BASIC PRINCIPLES AND CALCULATIONS IN CHEMICAL ENGINEERING

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TYPE OF COURSE : Rerun | Core | UG
COURSE DURATION : 12 weeks (24 Jan' 22 - 15 Apr' 22)
EXAM DATE : 24 Apr 2022

PRE-REQUISITES : 10+2 Examination in science

INTENDED AUDIENCE : Chemical,BioChemical, chemical science and Technology / Chemical Engineering Petroleum science and technology

INDUSTRIES APPLICABLE TO : Industrial Reseach and development section of chemical and Biochemical Engineering

COURSE OUTLINE :
The objective of the course is to introduce Chemical Engineering students to the basic principles and calculation techniques used in the chemical industries and to acquaint them with the fundamentals of the material and energy balances as applied to Chemical Engineering.The course is mainly intended for graduate chemical engineers.

ABOUT INSTRUCTOR :
Prof. S. K. Majumdar is a Professor in the Chemical Engineering Department,Indian Institute of Technology Guwahati . He completed his Ph.D. in Chemical Engineering from Indian Institute of Technology Kharagpur. He has 14 years of teaching experience till now. His research interests include multiphase flow and reactor development , hydrodynamics in mulitiphase flow, mineral processing, process intensifications and micro-nano bubble science and technology and its applications. He is a fellow of the International Society for Research and Development, 8A Kapteinsvigein , London,UK. He is also a recipient of various honours and awards. He is a life member of Indian Institute of Chemical Engineers, Indian Institute of Mineral Engineers, Member of Institute of Engineers(India),Member of Asia-Pasific Chemical, Biological Environmental Engineering Society(PCBEE),senior member of International Association of Engineers(IAE),Japan.

COURSE PLAN :

Week 1**:** Introduction

Week 2**:** Processes and Process Variables

Week 3**:** Fundamentals of material balances

Week 4**:** Basic principles of single phase incompressible and compressible system

Week 5**:** Basic principles of multiphase system

Week 6**:** Energy and Its Forms

Week 7**:** Energy balance on non-reactive processes

Week 8**:** Energy balance on reactive system

Week 9**:** Balances on Unsteady State Processes

Week 10: Computer-aided balance calculations

Week 11: Computational techniques

Week 12: Case studies on chemical process