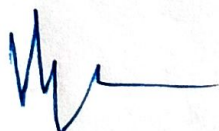


DEPARTMENT OF CHEMISTRY:
The Outcomes of UG Course, B. Sc. in Chemistry
At the completion of B. Sc. in Chemistry the students are able to:

- Provide a broad foundation in chemistry that stresses scientific reasoning and Analytical problem solving with a molecular perspective .
- Achieve the skills required to succeed in graduate school, the chemical industry and professional school.
- Get exposures of a breadth of experimental techniques using modern instrumentation?
- Understand the importance of the Periodic Table of the Elements, how it came to be, and its role in organizing chemical information
- Understand the interdisciplinary nature of chemistry and to integrate knowledge of mathematics, physics and other disciplines to a wide variety of chemical problems
- Learn the laboratory skills edged to design, safely and interpret chemical research
- Acquire a foundation of chemistry of sufficient breadth and the depth to enable them to understand and critically interpret the primary chemical literature
- Develop the ability to communicate scientific information and research results in written and oral formats.
- Learn professionalism, including the ability to work in teams and apply basic ethical principles

DEPARTMENT OF CHEMISTRY:
The Outcomes aLPG Course, M. Sc. in Chemistry
At the completion of M. Sc. in Chemistry the students are able to:

- Demonstrate and apply the fundamental knowledge of the basic principles in various fields of Chemistry
- Create awareness and sense of responsibilities towards environment and apply knowledge to solve the issues related to Environmental pollution
- Apply various aspects of chemistry in natural products isolations, pharmaceuticals, dyes, textiles, polymers, petroleum products, forensic etc, and also to develop Interdisciplinary approach of the subject •
- Collaborate effectively on team-oriented projects in the field of Chemistry or other related fields.
- Communicate scientific information in a clear and concise manner both orally and Writing
- Inculcate logical thinking to address a problem and become result oriented with a positive attitude
- Explain environmental pollution issues and the remedies thereof
- Apply the knowledge to develop the sustainable and eco-friendly technology in Industrial Chemistry
- Have developed their critical reasoning, judgment and communication skills
- Augment the recent developments in the field of green and eco-friendly reactions. pharmaceutical, Bioinorganic Chemistry and relevant fields of research and development.
- Enhance the scientific temper among the students so as to develop a research culture and implementation of the policies to tackle the burning issues at global and local level.



Dr. Brijendra Singh
Deptt. Of Chemistry

Govt. Tulsi College, Anuppur

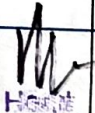


Principal
Govt Tulsi College,
Anuppur (M.P.)

GOVT. TULSI COLLEGE ANUPPUR (M.P.)

Program/ Program Outcome

Program	Program Outcome
Under Graduate Program in B.Sc. chemistry	- To understand ancient Indian chemical techniques - To understand the basic facts and concepts in Chemistry. - To understand the importance of chemistry in daily life. - To skill-up-for basic analytical tools. - To skill-up for various laboratory techniques. - To develop the basic concept of pharmaceutical Chemistry and their application in daily life. - To make efficient for various Spectrometric Analysis.


 HOD
 Deptt. Of Chemistry
 Govt. Tulsi College Anuppur (M.P.)


 PRINCIPAL
 Govt. Tulsi College Anuppur
 Distt. Anuppur (M.P.)

Curriculum /Course outcome

GOVT. TULSI COLLEGE ANUPPUR (M.P.)

Course Code	Course Name	Course Outcome		
		Knowledge gained	Skill Gained	Competency developed
S-ICHEM 1 Year 116 085	B.Sc. Sport Maths NAD	By the end of this course students will learn the following aspect of Chemistry 1- Ancient Indian Chemical techniques 2- Various theories and principles applied to reveal atomic structure 3. Theories related to chemical bonding 4- Acid-base concept pH buffer solution. 5. Spectral technique of analysis. • Appreciate use of buffer solution.	1. How were metals extracted in ancient Indian. 2. To know structure of atom. 3. How to form molecule 4. Learn about the role of buffer solution in chemical reactions in biological system. 5. To learn about the molecular structure by the Spectroscopy.	• Development Knowledge of metalurgy.

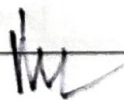
Head

Deptt. Of Chemistry
Govt. Tulsi College Anuppur (M.P.)

PRINCIPAL

Govt. Tulsi College Anuppur
Distt. Anuppur (M.P.)

Course (Semset ert/ year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Moral Value
B.Sc. IP Year CBCS C-116 C-085	CHEMISTRY Major Minor open.	1. Chemical Technique In India - Contribution of Indian scientist. 2. Atomic Structure - model. limitation light- electromagnetic spectrum Hydrogen. Wave 3. Periodic Table - nuclear Effective charge Slater Rules, Radius various radii radius enthalpy 4. Acid-Base Concept Bronsted and Lowry concept Lewis concept Acid base 5. Fundamental of organic chemistry Hyper conjugation stereochemistry of organic Compounds. 6. Chemical kinetics Rate of reaction, Rate law, constant and Rate of Reaction	Thermodynamics	Ancient Chemistry.		



Head
Deptt. Of Chemistry,
Govt. Tulsi College Anuppur (M.P.)



PRINCIPAL
Govt. Tulsi College Anuppur
Distt. Anuppur (M.P.)

Course (Semset ert/ year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Moral Value
B.Sc. III Year C-116 C-085	CHEMISTRY I - Paper-I Physical chemistry	• Elementary quantum chemistry - Photochemistry - effect. de-broglie hypothesis, Hamiltonian - operator, schrodinger wave equation particle in dimensional box. • Molecular orbital theory II. Spectroscopy • Rotational spectrum • Vibrational spectrum III. Raman spectrum • Electrical spectrum • UV spectroscopy IV. Photochemistry Jablonski diagram. V. Physical properties and molecular structure - optical activity - dipole moment - magnetic properties.		structure determination		

W
Head
Deptt. Of Chemistry
Govt. Tulsi College Anuppur (M.P.)


PRINCIPAL
Govt. Tulsi College Anuppur
Distt. Anuppur (M.P.)

Course (Semset ert/ year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Moral Value
B.Sc. III year	CHEMISTRY Inorganic chemistry	I. Hard and soft acids and bases (HSAB) classification of hard soft Acid-base Application of hard-soft acid base theory. • Silicenes and phosphazenes methods of preparations • Metal ligand bonding in Transition metal Complexes. • Thermodynamic and Kinetic aspects of metal complexes. • aspects of metal complex • Magnetic properties of Transition metal complexes. magnetic behaviour. • Electronic spectra of transition metal complexes. - Complexes with Aromatic systems. • Bio-Inorganic Chemistry Essential and trace elements biological process. Biological functions.		metal Complex structure		
				Biological process	Essential elements	

Head
Deptt. Of Chemistry
Govt. Tulsi College Anuppur (M.P.)

PRINCIPAL
Govt. Tulsi College Anuppur
Distt. Anuppur (M.P.)

Course (Semset ert/ year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Moral Value
B.Sc III Year	Chemistry organic chemistry	I. Spectroscopy Nuclear magnetic Resonance spectroscopy proton magnetiz Resonance (¹H NMR) spectroscopy. • organo-metallic Compounds, organomagnesium Compounds. Grignard reagent, preparation structure and chemical reactions. • organo-sulphur Compounds • carbohydrates monosaccharides. Mechanism of osazone formation inter Conversion. • Amino Acids - peptide and Nucleic acids, synthesis, solid phase • Synthetic dyes - colour and Constitution (Electronic Concept) • pericyclic Reaction Woodward Hoffmann Rules, electrocyclic reaction.	occure in Environment	lab. work	Practical	


 Head
 Deptt. Of Chemistry
 Govt. Tulsi College Anuppur (M.P.)


 PRINCIPAL
 Govt. Tulsi College Anuppur
 Dist. Anuppur (M.P.)

Curriculum /Course outcome

GOVT. TULSI COLLEGE ANUPPUR (M.P.)

Course Code	Course Name	Course Outcome		
		Knowledge gained	Skill Gained	Competency developed
C-116 C-085 M/B	B.Sc.	• Basic Concept of Thermodynamics • To learn the thermodynamics term system surrounding, energy heat • To know about the State function relation between C_p and C_v	• Able to understand the chemical system from thermodynamic point of view.	
		• To learn phase rule and its application. • Theories of Conductance. • Migration of ions • theory of strong electrolytes. • Electrolyte & Galvanic Cell. • Adsorption and catalyst. • character & Proper	• Idea about the electrochemical cell • How to catalyst work	

Head
Deptt. Of Chemistry
Govt. Tulsi College Anuppur (M.P.)

PRINCIPAL
Govt. Tulsi College Anuppur
Distt. Anuppur (M.P.)

GOVT. TULSI COLLEGE ANUPPUR (M.P.)

Program	Program Outcome
M. SC. [CHEMISTRY] Post Graduate Program	• To understand the basic facts and concept in chemistry • To make structure for various spectrometric analysis. • To skill for various laboratory techniques used in chemical products.



Head
Deptt. Of Chemistry
Govt. Tulsi College Anuppur (M.P.)

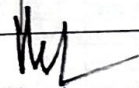


PRINCIPAL
Govt. Tulsi College Anuppur
Distt. Anuppur (M.P.)

Curriculum /Course outcome

GOVT. TULSI COLLEGE ANUPPUR (M.P.)

Course Code	Course Name	Course Outcome		
		Knowledge gained	Skill Gained	Competency developed
	M.Sc. Chemistry	• Student will be able to fundamental insights in to chemical Compounds with Application in medicine, catalysis, alternative energy and other many areas.	• Students learn to sophisticated Instrumental and equipment to investigate the world around them • As well as developing strong numerically ability and skills. • Time management	• Students acquires professional as well as scientific level Competence. • they have scientific and professional entry level competency along.
		• They understand more about global environmental issues affecting today's society.	- Written as oral Communication - maintaining records - Team work - Research and presentation.	With advanced theoretical practical knowledge in the specialized field.



Head
Deptt. Of Chemistry
Govt. Tulsi College Anuppur (M.P.)



PRINCIPAL
Govt. Tulsi College Anuppur
Dist. Anuppur (M.P.)

CHEMISTRY

Course (Semester / year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Moral Value
M.Sc. IV Sem. II Final year	Chemistry Medicinal Chemistry	1 st / Structure and activity. 2 nd / Pharmacodynamics 3 rd / Antibiotics and antibacterials 4 th / Antifungal Antimicrobials 5 th / Non Steroidal Anti-inflammatory drugs.	Good for the environment, good for people. Evaluate the influence of environmental contaminants on drug metabolism. Used in human and animal therapy are reaching the environment through urine excretion by microbes and parasitism can serious diseases in both humans and animals.. Management of environmental risk of emerging pollutants.	Including the nature of statutory and voluntary sector drug absorption, distribution and metabolism. Antibiotic Contaminated Waste water treatment of various ailments To save our body and to prevent health.	Emissions and prevent global warming. in section dealing life and duplication physiological setting. To remove fungal diseases and malaria To evaluate the reproductive.	Prevent is human health for improving mental well being life daily forms. impact of antibiotic and on photosynthesis and mitochondria To maintain our body and good our health in maintain our health.

GOVT. TULSI COLLEGE ANUPPUR (M.P.)

M.Sc. IVth Sem.

Chemistry

Course (Semester / year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Moral Value
M.Sc. IV th Sem. 1 st year Chemistry of natural products Final year	Chemistry of natural products	1 st /Terpenoids and Carotenoids 2 nd /Alkaloids 3 rd /Steroids 4 th /Plant pigments 5 th /Prostanooids.	Plant interaction with environment bio-synthesis of all alkaloids in ameryllidaceae cation anabolic steroids and pharmaceutical product that longer in the environment, molecular and environmental determination of plant colors. Purification of minimizing the peroxalation of waste chemicals	TO promote plant growth and yields TO treat symptoms of neurological disorders. TO bodybuilding and weight lifting Communities. The interaction between plants and animals for pollination and seed scattering. Some of their derivatives are used as a medicine.	For an input agricultural practices. for improving the efficiency of plant. To promote weight gain and increase feeding efficiency in cattle.	Use of herbaceous microorganisms in agriculture to identify biosynthesis enzymes. TO improve availability improve are knowledge at genoregulation.

Head
Dept. Of Chemistry
Govt. Tulsi College Anuppur (M.P.)

PRINCIPAL
Govt. Tulsi College Anuppur
Distt. Anuppur (M.P.)

GOVT. TULSI COLLEGE ANUPPUR (M.P.)

Chemistry (Pg)

M.Sc. IV Sem.

Course (Semester / year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Moral Value
M.Sc. IV Sem / Final year	Chemistry (Solid state chemistry)	1 st / Solid state reaction 2 nd / crystal defect and non stoichiometry 3 rd / electronic preparation and band theories 4 th / organic solids 5 th / liquid crystals	Advanced electrode, ly's for energy storage and N ₂ reactions Remedying over polluted environment and the generation of sustainable chemical energy. able to conduct electricity by commonly known A cleaver or a re energy and h ₂ recycling option for agriculture and environmental sustainability. Purity of the solid product.	Energy converting for improving the photocatalytic power, waste and their applications. In separation between energy lands in solid. for bio conversion of agricultural industrial rural and urban generated organic solid Environmentally friendly for the future of urban mining strategies.	In forming fuel cells. Generating on internal electric field informing to high conductivity cells. In forming semi conductor exchange in industrial innovation of the recycling companies	clean and efficient energy storage and conveying. for developing high performance photocatalytic in manufacturing the new cells.

W

GOVT. TULSI COLLEGE ANUPPUR (M.P.)

Chemistry

M.Sc. IVth Sem.

Course (Semester / year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Moral Value
M.Sc. IV th Sem Som II nd year Final	Chemistry Application of spectroscopy	1 st / Ultraviolet and visible spectroscopy 2 nd / Infrared spectroscopy 3 rd / Nuclear magnetic resonance of paramagnetic substances in solution. 4 th / NMR spectroscopy 5 th / Mass spectroscopy	UV spectroscopy for water analysis Experiments for the measurement of dairy comp. Variable temp for the study of structure such as air soil and water life on the earth plant oils	Advances on water quality detection by on UV-spectroscopy chemical-physical and technological analysis of milk. for agriculture and industrial activity In the field of climate change Pollution and sustainability agriculture Agriculture medicine and biofables. sustainability.	Qualitative information on the global composition of water and its variation Economic and social sustainability Agrochemical and these interactions in terms determination importance for public health environment diversity of plant species under various conditions.	An important development for water quality monitoring Raw material analysis on milk analysis study structure in solid air water To understand the importance of functions and mechanism of plant biochemical plant hydrochemistry

Course (Semset ert/ year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Moral Value
M.Sc. II Previous year	Chemistry organic chemistry	1 st / Aromatic electrophilic Substitution. 2 nd / free radical Reaction. 3 rd / Addition Reaction 4 th / Addition to Carbon-Hetero multiple bonds 5 th / Pericyclic reaction	for stability reactivity and other properties. aromatic Compounds To do it adding if many. Compounds To form hard Compounds To form medicine	To be Knowledge Harmful Substance To be Knowledge of stability of organic Compounds	To be Knowledge and application of medicines. formation of stable Compounds To form macro molecules economically help	The formation of various medicines to be Knowledge of reactivity of compounds proper usage of polymer

Head
Deptt. Of Chemistry
Govt. Tulsi College Anuppur (M.P.)

PRINCIPAL
Govt. Tulsi College Anuppur
Distt. Anuppur (M.P.)

Course (Semset ert/ year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Mo Val
M-sc. II/ Previous year	Chemistry (Physical Chemistry)	1 st /Chemical dynamics 2 nd /Surface Chemistry 3 rd / macromolecules 4 th / non-equilibrium thermodynamics 5 th / Electrochemistry	Effect of temperature pressure and Concentration on Chemical Substance forming colloidal solution and surface tension these are formed by polymerisation process on environmental effect.	TO be knowledge of various conditions in dialysis like Kidney and heart to collect of micromolecules to burn oxidation and reduction Reaction learning Informing the cell of various types	In charge of chemical substance to each other is treatment medicines forming economically help economically help	Convert one substance to another substance to manufacture new technique for occup ation

Head
Deptt. Of Chemistry
Govt. Tulsi College Anuppur (M.P.)

PRINCIPAL
Govt. Tulsi College Anuppur
Distt. Anuppur (M.P.)

M.Sc. IInd Sem.

Course (Semset ert/ year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Moral Value
M.Sc. II nd Sem. CHEMISTRY	Chemistry Group Theory Mathematics - ties for chemist and biology for chemist	• Symmetry and group theory in chemistry • Vectors matrix Algebra or Carbohydrates • Differentiation Calculus OR Amino acids peptides and proteins • Integral Calculus - liquid • Permutation and Probability • Nucleic Acids.	various parameters determining the chemist of deal life and biomolecules in extend environment	to applicate the group theory in physics, chemistry and physics like Rubik's cube • Different physiological function that regulates the proper growth and development of a human body.	• a set of virtues that member of a professional community agree that should follow.	Good scientific practice - po expect fairness

Head
Deptt. Of Chemistry
Govt. Tuls College Anuppur (M.P.)

PRINCIPAL
Govt. Tuls College Anuppur
Distt. Anuppur (M.P.)

M. Sc. 2nd Sem.

Course (Semester/ year)	Subject	Unit/Topic	Course/syllabus			
			Environmental Sustainability	Social/Human Values	Professional Ethics	Moral Values
M. Sc. 2 nd Sem. Previous year	Chemistry Inorganic Chemistry	1 st / Electronic spectral studies of transition metal complex 2 nd / Magnetic properties of transition complex 3 rd / Metal - X - Complex 4 th / Metal Clusters 5 th / Optical rotatory dispersion and Circular dichroism.	In phototherapy and chemotherapy of cancer. To determination of hardness of water. Inorganic synthesis photo- chemical industry. In addition to cancer polarizing of light	Anti-cancer drug. In weightlessly calculation fungicide Antibiotic forming treatment of diabetes hypertension. To study biological molecules	for the diagnosis and therapy Dyes industry In medicines In treatment of anemia absorption spectroscopy	To treat ment of cancer

Head

Deptt. Of Chemistry
Govt. Tulsi College Anuppur (M.P.)

PRINCIPAL

Govt. Tulsi College Anuppur
Distt. Anuppur (M.P.)