Academic Affairs - Course Proposal Form

Academic Unit: Mechanical Engineering
Department Chair: Robin Bandy

Type of Course Proposal: New _X_ Change__ Deletion __
Date: October 17, 2006

Does this course fulfill a requirement for single-subject or multiple subject credential students? Yes ____ No _X__
For Catalog Copy: Yes _X_ No__ CCE: Yes__ No _X_

Conversion from ME196Q to a permanent course
Semester Effective: Fall___ Spring _X__ 2007_

Prefix &No. ME 196Q
Title: Product Design & 3D Parametric Solid Modeling
Units: 3

Change to:
Prefix &No. ME 177
Title: Product Design & 3D Parametric Solid Modeling
Units: 3

JUSTIFICATION:
Modern product design process uses many computerized tools and 3D parametric solid modeling CAD systems have become a center of the process. More and more companies require mechanical engineers be familiar with at least one 3D CAD system. The skill is now included in the basic job descriptions for the careers of mechanical engineers, and it is expected that the requirement for the skill will grow in the future. An experimental course, ME196Q, was offered twice, and the enrollments were high (27 in 2004 Fall, 22 in 2006 Spring) and the student’s responses have been very positive. This course will help the students equip with the hands-on skills, make them more competitive in their future job market.

NEW COURSE DESCRIPTION: (Not to exceed 80 words, and language should conform to catalog copy. See http://www.csus.edu/acaf/univmanual/crspsl.htm - Guidelines for Catalog Course Description)
An introduction to Solid Modeling and its application to the mechanical product design. Digital product development using 3D Parametric Solid Modeling tools. The course also covers component and assembly design, basic drawing creation. Reverse design project engineering investigating the effects of variations in geometry, dimensions, and material selection. Lecture 2 hours, Lab 3 hours.

Note:
Prerequisite: ENGR 6, ENGR 115, ME 175 (or ENGR 6, MET 164, MET173 for MET)
Corequisite:
CAN (California Articulation Number):
Graded: Letter __X__ Credit/No Credit__
Instructor Approval? Yes___ No _X_
Course Classification:
Title for SIS+ (not more than 25 characters)
3D SOLID MODELING
Cross Listed? Yes ___ No__X__
If yes, with what course:

How Many Times Can This Course be Taken for Credit? One
FOR NEW COURSE PROPOSALS OR SUBSTANTIVE CHANGES ONLY:

**Description of the Expected Learning Outcomes:** Describe outcomes using the following format: “Students will be able to: 1), 2), etc.” See the example at [http://www.csus.edu/acaf/example.htm](http://www.csus.edu/acaf/example.htm)

Students will be able to

1. Understand the philosophy of 3D parametric design and apply the knowledge to product design.
2. Familiarize part modeling techniques in 3D parametric Solid modeling system.
3. Understand assembly modeling techniques.
4. Create detailed drawings from part and assembly models for product documentation.
5. Utilize 3D Parametric Modeling tools to the product design process.
6. Use modeling techniques for various applications such as sheet metal and mold design.
7. Apply the techniques to various commercial 3D parametric solid modeling products.

**Attach a list of the required/recommended course readings and activities [Note: it is understood that these are updated and modified as needed by the instructor(s).] This attachment should be forwarded only to your Dean's office, not Academic Affairs.**

**Assessment Strategies:** A description of the assessment strategies (e.g., portfolios, examinations, performances, pre- and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above:

Laboratory and a Term Project

**For whom is this course being developed?**

Majors in the Dept x__ Majors of other Depts ___ Minors in the Dept ___ General Education ___ Other ___

Is this course required in a degree program (major, minor, graduate degree, certificate)? Yes ___ No x ___

If yes, identify program(s):

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer facilities, faculty, etc.)? Yes ___ No x ___

If yes, attach a description of resources needed and verify that resources are available.

Indicate which department or programs will be affected by the proposed course (if any). ____________________________

The Department Chair’s signature below indicates that affected programs have been sent a copy of this proposal form.

**Approvals:** If proposed change, new course or deletion is approved, sign and date below. If not approved, forward without signing to the next reviewing authority, and attach an explanatory memorandum to the original copy.

Signatures: Date

Department Chair: ____________________________

College Dean or Associate Dean: ____________________________

CPSP (for school personnel courses ONLY) ____________________________

Director of Curriculum, Assessment & Accreditation (for the Vice President for Academic Affairs) ____________________________

Distribution: Academic Affairs (original and two copies) Department Chair and College Dean. A copy of this form should be e-mailed, along with the hard copies, as an attachment to [wylien@csus.edu](mailto:wylien@csus.edu) by the Dean's office after it is approved at that level.