Program Outcome (PO) and Course Outcome (CO) under LOCF/NCCF

Program Offered: 3-Year B.Sc. Degree/4-Year B.Sc. Honours in Chemistry

Program Outcomes (PO) (In accordance with the university syllabus)	
PO1:	Core competency
PO2:	Critical thinking
PO3:	Analytical reasoning
PO4:	Research skills
PO5:	Teamwork

Programme Specific Outcome

Programme Name	**3-Year B.Sc. Degree/4-Year B.Sc. Honours in Chemistry**
PSO	Chemistry core course study imparts advanced knowledge in three major branches (Inorganic, Organic, and Physical) of Chemistry through detailed theoretical and practical classes. It aims to equip the students of this course to attain further study in this subject at the post-graduate level.

SEMESTER:I (NCCF)

COURSE OUTCOMES (CO)			
Sl No.	**Course Name**	**Course Code**	**Course Outcomes(CO)**
1	GENERAL CHEMISTRY–I	BSCCEMMJ101	CO1. Learning scientific theory of atoms, concept of wave function. CO2. Elements in periodic table; physical and chemical characteristics, periodicity. CO3. To predict the atomic structure, chemical bonding, and molecular geometry based on accepted models. CO4. Identity of given element, relative size, charges of proton, neutron and electrons, and their assembly to form different atoms. CO5. Physical and chemical characteristics of elements in various groups and periods according to ionic size, charge,etc. and position in periodic table. CO6. Characterize bonding between atoms, molecules, interaction and energetic hybridization and shapes of atomic, molecular orbital's, bond parameters, bond- distances and energies. CO7. Basic of organic molecules, structure, bonding, reactivity and reaction mechanisms. CO8. Aromatic compounds and aromaticity, mechanism of aromatic reactions. CO9. Understanding hybridization and geometry of atoms, 3-D structure of organic molecules, identifying chiral centers. CO10. Electrophile, nucleophiles, free radicals, electronegativity, resonance, and intermediates along the reaction pathways. CO11.Mechanism of organic reactions (effect of nucleophile/leaving group, solvent), substitution vs. elimination.
2	GENERAL CHEMISTRY–I	BSCCEMMN101	CO1. Learning scientific theory of atoms, concept of wave function. CO2. Elements in periodic table; physical and chemical characteristics, periodicity. CO3. To predict the atomic structure, chemical bonding, and molecular geometry based on accepted models. CO4. Identity of given element, relative size, charges of proton, neutron and electrons, and their assembly to form different atoms. CO5. Physical and chemical characteristics of elements in various groups and periods according to ionic size, charge,etc. and position in periodic table. CO6. Characterize bonding between atoms, molecules, interaction and energetic hybridization and shapes of atomic, molecular orbital's, bond parameters, bond- distances and energies. CO7. Basic of organic molecules, structure, bonding, reactivity and reaction mechanisms. CO8. Aromatic compounds and aromaticity, mechanism of aromatic reactions. CO9. Understanding hybridization and geometry of atoms, 3-D structure of organic molecules, identifying chiral centers. CO10. Electrophile, nucleophiles, free radicals, electronegativity, resonance, and intermediates along the reaction pathways. CO11.Mechanism of organic reactions (effect of nucleophile/leaving group, solvent), substitution vs. elimination.
3	INDUSTRIAL CHEMISTRY (SEC-1)	BSCCEMSE101	CO1.Understanding to the chemistry of paints, varnishes and dyes. CO2.Preparation and uses of various compounds including $KMnO_4$, CaC_2, alloy steels etc. CO3.Understanding the chemistry of ceramics. CO4.Concepts of corrosion: cause and prevention.

SEMESTER:II (NCCF)

COURSE OUTCOMES (CO)			
Sl No.	**Course Name**	**Course Code**	**Course Outcomes(CO)**
1	GENERAL CHEMISTRY–II	BSCCEMMJ201	CO1.Physical properties and related laws of gas and liquid states are described. CO2. Understanding Kinetic model of gas and its properties. CO3. Maxwell distribution, mean-free path, kinetic energies. CO4. Behaviour of real gases, its deviation from ideal behaviour, equation of state, isotherm, and law of corresponding states. CO5. Liquid state and its physical properties related to temperature and pressure variation. CO6. Properties of liquid as solvent for various household and commercial use. CO7.Understand the basics of chemical kinetics: determination of order, molecularity, theories of reaction rates, determination of rate of opposing/parallel/chain reactions with suitable examples, application of steady state kinetics, Steady-state approximation.
2	GENERAL CHEMISTRY–II	BSCCEMMN201	CO1.Physical properties and related laws of gas and liquid states are described. CO2. Understanding Kinetic model of gas and its properties. CO3. Maxwell distribution, mean-free path, kinetic energies. CO4. Behaviour of real gases, its deviation from ideal behaviour, equation of state, isotherm, and law of corresponding states. CO5. Liquid state and its physical properties related to temperature and pressure variation. CO6. Properties of liquid as solvent for various household and commercial use. CO7.Understand the basics of chemical kinetics: determination of order, molecularity, theories of reaction rates, determination of rate of opposing/parallel/chain reactions with suitable examples, application of steady state kinetics, Steady-state approximation.
3	CHEMICAL SCIENCE	MDC213	CO1.Knowledge of Polymer chemistry CO2.Application of polymer in everyday life CO3.Basic concepts and classifications of drugs, medicines, cancer therapy CO4.Knowledge of applications of different essential drug molecules CO5.Elementary idea about bioinorganic chemistry
4	PHARMACEUTICAL CHEMISTRY (SEC-2)	BSCCEMSE201	CO1.Understanding of different drug design and discoveries. CO2.Different classes of drugs and their examples CO3. Some knowledge about aerobic and anaerobic fermentation chemistry. CO4. Some idea about production of various drug related components

SEMESTER:III (NCCF)

COURSE OUTCOMES (CO)			
Sl No.	**Course Name**	**Course Code**	**Course Outcomes(CO)**
1	INORGANIC CHEMISTRY–I	BSCCEMMJ301	CO1.Understanding coordination compounds – its nomenclature, and various types of ligands CO2.Concept of Valence Bond Theory and its applications and drawbacks CO3.Different types of isomerism (both geometrical and optical) in coordination chemistry CO4.Understanding chelate effect, macrocyclic effect and their relation with the stability of the complex CO5.Application of coordination complexes CO6.Chemistry, reactivity and various properties of s- and p-block elements. CO7.Hands on experience on the identifications of various acid and basic radicals and qualitative analysis of radicals from a mixture of salts. CO8.d- block chemistry including 1st, 2nd and 3rd row transition elements on their various oxidations state, magnetic properties, complex formation etc.
2	PHYSICAL CHEMISTRY–I	BSCCEMMJ302	CO1.Understanding different mathematical functions. CO2.Learning about mathematical probability and correlations. CO3. Concepts of sampling and analysis of data. CO4. First Law of thermodynamics and concepts. CO5. Understanding the concept of system, variables, heat, work, and their relations. CO6. Concept of heat of reactions and use of equations in calculations of bond energy, enthalpy, etc. CO7. Solids, lattice parameters – its calculation, application of symmetry, solid characteristics of simple salts. CO8. Basic principle of laws of electrochemistry. CO9. Concept of ion atmosphere. C10. Application of conductance measurement.
3	INORGANIC & ORGANIC CHEMISTRY	BSCCEMMN301	CO1. Atomic theory and its evolution. CO2. Learning scientific theory of atoms. CO3. To understand atomic theory of matter, composition of atom. CO4. Identity of given element, relative size, charges of proton, neutron and electrons, and their assembly to form different atoms. CO5.Defining isotopes, isobar and isotone. CO6. Coordination compounds – Concepts of double salts and complex salts, Werner theory, stereochemistry and isomerism. CO7. Reactivity, stability of organic molecules, structure, stereochemistry. CO8. Stereochemistry of organic molecules – conformation and configuration, asymmetric molecules and nomenclature. CO9. Understandings of Carbohydrates, classification, structure and configuration.

SEMESTER:IV (NCCF)

COURSE OUTCOMES (CO)			
Sl No.	**Course Name**	**Course Code**	**Course Outcomes(CO)**
1	ORGANIC CHEMISTRY–I	BSCCEMMJ401	CO1.Thermodynamic criteria for reactivity, stability of organic molecules, structure, stereochemistry. CO2. Reaction mechanism of substitution, elimination and addition reaction

			CO3. Mechanism of organic reactions (effect of nucleophile/leaving group, solvent), substitution vs. elimination. CO4. Electrophile, nucleophiles, free radicals, electronegativity, resonance, and intermediates along the reaction pathways. CO5. Stereochemistry and concept of different types of isomerism. CO6. Preparation, properties and reaction of some functional groups. CO7. Understanding different types of name reaction.
2	PHYSICAL CHEMISTRY–II	BSCCEMMJ402	CO1.Second Law of thermodynamics and concepts. CO2.Understanding the concept of entropy; reversible, irreversible processes. CO3. Learn the application of thermodynamics: Joule Thompson effects, partial molar quantities. CO4. Understanding the equilibrium on the basis of thermodynamic parameters. CO5. Understanding the Le Chatelier's principle from thermodynamics. CO6. Concepts of thermodynamic probability and relation with entropy. CO7. Calculation of entropy using 3rd law of thermodynamics. CO8. Concepts of partition functions. CO9. Concepts of four colligative properties, their interrelations and applications C10. Thermodynamic parameters related to mixing for binary solutions.
3	ORGANIC & PHYSICAL CHEMISTRY	BSCCEMMN401	CO1.the preparation methods of few organic compounds CO2. Understandings of different types of biomolecules, e.g, amino acids. proteins, etc, synthesis and properties of these molecules. CO3. Knowledge of Macromolecular chemistry CO4. Laws of thermodynamics and concepts. CO5. Understanding the concept of system, variables, heat, work, and laws of thermodynamics. CO6. Understanding the concept of heat of reactions and use of equations in calculations of bond energy, enthalpy, etc. CO7. Understanding the concept of entropy; reversible, irreversible processes. CO8. Knowledge of reversible reactions and Chemical Equilibrium.
4	FUEL CHEMISTRY (SEC-3)	BSCCEMSE401	CO1.Concepts of different renewable and non-renewable energy sources CO2. Understanding the Coal as a fuel CO3. Fractionation of coal tar and coal liquification CO4. Other non-petroleum fuels and their production and uses CO5. Understanding of various petrochemicals and their uses CO6. Concepts of lubricants and their various properties

SEMESTER:V (LOCF)

COURSE OUTCOMES (CO)			
Sl No.	**Course Name**	**Course Code**	**Course Outcomes(CO)**
1	Applied Chemistry	BSCPCEMDSE501	CO1.Basic concepts of analytical chemistry and its application. CO2. To inspire the students about the chemistry which is good for human health and environment. CO3.To acquire the knowledge of the twelve principles of green chemistry and how to apply in green synthesis. CO4. To make students aware about the benefits of using green chemistry. CO5. Knowledge of Colloids and Macromolecular chemistry

2	Quantum Chemistry, Spectroscopy & Photochemistry	BSCPCEMDSE502	CO1.Learn about limitations of classical mechanics and solution in terms of quantum mechanics for atomic/molecular systems. CO2.Develop an understanding of quantum mechanical operators, quantization, probability distribution, uncertainty principle. CO3. Knowledge of spectral lines of atoms in the light of quantum mechanics. CO4. Some basic concepts of different types of molecular spectra such as vibrational, rotational, NMR.
3	Pharmaceutical Chemistry	BSCPCEMSE501	CO1.Understanding of different drug design and discoveries CO2.Different classes of drugs and their examples CO3. Some knowledge about aerobic and anaerobic fermentation chemistry CO4. Some idea about production of various drug related components

SEMESTER:VI (LOCF)

COURSE OUTCOMES (CO)			
Sl No.	**Course Name**	**Course Code**	**Course Outcomes(CO)**
1	Chemistry of Biomolecules & Chemotherapy	BSCPCEMDSE601	CO1. Understandings of different types of biomolecules, e.g, amino acids. proteins, etc, synthesis and properties of these molecules. CO2. Activity of enzymes in biological systems CO3. Basic concepts of chemotherapy CO4. Knowledge of synthesis of different drug molecules
2	Advanced Inorganic Chemistry	BSCPCEMDSE602	CO1.Coordination compounds – Concepts of double salts and complex salts, Werner theory CO2. Knowledge of main group elements, electronic configurations, their properties abundance in nature reactions etc. CO3. d- block/transition elements , some compounds, their preparations properties etc.
3	Fuel Chemistry	BSCPCEMSE601	CO1.Concepts of different renewable and non-renewable energy sources CO2. Understanding the Coal as a fuel CO3. Fractionation of coal tar and coal liquification CO4. Other non-petroleum fuels and their production and uses CO5. Understanding of various petrochemicals and their uses CO6. Concepts of lubricants and their various properties

Durgapur Government College Mapping/Co-relation Program Outcome(PO) & Course Outcome(CO)						
Department : Chemistry Academic Session : 2024-25						
CO details	PO details					
Sl. No.	Course Code	PO1	PO2	PO3	PO4	PO5
1.	BSCCEMMJ101	✓	✓	✓		✓
2.	BSCCEMMN101	✓	✓	✓	✓	✓
3.	BSCCEMSE101		✓	✓	✓	✓
4.	BSCCEMMJ201	✓	✓	✓		✓
5.	BSCCEMMN201	✓		✓	✓	✓
6.	MDC213		✓	✓	✓	✓
7.	BSCCEMSE201	✓	✓	✓	✓	✓
8.	BSCCEMMJ301		✓	✓	✓	✓
9.	BSCCEMMJ302	✓	✓	✓		✓
10.	BSCCEMMN301	✓	✓	✓	✓	✓
11.	BSCCEMMJ401		✓	✓	✓	✓
12.	BSCCEMMJ402	✓	✓	✓		✓
13.	BSCCEMMN401	✓		✓	✓	✓
14.	BSCCEMSE401	✓	✓	✓		✓
15.	BSCPCEMDSE501	✓	✓	✓	✓	✓
16.	BSCPCEMDSE502		✓	✓	✓	✓
17.	BSCPCEMSE501	✓	✓	✓	✓	✓
18.	BSCPCEMDSE601		✓	✓	✓	✓

19.	BSCPCEMDSE602	✓	✓	✓		✓
20.	BSCPCEMSE601	✓	✓	✓	✓	✓

Program Outcome (PO) and Course Outcome (CO)

Program Offered: M.Sc. in Chemistry

Program Outcomes (PO)	
PO1:	Core competency
PO2:	Critical thinking
PO3:	Analytical reasoning
PO4:	Research skills
PO5:	Teamwork

SEMESTER:I

COURSE OUTCOMES (CO)			
Sl No.	**Course Name**	**Course Code**	**Course Outcomes(CO)**
1	Inorganic Chemistry General I	MSCCHEMC 101	CO1.Learn and apply quantum mechanics in understanding chemical bonding with molecular orbital(MO) theory formalism and thereby predict the structures . CO2.Learn properties of several homo- and heteronuclear molecules. CO3.Understand and predict the chemical bonding coordination complexes. CO4.Learn stereo-chemical, magnetic and spectral properties. coordination complexes.
2	Organic Chemistry General I	MSCCHEMC 102	CO1.Learn and accumulate ideas on stereo-chemical conformations CO2. Learn and accumulate ideas on stereo-selective reactivity of various ring systems. CO3.Acquire knowledge for the synthesis, reactivity and uses of several heterocycles and their derivatives.
3	Physical Chemistry General I	MSCCHEMC 103	CO1. After completing the course the student will be expected to be able to: Differentiate the basic principles, assumptions of classical and quantum chemistry and their consequences; CO2. Student learn understand that electron has both wave .
4	Analytical Chemistry General I	MSCCHEMC 104	CO1. At the end of this course learners should be able to calculate different analytical parameters and solve different problems CO2. Learners count different data of a chemical reaction. CO3. Learners should be able understand the solvent extraction, chromatographies techniques for purification and separation of compounds. CO4.They alsoable to familiar with different aspect of solvent extraction, chromatographies techniques and can apply their heoretical knowledge in practical field of work. CO5. The learners should be able to understand thermal properties of different materials and can measure the thermal stability

5	Inorganic Chemistry General: Practical	MSCCHEMC105	CO1.Detect the cations present in unknown inorganic sample. CO2. Detection of anions present in unknown inorganic sample.
6	Organic Chemistry General: Practical	MSCCHEMC106	CO1.At the end of the course, the learners should be able to: Identify different organic liquid compounds . CO2. The learners should be able to: Identify different organic solid compounds . CO3. Determine the m.p., b.p. solubility of solid and liquid organic compounds. .

SEMESTER: II

COURSE OUTCOMES (CO)			
Sl No.	**Course Name**	**Course Code**	**Course Outcomes(CO)**
1	Inorganic Chemistry General II	MSCCHEMC201	CO1.Student should learn the synthesis, structures, bonding and reactivity of lanthanoids andactinides element. CO2. Industrial application as well as medicinal importance of these compounds will also bediscussed. CO3. Fluxionality, distortion and dynamic equilibria; EPR: anisotropy, intensity, hyperfine splitting,photoelectron spectroscopy, XPS, UPS, AUGER, XRF.
2	Organic Chemistry General II	MSCCHEMC202	CO1. At the end of the course, the learners should be able to: Identify the structure of various heterocycles & their derivatives. CO2.To know the importance, applications CO3. To know the uses of heterocyclic compounds.
3	Physical Chemistry General II	MSCCHEMC203	CO1. In this chapter, at first, we have tried to give a lesson regarding the symmetry operation and symmetry multiplication table then the construction of Group Multiplication Table that can be used topredict the conjugate classes present within a given point group. CO2. Identification of point group is the main topic of this chapter. CO3.Similarity transformation and invariance of character under similarity transformation are two another important topics. CO4.The chapter ended with the knowledge of construction of character table of molecules belonging to different kinds of point group
4	Analytical Chemistry General II	MSCCHEMC204	CO1.Understand composition of the nuclear structure, its stability and properties, different nuclear reactions and radioactive equilibrium. CO2.Identify and define arious types of nuclear changes or processes including fission, fusion and decay reactions. CO3.Understand the concept of rate of change and half-life in the context of nuclear decay. CO4.Able to develop green methods for synthesis. Familiar with different adverse effect of chemical industry on environmental.
5	Physical Chemistry General: Practical	MSCCHEMC205	CO1.Student can explain the principle behind the experiments performed in the laboratory CO2. Student can Plan and perform experiments and interpret experimental results. CO3.Student Process data, plot experimental data and thereby interpret the experimental results.
6	Analytical Chemistry	MSCCHEMC206	CO1. Able to identify the metals present in different ores and

	General: Practical		alloys. CO2.Able to separate, purify and identify different compounds from a mixture. CO3.Able to use UV-Vis spectrophotometer CO4.Student can verify Beer's law by spectrophotometric study

SEMESTER: III

COURSE OUTCOMES (CO)			
Sl No.	**Course Name**	**Course Code**	**Course Outcomes(CO)**
1	Advanced Inorganic Chemistry General	MSCCHEMC301	CO1. Students can gather a vast knowledge of band theory of solids, semiconductors CO2. Concept of thermal and electrical transport mechanism. CO3. To understand the band structure of non-transition and transition
2	Advanced Organic Chemistry General	MSCCHEMC302	CO1. At the end of the course, the learners should be able to: Use various reagents and organic reactions in a logical manner in organic synthesis. CO2. Retrosynthetic method for the logical dissection of complex organic molecules and devise synthetic methods. CO3. After completing the chapter pericyclic reactions, the learners should be able distinguish mechanistic difference between a perycyclic and an ionic reactions. CO4. They should be able to design synthetic scheme of various commercial or non-commercial chemicals by using the concept of pericyclic reactions.
3	Advanced Physical Chemistry General	MSCCHEMC303	CO1. Application of the Group Theory CO2.. Students can gather a vast knowledge of band theory of solids, semiconductors and thermal and electrical transport mechanism. CO3.To understands the band structure of non-transition and transition metal band and their subsequent properties.
4	Organic Chemistry Major I	MSCCHEMMJE302	CO1. At the end of the course, the learners should be able to: Use various reagents and organic reactions in a logical manner in organic synthesis . CO2. Retrosynthetic method for the logical dissection of complex organic molecules and devise synthetic methods are learned. CO2.After completing the chapter pericyclic reactions, the learners should be able distinguish mechanistic difference between a perycyclic and an ionic reactions. CO3. They should be able to design synthetic scheme of various commercial or non-commercial chemicals by using the concept of pericyclic reactions. CO4.After completing the chapter photochemistry, the student will be expected to be able to: Explain fundamentals of photochemistry and the laws governing it. .
5	Physical	MSCCHEMMJE303	CO1. After completing the course the student will be expected to be able to: explain microcanonical, canonical and grand canonical

	Chemistry Major I		ensembles. CO2. Derive Maxwell-Boltzmann (MB), Bose-Einstein (BE) and Fermi-Dirac (FD) distribution laws. CO3. Explain and calculate the values of thermodynamic properties. CO4. Explain black body radiation and photon gas.
6	Advanced Chemistry General	MSCCHEMC304	CO1. After completing the course the student will be expected to be able to: Do the instrumental chemical analysis CO2. Run the machines like of UV-Vis, FTIR, Fluorimeter, Thermal Analyser, CHN(S) Analyser, Electrochemical Analyser, etc
7	Organic Chemistry Major: Practical I	MSCCHEMMJE305	CO1. After completing the course the student will be expected to be able to:Quantitative analysis CO2. Qualitative synthesis of different organic compounds
8	Physical Chemistry Major: Practical I	MSCCHEMMJE306	CO1.After completing the course the student will be expected to be able to: Determine dissociation constants by conductivity measurements CO2. Determine dissociation constants by potentiometric titrations.

SEMESTER: IV

COURSE OUTCOMES (CO)			
Sl No.	**Course Name**	**Course Code**	**Course Outcomes(CO)**
1	Advanced Analytical Chemistry General	MSCCHEMC401	CO1. To the end of this course the learners are able to evaluate the composition and stability constant of complex by different methods. CO2. Learner can explain different spectroscopic data CO3. Characterize different compounds by different spectroscopic methods such as NMR, EPR,photoelectron spectroscopy, etc. CO4. Learners able to explain CV, coulometry, LSV curve and understand the working principles of batteries.
2	Organic Chemistry Major II	MSCCHEMMJE402	CO1. After completing the chapter photochemistry, the student will be expected to be able to:Explain fundamentals of photochemistry and the laws governing it. CO2. Determine life time, redox potential, dipole moment, pK values, etc. of electronically excited molecules. CO3. After completing the course, the student will be expected to be able to describe composition of biomolecules like proteins, nucleic acids, RNA and DNA, enzymes etc. CO4. After completing the course, the student will be expected to Conformational analysis of monosaccharides (pentoses and hexoses) and relative instability ratings; .
3	Physical Chemistry Major II	MSCCHEMMJE403	CO1. After completing the course the student will be expected to be able to: explain and determine entropy production in irreversible processes. CO2. Apply Le Chateliar's principle on stationary states. CO3. The students will acquire knowledge of Interpretation of the electronic and magnetic properties.

			CO4. Deals with problems on electron exchange and double exchange or spin crossover in small transition metal complexes, from mono- to di- and tetranuclear species, CO5. Potential applications in information data storage and processing in their further studies.
4	Organic Chemistry Major III	MSCCHEMMJE405	CO1.The students will acquire knowledge of details of synthesis, structure as well as reaction of supramolecules, CO2. Molecular recognition and nature of bindings involved in biological systems CO3. Structure of supramolecules of various types in solid state CO4..Applications of supramolecules in miniaturization of molecular devices. CO5. After completing the course, the student will be expected to be able to describe composition of biomolecules like proteins, nucleic acids, RNA and DNA, enzymes etc. CO6. After completing the course, the student will be expected to be aware of mechanism of action of various antibiotics and life saving drugs.
5	Physical Chemistry Major III	MSCCHEMMJE406	CO1.After completing the course the student will be expected to be able to explain about molecular reaction dynamics CO2. Derive rate expression in terms of atomic and molecular partition functions. CO3.Explain various types of PES and the term imaginary frequency. CO4.Students can gather a vast knowledge of band theory of solids, semiconductors and thermal and electrical transport mechanism. CO5. After completing the course the student will be expected to be able to explain fundamentals of photochemistry and the laws governing it.
6	Organic Chemistry Major: Practical II	MSCCHEMMJE408	CO1. At the end of the course, the learners should be able to: explain the principle behind the experiments performed in the laboratory
7	Physical Chemistry: Major II	MSCCHEMMJE409	CO1.At the end of the course, the learners should be able to explain the principle behind the experiments performed in the laboratory plan CO2. Perform experiments and interpret experimental results.
8	Organic Chemistry Term Paper/Project	MSCCHEMC403	CO1. At the end of the course, the learners should be able to identify a research issue and frame methodology to solve it. CO2. Write well organized report.
9	Physical Chemistry Term Paper/Project	MSCCHEMC404	CO1.At the end of the course, the learners should be able to identify a research issue and frame methodology to solve it. CO2. Write well organized report

Durgapur Government College Mapping/Co-relation Program Outcome(PO) & Course Outcome(CO)						
Department : Chemistry(M.Sc) Academic Session : 2024-25						
CO details	PO details					
Sl. No.	Course Code	PO1	PO2	PO3	PO4	PO5
1.	MSCCHEMC 101	✓	✓	✓		✓
2.	MSCCHEMC 102	✓	✓	✓	✓	✓
3.	MSCCHEMC 103		✓	✓	✓	✓
4.	MSCCHEMC 104	✓	✓	✓		✓
5.	MSCCHEMC105	✓		✓	✓	✓
6.	MSCCHEMC106		✓	✓	✓	✓
7.	MSCCHEMC201	✓	✓	✓	✓	✓
8.	MSCCHEMC202		✓	✓	✓	✓
9.	MSCCHEMC203	✓	✓	✓		✓
10.	MSCCHEMC204	✓	✓	✓	✓	✓
11.	MSCCHEMC205		✓	✓	✓	✓
12.	MSCCHEMC206	✓	✓	✓		✓
13.	MSCCHEMC301	✓		✓	✓	✓
14.	MSCCHEMC302	✓	✓	✓		✓
15.	MSCCHEMC303	✓	✓	✓	✓	✓
16.	MSCCHEMMJE302		✓	✓	✓	✓
17.	MSCCHEMMJE303	✓	✓	✓	✓	✓

18.	MSCCHEMC304		✓	✓	✓	✓
19.	MSCCHEMMJE305	✓	✓	✓		✓
20.	MSCCHEMMJE306	✓	✓	✓	✓	✓
21.	MSCCHEMC401		✓	✓	✓	✓
22.	MSCCHEMMJE402	✓	✓	✓		✓
23.	MSCCHEMMJE403	✓		✓	✓	✓
24.	MSCCHEMMJE405		✓	✓	✓	✓
25.	MSCCHEMMJE406	✓	✓	✓	✓	✓
26.	MSCCHEMMJE408		✓	✓	✓	✓
27.	MSCCHEMMJE409	✓	✓	✓		✓
28.	MSCCHEMC403	✓	✓	✓	✓	✓
29.	MSCCHEMC404		✓	✓	✓	✓