



Syllabus distribution for the Academic Session 2020-2021

CLASS	PAPER	TOPIC	UNIT	FACULTY ASSIGNED
UG SEMESTER – I (HONOURS)	C1T	Bonding and Physical Properties	I	TA, AB
		General Treatment of Reaction Mechanism I	II	AB
		Stereochemistry I	III	SM
	C1P	Organic Chemistry lab I	N/A	SM
	C2T	Kinetic Theory and Gaseous state	I	PG
		Chemical Thermodynamics	II	NKB
		Chemical kinetics	III	NKB
	C2P	Physical Chemistry lab I	N/A	PG
	GE1T	Atomic Structure	I	TM
		Chemical Periodicity	II	SA
		Acids and bases	III	SA
		Redox reactions	IV	TM
		Fundamentals of Organic Chemistry	V	AB
		Stereochemistry	VI	SM
		Nucleophilic Substitution and Elimination Reactions	VII	AB
		Aliphatic Hydrocarbons	VIII	PP
	GE1P	Inorganic Chemistry lab	I	TM, SA
		Organic Chemistry lab	II	SM
UG SEMESTER – I (GENERAL)	DSC1AT	Atomic Structure	I	TM
		Chemical Bonding and Molecular Structure	II	SA
		Fundamentals of Organic Chemistry	III	TA
		Stereochemistry	IV	TA
		Aliphatic Hydrocarbons	V	PP
	DSC1AP	Inorganic Chemistry lab (Volumetric Analysis)	I	TM, SA
		Organic Chemistry lab	II	TA, PP
PG SEMESTER – I	CEM 101	Mathematical Preliminaries and Quantum Mechanics-I	I	NKB
		Thermodynamics	II	PG
		Statistical Mechanics - I	III	NKB
		Fundamentals of Nanoscience and technology	IV	TA
		Principle of Molecular Spectroscopy-I	V	PG
	CEM 102	Pericyclic reaction I	I	TA
		Organic transformations/ Reagent Chemistry/Synthesis-I:	II	AB
		Natural products-Terpenoids:	III	DR
		Natural Products - Alkaloids:	IV	DR
		Retrosynthetic analysis-I	V	SM
	CEM 103	Symmetry and Group theory-I	I	NKB, SA
		Solid state Chemistry and crystallography	II	TM, PG
		Bioinorganic chemistry-I	III	TM
	CEM 104	Constituents of Food	I	PP
		Introduction to food microbiology	II	PP
		Food preservation	III	PP
		Computer Basics-I	IV	SS
		Computer Basics-II	V	SS
	CEM 195	Inorganic Chemistry lab (Practical)	N/A	TM, SA
	CEM 196	Food Processing, preservation & packaging lab (Practical)	N/A	DR, SM

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CLASS	PAPER	TOPIC	UNIT	FACULTY ASSIGNED
UG SEMESTER – II (HONOURS)	C3T	Extra nuclear Structure of atom	I	NKB
		Chemical periodicity	II	TM
		Acid-Base reactions	III	TM
		Redox Reactions and precipitation reactions	IV	SA
	C3P	Inorganic Chemistry lab I	N/A	SA, TM
	C4T	Stereochemistry II	I	SM
		General Treatment of Reaction Mechanism II	II	DR, AB, TA
		Substitution and Elimination Reactions	III	AB
	C4P	Organic Chemistry lab II	N/A	SM, TA
	GE2T	Kinetic Theory of Gases and Real gases	I	NKB
		Liquids	II	NKB
		Solids	III	NKB
		Chemical Kinetics	IV	NKB
		Chemical Bonding and Molecular Structure	V	TM
		Comparative study of p-block elements	VI	SA
	GE2P	Inorganic and Physical Chemistry lab	N/A	PG, NKB, SA, TM
UG SEMESTER – II (GENERAL)	DSC1BT	Chemical Energetics	I	PG
		Chemical Equilibrium	II	PG
		Ionic Equilibria	III	PG
		Aromatic hydrocarbons	IV	SM
		Alkyl and Aryl Halides	V	SM
		Alcohols, Phenols and Ethers	VI	SM
		Ethers (aliphatic and aromatic)	VII	SM
		Aldehydes and ketones (aliphatic and aromatic)	VIII	SM
	DSC1BP	Physical Chemistry lab, Organic Chemistry lab	N/A	PG, SM
PG SEMESTER – II	CEM 201	Quantum Mechanics-II	I	NKB
		Chemical Kinetics-I	II	NKB
		Electrochemistry	III	PG
		Molecular Spectroscopy-II	IV	PG
		Surface Chemistry	V	PG, NKB
	CEM 202	Pericyclic reaction I	I	AB
		Organic transformations/ Reagent Chemistry/Synthesis-I	II	AB
		Stereochemistry I	III	SM
		Stereochemistry II	IV	SM
	CEM 203	Organometallic chemistry-I	I	TM
		Group theory-II	II	TM, SA
		Chemistry of p and d block elements	III	TM, SA
	CEM 204	Nanotechnology: Principles and Practices	I	TA
	CEM 295	Organic Chemistry Practical	N/A	SM
	CEM 296	Physical Chemistry Practical	N/A	NKB

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Department of Chemistry (UG & PG)



CLASS	PAPER	TOPIC	UNIT	FACULTY ASSIGNED
UG SEMESTER – III (HONOURS)	C5T	Transport processes	I	PG, NKB
		Applications of Thermodynamics – I	II	PG
		Foundation of Quantum Mechanics	III	NKB
	C5P	Physical Chemistry-II lab	N/A	NKB
	C6T	Chemical Bonding-I	I	SA
		Chemical Bonding-II	II	TM
		Radioactivity	III	SA
	C6P	Inorganic Chemistry-II lab	N/A	TM, SA
	C7T	Chemistry of alkenes and alkynes	I	DR
		Aromatic Substitution	II	SM
		Carbonyl and Related Compounds	III	AB
		Organometallics	IV	TA
	C7P	Qualitative Analysis of Single Solid Organic Compounds	N/A	AB, PP
UG SEMESTER – III (GENERAL)	DSC1CT	Drugs & Pharmaceuticals	I	PP, AB
		Fermentation	II	SM
		Pharmaceutical Chemistry	N/A	PP, AB, SM
		Solutions	I	NKB
		Phase Equilibrium	II	NKB
		Conductance	III	NKB
		Electrochemistry	IV	NKB
		Carboxylic acids and their derivatives	V	TA
	DSC1CP	Amines and Diazonium Salts	VI	TA
		Amino Acids, Peptides and Proteins	VII	TA
	SEC1T	Carbohydrates	VIII	TA
		Physical Chemistry lab	I	NKB, PG
	SEC1P	Organic Chemistry lab	II	TA
PG SEMESTER – III	CEM 301	Basic Analytical Chemistry		To be decided later
		Practical		To be decided later
		Photophysical processes	I	TM
		Laser and its applications	II	NKB
	CEM 302	EPR spectroscopy	III	TM
		PES and NQR spectroscopy	IV	TM, NKB
		PHYSICAL CHEMISTRY SPECIAL PAPER		
		Matrix mechanics	I	NKB
	CEM 303	Stationary perturbation theory	II	PG
		Semiclassical treatment of radiation-matter interaction	III	PG
		Group Theory and Quantum Mechanics	IV	NKB
		Semiempirical methods of Quantum Chemistry	V	PG
		Solid state chemistry-I	I	PG
	CEM 395	Solid state chemistry-II	II	PG
		Statistical mechanics-II	III	NKB
		Statistical mechanics-III	IV	NKB
		Non-equilibrium thermodynamics	V	NKB
	CEM 395	Project work	N/A	NKB, PG

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Department of Chemistry (UG & PG)



CLASS	PAPER	TOPIC	UNIT	FACULTY ASSIGNED
PG SEMESTER – III (CONTINUED)	INORGANIC CHEMISTRY SPECIAL PAPER			
	CEM 302	Organometallic chemistry–II and catalysis	I	SA
		Chemical applications of group theory	II	SA
	CEM 303	Bioinorganic chemistry-II	I	TM
		Inorganic photochemistry	II	TM
	CEM 395	Project work	N/A	TM, SA
	ORGANIC CHEMISTRY SPECIAL PAPER			
	CEM 302	Organometallic Chemistry	I	PP
		Pericyclic reaction III	II	AB
		Linear Free Energy Relationship-I	III	SM
		Linear Free Energy Relationship-II	IV	SM
	CEM 303	Bioorganic and Supramolecular Chemistry-I	I	TA
		Bioorganic and Supramolecular Chemistry-II	II	TA
		Bioorganic and Supramolecular Chemistry-III	III	TA
		Peptides and Nucleic acids	IV	SM
		Green Chemistry	V	DR
	CEM 395	Project work	N/A	DR, SM, PP, AB, TA
UG SEMESTER – IV (HONOURS)	C8T	Application of Thermodynamics – II	I	PG
		Electrical Properties of molecules	II	NKB, PG
		Quantum Chemistry	III	NKB, PG
	C8P	Physical Chemistry Lab	N/A	PG
	C9T	General Principles of Metallurgy	I	TM
		Chemistry of s and p Block Elements	II	TM
		Noble Gases	III	SA
		Inorganic Polymer	IV	SA
		Coordination Chemistry-I	V	TM
	C9P	Inorganic Chemistry Lab	N/A	TM, SA
	C10T	Nitrogen compounds	I	TA
		Rearrangements	II	AB
		The Logic of Organic Synthesis	III	SM
		Organic Spectroscopy	IV	DR
	C10P	Organic Chemistry Lab	N/A	AB
	SEC2T	Basic Analytical Chemistry	I	NKB, TM
	SEC2P	Practical	I	SA, TM
	GE4T	Solutions, Phase Equilibria, Conductance, Electrochemistry	I	PG
		Analytical and Environmental Chemistry	II	TM
	GE4P	Physical Chemistry Lab	I	PG
		Analytic and Environmental Chemistry Lab	II	TM

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Department of Chemistry (UG & PG)



CLASS	PAPER	TOPIC	UNIT	FACULTY ASSIGNED
UG SEMESTER – IV (GENERAL)	DSC1DT	Transition Elements (3d series)	I	TM
		Coordination Chemistry	II	TM
		Crystal Field Theory	III	TM
		Kinetic Theory of Gases	IV	PG
		Liquids	V	PG
		Solids	VI	PG
		Chemical Kinetics	VII	PG
	DSC1DP	Inorganic Chemistry lab	N/A	TM
		Physical Chemistry lab	N/A	PG
	SEC2T	Intellectual Property Rights (No laboratory)		TA
PG SEMESTER – IV	CEM 401	NMR spectroscopy I	I	DR
		NMR spectroscopy II	II	DR
		Mass spectroscopy	III	TM
		Combined applications of spectroscopic techniques	IV	NKB
		CD, ORD, MossBauer spectroscopy	V	TM
	PHYSICAL CHEMISTRY SPECIAL PAPER			
	CEM 402	Quantum mechanics of many electron systems I	I	PG
		Atomic Spectroscopy	II	NKB
		QM of diatomic molecules	III	PG
		QM of many-electron system-II	IV	PG
		Applications of perturbation theory	V	NKB
	CEM 403	Chemicals Kinetics-II	I	NKB
		Chemical Kinetics-III	II	NKB
		Macromolecules	III	NKB
		Biopolymers	IV	SM
		Advanced electrochemistry	V	PG
	CEM 495	Project work	N/A	NKB, PG
	INORGANIC CHEMISTRY SPECIAL PAPER			
	CEM 402	Magnetochemistry	I	TM
		Metal carbonyls and clusters	II	SA
	CEM 403	Inorganic reaction mechanism	I	SA
		Analytical chemistry	II	TM
	CEM 495	Project work	N/A	TM, SA
	ORGANIC CHEMISTRY SPECIAL PAPER			
	CEM 402	Organic Photochemistry-I	I	DR
		Organic Photochemistry-II	II	DR
		Biological Active Molecules	III	TA
		Vitamins and co-enzymes	IV	AB
	CEM 403	Stereochemistry-III	I	SM
		Stereochemistry-IV	II	AB
		Stereochemistry-V	III	AB
		Stereochemistry-VI	IV	SM
		Stereochemistry-VII	V	TA
	CEM 495	Project work	N/A	DR, SM, PP, AB, TA

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CLASS	PAPER	TOPIC	UNIT	FACULTY ASSIGNED
UG SEMESTER – V (HONOURS)	C11T	Coordination Chemistry-II	I	TM, SA
		Chemistry of d- and f- block elements	II	SA
		Transition Elements	III	SA
		Lanthanoids and Actinoids	IV	SA
	C11P	Inorganic Chemistry Lab	N/A	TM, SA
	C12T	Carbocycles and Heterocycles	I	AB
		Cyclic Stereochemistry	II	SM
		Pericyclic reactions	III	DR, TA
		Carbohydrates	IV	DR
		Biomolecules	V	SM, PP
	C12P	Organic Chemistry Lab	N/A	DR, PP
	DSE1T	Crystal Structure	I	PG
		Statistical Thermodynamics	II	NKB
	DSE1P	Advanced Physical Chemistry	N/A	PG
	DSE2T	Qualitative and quantitative aspects of analysis	I	NKB
		Optical methods of analysis:	II	NKB, TM
		Thermal methods of analysis	III	SA
		Electroanalytical methods	IV	NKB
		Separation techniques	V	PP, DR, NKB
	DSE2P	Analytical Methods in Chemistry	N/A	DR, PP, TM, SA
UG SEMESTER – V (GENERAL)	DSE1AT	Chemistry of 3d metals	I	TM
		Organometallic Compounds	II	TA
		Bio-inorganic Chemistry	III	SA
		Polynuclear and heteronuclear aromatic compounds	IV	AB
		Active methylene compounds	V	AB
		Application of Spectroscopy to Simple Organic Molecules	VI	DR
	DSE1AP	Practical	N/A	SM
	SEC3T	Pharmaceutical Chemistry	I	PP
	SEC3P	Practical	N/A	AB

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Department of Chemistry (UG & PG)



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UG SEMESTER – VI (HONOURS)	C13T	Bioinorganic Chemistry	I	TM
		Organometallic Chemistry	II	SA, TM
		Catalysis by Organometallic Compounds	III	SA
		Reaction Kinetics and Mechanism	IV	TM
	C13P	Inorganic Chemistry lab	N/A	SA, TM
	C14T	Molecular Spectroscopy	I	NKB
		Photochemistry	II	NKB
		Surface phenomenon	III	PG
	C14P	Physical Chemistry lab	N/A	PG
	DSE3T	Green Chemistry	I	DR
	DSE3P	Green Chemistry Lab	N/A	DR, TA
	DSE4T	Introduction and history of polymeric materials		PG
		Functionality and its importance		SM
		Kinetics of Polymerization		PG
		Crystallization and crystallinity		PG
	DSE4P	Polymer Chemistry Lab	N/A	SM, PG
UG SEM – VI (GENERAL)	DSE2T	Green Chemistry: Introduction to Green Chemistry	I	DR
		Principles of Green Chemistry and Chemical synthesis	II	DR
		Green Synthesis/ Reactions and some real-world cases	III	DR
		Future Trends in Green Chemistry	IV	DR
	DSE2P	Green Chemistry lab	N/A	DR

DETAILS OF TEACHERS

INITIAL	FULL NAME	TEACHING AREA
TM	DR. TARUN MISTRI	INORGANIC CHEMISTRY
SA	SMT. SANCHAYITA ADIKARI	INORGANIC CHEMISTRY
DR	DR. DILIP ROUT	ORGANIC CHEMISTRY
SM	DR. SUSOVAN MANDAL	ORGANIC CHEMISTRY
PP	DR. PRASANTA PATRA	ORGANIC CHEMISTRY
TA	DR. TAPAS KUMAR ADALDER	ORGANIC CHEMISTRY
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