

Curriculum and Credit Framework (CCF) - 2022, University of Calcutta
Proposed distribution of syllabus and Class load
Course: Chemistry Major, Semester-1
Paper: CHEM-H-SEC1-1-Th, Skill Enhancement Course

Serial number	Number of lectures	Topic of the prescribed syllabus	Teaching faculty
Module I			
1.	1	Definitions of analysis, determination, measurement, techniques and methods	Dr. J. Chakraborty
2.	1	Classification of analytical techniques.	Dr. J. Chakraborty
3.	1	Choice of an analytical method	Dr. J. Chakraborty
4.	2	accuracy, precision, sensitivity, selectivity, method validation	Dr. J. Chakraborty
5.	1	Figures of merit of analytical methods and limit of detection (LOD).	Dr. J. Chakraborty
6.	1	Limitations of analytical methods .	Dr. J. Chakraborty
7.	2	Errors: Determinate and indeterminate errors, absolute error, relative error, minimization of errors.	Dr. J. Chakraborty
8.	3	Statistical treatment of finite samples - mean, median, range, standard deviation and variance.	Dr. J. Chakraborty
9.	2	External standard calibration - regression equation (least squares method), correlation coefficient (R^2).	Dr. J. Chakraborty
10.	1	Presentation of experimental data and results from the point of view of significant figures.	Dr. J. Chakraborty
Module II			
11.	3	Titrimetric analysis	Dr. A. K. Barik
12.	3	Acid-base titrimetry	Dr. A. K. Barik
13.	1	Precipitation titrimetry	Dr. A. K. Barik

14.	3	Complexometric titrimetry	Dr. A. K. Barik
15.	3	Redox titrimetry	Dr. A. K. Barik
16.	2	Gravimetric Analysis	Dr. J. Chakraborty
Module III			
17.	1	Water availability, requirement of water. Quality of surface water and ground water	Dr. J. Gangopadhyay
18.	1	Impurities in water	Dr. J. Gangopadhyay
19.	2	Standards of water quality for potable, domestic, industrial and agricultural purpose (color, pH, alkalinity, hardness, TDS, sulphate, fluoride, chloride etc.)	Dr. J. Gangopadhyay
20.	2	House hold water treatment, municipal water treatment and industrial treatment	Dr. J. Gangopadhyay
21.	1	Softening of water. Disinfection of water.	Dr. J. Gangopadhyay
22.	2	Definition and determinations of DO, BOD and COD, and their significance.	Dr. J. Gangopadhyay
23.	1	Basic laboratory practices, calibration of glassware (pipette, burette and volumetric flask)	Dr. J. Gangopadhyay
24.	1	Sampling(solids and liquids), weighing, drying, dissolving, Acid treatment,	Dr. J. Gangopadhyay
25.	1	Rules of work in analytical laboratory	Dr. J. Gangopadhyay
26.	1	General rule for performing quantitative determinations (volumetric and gravimetric),	Dr. J. Gangopadhyay
27.	1	Safety in Chemical laboratory, Rules of fire prevention and accidents, First aid. Precautions to be taken while handling toxic chemicals,	Dr. J. Gangopadhyay
28.	1	concentrated/fuming acids and organic solvents	Dr. J. Gangopadhyay