## CCF-2022,

## Proposed distribution of syllabus and class load

## **Course: Chemistry Major, Semester-1**

## Paper: CHEM-H-CC1-1-Th, Module-II, Organic Chemistry

Sl. No.	Number of lectures	Торіс	Faculty responsible
1.	1	Nomenclature of Organic Compounds	Dr. Kalyan K. Mandal
2.	1	VBT: Concept of hybridisation, shapes and structures of molecules, double bond equivalent (DBE)	Dr. Kaushik Basu
3.	2	VBT: Resonance (including hyperconjugation) and Resonance energy	Dr. Kaushik Basu
4.	1	Electronic displacement: Inductive effect, bond polarization and bond polarizability; steric effect, steric inhibition of resonance.	Dr. Kaushik Basu
5.	1	MO Theory: Qualitative idea about molecular orbitals, bonding and antibonding interactions, idea about $\sigma$ , $\sigma^*$ , $\pi$ , $\pi^*$ , n – MOs; concept of HOMO, LUMO and SOMO	Dr. Kaushik Basu
6.	1	MO Theory: sketch and energy levels of $\pi$ MOs of i) acyclic p orbital system (C=C, conjugated diene, triene, allyl and pentadienyl systems) ii) cyclic p orbital system (neutral systems: [4], [6] annulenes; charged systems: 3-,4-,5-7 membered ring systems);	Dr. Kaushik Basu
7.	1	MO Theory: Hückel's rules for aromaticity up to [8] annulene; concept of antiaromaticity; non-aromatic molecules	Dr. Kaushik Basu

Sl. No.	Number of lectures	Торіс	Faculty responsible
8.	1	Physical properties: Melting point/boiling point and solubility of common organic compounds in terms of covalent & non-covalent intermolecular forces;	Dr. Kaushik Basu
9.	1	Physical properties: polarity of molecules and dipole moments.	Dr. Kaushik Basu
10.	2	Stereochemistry-I: Bonding geometries of carbon compounds and representation of molecules: tetrahedral nature of carbon and concept of asymmetry; Fischer, sawhorse, flying wedge and Newman projection formulae and their inter translations.	Dr. Kalyan K. Mandal
11.	2	Stereochemistry-I: Concept of chirality and symmetry: symmetry elements, molecular chirality and centre of chirality; asymmetric and dissymmetric molecules;	Dr. Kalyan K. Mandal
12.	1	Stereochemistry-I: enantiomers and diastereomers; concept of stereogenicity, chiral centres and number of stereoisomers: systems involving 1/2-chiral centre(s).	Dr. Kalyan K. Mandal