(Textile Engineering Department)

Undergraduate

Course Title: Physical Chemistry
Prerequisite: Engineering Organic chemistry /
Number of Credits: 2
Lecturer: Dr. Navid Rabiee

Course Topics:

- **Physical chemistry 2- Microphysics and macrophysics**
- **Ideal and real gases**
- **Pressure of a gas 5- Kinetic energy and temperature**
- **Distribution of molecular velocities**
- **Molecular diffusion 8- Kinetic theory and gas viscosity**
- **The first law of thermodynamics 10- The second law of thermodynamics (1)**
- **The second law of thermodynamics (2) 12- Entropy (Definitions and interpretations)**
- **Thermodynamic property relationships**
- **Calculation of fundamental and derived properties using equations of state and other measured quantities**
- **Introduction: the phase equilibria problem 16- Pure species phase equilibrium**
- **Thermodynamics of mixtures**
- **Multicomponent phase equilibria**
- **Introduction 20- Fugacity**
- **Fugacity in the vapor phase**
- **Fugacity in the liquid phase**

Reading Resources:

- Physical chemistry, Engel & Reid, 2013
- Engineering and chemical thermodynamics, Milo D. Koretsky, 2013