RAGHU ENGINEERING COLLEGE

(Autonomous)

(Approved by AICTE, New Delhi, Permanently Affiliated to JNTU-GV, Vijayanagaram Accredited by NBA (EEE, ME, ECE & CSE) & NAAC by A+ Grade)

Dakamarri, Bheemunipatnam Mandal, Visakhapatnam Dist. – 531 162 (A.P.)

Ph: +91-8922-248001, 248002 Fax: +91-8922-248011

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ENGINEERING CHEMISTRY LAB

(Common to Civil and Mechanical Engineering)
(AR23)

Course Objectives:

• To Verify the fundamental concepts with experiments

Course Outcomes: At the end of the course, the students will be able to

- Demonstrate and analyse experimental skills
- Calculate the hardness and dissolved oxygen of water.
- Acquire hands on knowledge on various instrumental techniques
- Analyse components present in cement
- Prepare a commonly used polymer

List of Experiments:

- 1. Determination of Hardness of a groundwater sample.
- 2. Estimation of Dissolved Oxygen by Winkler's method
- 3. Determination of Strength of an acid in Pb-Acid battery
- 4. Estimation of calcium in Portland cement
- 5. Estimation of Ferrous Iron by Dichrometry
- 6. Determination of percentage Moisture content in a coal sample
- 7. Preparation of nanomaterials by precipitation method.
- 8. Conductometric titration of strong acid vs. strong base
- 9. pH metric titration- determination of strength of strong acid vs. strong base
- 10. Determination of percentage of Iron in Cement sample by colorimetry
- 11. Preparation of a polymer (Bakelite)
- 12. Adsorption of acetic acid by charcoal

Reference:

 "Vogel's Quantitative Chemical Analysis 6th Edition 6th Edition" Pearson Publications by J. Mendham, R.C.Denney, J.D.Barnes and B. Sivasankar

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Course Outcomes:

By the end of the course, the learners will be able to:

S.No.	Course Outcome					
		Level				
CO1	Demonstrate and analyse experimental skills	3				
CO2	Calculate the hardness and dissolved oxygen of water.	3				
CO3	Acquire hands on knowledge on various instrumental techniques	3				
CO4	Analyse components present in cement	2				
CO5	Prepare a commonly used polymer	3				

CO - PO Mapping:

Course	Program Outcomes (PO)											
outcomes	P01	PO2	P03	P04	P05	P06	P07	P08	P09	P010	P011	PO12
(CO)			-									
CO1	2	1	4	1					3			1
CO2	3	1		1					3			1
CO3	3	1		1					3			1
CO4	3	1		1					3			1
CO5	3	1		1					3			1
Average	2.8	1		1			à		3			1
Average	3	1		1		7			3			1
(rounded)												

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High): None