

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

Subject CHE Course No. 4285 Credit Hours 3 Term to be added to the file Fall 2006  
Alpha Prefix (e.g. CSE) Number Choice (e.g. 1301) (e.g. Fall 2003)

Class Hours 3 Lecture Hours 2 Lab Hours 4 Contact Hours (CEU only) \_\_\_\_\_

Department Chemical Engineering Schedule Type Lecture/Laboratory  
(e.g. Computer Sciences) (e.g. lecture, lab or special project)

College/School  College of Engineering-01  School of Aeronautics-03  SEGS-90  
(Please check appropriate box)  College of Science and Liberal Arts (science)-20  School of Management-22  
 College of Science and Liberal Arts (liberal arts)-21  School of Psychology-05

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 \_\_\_\_\_  Corequisite \_\_\_\_\_ Grades to be issued  
(course number) (course number)  A, B, C, D, F  
 Prerequisite \_\_\_\_\_  Corequisite \_\_\_\_\_  S, U  
(course number) (course number)  P, F  
 Prerequisite \_\_\_\_\_  Corequisite \_\_\_\_\_  Other \_\_\_\_\_  
(course number) (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 Alpha Prefix (e.g. CSE) CHE Course No. (e.g. 1301) 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.

P.A. Jennings 4/12/05 \_\_\_\_\_  
Originator Date Chair, Graduate Council Date

P.A. Jennings 4/12/05 OR \_\_\_\_\_  
Department Head/Program Chair Date

[Signature] 4-12-05 \_\_\_\_\_  
Dean or Associate Dean Date Chair, Undergraduate Curriculum Committee Date

**CATALOG COORDINATOR**

**REGISTRAR'S USE ONLY**

\_\_\_\_\_  
Catalog Coordinator Date SCACRSE \_\_\_\_\_ SCADETL \_\_\_\_\_ SCAPREQ \_\_\_\_\_ SCABASE \_\_\_\_\_  
 SCARRS \_\_\_\_\_ Operator Init \_\_\_\_\_ Date \_\_\_\_\_

**DISTRIBUTION:**

Original—Registrar

Copy—Academic Unit/SEGS

Florida Institute of Technology • Office of the Registrar

150 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8136 • Fax (321) 674-7827

RG-307-6031

## 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.

Text: Engineering Experimentation, E.O. Doebelin, McGraw-Hill (1995).

### 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 Course No 4240 Credit Hours 3 Term to be added to the file Fall 2006  
Alpha Prefix (e.g., CSE) Number Choice (e.g., 1301) (e.g., Fall 2003)

Class Hours 3 Lecture Hours 2 Lab Hours 3 Contact Hours (CEU only) \_\_\_\_\_

Department Chemical Engineering Schedule Type Lecture/Laboratory  
(e.g., Computer Sciences) (e.g., lecture, lab or special project)

College/School  College of Engineering-01  School of Aeronautics-03  SEGS-90  
(Please check appropriate box)  College of Science and Liberal Arts (science)-20  School of Management-22  
 College of Science and Liberal Arts (liberal arts)-21  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  
(course number) (course number)  A, B, C, D, F  
 Prerequisite \_\_\_\_\_  Corequisite \_\_\_\_\_  S, U  
(course number) (course number)  P, F  
 Prerequisite \_\_\_\_\_  Corequisite \_\_\_\_\_  Other \_\_\_\_\_  
(course number) (course number)

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 Alpha Prefix (e.g., CSE) CHE 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 \_\_\_\_\_  
Originalator Date Chair, Graduate Council Date

P.A. Jennings 4/12/05 OR \_\_\_\_\_  
Department Head/Program Chair

\_\_\_\_\_  
Dean or Associate Dean Date Chair, Undergraduate Curriculum Committee Date

**CATALOG COORDINATOR**

**REGISTRAR'S USE ONLY**

\_\_\_\_\_  
Catalog Coordinator Date

SCACRSE \_\_\_\_\_ SCADETL \_\_\_\_\_ SCAPREQ \_\_\_\_\_ SCABASE \_\_\_\_\_  
 SCARRS \_\_\_\_\_ Operator Init \_\_\_\_\_ Date \_\_\_\_\_

**DISTRIBUTION:**

Original—Registrar  
 Copy—Academic Unit/SEGS

Florida Institute of Technology • Office of the Registrar

150 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8136 • Fax (321) 674-7827

## **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