This course is available for student registration only after the approval process has been completed.

Subject  CHE  
Alpha Prefix (e.g., CSE)  
Number Choice (e.g., 1301)  
Course No.  4285  
Credit Hours  3  
Term to be added to the fall schedule  (e.g., Fall 2006, e.g., Fall 2003)  
Class Hours  3  
Lecture Hours  2  
Lab Hours  4  
Contact Hours (CEU only)  
Department  Chemical Engineering  
(e.g., Computer Sciences)  
Schedule Type  Lecture/Laboratory  
(e.g., lecture, lab or special project)  
College/School  
☑ College of Engineering-01  
☑ College of Science and Liberal Arts (science)-20  
☑ College of Science and Liberal Arts (liberal arts)-21  
☐ School of Aeronautics-03  
☐ SEGS-90  
☐ School of Management-22  
☐ School of Psychology-05  
(Please check appropriate box)  
Computer Title (restricted to 25 spaces, including blanks)  DESIGN_OF_EXPERIMENTS  
Catalog Title  Design of Experiments  
Catalog Description of Course (limited to 350 characters, including spaces)  
Measurement and instrumentation. Statistical design. Data acquisition software. Design and construction of apparatus for chemical process experiments. 

In addition, you may attach a course syllabus and/or more detailed description.

Restrictions  
☑ Prerequisite  
(course number)  
☐ Corequisite  
(course number)  
Grades to be issued  
☑ A, B, C, D, F  
☐ S, U  
☐ P, F  
☐ Other  
☐ Prerequisite  
(course number)  
☐ Corequisite  
(course number)  
☐ Prerequisite  
(course number)  
☐ Corequisite  
(course number)  
☐ Prerequisite  
(course number)  
☐ Corequisite  
(course number)  
Additional Restriction  
Senior standing in Chemical Engineering (7033)  
(e.g., major, class level, department head approval)  
If this course replaces a course currently offered in BANNER, please indicate old course information  
Subject  CHE  
Alpha Prefix (e.g., CSE)  
Number Choice (e.g., 1301)  
Course No.  4105  

APPROVALS  
Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Coordinator.  

Date  4/12/05  
P. A. Jennings  
Originator  
Date  4/12/05  
P. A. Jennings  
Department Head/Program Chair  
Date  4/12/05  
Dean or Associate Dean  

Date  4/12/05  
Chair, Undergraduate Curriculum Committee  

Date  4/12/05  
Chair, Graduate Council  

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RG-207/4031
CHE 4285  Design of Experiments

Objective:
The Chemical Engineering curriculum relies upon laboratory experiments to provide additional depth of understanding in many areas of chemical engineering science and chemical process analysis. This course focuses on planning of experiments, both construction and operation of experimental equipment as well as establishment of experimental goals and specification of the data required to achieve those goals.


Course Topics:
- Review of Statistics
- Measurement System Design
- Modern Instrumental Methods
- Remote Data Acquisition
- Planning of Experiments
- Apparatus Design
- Reporting of Results

Projects:
- Redesign of Existing Experimental Apparatus
- Design of New Experimental Apparatus
  (for use in undergraduate CHE courses)
This course is available for student registration only after the approval process has been completed.

Subject CHE  
Alpha Prefix (e.g., CSE)  
Number Choice (e.g., 1301)  
Course No. 4240  
Credit Hours 3  
Term to be added to the file Fall 2006  
(e.g., Fall 2003)  
Class Hours 3  
Lecture Hours 2  
Lab Hours 3  
Contact Hours (CEU only)  
Department Chemical Engineering  
(e.g., Computer Sciences)  
Schedule Type Lecture/Laboratory  
(e.g., lecture, lab or special project)  
College/School  
(Please check appropriate box)  
☐ College of Engineering-01  
☐ College of Science and Liberal Arts (science)-20  
☐ College of Science and Liberal Arts (liberal arts)-21  
☐ School of Aeronautics-03  
☐ SEGS-90  
☐ College of Science and Liberal Arts (science)-20  
☐ College of Management-22  
☐ School of Psychology-05  
Computer Title (restricted to 25 spaces, including blanks) ADV_COMP_METH_ENG  
Catalog Title Advanced Computational Methods for Engineering Applications  
Catalog Description of Course (limited to 350 characters, including spaces)  
Introduction to numerical methods applied to engineering problems. Use of selected mathematical software.  
In addition, you may attach a course syllabus and/or more detailed description.  
Restrictions  
☐ Prerequisite  
☐ Corequisite  
Grades to be issued  
☐ A, B, C, D, F  
☐ S, U  
☐ P, F  
☐ Other  
Additional Restriction  
Senior standing in engineering  
(e.g., major, class level, department head approval)  
If this course replaces a course currently offered in BANNER, please indicate old course information  
Subject CHE  
Alpha Prefix (e.g., CSE)  
Course No. (e.g., 1301) 3141  

APPROVALS  
Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Coordinator.

P.A. Jennings  4/12/05  
Originator  
Date  
Chair. Graduate Council  
Date  
P.A. Jennings  4/12/05  
Department Head/Program Chair  
Date  
OR

Dean or Associate Dean  
Date  
Chair. Undergraduate Curriculum Committee  
Date

CATALOG COORDINATOR

REGISTRAR’S USE ONLY

Catalog Coordinator  
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SCADTL  
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RG-307-601
CHE 4240 Mathematical Methods for Engineering Applications

Text: Process Modeling and Simulation with Finite Element Methods, William B. J. Zimmerman

Course Topics
Course Introduction & Objectives
Introduction to Matlab & m files
Plotting & Matlab Functions
Solving Linear Systems
Introduction to Femlab
Numerical Analysis Basics
Finding Roots of polynomials and Nonlinear Equations
Numerical Integration
Solving Systems of Nonlinear Equations
Solving Systems of Ordinary Differential Equations
Partial Differential Equations and the Finite Element Method
Introduction to Multiphysics
Simulation and Nonlinear Dynamics
Introduction to Simulink
Using Simulink to Solve Nonlinear systems