

| Department of Chemical Engineering | | | |
|--|---|--------------------|--------------------------------|
| Principle of Chem. Eng'g Calculations (64202) | | | |
| Total Credits | 3 | | |
| major compulsory | | | |
| Prerequisites | P1 : General Chemistry I (23101) | | |
| Course Contents | | | |
| The course is intended to provide students a clear overview of the field of chemical engineering and introduce them to the elementary principles involved in the analysis of chemical processes with emphasis on material and energy balance calculations as applied to steady-state chemical systems. | | | |
| Intended Learning Outcomes (ILO's) | | | Student Outcomes (SO's) |
| 1 | Apply knowledge from mathematics and science to define process system variables for basic process calculations. | A | 40 % |
| 2 | Identify, formulate, and solve steady-state material and energy balance for single and multi-step units with recycle and by-pass for reactive and non-reactive processes. | E | 45 % |
| 3 | Analyze, apply and design a typical chemical engineering process to meet the desired need. | C | 15 % |
| Textbook and/ or References | | | |
| Felder, R. M. & Rousseau, R.W., (2004). Elementary Principles of Chemical Processes. (3rd edition). John Wiley & Sons. ISBN 0-471-68757-X References: Basic Principles and Calculations in Chemical Engineering (7th Edition) by DM Himmelblau and JB Riggs. (FREE!) Wikibooks - Introduction to Chemical Engineering Processes) | | | |
| Assessment Criteria | | Percent (%) | |
| First Exam | | 20 % | |
| Second Exam | | 20 % | |
| Quizzes | | 10 % | |
| Homeworks | | 10 % | |
| Final Exam | | 40 % | |
| Course Plan | | | |
| Week | Topic | | |
| 1-2 | Part 1. Fundamental Concepts in Chemical Engineering Calculations | | |
| 3-7 | Part 2. Gasses and Phase Equilibrium | | |
| 8-11 | Part 3. Material Balances | | |
| 12-15 | Part 4. Energy Balances | | |