

Bergen Community College
Division of Math, Science and Technology
Department of Industrial & Design Technology

Course Syllabus
MFG-221 Pro/Engineer® Design IV

Semester and year:
Course Number:
Meeting Times and Locations:

Instructor:
Office Location:
Phone:
Office Hours:
Email Address:

COURSE DESCRIPTION:

MFG-221 Pro/Engineer® Design IV includes advanced techniques for the design and analysis using Pro/Creo, and Pro/Mechanica. Emphasis will be placed on the technology as well utilizing advanced techniques in relation to both lab exercises as well as practical design.

Lecture, lab and a comprehensive project will be used to teach how to use specific features of the software in relation to product design.

2 lecture, 3 lab, 3 credits

Prerequisites: MFG-220 Pro/Engineer® Design III

STUDENT LEARNING OBJECTIVES:

As a result of meeting the requirements in this course, students will be able to:

Student performance on these objectives will be measured by:

| | |
|---|--|
| 1. Recognize the background and techniques to perform an FEA analysis on a design. | Graded modeling assignments and exams. |
| 2. Utilize advanced modeling procedures to build complex geometry. | Graded modeling assignments. |
| 3. Demonstrate understanding of ProEngineer's manufacturing capabilities. | Graded modeling assignments. |
| 4. Demonstrate overall ability to tie all areas of PTC's ProEngineer software together to create a fully parametric design. | Graded Final Project. |

COURSE CONTENT:

| <u>CHAPTER</u> | <u>TOPIC</u> |
|----------------|--|
| 1. | Introduction to the Tutorials |
| 2. | Finite Element Modeling with Mechanica |
| 3. | Solid Models (Part 1) |
| 4. | Solid Models (Part 2) |

** Subsequent material will be in the form of hand-outs

TEXTBOOK: Advanced Tutorial for Creo Parametric Releases 1.0 & 2.0
 Roger Toogood – Schroff Development Corporation, Shawnee-Mission
 Kansas (www.schroff.com) ISBN #978-1-58503-756-8

** Subsequent material will be in the form of hand-outs

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|-------------|----|-------------------------------|-------------|
| EVALUATION: | A. | MODELING EXERCISES | 50% |
| | B. | MIDTERM EXAM | 10% |
| | C. | FINAL PROJECT. | 20% |
| | D. | CLASS PARTICIPATION | 20% |
| | | | Total: 100% |

ATTENDANCE POLICY:

Attendance will be taken twice during each class period. The first attendance for the lecture portion of the class will be at the beginning of each class. The second attendance, for the laboratory portion of the class will be taken at 12:30 a.m. for classes beginning in the morning, and 9:45 p.m. for evening classes.

If a student is absent from the lecture portion of the class, it will be recorded as an absence for the entire class period. If a student is absent from the laboratory portion of the class, it will be recorded as an absence from that portion of the class only.

A letter grade will be deducted from the class participation portion of your final grade for each absence beyond three absences from either portion of a class period.

FACULTY ABSENCE PROCEDURE: Please note well.

A daily listing will appear in the glass case located in the main hall A bldg. which will indicate all classes which are cancelled. Students can consult this case before going to class. If students find a class cancelled which has not been listed, they should report this to the divisional dean’s office (A325) or to the evening/Saturday office (L113).

MFG 221 Pro/Engineer® Design IV

| Meeting | Date | Topic | Chapter |
|---------|-------|--|---------|
| 1 | _____ | Intro to Pro/Surface - Datum Points & Curves | Handout |
| 2 | _____ | Pro/Surface - Simple Surfaces | Handout |
| 3 | _____ | Pro/Surface – Boundary Blends | Handout |
| 4 | _____ | Pro/Surface – Importing data | Handout |
| 5 | _____ | Intro to Pro/Mechanica | 1 & 2 |
| 6 | _____ | Intro to Pro/Mechanica Structure Static Analysis | 3 |
| 7 | _____ | Intro to Pro/Mechanica Structure Sensitivity Studies/Optimization | 4 |
| 8 | _____ | Midterm Examination | |
| 9 | _____ | Pro/Mold Design | Handout |
| 10 | _____ | Pro/NC Manufacturing | Handout |
| 11 | _____ | Pro/NC Manufacturing/Open Lab | Handout |
| 12 | _____ | Plastic Advisor / Photorender/ Rapid prototyping | Handout |
| 13 | _____ | Open Lab | |
| 14 | _____ | Open Lab | |
| 15 | _____ | Submit Project/ Presentations | |

All BCC students enrolled in credit courses are entitled to a WebAdvisor account. With WebAdvisor, you may register online, check your schedule, room assignments, GPA, and find out what courses you need to take. To find out more about WebAdvisor or to sign up online, visit <http://go.bergen.edu>! While there, please make sure you give us your preferred email address. You'll find directions how to do this at <http://go.bergen.edu/email>.