



Department of Chemistry

B.Sc. Chemistry

S.No.	Course Code	Course Name	Course Outcomes
SEMESTER - I			
1.	18UCHC11	Core Course - I: Organic and Physical Chemistry – I	<ol style="list-style-type: none">1. Understanding the basic concepts in organic chemistry.2. Understanding the stability and conformational analysis of cycloparaffins.3. Gaining the knowledge about preparation and properties of colloids.4. Developing familiarity in Vanderwaal's equation and compressibility factor.5. Knowing the various properties of liquids and their determination.
2.	18UCHC12	Core Course -II: Inorganic and Analytical Chemistry – I	<ol style="list-style-type: none">1. Acquiring knowledge about various fundamental particles of matter.2. Learning the importance of modern periodic table.3. Gaining the idea about hydrogen and its compounds.4. Developing the skill in significant figures.5. Articulating the principles of mole concept and oxidation number.
3.	18UCHC1P	Core Course -III: Physical Constant Determination and Organic Distillation (Lab)	<ol style="list-style-type: none">1. Acquiring knowledge about Melting and Boiling point.2. Learning the purification of various organic compounds.3. Gaining the idea about distillation process.4. Understanding the pH of the solution.



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4.	18UCHN11	Non -Major Elective Course-I: Industrial Chemistry-I	<ol style="list-style-type: none">1. Gaining the basic knowledge of Oils and Fats.2. Explaining fuels and methods of processing of fuels.3. Understanding the role of fertilizer in agriculture field.
5.	18UCHE11	Enrichment Course-I: Glass Industry	<ol style="list-style-type: none">1. Gaining a basic knowledge on Glass industry.2. Developing the manufacturing process of Glass.3. Articulating the basic fundamentals of different types of glasses.
6.	18UBYA11/18UBTA11	Allied Course-I: General Chemistry-I	<ol style="list-style-type: none">1. Identifying the role of glucose, fructose, starch and cellulose in the living system.2. Gain ideas about various terms involved in periodic table.3. Knowing the factors influencing adsorption and its applications.4. Enhance the concept of catalysis through various processes.5. Learning the knowledge about the polymers and their role in day to-day life.
7.	18UBYA1P/18UBTA1P	Allied Course – I: Chemistry Practical - Volumetric analysis (Lab)	<ol style="list-style-type: none">1. Learn the importance of Quantitative analysis.2. Knowing the different types of Volumetric analysis.3. Get an idea about the role of indicator at different pH range in the acidimetry and alkalimetry.4. Enhancing the skill to determine the strength of the solution and its molecular weight.5. Gaining idea about the oxidation and reduction of ions in redox titrations.
SEMESTER – II			
8.	18UHC21	Core Course - IV: Organic and	<ol style="list-style-type: none">1. Understanding the preparation and properties of alkane and



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		Physical Chemistry – II	alkenes. 2. Developing knowledge in benzene and its compounds. 3. Deliberating the methods to prepare various sulphur compounds. 4. Gaining the ideas about the colligative properties of the molecules. 5. Learning the importance of chemical equilibrium reactions.
9.	18UCHC22	Core Course-V: Inorganic and Analytical Chemistry – II	1. Gaining the knowledge on bonding oriented concepts. 2. Explaining the behavior of s-block elements. 3. Articulating the character of boron and carbon family in the periodic table. 4. Acquiring clear idea about various metallurgical process. 5. Knowing the various concepts of acids and bases.
10.	18UCHC2P	Core Course - VI : Volumetric Analysis (Lab)	1. Learning the importance of Quantitative analysis. 2. Knowing the different types of Volumetric analysis. 3. Getting an idea about the role of indicator at different pH range in the acidimetry and alkalimetry. 4. Enhancing the skill to determine the strength of the solution and its molecular weight. 5. Gaining idea about the oxidation and reduction of ions in redox titrations
11.	18UCHN21	Non -Major Elective Course-II: Industrial Chemistry-II	1. Gaining knowledge on polymer and various synthetic polymers. 2. Developing the skill in the manufacturing process of Glass.



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			3. Articulating the basic fundamentals of different types of cement.
12.	18UCHE21	Enrichment Course-II: Cement Industry	1. Gaining a basic knowledge on cement industry. 2. Developing the ability in manufacturing process of cement. 3. Articulating the basic fundamentals of different types of cement.
13.	18UBYA21/18UBTA21	Allied Course-II: General Chemistry-II	1. Gain a basic knowledge about Fats and Oils. 2. Able to know various concepts of acids and bases. 3. Understanding the various photo physical process by Jablonski diagram. 4. Significant knowledge in rate law, rate constant, order and molecularity of reactions. 5. Creating an idea about water pollution and water treatment.
14.	18UBTA2P/18UBYA2P	Allied Course- II: Chemistry Practical - Organic Analysis (Lab)	1. Learn the importance of Quantitative and qualitative organic analysis. 2. Knowing the confirmation of the sample through the functional group. 3. Get an idea about the hydrocarbon, nitrogen, carbonyl compounds and its analysis. 4. Understand the problem solving in the analysis of organic compound.
SEMESTER - III			
15.	18UCHC31	Core Course - VII: Organic and Physical Chemistry - III	1. Gaining the basic knowledge on the synthesis of carboxylic acid. 2. Understanding the concepts of aromatic compounds, the



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			properties of chemical properties of aromatic compounds and carboxylic acids. 3. Correlating the physical properties of compounds with its chemical structure and gain the knowledge on liquid crystal. 4. Gaining the knowledge of surface chemistry, adsorption theory, applications and catalyst. 5. Developing the ideas of equilibrium in phase transition.
16.	18UCHC32	Core Course -VIII: Inorganic and Analytical Chemistry – III	1. Understanding the concept of covalent bonding involved inorganic compounds and its structure prediction using VSEPR theory. 2. Knowing the concepts of molecular orbital theory and its application in inorganic molecule. 3. Gaining the knowledge of nitrogen group elements, oxygen group elements and some preparation, properties of nitrogen family compounds. 4. Understanding the concepts of solid state and various types of solids. 5. Understanding the basic concepts of analytical chemistry.
17.	18UCHC3P	Core Course - IX: Semi Micro Qualitative Analysis (Lab)	1. Mastering the techniques involved in the qualitative analysis. 2. Getting an idea about the interfering and non-interfering anions. 3. Analyzing the mixture through simple test like flame test and spot test.



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			4. Impacting the effect of acid and base addition in excess or deficient in the analysis.
18.	18UCHS31	Skill Based Course-I: Ceramic Industry	<ol style="list-style-type: none">1. Gaining basic knowledge on ceramics and raw materials involved in ceramic industry.2. Understanding the various processes involved in the manufacturing process in ceramic industry.3. Knowing the special products of ceramic industry.4. Knowing the application of ceramic products.
19.	18UCHV31	Value Based Course – I: Oils and Fats	<ol style="list-style-type: none">1. Gaining knowledge on classification of fatty acids, basic concepts of oils, fats.2. Understanding manufacturing of oil by various methods, concepts of animal fat, oil.3. Knowing the analysis of oils, fats and know the economic role of oil industries.
20.	18UPHA31	Allied Course-III: General Chemistry-I	<ol style="list-style-type: none">1. Identifying the role of glucose, fructose, starch and cellulose in the living system.2. Gain ideas about various terms involved in periodic table.3. Knowing the factors influencing adsorption and its applications.4. Enhance the concept of catalysis through various processes.5. Learning the knowledge about the polymers and their role in day to-day life.
21.	18UPHA3P	Allied Course – III: Chemistry Practical - Volumetric analysis (Lab)	<ol style="list-style-type: none">1. Learn the importance of Quantitative analysis.2. Knowing the different types of Volumetric analysis.3. Get an idea about the role of indicator at different pH range



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			in the acidimetry and alkalimetry. 4. Enhancing the skill to determine the strength of the solution and its molecular weight. 5. Gaining idea about the oxidation and reduction of ions in redox titrations.
22.	CFC01	Extra credit/Self learning Course – Forensic Chemistry - I	1. Acquire knowledge about Forensic science. 2. Learn about crime detection. 3. Deepening knowledge of document examination. 4. Ability to get an idea about instrumental technique.
SEMESTER – IV			
23.	18UCHC41	Core Course - X: Organic and Physical Chemistry – IV	1. Gaining the basic knowledge on the synthesis of nitrogen compounds, heterocyclic compounds. 2. Understanding the properties of organic nitrogen compounds and heterocyclic compounds. 3. Understanding the preparation of various dyes. 4. Gaining the knowledge of basic concepts of thermodynamics, various laws involved in thermodynamics. 5. Understanding the concepts involved in thermochemistry and various laws involved.
24.	18UCHC42	Core-XI: Inorganic and analytical Chemistry IV	1. Understanding the characteristics of halogen family. 2. Developing the knowledge on compounds involved in halogen family and inert gases. 3. Understanding the concept of non-aqueous solvents and its reaction. 4. Knowing the concepts of inner transition elements.



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			5. Developing the knowledge on instrumental analytical method.
25.	18UCHC4P	Core Course - XII: Organic Salt Analysis (Lab)	<ol style="list-style-type: none">1. Learning the importance of Quantitative and qualitative organic analysis.2. Knowing the confirmation of the sample through the functional group.3. Getting an idea about the hydrocarbon, nitrogen, carbonyl compounds and its analysis.4. Understanding the problem solving in the analysis of organic compound.
26.	18UCHO41	Major Elective Course – I: Applied Chemistry	<ol style="list-style-type: none">1. Gaining knowledge on various energy sources.2. Understanding the solid, liquid and gaseous fuel.3. Understanding the types of fertilizers and its application.4. Gaining the knowledge on sugar and paper industrial processes.5. Gaining the knowledge on various polymers and its preparation, uses.
27.	18UCHO42	Major Elective Course –I: Pharmaceutical Chemistry	<ol style="list-style-type: none">1. Gaining knowledge on basic concepts of drugs.2. Understanding the concepts of various types of analgesics.3. Develop the ideas of sulpha drugs, antibiotics, anti-malarial drugs.4. Ability to understand hormones and vitamins.5. Gain knowledge on various test involved in the treatment of disease.
28.	18UPHA41	Allied Course- IV: General	<ol style="list-style-type: none">1. Gain a basic knowledge about Fats and Oils.



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		Chemistry-II	<ol style="list-style-type: none">2. Able to know various concepts of acids and bases.3. Understanding the various photo physical process by Jablonski diagram.4. Significant knowledge in rate law, rate constant, order and molecularity of reactions.5. Creating an idea about water pollution and water treatment.
29.	18UPHA4P	Allied Course- IV: Chemistry Practical - Organic Analysis (Lab)	<ol style="list-style-type: none">1. Learn the importance of Quantitative and qualitative organic analysis.2. Knowing the confirmation of the sample through the functional group.3. Get an idea about the hydrocarbon, nitrogen, carbonyl compounds and its analysis.4. Understand the problem solving in the analysis of organic compound.
30.	CFCO2	Extra credit/Self learning Course – Forensic Chemistry - II	<ol style="list-style-type: none">1. Acquire knowledge about Forensic toxicology.2. Learn about Constructive material analysis.3. Deepening knowledge of drug abuse.4. Ability to get an idea about computer forensic.
SEMESTER – V			
31.	18UCHC51	Core Course-XIII: Organic Chemistry - I	<ol style="list-style-type: none">1. Gain the basic knowledge on the synthesis of alkaloids and Terpenes.2. Understand the concepts of stability of isomers using conformational analysis.3. Understand the interaction of Organic molecules.4. Gain the knowledge of structure and its signal of organic



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			molecules. 5. Know the instrumentation techniques about IR. 6. Gain the knowledge of organic colored compounds.
32.	18UCHC52	Core Course – XIV: Inorganic Chemistry – I	1. Understand the stability of complex through EAN rule. 2. Develop the knowledge of structural elucidation through the various theories. 3. Ability to understand the electrical and types of magneticism and its properties. 4. Able to know the concepts of organometallic and its importance in industrial applications. 5. Develop the knowledge about the techniques of rusting prevention method.
33.	18UCHC53	Core Course – XV: Physical Chemistry - I	1. Gain knowledge on the rate of various order reaction. 2. Develop the kinetics concepts in various kinetic theories. 3. Able to understand the photochemical reaction and photo physical process. 4. Ability to understand the basic concepts of quantum mechanics. 5. Understand the physical aspects of spectroscopy. 6. Gain knowledge on rotation, vibration active molecule in spectroscopy
34.	18UCHC5P	Core Course – XVI: Physical Chemistry Practical – I	1. Knowing the importance of the various physical properties by practical. 2. Skill to determine the molecular weight of unknown substance by transition temperature method.



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			<ol style="list-style-type: none">3. Pursuing the role of phase diagram to understand the simple eutectic method.4. Ability to know the effect of impurity in the strength of the substance by CST method.5. Rate of the reaction study through kinetic method.6. Impact of the conductivity method to study the electrical properties of the ionic substance, acids and bases.
35.	18UCHC5Q	Core Course – XVII: Organic Preparation and Estimation (Lab)	<ol style="list-style-type: none">1. Acquire knowledge about preparation of various organic compounds.2. Learn the purification of various organic compounds.3. Gain the idea about estimation of organic compounds.4. Get an idea about various separation processes.5. Understand the concepts of Organic functional groups and its detection methods.6. Get an idea about Aliphatic and aromatic compounds.
36.	18UCH051	Major Elective Course - II: Forensic Chemistry	<ol style="list-style-type: none">1. Acquire knowledge about Forensic Chemistry.2. Learn about crime detection and cranial analysis.3. Deepening knowledge of food adulteration Techniques.4. Ability to get an idea about Medical aspects and prevention of burns.
37.	18UCH052	Major Elective Course – II: Supramolecular Chemistry	<ol style="list-style-type: none">1. Acquire knowledge about Top-down and Bottom up approach.2. Learn the importance of supra molecular interactions.3. Gain the idea about dendrimers.



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			4. Ability to understand molecular receptors with substrate molecules. 5. Articulate the applications of cyclodextrins. 6. Deepening knowledge of crown ethers
38.	18UCHS51	Skill Based Course -II: Agricultural Chemistry	1. Acquire knowledge about Agricultural Chemistry. 2. Learn the importance of soil analysis. 3. Gain the knowledge about pesticides. 4. Deepening knowledge of fertilizers. 5. Get an idea about herbicides.
39.	18UCHS52	Skill Based Course -III: Textile Chemistry	1. Acquire knowledge about Textile Industry. 2. Learn the importance of cellulose and fibres. 3. Gain the knowledge about preparation of fibres. 4. Deepening knowledge of dyes Industry. 5. Get an idea about various dyeing processes.
SEMESTER - VI			
40.	18UCHC61	Core Course -XVIII: Organic Chemistry - II	1. Gain the basic knowledge structure determination. 2. Understand the chemistry involved in proteins. 3. Understand the structure of proteins. 4. Gain the medicinal knowledge of organic compounds. 5. Know the reaction mechanism of carbonyl compounds. 6. Understand the sugar structure and its chemical properties.
41.	18UCHC62	Core Course-XIX: Inorganic Chemistry II	1. Understand the measurement of radioactivity through various methods. 2. Develop the knowledge of fission reaction in reactor. 3. Ability to understand the role of enzyme and protein in



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			various biological functions. 4. Able to know the toxicology of heavy metals and its detoxification. 5. Develop the knowledge about the preparation and structure of inorganic polymers
42.	18UCHC63	Core Course - XX: Physical Chemistry - II	1. Understand the basic ideas of electrochemical laws, ionic mobility and its applications. 2. Gain knowledge on galvanic cells and its various types. 3. Ability to understand the fuel cells and its application. 4. Develop the knowledge on the application of EMF measurement. 5. Understand the basic concepts of group theory. 6. Gain knowledge on chemistry behind the distribution law, electrical, magnetic properties of molecule.
43.	18UCHC6P	Core Course - XXI: Physical Chemistry Practical - II	1. Knowing the importance of the various physical properties by practical. 2. Skill to determine the molecular weight of unknown substance by Rast method. 3. Pursuing the role of phase diagram to understand the simple eutectic method. 4. Improving skill on distribution properties. 5. Impact of the potentiometric method to study the redox reactions. 6. Develop the skill on thermo chemical experiments.
44.	18UCHC6Q	Core Course-XXII: Gravimetry	1. Understand the step to be followed for the preparation of



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		and Complex Preparation (Lab)	<ol style="list-style-type: none">1. Gravimetric precipitate.2. Impact of the effect of acid and base addition in excess or deficient in the analysis.3. Role of organic complexing agent in the precipitation of metal ions as complex through gravimetry.4. Get proficiency in the role of co-precipitation and post precipitation in gravimetric analysis.5. Develop the synthetic knowledge in the complex preparation.6. Report the complex preparation through the geometry and the yield comparison with theoretical value.
45.	18UCHO61	Major Elective Course – III: Food and Nutrition Chemistry	<ol style="list-style-type: none">1. Develop the knowledge of sources of food and food metabolism.2. Enrich the knowledge on role of vitamins and function.3. Enhance the knowledge on the minerals and its importance4. Able to know the role of various elements in food.5. Gain the knowledge on food preservation techniques.6. Understand the concept of food poisoning.
46.	18UCHO62	Major Elective Course – III: Biochemistry	<ol style="list-style-type: none">1. To learn the basic concepts in human Biochemistry.2. To know the various metabolisms involved in human life.3. To enhance the knowledge in lipids and fatty acid function.4. To enrich the knowledge on carbohydrate role in our life.5. To enhance the knowledge on nucleic acids and its importance.6. To get an idea on neurotransmitters.
47.	18UCHS61	Skill Based Course -IV: Matches	<ol style="list-style-type: none">1. Understand the History and Preparation of Lucifer and Safety



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		and Fireworks	Matches. 2. Know the preparation, properties of Match side chemicals. 3. Knowing the various oxidizers used in pyrotech industry. 4. Significant knowledge in colour producers and colour intensifiers
48.	18UCHV61	Value Based Course – II: Printing Technology	1. Enrich the knowledge on printing process and various colour usages in printing technology. 2. Develop the knowledge on drying process and MSDS. 3. Enhance the knowledge on lubricants and adhesives.
49.	CMFO1	Certificate Course – Basic Aspects of Fire Works and Safety Management	1. Understand the preparation safety fireworks products. 2. Know the properties of fireworks chemicals. 3. Knowing the various oxidizers used in pyrotech industry. 4. Significant knowledge in colour producers and colour intensifiers.
50.	CMFOP	Certificate Course – Pyro Test	1. Understand the analysis of anions fireworks products. 2. Understand the analysis of cations fireworks products 3. Know the properties of metal powders in fireworks. 4. Significant knowledge in colour producers.
51.	CISMO1	Certificate Course – Industrial safety and Management	1. Understanding the safety rules to be followed in the industry. 2. Get the idea about the hazards nature of chemical and its way of handling in the industry. 3. Gaining aware about the safety rule for the personal protective equipment in the industry.
52.	CISMJ1	Certificate Course – Project Report and Viva Voce	1. Understanding the safety rules to be followed in the industry. 2. Get the idea about the hazards nature of chemical and its way



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			of handling in the industry. 3. Gaining aware about the safety rule for the personal protective equipment in the industry.