Academic Calendar & Plan

(Distribution of syllabus into Modules and Units of B.Sc. Honours Course CBCS)

Department of Chemistry

Sarat Centenary College, Dhaniakhali, Hooghly

Semester-1

Orientation Programme – 1st week of July: General outline of Chemistry syllabus and its Scope & Importance

CC-I: Organic Chemistry-I/ CC-II: Physical Chemistry-I

Credits: Theory-4, Practical-2,

Marks: Theory – 40, Practical – 20, Internal Assessment – 10, Attendance-05=75

1st Module (July-September)

Name of the teacher and Course	Theory	Practical
Dr. Sanjay Mondal CC-I: Organic Chemistry-I	**Fundamentals in Organic chemistry** • Bonding and Physical Properties: Valence Bond Theory Electronic displacements, MO theory, Physical properties • General Treatment of Reaction Mechanism I: Mechanistic classification, Reactive intermediates	▪ Separation of Organic compound
Mrs. Pallabi Acharyya CC-II: Physical Chemistry-I	**Kinetic Theory and Gaseous state** 1. Kinetic Theory of gases 2. Maxwell's distribution of speed and energy 3. Real gas and virial equation **Chemical Thermodynamics** 1. Zeroth and 1st law of Thermodynamics 2. Thermochemistry	1 Determination of pH of unknown solution (buffer), by color matching method; 2 Determination of the reaction rate constant of hydrolysis of ethylacetate in the presence of an equal quantity of sodium hydroxide; 3 Study of kinetics of acid-catalyzed hydrolysis of methyl acetate

2nd Module (October to December)

Name of the teacher and Course	Theory	Practical
Dr. Sanjay Mondal CC-I: Organic Chemistry-I	• Stereochemistry-I	▪ Determination of boiling point
Mrs. Pallabi Acharyya CC-II: Physical Chemistry-I	**Chemical Thermodynamics** 1. Second Law of Thermodynamics 2. Thermodynamic relations **Chemical kinetics**	1. Study of kinetics of decomposition of H2O2 by KI;

	1. Rate law, order and molecularity 2. Role of Temperature and theories of reaction rate 3. Homogeneous catalysis 4. Autocatalysis; periodic reaction s Real gas and virial equation	**2.** Determination of solubility product of PbI2 by titremetric method

Internal Assessment: 1st Week of December

Theory and Practical Examination: as per notification of B.U. (Tentatively on December)

Semester-II

CC 3: Inorganic Chemistry-I/ CC- 4: Organic Chemistry-II

Credits: Theory-4, Practical-2,

Marks: Theory – 40, Practical – 20, Internal Assessment – 10, Attendance-05=75

1st Module (January-March)

Name of the teacher and Course	Theory	Practical
Dr. Suparna Sadhu		
Dr. Sanjay Mondal CC-4: Organic Chemistry-I	• Stereochemistry II	▪ Organic Preparations

2nd Module (October to December)

Name of the teacher and Course	Theory	Practical
Dr. Suparna Sadhu		
Dr. Sanjay Mondal CC-4: Organic Chemistry-I	**Substitution and Elimination Reactions** • Free-radical substitution reaction • Nucleophilic substitution reactions • Elimination reactions	▪ Purification of the crude product by Crystallization

Internal Assessment: 4th Week of May

Theory and Practical Examination: as per notification of B.U. (Tentatively on June)

Semester-III

CC-5: Physical Chemistry/CC 6: Inorganic Chemistry-II/CC 7: Organic Chemistry-III/SEC-1

Credits: Theory-4, Practical-2,
Marks: Theory – 40, Practical – 20, Internal Assessment – 10, Attendance-05=75

1st Module (July to September)

Name of the teacher and Course	Theory	Practical
Mrs. Pallabi Acharyya		
Dr. Suparna Sadhu		
Dr. Sanjay Mondal CC-7: Organic Chemistry-III	• Chemistry of alkenes and alkynes • Addition to C≡C (in comparison to C=C) • Aromatic Substitution	▪ Qualitative Analysis of Single Solid Organic Compounds
Dr. Sanjay Mondal Skill Enhancement Course (SEC-1) *[Credits: Theory-2, Marks – 50, Theory – 40, Internal Assessment – 10]*	• Introduction • Analysis of soil • Analysis of wate • Analysis of food products	▪ N/A

2nd Module (October to December)

Name of the teacher and Course	Theory	Practical
Mrs. Pallabi Acharyya		
Dr. Suparna Sadhu		
Dr. Sanjay Mondal CC-7: Organic Chemistry-III	• Carbonyl and Related Compounds • Exploitation of acidity of α-H of C=O • Aldol, Friedel-Crafts, Michael, Knoevenagel, Cannizzaro, Benzoin condensation and Dieckmann condensation • Nucleophilic addition to α,β-unsaturated carbonyl system • Substitution at sp2 carbon (C=O system) • Organometallics:	▪ Melting point ▪ Preparation of one derivative
Dr. Sanjay Mondal Skill Enhancement Course (SEC-1)	• Chromatography • Ion-exchange • Analysis of cosmetics	▪ N/A

[Credits: Theory-2, Marks – 50, Theory – 40, Internal Assessment – 10]		

Internal Assessment: 1st Week of December

Theory and Practical Examination: as per notification of B.U. (Tentatively in December)

Semester IV

CC 8: Physical Chemistry-III (Theo)/ CC 9: Inorganic Chemistry-III/ CC 10: Organic Chemistry-IV

Credits: Theory-4, Practical-2,
Marks: Theory – 40, Practical – 20, Internal Assessment – 10, Attendance-05=75

1st Module (January-March)

Name of the teacher and Course	Theory	Practical
Mrs. Pallabi Acharyya		
Dr. Suparna Sadhu		
Dr. Sanjay Mondal CC 10: Organic Chemistry-IV	• Nitrogen compounds Reaction • Rearrangements Reaction • The Logic of Organic Synthesis	▪ Estimation of glucose by titration using Fehling's solution ▪ Estimation of vitamin-C (reduced) ▪ Estimation of aromatic amine (aniline) by bromination (Bromate-Bromide) method ▪ Estimation of phenol by bromination (Bromate-Bromide) method
Dr. Sanjay Mondal Skill Enhancement Course (SEC) **SEC-2: Pharmaceuticals Chemistry** *[Credits: Theory-2, Marks – 50, Theory – 40, Internal Assessment – 10]*	• Drugs & Pharmaceuticals	▪ N/A

2nd Module (April-June)

Name of the teacher and Course	Theory	Practical
Mrs. Pallabi Acharyya		
Dr. Suparna Sadhu		
Dr. Sanjay Mondal CC 10: Organic Chemistry-IV	• Organic Spectroscopy	▪ Estimation of formaldehyde (Formalin) ▪ Estimation of acetic acid in commercial vinegar

		▪ Estimation of urea (hypobromite method) ▪ Estimation of saponification value of oil/fat/ester
Dr. Sanjay Mondal Skill Enhancement Course (SEC) **SEC-2: Pharmaceuticals Chemistry** *[Credits: Theory-2, Marks – 50, Theory – 40, Internal Assessment – 10]*	• Drugs & Pharmaceuticals	▪ N/A

Internal Assessment: 4th Week of May
Theory and Practical Examination: as per notification of B.U. (Tentatively on June)

Semester V

CC11: Inorganic Chemistry-IV/ CC 12: Organic Chemistry-V/ DSE 1: Advanced Physical Chemistry (Theo)

Credits: Theory-4, Practical-2,
Marks: Theory – 40, Practical – 20, Internal Assessment – 10, Attendance-05=75

1st Module (July to September)

Name of the teacher and Course	Theory	Practical
Dr. Suparna Sadhu CC11: Inorganic Chemistry-IV		
Dr. Sanjay Mondal CC 12: Organic Chemistry-V	• Carbocycles and Heterocycles • Cyclic Stereochemistry • Pericyclic reactions	▪ Chromatographic Separations.
Mrs. Pallabi Acharyya DSE 1: Advanced Physical Chemistry (Theo)	•	▪
Dr. Suparna Sadhu DSE- 2 : Analytical methods in chemistry	•	▪

2nd Module (October to December)

Name of the teacher and Course	Theory	Practical

Dr. Suparna Sadhu CC11: Inorganic Chemistry-IV		
Dr. Sanjay Mondal CC 12: Organic Chemistry-V	• Carbohydrates • Biomolecules • Alkaloids and Terpenoids	▪ Spectroscopic Analysis of Organic Compounds
Mrs. Pallabi Acharyya DSE 1: Advanced Physical Chemistry (Theo)	•	▪
Dr. Suparna Sadhu DSE- 2 : Analytical methods in chemistry	•	▪

Internal Assessment: 1st Week of December

Theory and Practical Examination: as per notification of B.U. (Tentatively on December)

Semester VI

CC 13: Inorganic Chemistry-V/ CC 14: Physical Chemistry-IV / DSE-3: Polymer Chemistry/ **DSE-4 :** Inorganic materials of industrial importance "or" Dissertation followed by power point presentation

Credits: Theory-4, Practical-2,
Marks: Theory – 40, Practical – 20, Internal Assessment – 10, Attendance-05=75

1st Module (July to September)

Name of the teacher and Course	Theory	Practical
Dr. Suparna Sadhu CC 13: Inorganic Chemistry-V		
Mrs. Pallabi Acharyya CC 14: Physical Chemistry-IV	•	▪
Dr. Sanjay Mondal **DSE-3:** Polymer Chemistry	• Introduction and history of polymeric materials • Functionality and its importance • Kinetics of Polymerization	▪ Polymer Synthesis
Dr. Suparna Sadhu **DSE-4**: Analytical methods in chemistry	•	▪

2nd Module (October to December)

Name of the teacher and Course	Theory	Practical
Dr. Suparna Sadhu CC 13: Inorganic Chemistry-V		
Mrs. Pallabi Acharyya CC 14: Physical Chemistry-IV	•	▪
Dr. Sanjay Mondal **DSE-3:** Polymer Chemistry	• Determination of molecular weight of polymers • Glass transition temperature (Tg) and determination of Tg • Polymer Solution • Properties of Polymer	▪ Polymer Characterization ▪ Polymer Analysis
Dr. Suparna Sadhu **DSE-4**: Analytical methods in chemistry	•	▪

Internal Assessment: 4th Week of May

Theory and Practical Examination: as per notification of B.U. (Tentatively on June)

Counselling Programme – Final week of June- General outline on the admission and scope of higher education and related jobs