

Chemical Thermodynamics

Module Code:	CPE5007-A
Academic Year:	2018-19
Credit Rating:	10
School:	Department of Chemical Engineering
Subject Area:	Chemical and Process Engineering
FHEQ Level:	FHEQ Level 5
Module Leader:	Dr Panagiota Pimenidou

Additional Tutors:

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Lectures	18
Tutorials	6
Directed Study	76

Availability Periods

Occurrence	Location/Period
BDA	University of Bradford / Semester 2 (Feb - May)

Module Aims

The aim of this module is to give the student an understanding of the concepts and theory involved in Chemical Thermodynamics.

Outline Syllabus

1. Basic thermodynamic properties (First law of Thermodynamics, internal energy, enthalpy, Gibbs Free Energy, Maxwell Relationships, specific heat data, Gibbs-Helmholtz equation, open systems)

2. One component systems (Ideal gases, real gases, equations of state, law of corresponding states, Joule-Thomson effect, residual properties, fugacity)
3. Phase Equilibria (phase rule, partial molar properties, Gibbs-Duhem Law, Raoult's Law, Effect of pressure on azeotropic composition)
4. Reaction Equilibria (Standard free energy change, equilibrium constants, prediction of free energy changes, Electrochemical cells)

Module Learning Outcomes

On successful completion of this module, students will be able to...

- 1 1.1 Explain the factors that influence positions of equilibrium in physical and chemical changes.
- 2 2.1 Use experimental data to determine equilibrium constants, and other thermodynamic parameters.
- 3 3.1 Apply mathematical methods to scientific applications and solve numerical problems.

Learning, Teaching and Assessment Strategy

Theoretical understanding and problem solving are achieved through lectures and tutorials/example classes.

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Summative	Examination - closed book	Examination - closed book	1.5 hours	100%	Yes

Legacy Code (if applicable)

ENG2318M

Reading List

To view Reading List, please go to [rebus:list](#).