

CHEN 3771 - Chemical Engineering Thermodynamics 1

Fall 2026 Syllabus, Section 02, CRN 41579,

Credit hours: 3

Instructor

Zhuanzhuan Xie

Email: zxie01@ysu.edu

Public Instructor Information

Instructor Title: Senior Lecturer

Instructor Professional Qualifications: Ph. D., Chemical Engineering, The University of Kansas, 2013

Instructor Office Location: Moser Hall 2068

Instructor Office Phone: 330-941-3019

Course Description

3771. Chemical Engineering Thermodynamics 1. Development of the concepts and formalisms of thermodynamics and their applications to chemical engineering systems. Real and ideal behavior of single and multicomponent systems. Introduction to the thermodynamics of phase equilibria. Analysis and design of thermal systems. Additional topics include applications in transport phenomena and plant design. Prereq.: C or better in MATH 2673 or MATH 2673H or MATH 2686H and C or better in CHEN 2684. Coreq.: CHEN 3771R. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Fundamentals of Chemical Engineering Thermodynamics	Kevin D. Dahm and Donald P. Visco, Jr.	1111580707

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Tentative Course Schedule

Week of	Reading(s)	Proposed Topic	Due/To Prepare for Class
8/24	Chapter 1	Introduction	Homework 1
8/31	Chapter 2	Physical Properties of Pure Compounds	Homework 2
9/7	Chapter 3	Material and Energy Balances	No class 9/7: Labor Day Homework 3 Quiz 1: 9/9, on Chapters 1&2
9/14	Chapter 4	Entropy	Homework 4
9/21	Chapter 5	Thermodynamic Processes and Cycles	Homework 5 Quiz 2: 9/23, on Chapters 3&4
9/28	Chapter 6	Thermodynamic Models of Real, Pure Compounds	Quiz 3: 9/30, on Chapter 5
10/5	Chapter 6	Thermodynamic Models of Real, Pure Compounds	Homework 6 Exam I: 10/7, on Chapters 1-5
10/12	Chapters 7	Equations of State	Homework 7
10/19	Chapter 8	Modeling Phase Equilibrium for Pure Components	Quiz 4: 10/21, on Chapters 6&7
10/26	Chapter 8	Modeling Phase Equilibrium for Pure Components	Homework 8 Quiz 5: 10/28, on Chapter 8
11/2	Chapter 10	Vapor-Liquid Equilibrium	Homework 9 Exam II: 11/4, on Chapters 6-8

11/9	Chapter 9	An Introduction to Mixtures	No class 11/11: Veteran's Day Homework 10
11/16	Chapter 11	Theories and Models for Vapor-Liquid Equilibrium of Mixtures: Modified Raoult's Law Approaches	Quiz 6: 11/18, on Chapters 9&10
11/23	Chapter 11	Theories and Models for Vapor-Liquid Equilibrium of Mixtures: Modified Raoult's Law Approaches	No Class 11/25 – 11/27: Thanksgiving Holiday Homework 11
11/30	Chapter 11	Theories and Models for Vapor-Liquid Equilibrium of Mixtures: Modified Raoult's Law Approaches	Homework 12 Quiz 7: 12/2, on Chapter 11
12/7			Final Exam (Exam III): Monday, 12/7, 10:30-12:30, on Chapters 9-11

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.