



National Institute of Technology Meghalaya
An Institute of National Importance

CURRICULUM

	National Institute of Technology Meghalaya An Institute of National Importance		CURRICULUM													
Programme	Bachelor of Technology (All branches)	Year of Regulation	2024-2025													
Department	Chemical and Biological Sciences	Semester	I/II													
Course Code	Course Name	Credit Structure				Marks Distribution										
		L	T	P	C	Continuous Evaluation	Total									
CB 151	Chemistry Laboratory	0	0	2	1	01 Expt.	10	100								
Course Objectives	To provide the students with knowledge of various titration-based techniques for chemical analysis.	Course Outcomes	COs	Statement				Bloom's Taxonomy								
	To teach the fundamentals of basic chemistry-related aspects for practical applications and sample analysis.		CB151.1	Able to illustrate the concepts of redox, acid-base, potentiometric and pH metric titration and spectrophotometry for quantitative analysis				Apply								
	To develop the student's ability to use different instrumental methods for chemical analysis and testing of various samples.		CB151.2	Able to analyze water samples, alloy samples by complexometric and iodometric analysis				Analyse								
	To teach the synthesis of metal nanoparticles and characterization		CB151.3	Able to prepare and characterize nanoparticles				Apply								
			CB151.4	Able to analyze coal samples and determine calorific value and water equivalent of the supplied sample				Analyse								
		CB151.5	Able to calculate the molecular weight of a polymer by viscosity method				Apply									
COs	Mapping with Program Outcomes (POs)												Mapping with PSOs			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
CB151.1	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	
CB151.2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	
CB151.3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	
CB151.4	2	2														
CB151.5	2	2														
CB151	2	2														
SYLLABUS																
No.	Content												Hours	COs		
1	Estimation of Fe(II) in Mohr's salt solution using standard KMnO ₄ solution via redox titration												2	CB151.1		
2	Conductometric titration of an unknown acid solution using a standard base solution												2	CB151.1		
3	Complexometric determination of calcium and magnesium in water sample												2	CB151.2		
4	Iodometric determination of copper in brass alloy												2	CB151.2		
5	Spectrophotometric determination of copper ions in solution												2	CB151.1		
6	Estimation of Fe(II) in a solution using standard K ₂ Cr ₂ O ₇ solution via potentiometric titration												2	CB151.1		
7	Determination of efficiency of a corrosion inhibitor (weight-loss method)												2	CB151.1		
8	Synthesis and characterization of metal nanoparticles												2	CB151.3		
9	To determine the proximate analysis of a coal sample												2	CB151.4		
10	To determine the calorific value and water equivalent of a supplied sample by using Bomb calorimeter (manually)												2	CB151.4		
11	Determination of molecular weight of a polymer (PEG) using viscometry												2	CB151.5		
Total Hours												22				
Essential Readings																
1. J. Mendham, R. Denny, J. Barnes, M. Thomas, "Vogel's Quantitative Chemical Analysis", 6 th Edition, Pearson.																
Supplementary Readings																
1. V. D. Athawale, P. Mathur, "Experimental Physical Chemistry", 1 st Edition, New Age International (P) Limited Publishers, 2001.																
2. Departmental laboratory manual																