CHEN 2650 - Computer Methods in Chemical Engineering

Fall 2026 Syllabus, Section 02, CRN 41328,

Credit hours: 2

Instructor

Byung-Wook Park

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Public Instructor Information

Instructor Title:
Associate Professor

Instructor Professional Qualifications:
Ph.D., Chemical Engineering, The University of Toledo, 2012

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Course Description

2650. Computer Methods in Chemical Engineering. Application of computational software packages and spreadsheets to solve chemical engineering problems. Utilization of process simulation packages. Real-time computing applications in laboratory automation. Prereq.: ENGR 1550, ENGR 1550H or consent of instructor. 2 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Engineering with Excel	Larsen, Ronald W.	13:978-0134589664
Required	MATLAB for Engineers	Moore, Holly	13:9780137627981

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

Schedule of Topics and Assignments

Week of	Proposed Topic	Due/To Prepare for Class
8/24	Excel Basics; Organizing Your Worksheets	
8/31	Using Excel's Ribbon - Font Group; Alignment Group; Formatting Numbers; Inserting, Deleting, and Formatting Rows and Columns	
9/7	Graphing with Excel - Creating a Graph; Editing an Existing Graph; Other Types of Graphs; Importing Text Files	Homework 1 Due
9/14	Excel Functions - Built-in Functions; Using the Convert Function to Convert Units; Simple Math Functions; Computing Sums; Trigonometric Functions; Advanced Math Functions	
9/21	Matrix Operations in Excel - Vectors, and Arrays; How Excel Handles Matrix Math; Basic Matrix Operations; Solving Systems of Linear Equations	Homework 2 Due
9/28		Test 1

10/5	Linear Regression in Excel - Linear Regression Using Excel Functions and Excel's Trendlines; Other Two-Coefficient Linear Regression Models	
10/12	Statistics in Excel - Populations and Samples; Standard Deviations and Variances; Errors, Deviations, and Distributions; Confidence Intervals	
10/19	Iterative Solutions Using Excel - Iterative Solutions; Using a Plot to Search for Roots; Guess and Check Iteration; Goal Seek Solver	Homework 3 Due
10/26		Test 2
11/2	Introduction - MATLAB Environment; Solving Problems with MATLAB	
11/9	Built-In MATLAB Functions; Using Mathematical Functions	
11/16	Matrix Algebra in MATLAB - Solution of Linear Equations; Material Balances	
11/23	Thanksgiving	
11/30	Plotting - Creating, Labeling, Two-dimensional plots, Statistics	Homework 4 Due
12/7		Final Exam

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.