ENGINEERING CHEMISTRY (Lab.)

Subject Code 00107	Practical			No of Period in one session : 50		
	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Annual Exam.	:	40
	—	—	04	Internal Exam.	:	10

Rationale & Objective:

The Chemistry Lab. Practical has been introduced with a view to develop scientific attitude among the students. The topics (experiments) have been chosen to develop skill among the students so that they can measure, differentiate and analyse the best results. This will help them solve the engineering problems in their world of work.

S.No. Topics Periods

(At least ten experiments are to be performed)

1 Preparation of derivatives
2 Titration
3 Quantitative Analysis
4 Quantitative Analysis of Simple Inorganic Salts
5 Qualitative and Quantitative Analysis of drinking water

CONTENTS:

Topic: 01 - Preparation of derivatives

01.01 Preparation of Barium Sulphate from Barium Chloride.

01.02 Preparation of Copper Sulphate from Copper Carbonate.
01.03 Preparation of Copper Sulphate from Copper Nitrate.
01.04 Preparation of Copper Chloride from Copper Sulphate.
01.05 Preparation of Calcium Carbonate from Calcium Oxide.

Topic: 02 - Titration

02.01 Preparation N/10 solution of oxalic acid and Sodium Carbonate
02.02 Standarisation of the given solution of NaOH or KOH with the help of N/10 Oxalic acid solution.
02.03 Determination of the volume of a drop of water.
02.04 To determine the quantity of Na_2CO_3/litre in a mixture of Na_2CO_3 and NaOH solution.

Topic: 03 - Quantitative Analysis

03.01 Determination of percentage of calcium or calcium carbonate in a given sample of calcium carbonate.
03.02 Determination of percentage of moisture in a given sample of coal..

Topic: 04 - Qualitative Analysis

04.01 Analysis of simple inorganic salts containing not more than two radicals among the following :-

Pb^{++}, Hg^{++}, Cu^{++}, Cd^{++}, Bi^{+++}, As^{+++}, Sb^{+++}, Fe^{++} or Fe^{+++},
Al^{+++}, Cr^{+++}, Mn^{++}, Zn^{++}, Co^{++}, Ca^{++}, Sr^{++}, Ba^{++}, Mg^{++}, Na^{+},
K^{+}, NH_4^{++}, Ci^{-}, Br^{-}, I^{-}, NO_3^{-}, CO_3^{--}, SO_4^{--}, S^{--}, and
NO_2^{-}

Topic: 05 - Qualitative & quantitative Analysis of Drinking Water

Note :- Water samples from five different sources, Well, handpump, water supply etc. from neighbourhood to be collected by each group of two students and following tests to be conducted :-

Qualitative Analysis (with the help of field test kits available) or the following :-

i. Total Solid dissolved.
ii. Chlorine.
iii. Flourine.
iv. Iron.
v. Nitrite.
vi. Nitrate.
vii. Sulphide/Sulphate.

Quantitative Analysis in the laboratory

i. pH-Value-By pH meter.
ii. Chlorine- By Gravimetric method.
iii. Sulphate- By Gravimetric method.