemistry	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To develop fuel cells. CO 2 - To synthesize nano compounds. CO 3 - To list out the fundamental principles of nano chemistry. CO 4 - To identify various chemotherapeutic agents. CO 5 - To compare octane and cetane rating. CO 6 - To apply C++ operators in chemistry. CO 7 - To distinguish between homogeneous and heterogenous propellants.
163	CC1754	Major Elective III c) : Leather Chemistry	☑	☑			PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To identify different types of leather. CO 2 - To understand the composition of hides and skins. CO 3 - To analyse the effect of tanning agents. CO 4 - To apply the methods of processing of leather. CO 5 - To discuss about tannery effluents and treatment.
164	CSK175	Chemistry for Competitive Examinations - I		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 3 - To communicate proficiently and collaborate successfully with peers, colleagues and organizations.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the physical and chemical properties of chemical compounds. CO 2 - To explain the structure and bonding of metal and non-metals.
165	CC1761	Major Core VIII : Organic Chemistry -IV		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To recognize optical activity and the types of isomerism. CO 2 - To interpret the principles of spectroscopy and photochemistry. CO 3 - To apply spectral rules to calculate λmax values. CO 4 - To evaluate different spectra. CO 5 - To apply IR spectra in functional group analysis. CO 6 - To know the medicinal importance and elucidate the structure of alkaloids. CO 7 - To classify, differentiate and synthesise various dyes.

166	CC1762	Major Core IX : Inorganic Chemistry -III		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To name the coordination compounds. CO 2 - To explain the theories of coordination compounds. CO 3 - To predict the colour, magnetic properties and geometry of coordination compounds. CO 4 - To analyse the nature of bonding in coordination compounds. CO 5 - To minimize the errors in chemical estimation. CO 6 - To employ the methods to separate the inner transition elements. CO 7 - To compare the properties of lanthanides and actinides. CO 8 - To explain the principles of gravimetric analysis.
167	CC1763	Major Core X : Physical Chemistry - III		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To recall phase rule. CO 2 - To understand phase diagrams. CO 3 - To differentiate various photochemical processes. CO 4 - To interpret Jablonski diagram. CO 5 - To apply the electrochemical principles in batteries. CO 6 - To deduce the expressions of rate constant. CO 7 - To evaluate pH using electrodes. CO 8 - To elucidate the structure of molecules using spectral data.
168	CC1764	Major Elective IV a) : Bio Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To understand the classification of carbohydrates, components in blood and metabolism in biological systems. CO 2 - To classify and interpret various lipids, their biochemical importance and properties. CO 3 - To classify the different amino acids. CO 4 - To compare DNA and RNA. CO 5 - To determine the rate of enzymatic reactions. CO 6 - To describe the industrial and medical applications of enzymes. CO 7 - To identify the structure and biochemical functions of cholesterol in real life.
169	CC1764	Major Elective IV b) : Instrumental methods	☑			☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To recognize the principle of adsorptions. CO 2 - To choose specific adsorbents for chemical reaction. CO 3 - To analyze the factors affecting chromatography. CO 4 - To categorize the different analytical methods. CO 5 - To evaluate λmax for benzene and its derivatives. CO 6 - To identify concept of Flame photometry. CO 7 - To apply techniques of IR spectroscopy to identify the functional groups.
170	CC1764	Major Elective IV c) : Forensic Chemistry				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To list out the principles governing forensic science. CO 2 - To differentiate toxic chemicals. CO 3 - To create mobile forensic science laboratories. CO 4 - To categorize physical evidence. CO 5 - To predict the methods used for the collection of finger prints. CO 6 - To distinguish the cordage and rope metallic fragments.
171	CC17P5	Major Practical V : Organic Estimation and Inorganic Semi-micro Analysis				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the principles of estimation of organic functional groups. CO 2 - To estimate different organic substances. CO 3 - To estimate the number of hydroxyl groups. CO 4 - To calculate the weight of phenol, aniline, ethyl methyl ketone etc.
172	CC17P6	Major Practical VI : Gravimetric Analysis and Inorganic complex preparation				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To know the various forms of complexes. CO 2 - To understand the medium of precipitation. CO 3 - To develop skill in doing gravimetric estimation. CO 4 - To estimate various ions from their salts.
173	CC17P7	Major Practical VII : Physical Chemistry				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand and remember the principles of physical experiments. CO 2 - To determine physical constants. CO 3 - To interpret the graphical data. CO 4 - To develop the practical skill and minimize errors. CO 5 - To compare the strength of different acids. CO 6 - To evaluate the unknown concentration.
174	CC17PR	Project and Viva	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the procedure for selecting samples. CO 2 - To apply different techniques for preparing products. CO 3 - To interpret the experimental data using spectroscopic analysis. CO 4 - To analyze the results and record the data.

175	CSK176	Chemistry for Competitive Examinations				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 3 - To communicate proficiently and collaborate successfully with peers, colleagues and organizations.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To achieve time management skills for examination. CO2 - To equip the students to face competitive examination positively. CO 3 - To acquire the learning skill required to get success in competitive examination.
176	PG2011	Core I : Structure and Bonding	☑	☑	☑	☑	PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand the structure and bonding in inorganic compounds. CO 2 - To apply the concepts of chemical bonding to predict the structure of compounds. CO 3 - To analyze the types of bonding, crystal lattices and crystal defects. CO 4 - To evaluate bond energy, lattice energy and properties of inorganic compounds.
177	PG2012	Core II : Reaction Mechanism and Stereochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the basic concepts of reaction mechanisms, stereochemistry and conformation in organic compounds. CO 2 - To apply the reaction mechanism, stereochemistry and conformation for the synthesis of organic compounds. CO 3 - To analyse the types of reaction mechanisms involved in synthetic organic transformation. CO 4 - To create novel organic compounds.
178	PG2013	Core III : Chemical Kinetics and Electrochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the concepts of chemical kinetics, catalysis, photochemistry and electrochemistry. CO 2 - To apply the mechanism of kinetics and catalysis to chemical reactions. CO 3 - To analyze the principles and applications of kinetics, catalysis, photochemistry and electrochemistry. CO 4 - To evaluate the kinetics and mechanism of chemical reactions.
179	PG2014	Elective I a) : Analytical Chemistry	☑	☑	☑	☑	PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principle and instrumentation of various analytical techniques. CO 2 - To apply the principle of analytical techniques to predict the purity, stability and concentrations of compounds. CO 3 - To analyse chemical compound using various analytical techniques. CO 4 - To evaluate the quality and quantity of chemical compounds.
180	PG2015	Elective I b) : Electrochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the principle of electrochemistry. CO 2 - To apply the concepts of electrochemistry in industries. CO 3 - To analyze the different electrochemical processes. CO 4 - To create fuel cells.
181	PG2021	Core IV : Coordination Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the various theories and reaction mechanisms related to coordination compounds. CO 2 - To apply the theories and reaction mechanisms to determine the properties of complexes. CO 3 - To analyze the reaction mechanism of coordination compounds. CO 4 - To evaluate the magnetic and spectral properties of complexes. CO 5 - To create novel complexes and catalyst.
182	PG2022	Core II : Reaction Mechanism and Stereochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the mechanisms of organic reactions. CO 2 - To apply the reaction mechanisms to synthesize organic compounds. CO 3 - To analyze the type of reactions in organic compounds. CO 4 - To evaluate nucleophilic, electrophilic substitution and elimination reactions in aromatic and aliphatic compounds. CO 5 - To create novel organic compounds.
183	PG2023	Core VI : Quantum Chemistry and Spectroscopy	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the concepts of quantum chemistry, spectroscopy and surface chemistry. CO 2 - To apply the principles of quantum mechanics to simple systems, spectroscopy to characterize compounds and surface chemistry to determine the surface area of surface films and liquids. CO 3 - To analyse molecules using quantum mechanics and spectroscopic techniques. CO 4 - To evaluate eigen values, bond angles, electron density and surface area of simple molecules.
184	PG2024	Elective II a): Research Methodology	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the sources of literature survey and analytical techniques for documentation of research and cheminformatics for molecular representation. CO 2 - To apply the features of literature survey in research and analytical techniques to characterize compounds. CO 3 - To analyse the sources of research information and chemical compounds. CO 4 - To evaluate the results using analytical techniques. CO 5 - To create a journal article.
185	PG2025	Elective II b) : Nuclear Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principles of radioactivity and nuclear reactions. CO 2 - To apply radioactivity in industries and daily life. CO 3 - To analyze the types of nuclear reactions and nuclear reactors. CO 4 - To evaluate radioactivity of chemical compounds.

186	PG20P1	Practical I : Inorganic Chemistry - I	☑	☑	☑	☑	PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the methods for the separation and estimation of inorganic compounds. CO 2 - To apply the theoretical concepts to identify inorganic compounds. CO 3 - To analyze inorganic compounds using semi-micro qualitative analysis and paper chromatography. CO 4 - To evaluate the quantity of inorganic compounds.
187	PG20P2	Practical II : Organic Chemistry	☑	☑	☑	☑	PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the methods for the separation and estimation of organic compounds. CO 2 - To apply the theoretical concepts to identify and synthesise organic compounds. CO 3 - To analyse the elements and functional groups using microscale analysis. CO 4 - To evaluate the quality and quantity of organic compounds. CO 5 - To create organic compounds using various rearrangement reactions.
188	PG2031	Core VII : Organic Spectroscopy	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principle and applications of various spectroscopic techniques. CO 2 - To apply the spectroscopic concepts to determine the structure of organic compounds. CO 3 - To analyze the functional groups, molecular formula, structure and spectral data of compounds. CO 4 - To evaluate the purity, structure and molecular mass of compounds using various spectroscopic methods. CO 5 - To create and characterize novel organic compounds.
189	PG2032	Core VIII : Thermodynamics and Group Theory	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand the concepts and applications of thermodynamics and group theory. CO 2 - To apply thermodynamics and group theory to determine thermodynamic parameters, vibrations and hybrid orbitals. CO 3 - To analyze the thermodynamic functions, point groups and normal mode of vibration of molecules. CO 4 - To evaluate the thermodynamic parameters and delocalization energy in molecules.
190	PG2033	Elective III a) : Advanced Topics in Chemistry	☑	☑	☑	☑	PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principles and application of advanced areas in chemistry. CO 2 - To apply the principle of nanochemistry and green chemistry to design and synthesise novel compounds. CO 3 - To analyze the properties of nanoparticles, supramolecular interactions, therapeutic action of drugs and reactions in biomolecules. CO 4 - To evaluate atom economy in green synthesis, structure and therapeutic action of various drugs and role of singlet oxygen in biology. CO 5 - To create novel nanoparticles and compounds using green chemistry techniques.
191	PG2034	Elective III b) : Medicinal Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand the classification, nomenclature and therapeutic action of drugs. CO 2 - To apply the therapeutic values of drugs. CO 3 - To analyze the chemical constituents and its therapeutic values of drugs. CO 4 - To evaluate the role of metals in drugs.
192	PG20PR	Project and Viva	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand the procedure for selecting samples. CO 2 - To apply different techniques for preparing products. CO 3 - To interpret the experimental data using spectroscopic analysis. CO 4 - To analyze the results and record the data.
193	PC20S1	Chemistry for Lecturership exam - I		☑			PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To synthesize knowledge from different areas of chemistry to solve interdisciplinary problems. CO 2 - To prepare and practice for competitive exams with speed,accuracy and comprehensive coverage of syllabus topics. CO 3 - To analyze scientific data and draw logical conclusions. CO - 4 To solve complex numerical problems and apply theoretical concepts to practical scenarios.
194	PG2041	Core IX : Inorganic Photochemistry, Spectroscopy and Organometallics	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principles and concepts of inorganic spectroscopy, photochemistry and organometallics. CO 2 - To apply the principles of spectroscopy, photochemistry and organometallic chemistry to inorganic compounds. CO 3 - To analyse the structure, reactions and functions of inorganic compounds. CO 4 - To evaluate the spectral data and properties of inorganic compounds.
195	PG2042	Core X : Photochemistry and Natural Products	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand various organic reactions and their mechanism. CO 2 - To apply the reaction mechanism in organic synthesis. CO 3 - To analyze the structure and mechanism of reactions. CO 4 - To evaluate the synthetic utility of reactions.
196	PG2043	Core XI : Polymer Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the concept of polymer chemistry. CO 2 - To apply the processing techniques in the manufacture of synthetic polymer. CO 3 - To analyze glass transition temperature, crystallinity and degradation in polymers. CO 4 - To evaluate molecular weight and size of the polymer.
197	PG2044	Elective IV a) : Energy for Future	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the importance of various sources of non-conventional energy. CO 2 - To apply the principle of energy conversion tothe production of energy for the future. CO 3 - To analyze the advantages and disadvantages of different non-conventional energy sources. CO 4 - To evaluate solar energy radiation, wind energy data and conversion efficiency of fuel cells. CO 5 - To create fuel cells.

198	PG2045	Elective IV b) : Nanochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the basic concept of nanochemistry and its applications. CO 2 - To apply the principle of nanotechnology for the synthesis and characterization of nanomaterials in various fields. CO 3 - To analyze the physical and chemical properties of nanoparticles. CO 4 - To evaluate the properties of nanoparticles using various analytical techniques. CO 5 - To create and characterize novel nanomaterials.
199	PG20P3	Practical III: Inorganic Chemistry - II	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principle for the separation, estimation and preparation of inorganic compounds. CO 2 - To apply the principle of volumetric and gravimetric analysis for the separation and estimation of metal ions in a mixture. CO 3 - To analyze the procedure for the estimation and preparation of inorganic compounds. CO 4 - To evaluate the amount of metal ions present in a mixture. CO 5 - To create novel inorganic complexes.
200	PG20P4	Practical IV : Physical Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the principle of conductometric and potentiometric titrations. CO 2 - To apply the principles of conductometry and potentiometry to determine the strength of unknown solutions. CO 3 - To analyze the strength of acids by adsorption method. CO 4 - To evaluate conductance ,dissociation constant and heat of solution.
201	PC20S2	Chemistry for Lecturership exam - II		☑			PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To synthesize knowledge from different areas of chemistry to solve interdisciplinary problems. CO 2 - To prepare and practice for competitive exams with speed,accuracy and comprehensive coverage of syllabus topics. CO 3 - To analyze scientific data and draw logical conclusions. CO - 4 To solve complex numerical problems and apply theoretical concepts to practical scenarios.
							2020-2021		
202	CC2011	Major Core I : General Chemistry - I		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the structure and naming of various organic compounds. CO 2 - To interpret various electronic effects and chemical bonding. CO 3 - To analyse the periodic properties of elements. CO 4 - To apply wave mechanical concept in other fields. CO 5 - To predict the properties of elements and the principle behind volumetric analysis.
203	CA2011	Allied I Theory: Chemistry for Life Sciences		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the structure and bonding in atoms and molecules. CO 2 - To analyse the types of bonding and the ways of expressing concentration in molecules. CO 3 - To understand the concepts of biophysical analysis, catalysis and buffer action. CO 4 - To apply the concepts of photochemistry and chromatography to various chemical processes.
204	CNM201	Non Major Elective (NME) :Applied Chemistry - I	☑	☑	☑		PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods.	CO 1 - To remember the importance of soaps and detergents. CO 2 - To analyse the characteristics and advantages of agrochemicals. CO 3 - To understand the process of manufacture of sugar and paper. CO 4 - To apply the chemical reactions to synthesize day to day articles.
205	CC2021	Major Core II : General Chemistry – II		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the preparation, properties of chemical compounds. CO 2 - To apply the theories in the preparation of compounds. CO 3 - To predict the type of bonding and geometry of chemical compounds. CO 4 - To learn the basics of metallurgy and the theories about gases. CO 5 - To analyse the properties of matter.
206	CC20P1	Major Practical I : Volumetric Analysis and Inorganic complex Preparation				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the concepts of quantitative analysis. CO 2 - To recognize the indicators, acid and bases used in volumetric analysis. CO 3 - To develop practical skill. CO 4 - To utilize the mathematical skills doing calculation. CO 5 - To employ suitable methods to minimize errors.
207	CA2021	Allied I Theory: Chemistry of Biomolecules	☑			☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To remember the classification of biomolecules. CO 2 - To understand the structure, function and metabolism of biomolecules. CO 3 - To apply the chemistry of biomolecules in industry and medicine. CO 4 - To analyse and identify biomolecules.
208	CA20P1	Allied II Practical : Volumetric and Organic Substance Analysis				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To recognize the indicators used in volumetric analysis. CO 2 - To estimate the amount of substance present in the sample solution. CO 3 - To develop practical skills. CO 4 - To understand and remember the concepts and theory of qualitative and quantitative analysis. CO 5 - To utilize the mathematical skills in doing calculations. CO 6 - To employ suitable methods to minimize errors.

209	CNM202	Non Major Elective (NME) :Applied Chemistry - II		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To remember the refining of petroleum and manufacture of petroleum products. CO 2 - To analyse the therapeutic uses of pharmaceuticals. CO 3 - To understand the process of manufacture of cosmetics and perfumes. CO 4 - To analyse the characteristics of matches, explosives, paints and pigments.
210	CC1731	Major Core III: Organic Chemistry - I		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the nomenclature of organic molecules based on IUPAC system. CO 2 - To identify the mechanism of organic reactions. CO 3 - To interpret the shapes of molecules with hybridization. CO 4 - To analyze the electron displacement effects in organic compounds. CO 5 - To synthesize hydrocarbons, alkyl halides, alcohols and ethers. CO 6 - To differentiate Markownikoff and anti-Markownikoff addition. CO 7 - To know the different types of organic reactions.
211	CC1732	Major Elective I a) : Dairy Chemistry	☑	☑	☑		PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To recall the physical properties of milk. CO 2 - To identify the various factors affecting the quality of milk. CO 3 - To assess the microbiology of milk. CO 4 - To propose various methods to pasteurize milk. CO 5 - To employ the methods of manufacture of special milks. CO 6 - To correlate the acidity, moisture content and fat content of milk products. CO 7 - To estimate the amount of lactose in milk. CO 8 - To recall milk proteins, milk carbohydrates and milk vitamins.
212	CC1732	Major Elective I b): Nutritional Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the different kinds of essential nutrients. CO 2 - To illustrate the energy released from the carbohydrate. CO 3 - To generalize the functions of proteins. CO 4 - To compare the role of vitamins in retaining the health. CO 5 - To analyse the ingredients of cold and hot beverages. CO 6 - To differentiate DNA and RNA.
213	CC1732	Major Elective I c): Applied Electro Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the basic principles involved in the electrolysis. CO 2 - To differentiate between electrometallurgy and hydrometallurgy. CO 3 - To interpret the different methods of electroplating. (CO3) CO 4 - To compare the different power sources. CO 5 - To predict corrosion and types of coating. CO 6 - To explain the special features of electro-organic synthesis.
214	CA1731	Allied I Theory: General Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To know about the filling of electrons in atomic orbital. CO 2 - To understand the principles behind atomic structure. CO 3 - To interpret the characteristics of ionic compounds. CO 4 - To deduce the shapes of molecules using VSEPR theory. CO 5 - To analyse the reaction intermediates. CO 6 - To differentiate the types of organic reactions.
215	CC17S1	Soil Science and Agricultural chemistry	☑	☑	☑		PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To understand the different types of soil. CO 2 - To analyze the fertility of the soil. CO 3 - To test soil sample from different field.
216	CC1741	Major Core IV : Organic Chemistry - II		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the different methods of preparation and properties of organic compounds. CO 2 - To interpret the mechanistic pathway of chemical reactions. CO 3 - To differentiate aromatic and non-aromatic compounds. CO 4 - To analyse the stability of different cycloalkanes. CO 5 - To synthesize an organic compound from other compound. CO 6 - To apply reaction mechanism to different reactions.
217	CC1742	Major Elective II a): Industrial Chemistry	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To recognize the process of refining and manufacture of petrochemicals. CO 2 - To grasp the uses of petrochemicals. CO 3 - To identify the methods of manufacture of fertilizers and agrochemicals. CO 4 - To classify protective coatings based on their properties. CO 5 - To analyze the toxic chemicals in various industries. CO 6 - To interpret the applications of chemical compounds industries.

218	CC1742	Major Elective II b): Polymer Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To differentiate between monomers and polymers. CO 2 - To identify natural and synthetic polymers. CO 3 - To apply polymers in different fields. CO 4 - To determine the physical and mechanical properties of polymers. CO 5 - To interpret the properties of polymers and their applications. CO 6 - To understand the methods of polymerization reaction. CO 7 - To compare the types of polymers.
219	CC1742	Major Elective II c): Pharmaceutical Chemistry	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To grasp the characteristics and types of various drugs. CO 2 - To extract and synthesize drugs. CO 3 - To compare the action of various drugs. CO 4 - To identify common diseases their causes and treatment. CO 5 - To interpret blood grouping and rh factor. CO 6 - To appreciate the applications of synthesized drugs.
220	CA1741	Allied I Theory: Inorganic and Physical Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To know the different types of hydrogen. CO 2 - To interpret the hardness of water. CO 3 - To differentiate extraction of metals and electro refining processes. CO 4 - To calculate the enthalpy of chemical reactions. CO 5 - To recognise various electrolytes and types of electrolytic reactions. CO 6 - To know and apply the use of radioactive elements in day-today life. CO 7 - To collect information about the properties of radioactive rays. CO 8 - To calculate the age of earth.
221	CC17P3	Major Practical III : Organic Preparation and Determination of Physical Constants				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To develop skill in preparing Organic compounds. CO 2 - To find out the exact melting and boiling point of Organic Substances.
222	CC17P4	Major Practical IV : Organic Analysis				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand different functional groups of organic compounds. CO 2 - To detect elements other than carbon. CO 3 - To differentiate aliphatic and compounds. CO 4 - To distinguish unsaturated and saturated organic compounds. CO 5 - To confirm the functional group by preparing a solid derivative.
223	CA17P1	Allied I Practical : Volumetric and Organic Analysis				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 2 - To create innovative ideas through laboratory experiments.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To learn the principles of volumetric analysis. CO 2 - To analyze an organic substance systematically.
224	CC17S2	Chemistry of Cosmetics	☑				PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods.	CO 1 - To understand the constituents and preparation of cosmetics. CO 2 - To know the harmful effects of the ingredients in Cosmetics.
225	CC1751	Major Core V : Organic Chemistry - III		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To identify the methods of preparation, properties and reaction mechanism of phenols. CO 2 - To prepare and analyze the reactions of poly nuclear hydrocarbons. CO 3 - To recognize the classification, preparation and properties of heterocyclic compounds. CO 4 - To evaluate the importance and structure of carbohydrates. CO 5 - To understand the inter conversions of carbohydrates. CO 6 - To analyze the harmacological activities of drugs. CO 7 - To synthesize various drugs. CO 8 - To evaluate the synthetic uses of drugs.
226	CC1752	Major Core VI : Inorganic Chemistry - II		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To identify the p-block elements in the periodic table. CO 2 - To analyze the properties of p- block elements. CO 3 - To compare inorganic and organic polymers. CO 4 - To explain the different metallurgical processes. CO 5 - To compare the stability of different atomic nuclei. CO 6 - To illustrate principle of atom bomb and nuclear reactor.
227	CC1753	Major Core VII : Physical Chemistry - II		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To list out various types of dilute solutions. CO 2 - To determine the various colligative properties. CO 3 - To calculate the molar mass using colligative properties. CO 4 - To illustrate the different types of systems using thermodynamics. CO 5 - To interpret and correlate the laws of thermodynamics. CO 6 - To calculate the various kinds of energy. CO 7 - To compare the entropy change of difficult processes. CO 8 - To assess the absolute entropy of solids, liquids and gases. CO 9 - To create the group multiplication table. CO 10 - To assign point groups to simple molecules.
228	CC1754	Major Elective III a): Green Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry. (PSO8)	CO 1 - To know the principles of green chemistry. CO 2 - To design green synthesis. CO 3 - To interpret green method for organic synthesis. CO 4 - To synthesize various Compounds by Microwave and ultrasound assisted methods. CO 5 - To analyze the important techniques and directions in practicing green chemistry. CO 6 - To identify the importance of Green chemistry in day to day life.

229	CC1754	Major Elective III b): Applied Chemistry	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To develop fuel cells. CO 2 - To synthesize nano compounds. CO 3 - To list out the fundamental principles of nano chemistry. CO 4 - To identify various chemotherapeutic agents. CO 5 - To compare octane and cetane rating. CO 6 - To apply C++ operators in chemistry. CO 7 - To distinguish between homogeneous and heterogenous propellants.
230	CC1754	Major Elective III c): Leather Chemistry	☑	☑			PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To identify different types of leather. CO 2 - To understand the composition of hides and skins. CO 3 - To analyse the effect of tanning agents. CO 4 - To apply the methods of processing of leather. CO 5 - To discuss about tannery effluents and treatment.
231	CSK175	*SBC – Chemistry for Competitive Exam		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 3 - To communicate proficiently and collaborate successfully with peers, colleagues and organizations.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the physical and chemical properties of chemical compounds. CO 2 - To explain the structure and bonding of metal and non-metals.
232	CC1761	Major Core VIII : Organic Chemistry -IV		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To recognize optical activity and the types of isomerism. CO 2 - To interpret the principles of spectroscopy and photochemistry. CO 3 - To apply spectral rules to calculate λmax values. CO 4 - To evaluate different spectra. CO 5 - To apply IR spectra in functional group analysis. CO 6 - To know the medicinal importance and elucidate the structure of alkaloids. CO 7 - To classify, differentiate and synthesise various dyes.
233	CC1762	Major Core IX : Inorganic Chemistry -III		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To name the coordination compounds. CO 2 - To explain the theories of coordination compounds. CO 3 - To predict the colour, magnetic properties and geometry of coordination compounds. CO 4 - To analyse the nature of bonding in coordination compounds. CO 5 - To minimize the errors in chemical estimation. CO 6 - To employ the methods to separate the inner transition elements. CO 7 - To compare the properties of lanthanides and actinides. CO 8 - To explain the principles of gravimetric analysis.
234	CC1763	Major Core X : Physical Chemistry - III		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To recall phase rule. CO 2 - To understand phase diagrams. CO 3 - To differentiate various photochemical processes. CO 4 - To interpret Jablonski diagram. CO 5 - To apply the electrochemical principles in batteries. CO 6 - To deduce the expressions of rate constant. CO 7 - To evaluate pH using electrodes. CO 8 - To elucidate the structure of molecules using spectral data.
235	CC1764	Major Elective IV a): Bio Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To understand the classification of carbohydrates, components in blood and metabolism in biological systems. CO 2 - To classify and interpret various lipids, their biochemical importance and properties. CO 3 - To classify the different amino acids. CO 4 - To compare DNA and RNA. CO 5 - To determine the rate of enzymatic reactions. CO 6 - To describe the industrial and medical applications of enzymes. CO 7 - To identify the structure and biochemical functions of cholesterol in real life.
236	CC1764	Major Elective IV b): Instrumental methods	☑			☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To recognize the principle of adsorptions. CO 2 - To choose specific adsorbents for chemical reaction. CO 3 - To analyze the factors affecting chromatography. CO 4 - To categorize the different analytical methods. CO 5 - To evaluate λmax for benzene and its derivatives. CO 6 - To identify concept of Flame photometry. CO 7 - To apply techniques of IR spectroscopy to identify the functional groups.
237	CC1764	Major Elective IV c): Forensic Chemistry				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To list out the principles governing forensic science. CO 2 - To differentiate toxic chemicals. CO 3 - To create mobile forensic science laboratories. CO 4 - To categorize physical evidence. CO 5 - To predict the methods used for the collection of finger prints. CO 6 - To distinguish the cordage and rope metallic fragments.
238	CC17P5	Major Practical V : Organic Estimation and Inorganic Semi-Micro Analysis				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the principles of estimation of organic functional groups. CO 2 - To estimate different organic substances. CO 3 - To estimate the number of hydroxyl groups. CO 4 - To calculate the weight of phenol, aniline, ethyl methyl ketone etc.

239	CC17P6	Major Practical VI : Gravimetric Analysis and Inorganic Complex Preparation				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. (PO2) PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To know the various forms of complexes. CO 2 - To understand the medium of precipitation. CO 3 - To develop skill in doing gravimetric estimation. CO 4 - To estimate various ions from their salts.
240	CC17P7	Major Practical VII : Physical Chemistry				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To understand and remember the principles of physical experiments. CO 2 - To determine physical constants. CO 3 - To interpret the graphical data. CO 4 - To develop the practical skill and minimize errors. CO 5 - To compare the strength of different acids. CO 6 - To evaluate the unknown concentration.
241	CC17PR	Project and Viva	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To understand the procedure for selecting samples. CO 2 - To apply different techniques for preparing products. CO 3 - To interpret the experimental data using spectroscopic analysis. CO 4 - To analyze the results and record the data.
242	CSK176	*SBC – Chemistry for Competitive Exam -II				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To achieve time management skills for examination. CO2 - To equip the students to face competitive examination positively. CO 3 - To acquire the learning skill required to get success in competitive examination.
243	PG2011	Core I : Structure and Bonding	☑	☑	☑	☑	PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry.	CO 1 - To understand the structure and bonding in inorganic compounds. CO 2 - To apply the concepts of chemical bonding to predict the structure of compounds. CO 3 - To analyze the types of bonding, crystal lattices and crystal defects. CO 4 - To evaluate bond energy, lattice energy and properties of inorganic compounds.
244	PG2012	Core II : Reaction Mechanism and Stereochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To understand the basic concepts of reaction mechanisms, stereochemistry and conformation in organic compounds. CO 2 - To apply the reaction mechanism, stereochemistry and conformation for the synthesis of organic compounds. CO 3 - To analyse the types of reaction mechanisms involved in synthetic organic transformation. CO 4 - To create novel organic compounds.
245	PG2013	Core III : Chemical Kinetics and Electrochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the concepts of chemical kinetics, catalysis, photochemistry and electrochemistry. CO 2 - To apply the mechanism of kinetics and catalysis to chemical reactions. CO 3 - To analyze the principles and applications of kinetics, catalysis, photochemistry and electrochemistry. CO 4 - To evaluate the kinetics and mechanism of chemical reactions.
246	PG2014	Elective I a) : Analytical Chemistry	☑	☑	☑	☑	PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective.	CO 1 - To understand the principle and instrumentation of various analytical techniques. CO 2 - To apply the principle of analytical techniques to predict the purity, stability and concentrations of compounds. CO 3 - To analyse chemical compound using various analytical techniques. CO 4 - To evaluate the quality and quantity of chemical compounds.
247	PG2015	Elective I b) : Electrochemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the principle of electrochemistry. CO 2 - To apply the concepts of electrochemistry in industries. CO 3 - To analyze the different electrochemical processes. CO 4 - To create fuel cells.
248	PG2021	Core IV : Coordination Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the various theories and reaction mechanisms related to coordination compounds. CO 2 - To apply the theories and reaction mechanisms to determine the properties of complexes. CO 3 - To analyze the reaction mechanism of coordination compounds. CO 4 - To evaluate the magnetic and spectral properties of complexes. CO 5 - To create novel complexes and catalyst.
249	PG2022	Core II : Reaction Mechanism and Stereochemistry	☑	☑	☑	☑	PO 1 - To aquire scientific skills and innovative ideas in their own discipline. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the mechanisms of organic reactions. CO 2 - To apply the reaction mechanisms to synthesize organic compounds. CO 3 - To analyze the type of reactions in organic compounds. CO 4 - To evaluate nucleophilic, electrophilic substitution and elimination reactions in aromatic and aliphatic compounds. CO 5 - To create novel organic compounds.

250	PG2023	Core VI : Quantum Chemistry and Spectroscopy	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To inculcate positive approach towards environment and ecology from the chemistry perspective. PSO 5 - To promote entrepreneurial skills and become self-reliant.	CO 1 - To understand the concepts of quantum chemistry, spectroscopy and surface chemistry. CO 2 - To apply the principles of quantum mechanics to simple systems, spectroscopy to characterize compounds and surface chemistry to determine the surface area of surface films and liquids. CO 3 - To analyse molecules using quantum mechanics and spectroscopic techniques. CO 4 - To evaluate eigen values, bond angles, electron density and surface area of simple molecules.
251	PG2024	Elective II a): Research Methodology	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the sources of literature survey and analytical techniques for documentation of research and cheminformatics for molecular representation. CO 2 - To apply the features of literature survey in research and analytical techniques to characterize compounds. CO 3 - To analyse the sources of research information and chemical compounds. CO 4 - To evaluate the results using analytical techniques. CO 5 - To create a journal article.
252	PG2025	Elective II b) : Nuclear Chemistry	☑	☑	☑	☑	PO 1 - To acquire scientific skills and innovative ideas in their own discipline. PO 2 - To identify, formulate, perform research and contribute to the developmental needs of the society. PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the principles of radioactivity and nuclear reactions. CO 2 - To apply radioactivity in industries and daily life. CO 3 - To analyze the types of nuclear reactions and nuclear reactors. CO 4 - To evaluate radioactivity of chemical compounds.
253	PG20P1	Practical I : Inorganic Chemistry - I	☑	☑	☑	☑	PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the methods for the separation and estimation of inorganic compounds. CO 2 - To apply the theoretical concepts to identify inorganic compounds. CO 3 - To analyze inorganic compounds using semi-micro qualitative analysis and paper chromatography. CO 4 - To evaluate the quantity of inorganic compounds.
254	PG20P2	Practical II : Organic Chemistry	☑	☑	☑	☑	PO 3 - To develop a multidisciplinary perspective and contribute to the knowledge capital of the globe. PO 4 - To emerge as expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency.	CO 1 - To understand the methods for the separation and estimation of organic compounds. CO 2 - To apply the theoretical concepts to identify and synthesise organic compounds. CO 3 - To analyse the elements and functional groups using microscale analysis. CO 4 - To evaluate the quality and quantity of organic compounds. CO 5 - To create organic compounds using various rearrangement reactions.
255	PG1731	Core VII : Organic Chemistry – III	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analysing and solving problems in the field of chemistry. PSO 3 - To explore and expedite the recent avenues in chemistry research across the globe with professional competency. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To determine the structure of organic compounds using UV and IR spectroscopy. CO 2 - To predict the splitting pattern of organic compounds by NMR spectroscopy. CO 3 - To deduce the structure of organic compounds using various spectroscopic techniques. CO 4 - To elucidate the structure of heterocyclic compounds. CO 5 - To design the synthesis of organic compounds.
256	PG1732	Core VIII : Physical Chemistry –III	☑	☑	☑	☑	PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency. PSO 6 - To develop an understanding of eco-friendly chemical processes and impact of chemistry on health and environment.	CO 1 - To construct character table for different point groups. CO 2 - To apply group theory to molecules. CO 3 - To generalize the characteristics of rotational spectra for diatomic and polyatomic molecules. CO 4 - To determine the molecular mass of polymers and kinetics of polymerization. CO 5 - To compare the experimental techniques related to radiation chemistry.
257	PG1733	Elective III a) : Advanced Topics in Chemistry	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms.	PSO 1 - To impart in-depth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency. PSO 6 - To develop an understanding of eco-friendly chemical processes and impact of chemistry on health and environment.	CO 1 - To synthesize nanoparticles, nanoshells and nanosensors. CO 2 - To design chemical reactions using green chemistry techniques. CO 3 - To apply supramolecular interactions in organic and photochemistry. CO 4 - To develop the synthesis and therapeutic action of drugs. CO 5 - To apply thermodynamics in biological systems.
258	PG1734	Elective III b) : Medicinal Chemistry	☑	☑	☑	☑	PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To interpret the nomenclature of the drugs. CO 2 - To infer the mechanism of drug action. CO 3 - To determine the chemical constituents present in drugs and its therapeutic values. CO 4 - To analyse insect borne, air borne and water borne diseases. CO 5 - To demonstrate blood grouping and related test. CO 6 - To diagnose the causes and treatment of anemia, bloodpressure, cancer and AIDS.
259	PG17PR	Project and Viva	☑	☑	☑	☑	PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To understand the procedure for selecting samples. CO 2 - To apply different techniques for preparing products. CO 3 - To interpret the experimental data using spectroscopic analysis. CO 4 - To analyze the results and record the data.
260	PC17S1	Chemistry for Lecturership exam - I		☑			PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To synthesize knowledge from different areas of chemistry to solve interdisciplinary problems. CO 2 - To prepare and practice for competitive exams with speed,accuracy and comprehensive coverage of syllabus topics. CO 3 - To analyze scientific data and draw logical conclusions. CO - 4 To solve complex numerical problems and apply theoretical concepts to practical scenarios.

261	PG1741	Core IX : Organic Chemistry – IV	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency. PSO 6 - To develop an understanding of eco-friendly chemical processes and impact of chemistry on health and environment.	CO 1 - To design the synthesis of organic compounds by disconnection approach. CO 2 - To elucidate the structure of alkaloids. CO 3 - To predict the mechanism of molecular rearrangements. CO 4 - To interpret the mechanism of various photochemical reactions. CO 5 - To predict the various reaction conditions in pericyclic reaction.
262	PG1742	Core X : Inorganic Chemistry – III	☑	☑	☑	☑	PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency. PSO 6 - To develop an understanding of eco-friendly chemical processes and impact of chemistry on health and environment.	CO 1 - To interpret NMR and ESR Spectroscopy to study the molecular structure and characterize the inorganic compounds. CO 2 - To analyze the properties of compounds using Mossbauer spectroscopy. CO 3 - To generalize the characteristics and reactions of non-aqueous solvents. CO 4 - To organize the basic acid base concepts of non aqueous solvents. CO 5 - To determine the electrical and magnetic properties of solids. CO 6 - To assess the role of different elements in biological systems.
263	PG1743	Core XI : Physical Chemistry –IV	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment. PO 7 - To prepare expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To enumerate the advances of electrochemistry. CO 2 - To employ the role of nanomaterials as catalyst. CO 3 - To generalize the principle, theory and applications of electronic and nuclear magnetic resonance spectroscopy. CO 4 - To compare the theory and experimental techniques of ESR and Laser Raman Spectroscopy. CO 5 - To categorize the advantages of lasers in Raman spectroscopy. CO 6 - To distinguish the structures of various crystal lattices.
264	PG1744	Elective IV a) : Energy for the Future	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment. PO 7 - To prepare expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To differentiate conventional and non-conventional energy sources. CO 2 - To identify solar radiations and its measurement. CO 3 - To generalize wind energy conversion and its applications. CO 4 - To detect biomass conversion techniques and biogas generation. CO 5 - To prepare biogas from plant waste. CO 6 - To interpret applications of fuel cell and hydrogen energy.
265	PG1745	Elective IV b) : Nanochemistry	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To generalize the basic concept of nanochemistry. CO 2 - To synthesise nanomaterials and nanoshells. CO 3 - To predict the surface morphology of nanomaterials. CO 4 - To synthesize carbon nanoclusters. CO 5 - To apply nanotechnology and nanodevices in biological system.
266	PG17P3	Practical III: Gravimetric analysis and Inorganic preparations	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To separate metal ions in a mixture. CO 2 - To estimate metal ions in a mixture by volumetric methods. CO 3 - To estimate metal ions in a mixture by gravimetric methods. CO 4 - To prepare Inorganic complexes.
267	PG17P4	Practical IV : Physical Chemistry	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 5 - To develop entrepreneurial skills, empowerment according to the requirement and become self-reliant.	CO 1 - To determination of solubility product of sparingly soluble salts. CO 2 - To calculate the dissociation constant of a weak acid. CO 3 - To determine the strength of solutions by redox and precipitation titrations. CO 4 - To analyze the strength of acids by adsorption method. CO 5 - To evaluate the conductance of acids in a mixture. CO 6 - To determine the heat of solution by thermometric Experiments.
268	PC17S2	Chemistry for Lecturership exam - II		☑			PO 1 - To recognize the scientific facts behind natural phenomena. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 5 - To develop entrepreneurial skills, empowerment according to the requirement and become self-reliant.	CO 1 - To synthesize knowledge from different areas of chemistry to solve interdisciplinary problems. CO 2 - To prepare and practice for competitive exams with speed,accuracy and comprehensive coverage of syllabus topics. CO 3 - To analyze scientific data and draw logical conclusions. CO - 4 To solve complex numerical problems and apply theoretical concepts to practical scenarios.
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269	CC1711	Major Core I : Inorganic Chemistry - I	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To remember the fundamental principles of inorganic chemistry. CO 2 - To understand the basic terminology of quantum chemistry. CO 3 - To identify similarities and differences in the periodic properties. CO 4 - To predict chemical bonding and molecular geometry. CO 5 - To construct MO diagram of simple molecules. CO 6 - To predict the position and properties of an element in periodic table. CO 7 - To evaluate the characteristics of s-block elements.
270	CA1711	Allied I Theory: General Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To know about the filling of electrons in atomic orbital. CO 2 - To understand the principles behind atomic structure. CO 3 - To interpret the characteristics of ionic compounds. CO 4 - To deduce the shapes of molecules using VSEPR theory. CO 5 - To analyse the reaction intermediates. CO 6 - To differentiate the types of organic reactions.

271	CNM171	NMEC : Molecules of Life	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To understand the functions of nutrients like carbohydrates, vitamins and minerals in the body. CO 2 - To remember the principles of metabolism. CO 3 - To differentiate and know the functions of DNA and RNA. CO 4 - To classify and estimate aminoacids, carbohydrates and proteins. CO 5 - To correlate the pathways of enzymes and lipids. CO 6 - To aware of the diseases caused by lack of vitamins. CO 7 - To list out the industrial and medical applications of enzymes. CO 8 - To generalize toxicity of various minerals in the body.
272	CC1721	Major Core II : Physical Chemistry - I		☑	☑	☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To define types of molecular velocities. CO 2 - To calculate different degrees of freedom. CO 3 - To predict physical properties of liquids. CO 4 - To differentiate addition and constitutive properties. CO 5 - To distinguish between amorphous and crystalline solids. CO 6 - To analyse the types and diffraction patterns of crystals. CO 7 - To evaluate the hydrolysis of salts and its results. CO 8 - To collect the properties of colloidal systems.
273	CC17P1	Major Practical I : Volumetric Analysis – I				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the concepts of quantitative analysis. CO 2 - To recognize the indicators, acid and bases used in volumetric analysis. CO 3 - To estimate the amount of substance present in a given solution. CO 4 - To develop practical skill. CO 5 - To utilize the mathematical skills doing calculations.
274	CC17P2	Major Practical I : Volumetric Analysis – II	☑				PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To understand the concepts of quantitative analysis. CO 2 - To recognize the indicators, acid and bases used in volumetric analysis. CO 3 - To estimate the amount of substance present in a given solution. CO 4 - To develop practical skill. CO 5 - To utilize the mathematical skills doing calculations.
275	CA1721	Allied I Theory: Inorganic and Physical Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To know the different types of hydrogen. CO 2 - To interpret the hardness of water. CO 3 - To differentiate extraction of metals and electro refining processes. CO 4 - To calculate the enthalpy of chemical reactions. CO 5 - To recognise various electrolytes and types of electrolytic reactions. CO 6 - To know and apply the use of radioactive elements in day-today life. CO 7 - To collect information about the properties of radioactive rays. CO 8 - To calculate the age of earth.
276	CA17P1	Allied Chemistry Practical : Volumetric and Organic Substance Analysis		☑			PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To recognize the indicators used in volumetric analysis. CO 2 - To estimate the amount of substance present in the sample solution. CO 3 - To develop practical skills. CO 4 - To understand and remember the concepts and theory of qualitative and quantitative analysis. CO 5 - To utilize the mathematical skills in doing calculations. CO 6 - To employ suitable methods to minimize errors.
277	CNM172	Fuel Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To evaluate the difference between renewable and non-renewable sources. CO 2 - To understand and describe the advantages of solid, liquid and gaseous fuel. CO 3 - To differentiate fuel sources, purification process, and their uses in day today life. CO 4 - To identify the sources of petroleum products and refining processes. CO 5 - To differentiate homogenous and heterogeneous propellants. CO 6 - To predict the composition of natural and artificial gaseous fuels. CO 7 - To develop the possibilities of conserving renewable energy. CO 8 - To discuss about nuclear fuel and its applications.
278	CC1731	Major Core III : Organic Chemistry - I		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To understand the nomenclature of organic molecules based on IUPAC system. CO 2 - To identify the mechanism of organic reactions. CO 3 - To interpret the shapes of molecules with hybridization. CO 4 - To analyze the electron displacement effects in organic compounds. CO 5 - To synthesize hydrocarbons, alkyl halides, alcohols and ethers. CO 6 - To differentiate Markownikoff and anti-Markownikoff addition. CO 7 - To know the different types of organic reactions.
279	CC1732	Major Elective I a) : Dairy Chemistry	☑	☑	☑		PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To recall the physical properties of milk. CO 2 - To identify the various factors affecting the quality of milk. CO 3 - To assess the microbiology of milk. CO 4 - To propose various methods to pasteurize milk. CO 5 - To employ the methods of manufacture of special milks. CO 6 - To correlate the acidity, moisture content and fat content of milk products. CO 7 - To estimate the amount of lactose in milk. CO 8 - To recall milk proteins, milk carbohydrates and milk vitamins.

280	CC1732	Major Elective I b) : Nutritional Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the different kinds of essential nutrients. CO 2 - To illustrate the energy released from the carbohydrate. CO 3 - To generalize the functions of proteins. CO 4 - To compare the role of vitamins in retaining the health. CO 5 - To analyse the ingredients of cold and hot beverages. CO 6 - To differentiate DNA and RNA.
281	CC1732	Major Elective I c) : Applied Electro Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand the basic principles involved in the electrolysis. CO 2 - To differentiate between electrometallurgy and hydrometallurgy. CO 3 - To interpret the different methods of electroplating. CO 4 - To compare the different power sources. CO 5 - To predict corrosion and types of coating. CO 6 - To explain the special features of electro-organic synthesis.
282	CA1731	Allied I Theory: General Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To know about the filling of electrons in atomic orbital. CO 2 - To understand the principles behind atomic structure. CO 3 - To interpret the characteristics of ionic compounds. CO 4 - To deduce the shapes of molecules using VSEPR theory. CO 5 - To analyse the reaction intermediates. CO 6 - To differentiate the types of organic reactions.
283	CC17S1	Soil Science and Agricultural Chemistry	☑	☑	☑		PO 2 - To equip students with hands on training, reflect upon green initiatives and take steps to build a sustainable environment. PO 3 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To participate in learning activities throughout life, through self-paced and self-directed learning to improve knowledge and skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To develop entrepreneurial skills, empowered to fulfill the professional requirement and become self-dependent.	CO 1 - To understand the different types of soil. CO 2 - To analyze the fertility of the soil. CO 3 - To test soil sample from different field.
284	CC1741	Major Core IV : Organic Chemistry - II		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To understand the different methods of preparation and properties of organic compounds. CO 2 - To interpret the mechanistic pathway of chemical reactions. CO 3 - To differentiate aromatic and non-aromatic compounds. CO 4 - To analyse the stability of different cycloalkanes. CO 5 - To synthesise an organic compound from other compound. CO 6 - To apply reaction mechanism to different reactions.
285	CC1742	Major Elective II a): Industrial Chemistry	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To recognize the process of refining and manufacture of petrochemicals. CO 2 - To grasp the uses of petrochemicals. CO 3 - To identify the methods of manufacture of fertilizers and agrochemicals. CO 4 - To classify protective coatings based on their properties. CO 5 - To analyze the toxic chemicals in various industries. CO 6 - To interpret the applications of chemical compounds industries.
286	CC1742	Major Elective II b): Polymer Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To differentiate between monomers and polymers. CO 2 - To identify natural and synthetic polymers. CO 3 - To apply polymers in different fields. CO 4 - To determine the physical and mechanical properties of polymers. CO 5 - To interpret the properties of polymers and their applications. CO 6 - To understand the methods of polymerization reaction. CO 7 - To compare the types of polymers.
287	CC1742	Major Elective II c): Pharmaceutical Chemistry	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To grasp the characteristics and types of various drugs. CO 2 - To extract and synthesize drugs. CO 3 - To compare the action of various drugs. CO 4 - To identify common diseases their causes and treatment. CO 5 - To interpret blood grouping and rh factor. CO 6 - To appreciate the applications of synthesized drugs.
288	CC17P3	Major Practical III : Organic Preparation and Determination of Physical Constants				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 4 - To acquire necessary skills for research, higher studies and entrepreneurship to create new scientific applications. PO 5 - To carry out research projects independently and in collaboration with other institutions and industries.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To develop skill in preparing Organic compounds. CO 2 - To find out the exact melting and boiling point of Organic Substances.
289	CC17P4	Major Practical IV : Organic Analysis				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 7 - To develop skills in the safe-handling of chemicals and their usage in day today life.	CO 1 - To understand different functional groups of organic compounds. CO 2 - To detect elements other than carbon. CO 3 - To differentiate aliphatic and compounds. CO 4 - To distinguish unsaturated and saturated organic compounds. CO 5 - To confirm the functional group by preparing a solid derivative.
290	CA1741	Allied I Theory: Inorganic and Physical Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To know the different types of hydrogen. CO 2 - To interpret the hardness of water. CO 3 - To differentiate extraction of metals and electro refining processes. CO 4 - To calculate the enthalpy of chemical reactions. CO 5 - To recognise various electrolytes and types of electrolytic reactions. CO 6 - To know and apply the use of radioactive elements in day-today life. CO 7 - To collect information about the properties of radioactive rays. CO 8 - To calculate the age of earth.

291	CA17P1	Allied Chemistry Practical : Volumetric and Organic Substance Analysis		☑			PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 3 - To interpret the mechanism of various chemical reactions. PSO 9 - To explore new areas of research both in chemistry and allied fields of science and technology across the globe.	CO 1 - To recognize the indicators used in volumetric analysis. (C CO 2 - To estimate the amount of substance present in the sample solution. CO 3 - To develop practical skills. CO 4 - To understand and remember the concepts and theory of qualitative and quantitative analysis. CO 5 - To utilizing the mathematical skills in doing calculations. CO 6 - To employ suitable methods to minimize errors.
292	CC17S2	Chemistry of Cosmetics	☑				PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods.	CO 1 - To understand the constituents and preparation of cosmetics. CO 2 - To know the harmful effects of the ingredients in Cosmetics.
293	CC1751	Major Core V : Organic Chemistry - III		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To identify the methods of preparation, properties and reaction mechanism of phenols. CO 2 - To prepare and analyze the reactions of poly nuclear hydrocarbons. CO 3 - To recognize the classification, preparation and properties of heterocyclic compounds. CO 4 - To evaluate the importance and structure of carbohydrates. CO 5 - To understand the inter conversions of carbohydrates. CO 6 - To pharmacological activities of drugs. CO 7 - To synthesize various drugs. CO 8 - To evaluate the synthetic uses of drugs.
294	CC1752	Major Core VI : Inorganic Chemistry - II		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To identify the p-block elements in the periodic table. CO 2 - To analyze the properties of p- block elements. CO 3 - To compare inorganic and organic polymers. CO 4 - To explain the different metallurgical processes. CO 5 - To compare the stability of different atomic nuclei. CO 6 - To illustrate principle of atom bomb and nuclear reactor.
295	CC1753	Major Core VII : Physical Chemistry - II		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To list out various types of dilute solutions. CO 2 - To determine the various colligative properties. CO 3 - To calculate the molar mass using colligative properties. CO 4 - To illustrate the different types of systems using thermodynamics. CO 5 - To interpret and correlate the laws of thermodynamics. CO 6 - To calculate the various kinds of energy. CO 7 - To compare the entropy change of difficult processes. CO 8 - To assess the absolute entropy of solids, liquids and gases. CO 9 - To create the group multiplication table. CO 10 - To assign point groups to simple molecules.
296	CC1754	Major Elective III a): Green Chemistry	☑	☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To know the principles of green chemistry. CO 2 - To design green synthesis. CO 3 - To interpret green method for organic synthesis. CO 4 - To synthesize various Compounds by Microwave and ultrasound assisted methods. CO 5 - To analyze the important techniques and directions in practicing green chemistry. CO 6 - To identify the importance of Green chemistry in day to day life.
297	CC1754	Major Elective III b): Applied Chemistry	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To develop fuel cells. CO 2 - To synthesize nano compounds. CO 3 - To list out the fundamental principles of nano chemistry. CO 4 - To identify various chemotherapeutic agents. CO 5 - To compare octane and cetane rating. CO 6 - To apply C++ operators in chemistry. CO 7 - To distinguish between homogeneous and heterogenous propellants.
298	CC1754	Major Elective III c): Leather Chemistry	☑	☑			PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To identify different types of leather. CO 2 - To understand the composition of hides and skins. CO 3 - To analyse the effect of tanning agents. CO 4 - To apply the methods of processing of leather. CO 5 - To discuss about tannery effluents and treatment.
299	CSK175	*SBC – Chemistry for Competitive Exam		☑		☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 3 - To communicate proficiently and collaborate successfully with peers, colleagues and organizations.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To achieve time management skills for examination. CO2 - To equip the students to face competitive examination positively. CO 3 - To acquire the learning skill required to get success in competitive examination.
300	CC1761	Major Core VIII : Organic Chemistry -IV		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To recognize optical activity and the types of isomerism. CO 2 - To interpret the principles of spectroscopy and photochemistry. CO 3 - To apply spectral rules to calculate λmax values. CO 4 - To evaluate different spectra. CO 5 - To apply IR spectra in functional group analysis. CO 6 - To know the medicinal importance and elucidate the structure of alkaloids. CO 7 - To classify, differentiate and synthesise various dyes.

301	CC1762	Major Core IX : Inorganic Chemistry -III		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To name the coordination compounds. CO 2 - To explain the theories of coordination compounds. CO 3 - To predict the colour, magnetic properties and geometry of coordination compounds. CO 4 - To analyse the nature of bonding in coordination compounds. CO 5 - To minimize the errors in chemical estimation. CO 6 - To employ the methods to separate the inner transition elements. CO 7 - To compare the properties of lanthanides and actinides. CO 8 - To explain the principles of gravimetric analysis.
302	CC1763	Major Core X : Physical Chemistry - III		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To recall phase rule. CO 2 - To understand phase diagrams. CO 3 - To differentiate various photochemical processes. CO 4 - To interpret Jablonski diagram. CO 5 - To apply the electrochemical principles in batteries. CO 6 - To deduce the expressions of rate constant. CO 7 - To evaluate pH using electrodes. CO 8 - To elucidate the structure of molecules using spectral data.
303	CC1764	Major Elective IV a): Bio Chemistry		☑		☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To understand the classification of carbohydrates, components in blood and metabolism in biological systems. CO 2 - To classify and interpret various lipids, their biochemical importance and properties. CO 3 - To classify the different amino acids. CO 4 - To compare DNA and RNA. CO 5 - To determine the rate of enzymatic reactions. CO 6 - To describe the industrial and medical applications of enzymes. CO 7 - To identify the structure and biochemical functions of cholesterol in real life.
304	CC1764	Major Elective IV b): Instrumental methods	☑			☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To recognize the principle of adsorptions. CO 2 - To choose specific adsorbents for chemical reaction. CO 3 - To analyze the factors affecting chromatography. CO 4 - To categorize the different analytical methods. CO 5 - To evaluate λmax for benzene and its derivatives. CO 6 - To identify concept of Flame photometry. CO 7 - To apply techniques of IR spectroscopy to identify the functional groups.
305	CC1764	Major Elective IV c): Forensic Chemistry				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 5 - To face challenging competitive examinations that offer rewarding careers in science and education.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To list out the principles governing forensic science. CO 2 - To differentiate toxic chemicals. CO 3 - To create mobile forensic science laboratories. CO 4 - To categorize physical evidence. CO 5 - To predict the methods used for the collection of finger prints. CO 6 - To distinguish the cordage and rope metallic fragments.
306	CC17P5	Major Practical V : Organic Estimation and Inorganic Semi-Micro Analysis				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To understand the principles of estimation of organic functional groups. CO 2 - To estimate different organic substances. CO 3 - To estimate the number of hydroxyl groups. CO 4 - To calculate the weight of phenol, aniline, ethyl methyl ketone etc.
307	CC17P6	Major Practical VI: Gravimetric Analysis and Inorganic Complex Preparation				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To know the various forms of complexes. CO 2 - To understand the medium of precipitation. CO 3 - To develop skill in doing gravimetric estimation. CO 4 - To estimate various ions from their salts.
308	CC17P7	Major Practical VII : Physical Chemistry				☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To understand and remember the principles of physical experiments. CO 2 - To determine physical constants. CO 3 - To interpret the graphical data. CO 4 - To develop the practical skill and minimize errors. CO 5 - To compare the strength of different acids. CO 6 - To evaluate the unknown concentration.
309	CC17PR	Project and Viva	☑	☑	☑	☑	PO 1 - To apply the acquired scientific knowledge to face day to day needs. PO 2 - To create innovative ideas through laboratory experiments. PO 3 - To carry out field works and projects independently and in collaboration with other institutions and industries. PO 4 - To reflect upon green initiatives and take responsible steps to build a sustainable environment. PO 7 - To equip students with hands on training through various courses to enhance entrepreneurship skills.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To understand the procedure for selecting samples. CO 2 - To apply different techniques for preparing products. CO 3 - To interpret the experimental data using spectroscopic analysis. CO 4 - To analyze the results and record the data.
310	CSK176	Chemistry for Competitive Examinations				☑	PO 1 - To apply the acquired scientific knowledge and innovative skills to face the future needs. PO 3 - To communicate proficiently and collaborate successfully with peers, colleagues and organizations.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 2 - To analyze physical and chemical properties of chemical compounds and their uses. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science.	CO 1 - To understand the physical and chemical properties of chemical compounds. CO 2 - To explain the structure and bonding of metal and non-metals.

311	PG1711	Core I : Organic Chemistry –I	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To understand the fundamentals, theories and principles of organic, inorganic and physical chemistry. PSO 4 - To synthesize organic and inorganic compounds using classical and modern methods. PSO 5 - To design and carry out scientific experiments, record and interpret the results with accuracy. PSO 6 - To use concepts, tools and techniques related to chemistry to other branches of science. PSO 8 - To appreciate the applications of chemistry and to know its role in medicine, research, agriculture and industry.	CO 1 - To correlate the impact of displacement of electrons with the physico-chemical properties, nature and stability of organic compounds. CO 2 - To synthesize organic compounds by applying the concept of chirality. CO 3 - To illustrate the conformational analysis of cyclic and acyclic systems. CO 4 - To infer the mechanism of electrophilic addition reaction. CO 5 - To interpret the kinetic and thermodynamic aspects of reaction mechanisms in organic compounds.
312	PG1712	Core II : Inorganic Chemistry – I	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To categorize the general characteristics and aqueous chemistry of transition elements. CO 2 - To predict various substitution reactions in coordination complexes and its applications. CO 3 - To evaluate the stability of transition metal complexes and bonding in metallocenes. CO 4 - To correlate the different types of solids and their properties. CO 5 - To synthesize organometallic compounds,Inorganic chains, rings, cages and clusters and discuss its structures.
313	PG1713	Core III : Physical Chemistry – I	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To compare thermodynamics and phase rule. CO 2 - To deduce various relations of statistical thermodynamics. CO 3 - To differentiate the kinetics of chemical reactions and processes. CO 4 - To relate quantum mechanical postulates and operators. CO 5 - To apply Schrodinger wave equation for particle in 1, 3 D-box and simple harmonic oscillator. CO 6 - To relate the electrical aspects of surface chemistry.
314	PG1714	Elective I a) : Instrumental Methodsof Analysis	☑	☑	☑	☑	PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To apply the chromatographic techniques to chemical compounds. CO 2 - To correlate the principles and applications of ion-exchange chromatography, HPLC and GC. CO 3 - To detect the concentration, purity and thermal stability of compounds using different instrumental techniques. CO 4 - To predict the concentration of photoactive compounds using spectrophotometric analysis.
315	PG1715	Elective I b) : Electrochemistry	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To categorize electrochemical reactors used in industry. CO 2 - To apply electrochemistry in hydrometallurgy and pyrometallurgy. CO 3 - To differentiate electroplating and electroless plating. CO 4 - To determine primary and secondary batteries. CO 5 - To construct fuel cells. CO 6 - To generalize the methods for prevention of corrosion.
316	PG1721	Core IV : Organic Chemistry – II	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To determine the mechanism of nucleophilic substitution reactions. CO 2 - To predict the aromaticity and nomenclature of novel ring systems. CO 3 - To analyze the mechanism of various organic name reactions. CO 4 - To categorize the functions and characteristics of bio-active molecules. CO 5 - To infer steroids and sex-hormones.
317	PG1722	Core V : Inorganic Chemistry – II	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To compare the properties and similarities of lanthanides and actinides. CO 2 - To correlate the photochemistry of transition metal complexes. CO 3 - To assess the importance of metals in biological reactions in bioinorganic compounds. CO 4 - To interpret IR and Raman Spectroscopy to clarify molecular structure and properties. CO 5 - To systematise the applications of ESCA and illustrate the principle of photoelectron spectroscopy of inorganic compounds. CO 6 - To propose term symbols and selection rules for inorganic compounds.
318	PG1723	Core VI : Physical Chemistry – II	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To analyze the principles and applications of electrochemistry. CO 2 - To generalise corrosion and its prevention. CO 3 - To construct fuel cells and its applications. CO 4 - To deduce photochemical processes. CO 5 - To differentiate homogeneous and heterogeneous catalysis. CO 6 - To apply quantum mechanics to various molecules.
319	PG1724	Elective II a) : Research Methodology	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To utilize the sources of information related to research. CO 2 - To prepare OHP, Power point and project reports. CO 3 - To solve problems related to errors in statistical analysis. CO 4 - To predict the particle size, structure and surface morphology of compounds using spectroscopic and microscopic techniques. CO 5 - To apply the features of computer in research. CO 6 - To employ the applications of cheminformatics.

320	PG1725	Elective II b) : Nuclear Chemistry	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To detect radioactivity using various detectors. CO 2 - To analyze the types of nuclear reactions. CO 3 - To generalize nuclear reactions and nuclear waste management. CO 4 - To determine radiolysis of solids, liquids and gases. CO 5 - To apply radioisotopes in industries and daily life.
321	PG17P1	Practical I : Organic Chemistry	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency. PSO 5 - To develop entrepreneurial skills, empowerment according to the requirement and become self-reliant. PSO 6 - To develop an understanding of eco-friendly chemical processes and impact of chemistry on health and environment.	CO 1 - To separate binary mixtures of organic compounds. CO 2 - To analyze the functional groups present in organic compounds by semi micro analysis. CO 3 - To estimate various organic compounds. CO 4 - To prepare organic compounds using various rearrangement reactions. CO 5 - To evaluate the purity of organic compounds.
322	PG17P2	Practical II : Inorganic Chemistry	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency. PSO 5 - To develop entrepreneurial skills, empowerment according to the requirement and become self-reliant. PSO 6 - To develop an understanding of eco-friendly chemical processes and impact of chemistry on health and environment.	CO 1 - To analyze inorganic mixture by semi micro qualitative analysis. CO 2 - To develop skill in estimating the presence of various elements. CO 3 - To estimate the elements by photocolorimetric method. CO 4 - To identify inorganic cations in a binary mixture. CO 5 - To separate the binary mixture of inorganic cations by paper chromatography.
323	PG1731	Core VII : Organic Chemistry – III	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To determine the structure of organic compounds using UV and IR spectroscopy. CO 2 - To predict the splitting pattern of organic compounds by NMR spectroscopy. CO 3 - To deduce the structure of organic compounds using various spectroscopic techniques. CO 4 - To elucidate the structure of heterocyclic compounds. CO 5 - To design the synthesis of organic compounds.
324	PG1732	Core VIII : Physical Chemistry –III	☑	☑	☑	☑	PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To construct character table for different point groups. CO 2 - To apply group theory to molecules. CO 3 - To generalize the characteristics of rotational spectra for diatomic and polyatomic molecules. CO 4 - To determine the molecular mass of polymers and kinetics of polymerization. CO 5 - To compare the experimental techniques related to radiation chemistry.
325	PG1733	Elective III a) : Advanced Topics in Chemistry	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency. PSO 6 - To develop an understanding of eco-friendly chemical processes and impact of chemistry on health and environment.	CO 1 - To synthesize nanoparticles, nanoshells and nanosensors. CO 2 - To design chemical reactions using green chemistry techniques. CO 3 - To apply supramolecular interactions in organic and photochemistry. CO 4 - To develop the synthesis and therapeutic action of drugs. CO 5 - To apply thermodynamics in biological systems.
326	PG1734	Elective III b) : Medicinal Chemistry	☑	☑	☑	☑	PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To interpret the nomenclature of the drugs. CO 2 - To infer the mechanism of drug action. CO 3 - To determine the chemical constituents present in drugs and its therapeutic values. CO 4 - To analyse insect borne, air borne and water borne diseases. CO 5 - To demonstrate blood grouping and related test. CO 6 - To diagnose the causes and treatment of anemia, bloodpressure, cancer and AIDS.
327	PG17PR	Project and Viva	☑	☑	☑	☑	PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To understand the procedure for selecting samples. CO 2 - To apply different techniques for preparing products. CO 3 - To interpret the experimental data using spectroscopic analysis. CO 4 - To analyze the results and record the data.
328	PC17S1	Chemistry for Lecturership exam - I		☑			PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To synthesize knowledge from different areas of chemistry to solve interdisciplinary problems. CO 2 - To prepare and practice for competitive exams with speed,accuracy and comprehensive coverage of syllabus topics. CO 3 - To analyze scientific data and draw logical conclusions. CO - 4 To solve complex numerical problems and apply theoretical concepts to practical scenarios.
329	PG1741	Core IX : Organic Chemistry – IV	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To design the synthesis of organic compounds by disconnection approach. CO 2 - To elucidate the structure of alkaloids. CO 3 - To predict the mechanism of molecular rearrangements. CO 4 - To interpret the mechanism of various photochemical reactions. CO 5 - To predict the various reaction conditions in pericyclic reaction.

330	PG1742	Core X : Inorganic Chemistry – III	☑	☑	☑	☑	PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To interpret NMR and ESR Spectroscopy to study the molecular structure and characterize the inorganic compounds. CO 2 - To analyze the properties of compounds using Mossbauer Spectroscopy. CO 3 - To generalize the characteristics and reactions of Non-aqueous solvents. CO 4 - To organize the basic acid base concepts of non aqueous solvents. CO 5 - To determine the electrical and magnetic properties of solids. CO 6 - To assess the role of different elements in biological systems.
331	PG1743	Core XI : Physical Chemistry –IV	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment. PO 7 - To prepare expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To enumerate the advances of electrochemistry. CO 2 - To employ the role of nanomaterials as catalyst. CO 3 - To generalize the principle, theory and applications of electronic and nuclear magnetic resonance spectroscopy. CO 4 - To compare the theory and experimental techniques of ESR and Laser Raman Spectroscopy. CO 5 - To categorize the advantages of lasers in Raman spectroscopy. CO 6 - To distinguish the structures of various crystal lattices.
332	PG1744	Elective IV a) : Energy for the Future	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment. PO 7 - To prepare expressive, ethical and responsible citizens with proven expertise.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To differentiate conventional and non-conventional energy sources. CO 2 - To identify solar radiations and its measurement. CO 3 - To generalize wind energy conversion and its applications. CO 4 - To detect biomass conversion techniques and biogas generation. CO 5 - To prepare biogas from plant waste. CO 6 - To interpret applications of fuel cell and hydrogen energy.
333	PG1745	Elective IV b) : Nanochemistry	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 2 - To relate the theory and practical knowledge to solve the problems of the society. PO 3 - To prepare successful professionals in industry, government, academia, research, entrepreneurial pursuits and consulting firms. PO 5 - To carry out internship programme and research projects to develop scientific skills and innovative ideas. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To generalize the basic concept of nanochemistry. CO 2 - To synthesise nanomaterials and nanoshells. CO 3 - To predict the surface morphology of nanomaterials. CO 4 - To synthesize carbon nanoclusters. CO 5 - To apply nanotechnology and nanodevices in biological system.
334	PG17P3	Practical III: Gravimetric analysis and Inorganic preparations	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To separate metal ions in a mixture. CO 2 - To estimate metal ions in a mixture by volumetric methods. CO 3 - To estimate metal ions in a mixture by gravimetricmethods. CO 4 - To prepare Inorganic complexes.
335	PG17P4	Practical IV : Physical Chemistry	☑	☑	☑	☑	PO 1 - To recognize the scientific facts behind natural phenomena. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 3 - To design, synthesize and characterize chemical compounds in medicine, biology and industry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To determination of solubility product of sparingly soluble salts. CO 2 - To calculate the dissociation constant of a weak acid. CO 3 - To determine the strength of solutions by redox and precipitation titrations. CO 4 - To analyze the strength of acids by adsorption method. CO 5 - To evaluate the conductance of acids in a mixture. CO 6 - To determine the heat of solution by thermometric Experiments.
336	PC17S2	Chemistry for Lecturership exam - II		☑			PO 1 - To recognize the scientific facts behind natural phenomena. PO 6 - To utilize the obtained scientific knowledge to create eco-friendly environment.	PSO 1 - To impart indepth knowledge about various aspects of chemistry within an environment committed to excellence. PSO 2 - To develop critical thinking, technical skills and innovative ideas in analyzing and solving problems in the field of chemistry. PSO 4 - To explore new areas of research in chemistry and other disciplines of science and technology across the globe with professional competency.	CO 1 - To synthesize knowledge from different areas of chemistry to solve interdisciplinary problems. CO 2 - To prepare and practice for competitive exams with speed,accuracy and comprehensive coverage of syllabus topics. CO 3 - To analyze scientific data and draw logical conclusions. CO - 4 To solve complex numerical problems and apply theoretical concepts to practical scenarios.