COURSE OUTCOMES

SEMESTER I

Name of the Course: Chemistry -1			
Sem- 1	**Credits:4**	**Course Code: CHE 103T**	**Year/Group: BtMC,BtBC, CNDBCC** **HPW: 4**
Course Outcomes			
CO1	Analyse bond order, magnetic behaviour of molecules and reactivity of inorganic compounds		
CO2	Apply bond polarisation and Huckel's rule to predict reactivity in complex organic molecules		
CO3	Apply knowledge of quantum mechanics, gaseous and liquid states to solve problems in allied sciences.		
CO4	Interpret the differences between structural and stereoisomer's		

Practicals

Name of the Course: Lab course- I			
Sem: 1	**Credits: 1**	**Course Code:** CHE103P	**Year/Group: BtMC,BtBC, CNDBCC** **HPW: 3**
Course Outcomes			
CO1	Recognize the reagents used for semi micro analysis		
CO2	Interpret the results of qualitative analysis		

SEMESTER II

Name of the Course: Chemistry-II			
Sem:2	**Credits:4**	**Course Code:** CHE 203T	**Year/Group: BtMC,BtBC, CNDBCC** **HPW: 4**
Course Outcomes			
CO1	Understand the properties, and periodic trends of P-block, Zero group, and d-block elements .		
CO2	Acquire knowledge of the chemical reactivity and properties of Hydroxy, Halogen, and Carbonyl compounds		
CO3	Explain the fundamental principles of acid-base theories, Ostwald's dilution law, and Debye-Huckel-Onsager's equation		
CO4	Demonstrate critical thinking and problem-solving skills in predicting Chirality,		

Practical

Name of the Course: Lab Course -II			
Sem;2	**Credits:1**	**Course Code:** CHE203P	**Year/Group: BtMC,BtBC, CNDBCC** **HPW: 3**
Course Outcomes			
CO1	Understand the principle and procedure of Acid-Base Titrations, Redox Titration, and Complexometric Titrations.		
CO2	Apply the techniques of soil analysis.		

SEMESTER III

Name of the Course: Chemistry-III			
Sem:3	**Credits:4**	**Course Code: CHE 303T**	**Year/Group: BtMC,BtBC, CNDBCC H PW: 4**
Course Outcomes			
CO1	Understand the electronic configuration, properties of f block elements, theories of coordination compounds and reactions of organo metallic compounds		
CO2	Analyse the synthetic applications of carboxylic acids, nitro compounds, amino acids, cyanides, and isocyanides to design and conduct experiments		
CO3	Understand the fundamental principles of thermodynamics, including thermodynamic functions, processes, and laws		
CO4	Analyse the types of analytical data, reaction mechanisms of carbanions, and phase equilibria of one-component and two-component systems		

Practical

Name of the Course: Lab Course-III			
Sem:3	**Credits: 1**	**Course Code:** CHE303P	**Year/Group: BtMC,BtBC, CNDBCC HPW: 3**
Course Outcomes			
CO1	Learn the skills of organic synthesis.		
CO2	Apply the techniques of Thin Layer Chromatography (TLC).		

Name of the Course: Skill Enhancement Course III (SEC-III) (2 credits) Materials and their applications			
Sem:3	**Credits:2**	**Course Code:** SEC 2A	**Year/Group: BtMC,BtBC, CNDBCC,MGC,MZC HPW: 2**
Course Outcomes			
S4CO1	Understand the essential components of a comprehensive laboratory Safety Program		
S4CO2	Understanding laboratory safety rules and to improve the skills in the preparation of laboratory reagents.		

SEMESTER IV

Name of the Course: Chemistry -IV			
Sem:4	**Credits:4**	**Course Code:** CHE 403T	**Year/Group: BtMC,BtBC, CNDBCC** **HPW: 4**
Course Outcomes			
CO1	Acquire knowledge of crystal field theory, hard-soft acid-base concept, and transition metal complexes		
CO2	Understand the structure, properties, and classification of biomolecules, and heterocyclic compounds		
CO3	Explain the fundamental principles of chemical kinetics and laws of photochemistry.		
CO4	Interpret the role of carbanions in reaction mechanisms and to study colloids and adsorption.		

Practical

Name of the Course: Lab course -IV			
Sem:4	**Credits: 1**	**Course Code:CHE403P**	**Year/Group: BtMC,BtBC, CNDBCC** **HPW: 3**
Course Outcomes			
CO1	Acquire knowledge of qualitative analysis of organic compounds		
CO2	Apply the principle of organic synthesis		

SEMESTER IV

Name of the Course: Skill Enhancement Course III (SEC-III) (2 credits) Materials and their applications			
Sem:4	**Credits:2**	**Course Code:** SEC 4A	**Year/Group: BtMC,BtBC, CNDBCC,MGC,MZC HPW: 2**
Course Outcomes			
S4CO1	Acquire knowledge of different types of materials, their properties and applications**.**		
S4CO2	Gain knowledge of types and application of polymers.		

SEMESTER IV

Name of the Course: Skill Enhancement Course- IV (SEC- IV) Chemistry of Cosmetics and Food Processing			
Sem:4	**Credits:2**	**Course Code:** SEC 4B	**Year/Group: BtMC,BtBC, CNDBCC HPW: 2**
Course Outcomes			
S4-CO1	To Understand the preparation of Cosmetics and Perfumes and the essential oils used in the process		
S4-CO2	To have a basic idea of Food processing and Food Adulterants		

SEMESTER V

Name of the Course: Chemistry - Semester V Generic Elective (GE) Course (For B.Sc , non Chemistry/B.A/B.Com Students			
Sem:5	**Credits:4**	**Course Code:CHE GE** S5	**Year/Group: BtMC,BtBC, CNDBCC,MGC,MZC HPW: 4**
Course Outcomes			
CO1	Analyze and evaluate the chemical composition, preparation methods, applications, benefits, and potential risks of various cosmetic products, including hair care, skin care,and oral care items, as well as essential oils, deodorants, and antiperspirants.		
CO2	Analyze the principles and methods of food processing, adulteration, packaging, and labelling, and evaluate their impact on nutrition and food quality.		
CO3	Explain the pharmacological principles, classification, formulation, and characteristics ofvarious drugs and pharmaceuticals, and identify their applications, advantages, and disadvantages		
CO4	Explain the classification, mechanisms of action, and therapeutic applications of various pharmacological agents, including chemotherapeutic agents, pharmacodynamic agents, and drugs acting on metabolic processes.		

SEMESTER V

Name of the Course: Chemistry -V Semester-V, Paper-V Discipline Specific Elective- A Spectroscopy and Chromatography			
Sem:5	**Credits:4**	**Course Code:** CHE 503T	**Year/Group: BtMC,BtBC, CNDBCC, MGC,MZC HPW: 4**
Course Outcomes			
CO1	Explain the principles and applications of, rotational spectroscopy, and infrared spectroscopy in determining molecular structure, bond length, and force constant.		
CO2	Analyze and interpret the principles and applications of Proton Magnetic Resonance (PMR) Spectroscopy and Mass Spectrometry		
CO3	Understand the principles, methods, and applications of solvent extraction, thin layer chromatography (TLC), and paper chromatography		

SEMESTER V

Name of the Course: Chemistry -V Semester-V, Paper- V Discipline Specific Elective-B Metallurgy, Dyes and Catalysis			
Sem:5	**Credits:4**	**Course Code:** CHE 503T	**Year/Group: BtMC,BtBC, CNDBCC,MGC,MZC** **HPW: 4**
Course Outcomes			
CO1	Understand hydrometallurgy, electrometallurgy, refining, and non-ferrous metal production.		
CO2	Understand the definition, classification, structures, synthesis, and applications of natural and synthetic dyes.		
CO3	Understand catalysis principles and mechanisms		
CO4	Understand catalysis principles and mechanisms		

Practical

SEMESTER V

Name of the Course: Chemistry -V Paper V Experiments in Physical Chemistry-I			
Sem:4	**Credits:1**	**Course Code: CHE 503P**	**Year/Group: BtMC,BtBC, CNDBCC,MGC,MZC HPW: 3**
Course Outcomes			
CO1	Analyze and interpret experimental data.		
CO2	Apply theoretical concepts to design and conduct experiments		

SEMESTER VI

Name of the Course: Chemistry -VI Semester-VI, Paper- VI Discipline Specific Elective-A Medicinal Chemistry			
Sem:6	**Credits:4**	**Course Code:** CHE 603T	**Year/Group: BtMC,BtBC, CNDBCC,MGC,MZC HPW: 4**
Course Outcomes			
CO1	Define and classify key terms and concepts in medicinal chemistry, including diseases,drugs, and pharmacological principles Explain the principles of ADME		
CO2	Analyze the mechanisms of enzyme action and receptor interactions, and evaluate the importance of enzyme inhibitors and structure-activity relationships in drug design.		
CO3	Synthesize knowledge of the synthesis, therapeutic activity, and mechanisms of action of vagarious, including chemotherapeutics, metabolic disorder treatments, and nervous system agents.		
CO4	Explain the role and regulation of molecular messengers, including hormones and neurotransmitters, and identify the sources, deficiency disorders, and remedies of essential vitamins and micronutrients.		

SEMESTER VI

Name of the Course: Chemistry -VI Semester-VI, Paper- VI Discipline Specific Elective-B Agricultural and Fuel Chemistry			
Sem:6	**Credits:4**	**Course Code:** CHE 603T	**Year/Group: BtMC,BtBC, CNDBCC,MGC,MZC HPW: 4**
Course Outcomes			
CO1	Classify and explain the properties, synthesis, and uses of various types of pesticides, includingtheir toxicity, environmental impact, and potential alternatives		
CO2	Explain the classification, composition, and uses of various types of fertilizers, including nitrogenous, phosphate, potassium, complex, and biofertilizers, and evaluate their impact on plantgrowth and soil health		
CO3	Compare and contrast different energy sources, including renewable and non-renewable fuels, and explain the properties, uses, and conversion processes of coal		
CO4	Classify and explain the properties, applications, and uses of various petroleum products, petrochemicals, lubricants, and non-petroleum fuels.		

Practical

SEMESTER VI

Name of the Course: Chemistry -VI **Paper VI Experiments in Physical Chemistry-II**			
Sem:4	**Credits:1**	**Course Code: CHE 603P**	**Year/Group: BtMC,BtBC, CNDBCC,MGC,MZC HPW: 2**
Course Outcomes			
CO1	Design and conduct experiments to determine the specific reaction rates of catalyzed reactions, including hydrolysis and decomposition reactions		
CO2	Apply potentiometric and pH metric techniques to determine various electrochemical properties, including redox potentials, concentrations, and acid dissociation constants.		