

---

**Course Title : Principles of Calculations in Chemical Engineering**

---

- **Aim:**

Basic principles and calculations including material and energy balance in chemical processes

- **Syllabus:**

- ✓ Introduction to Chemical Engineering Calculation
- ✓ Units and Dimensions
- ✓ Mass, Mole, Volume
- ✓ Introduction to Material Balance
- ✓ General Balance Equation
- ✓ Material balances in Separation Processes
- ✓ Chemical Reaction Stoichiometry
- ✓ Recycle and Bypass
- ✓ Introduction to Energy Balance
- ✓ Forms of Energy
- ✓ Energy Balances on Closed Systems
- ✓ Energy Balances on Open Systems
- ✓ Mechanical Energy Balances
- ✓ Energy Balances on Reactive Processes
- ✓ Unsteady State Material and Energy Balance

- **Reading Resources**

- ✓ Basic Principles and Calculations in Chemical Engineering, David M. Himmelblau
- ✓ Elementary Principles of Chemical Processes, R.M. Felder and R.W. Rousseau