

DEPARTMENT OF CHEMISTRY

NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA, Surathkal

COURSE PLAN AND EVALUATION PLAN

- 1) Course Code: CY 111 2) Course Title: Chemistry Lab 3) L-T-P: 0-0-3 (2)
4) Credit: 02 5) Pre-requisite: Nil 6) Course category: BSc
7) Teaching Department: Chemistry 8) Course for: I/II Semester B. Tech.

9) Objectives of the course:

- To understand the principles of volumetric analysis in chemistry
- To have exposure to procedures such as weighing, preparation of standard solution, titration etc.
- To know the principles of Instrumental methods of analysis such as colorimetry, conductometry and potentiometry.
- To know the techniques of titrations and handling certain instruments like Conductometer, Potentiometer etc.
- Acquisition of skills in measuring, weighing, transferring chemicals and taking readings precisely.

10) Skill development of the student expected from the course:

- Development of practical skill in chemistry lab activities.
- Achievement of confidence in handling chemicals, glassware and instruments.
- Learning of some of the volumetric and instrumental methods of analysis in chemistry.
- Training in planning of lab experiments, accurate observation, data collection, reasoning and reporting of results.
- Acquisition of skills in measuring, weighing, transferring chemicals and taking readings precisely.

11) Course coverage:

Schedule	Experiments	Schedule	Experiments
1 st week	Estimation of total hardness of water	7 th week	Conductometry
2 nd week	Estimation of percentage of Cu in brass	8 th week	Colorimetry
3 rd week	Estimation of percentage of MnO ₂ in Pyrolusite	9 th week	Potentiometry
4 th week	Estimation of percentage of iron in Hematite	10 th week	Refractometry
5 th week	Estimation of N ₂ in ammonium fertilizer	11 th week	Repetition experiment
6 th week	MID- TERM EXAM	12 th week	END – TERM EXAM

12) Reference books:

- Engineering Chemistry Lab Manual supplied from Dept. of Chemistry, NITK, Surathkal.
- Vogel's Text Book of Quantitative Chemical Analysis, Furnis et al. (ed) Pearson publication.

13) Details of Tutorials, if any: Nil

14) EVALUATION PLAN:

- The course will be evaluated in three components: Continuous evaluation, Mid-term and End-sem tests.

Mid – Term Exam : 25 Marks

End- Term Exam : 40 Marks

2. Continuous evaluation will include the following

- Record book will be checked after each experiment. At the end of semester, record will be **evaluated for 5 marks for neatness and completeness.**
 - After 4 experiments, the written quiz Test-1 will be conducted for **15 marks, Time: 30 Minutes.**
 - After 9 experiments, the written quiz Test-2 will be conducted for **15 marks, Time: 30 Minutes.**
 - Total weightage for quiz tests is (15 + 15 = 30) marks.
 - Quiz Test I & Quiz Test II will be the common tests for all the sections (S7 - S12).**
- Mid-term exam will have a weightage of **25 Marks. ONE procedure writing (in 10 minutes) for 5 marks and ONE volumetric experiment for 20 marks.**
 - End-Term Test will have a weightage of **40 Marks. ONE procedure writing with calculation steps (in 15 minutes) for 10 marks and ONE volumetric titration/ instrumental experiment for 30 marks.**

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5. Scheme of evaluation for MID-TERM EXAM is as follows:

TOTAL MARKS: 25

- a) Procedure Writing : 5 Marks
 b) Experiment (Volumetric) : 18 Marks
 Calculation : 2 Marks

Standardization Part		Estimation Part	
± 0.1 mL	9 marks	± 0.1 mL	9 marks
± 0.2 mL	8 marks	± 0.2 mL	8 marks
± 0.3 mL	7 marks	± 0.3 mL	7 marks
± 0.4 mL	5marks	± 0.4 mL	5marks
±0.5 mL	3 marks	±0.5 mL	3 marks
Any value	2 marks	Any value	2 marks

END TERM Evaluation Scheme

Total Marks: 40

- c) Procedure writing with calculation steps : 10 Marks
 d) Experiment volumetric/ instrumental : 30 Marks

Marks split-up for experiments numbered 1-5:

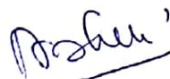
- i) Calculations : 2 Marks
 ii) Titre values : 28 Marks

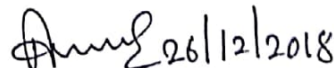
Standardization Part		Estimation Part	
± 0.1 mL	14 marks	± 0.1 mL	14marks
± 0.2 mL	13 marks	± 0.2 mL	13 marks
± 0.3 mL	11 marks	± 0.3 mL	11 marks
± 0.4 mL	9 marks	± 0.4 mL	9 marks
± 0.5 mL	6 marks	± 0.5 mL	6 marks
± 0.6 mL	3 marks	± 0.6 mL	3 marks
Any value	2 marks	Any value	2 marks

Marks split-up for experiments numbered 6-9:

- i) Calculations : 2 Marks
 ii) Experiment values : 24 Marks
 iii) Graph : 4 Marks

Conductmetry/Potentiometry		Colorimetry		Refractometry	
± 0.1 mL	24 marks	± 0.4 mg	24 marks	2 % variation	24 marks
± 0.2 mL	21 marks	± 0.8 mg	21 marks	4 % variation	21 marks
± 0.3 mL	18 marks	± 1.2 mg	18 marks	6 % variation	18 marks
± 0.4 mL	14 marks	± 1.6 mg	14 marks	8 % variation	14 marks
± 0.5 mL	10 marks	± 2.0 mg	10 marks	10 % variation	10 marks
± 0.6 mL	06 marks	± 2.4 mg	06 marks	12 % variation	06 marks
Any value	04 marks	Any value	04 marks	Any value	04 marks


 Secretary -DUGC
 Date: 26-12-2018


 Signature of HOD (Chairman - DUGC)

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