Dr.B.R.AMBEDKAR UNIVERSITY, SRIKAKULAM
(CBCS UG Proposed Syllabus)
Subject: Industrial Chemistry
w.e.f. 2020-21

I B. Sc - SEMESTER- II: INDUSTRIAL CHEMISTRY THEORY SYLLABUS

Paper –II : INTRODUCTION TO CHEMICAL ENGINEERING

Total hours of teaching 60hrs @ 4 hrs per week

Unit-I **12h**

Introduction:-Introduction-unit operations-basic laws-useful mathematical methods-units and dimensions-nomography.

UNIT – II **12h**

Physico-chemical calculations:-energy-equivalent weight-solutions-solubility-vapour pressure of solutions- humidity and saturation

Unit-III **12h**

Material balance-Energy balance

UNIT – IV **12h**

Chemical kinetics:-introduction-thermodynamic review of the rate equation-effect of temperature of reaction rate-catalysis-reactors-some useful terms in chemical processing.

Unit –V **12h**

Heat transfer operations:- conduction-convection-radiation-flow arrangements in heat exchangers-heat transfer equipment –evaporation

Books for Reference:

Text Book: Introduction to Chemical Engineering, by Goshal and Sanyl Datta, McGraw-Hills Company.

I B.Sc SEMESTER -II
INDUSTRIAL CHEMISTRY PRACTICAL SYLLABUS
Paper-II: INTRODUCTION TO CHEMICAL ENGINEERING
Total hours of laboratory Exercises 30 hrs @ 2 per week

1. steam distillation
2. differential distillation
3. liquid –liquid equilibrium
4. liquid-solid equilibrium
5. liquid diffusion
6. Estimation of first order of chemical reaction

Text Book: College Industrial Chemistry Practicals by Patel, Turakhia, Puniyani, Himalaya Publishing House, Mumbai

Practical examination pattern : practical 40marks,Recors +viva=10marks

I B.Sc., SEMESTER –II: INDUSTRIAL CHEMISTRY MODEL PAPER II
II : Introduction to Chemical Engineering

Time: 3hrs. Max. Marks: 75

SECTION - A
Answer any Five Questions **5 X 5 = 25**

1. Explain Internal and External Energy ?
2. Discuss about solutions and solubility?
3. What are the steps to follow energy balance calculations?
4. Write about elementary and non-elementary reactions?
5. Explain about catalysis?
6. What are the flow arrangements heat exchangers?
7. Explain about applications of heat exchangers?
8. Explain about mass transfer operations?

SECTION - B
Answer All Questions **5 X 10= 50**

9. What is the role of Chemical Engineer of mankind? OR
   Write about Unit Operations and Unit Process?
10. Explain the different types of Chemical Reactions.? OR
    What is the effect of temperature on reaction rates?
11. Explain about material balance calculations? OR
    Explain about Energy Balance calculate ions?
12. Write about Heat Transfer operations? OR
    Write about Industrial Heat Exchanger equipment?
13. Explain about Osmosis and Vapour Pressure of solutions? OR
    Explain about Humidity and Saturation?