# Course Change Proposal

**Form A**

<table>
<thead>
<tr>
<th><strong>Academic Group (College):</strong></th>
<th><strong>Academic Organization (Department):</strong></th>
<th><strong>Date:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering and Computer Science</td>
<td>Mechanical Engineering</td>
<td>March 12, 2009</td>
</tr>
<tr>
<td><strong>Type of Course Proposal:</strong></td>
<td><strong>Department Chair:</strong></td>
<td><strong>Submitted by:</strong></td>
</tr>
<tr>
<td>New ___ Change <em>X</em> Deletion ___</td>
<td>Susan L. Holl</td>
<td>Jose J. Granda</td>
</tr>
<tr>
<td><strong>Does this course fulfill a requirement for single-subject or multiple subject credential students?</strong></td>
<td><strong>For Catalog Copy:</strong></td>
<td><strong>Semester Effective:</strong></td>
</tr>
<tr>
<td>Yes ___ No <em>X</em>_</td>
<td>Yes <em>X</em> No ___</td>
<td>Fall <em>X</em> Spring ___, 2009 ___</td>
</tr>
<tr>
<td><strong>CCE (Extension):</strong></td>
<td>Yes ___ No <em>X</em>_</td>
<td></td>
</tr>
</tbody>
</table>

This course replaces experimental course Subject Area *(prefix)* and Catalog Nbr *(course number)*:

If changing an existing course, should new version be considered a repeat of the original version? If so, the same Course ID will be maintained. If not, a new Course ID will be assigned. Note: In PeopleSoft terminology, the Course ID is the unique system identifier, not the Catalog Nbr.

| **Subject Area *(prefix)* & Catalog Nbr *(course no.):** | **Title:** Dynamics of Machinery | **Units:** |
| ME 115 | 3 |

**JUSTIFICATION:**

Course description has not been updated since 1990. Course is being updated to reflect new advances in software tools to analyze dynamics of machinery and two and three dimensional multi-body systems.

**NEW COURSE DESCRIPTION:** (Not to exceed 80 words, and language should conform to catalog copy. See http://www.csus.edu/umanual/acad.htm - Guidelines for Catalog Course Description)

Kinematic and kinetic analysis of mechanisms. Rigid and flexible multi-body assembly models in two and three dimensions. Use of solid modeling, dynamic analysis and finite element methods. Study of loads on linkages, cams, gears as integral functioning components of machines, ground and space vehicles. Study of forces and moments in machinery under impulsive and impact forces, balancing, and elements of vibration.

**Note:**

- **Prerequisite:** ENGR 110, ME 105
- **Enforced at Registration:** Yes _X_ No ___
- **Corequisite:**
- **Enforced at Registration:** Yes ___ No ___
- **Graded:** Letter _X_ Credit/No Credit __
- **Instructor Approval Required?** Yes ___ No _X__
- **Course Classification (e.g., lecture, lab, seminar, discussion):** Lecture
- **Title for CMS (not more than 30 characters):** Mach Dynamics Multi-Body System
- **Cross Listed?**
  - Yes ___ No _X__
  - If yes, do they meet together and fulfill the same requirement, and what is the other course.
- **How Many Times Can This Course be Taken for Credit?** _1_
- **Can the course be taken for Credit more than once during the same term?** Yes ___ No _X__
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

Students will be able to:

1) Use analysis and techniques learned in solid modeling and basic dynamics to develop computer models of linkages and complete working assemblies in two and three dimensions.
2) Transform solid models into dynamic analysis models to analyze kinematics, (velocities and accelerations), kinetics (forces and moments).
3) Perform simulations of rigid multi-body assemblies and calculation of loads, dynamic forces, energy and momentum.
4) Analyze forces and moments in two and three dimensions under impulsive impact forces and collisions.
5) Describe basic concepts of vibrations and balancing principles.
6) Perform simulations to obtain Finite Element Analysis under dynamic loads.
7) Apply these techniques to machinery, vehicles, cranes, engines, and any device or assembly that has moving parts in two and three dimensions.

**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:

Students will be assessed by quizzes, exams and their final project including an oral presentation and written report.

---

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

<table>
<thead>
<tr>
<th>Majors in the Dept</th>
<th>Majors of other Depts</th>
<th>Minors in the Dept</th>
<th>General Education</th>
<th>Other</th>
</tr>
</thead>
</table>

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

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.

<table>
<thead>
<tr>
<th>Signatures:</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Department Chair:</strong></td>
<td>4/24/09</td>
</tr>
<tr>
<td><strong>College Dean or Associate Dean:</strong></td>
<td>4/24/09</td>
</tr>
</tbody>
</table>

**CPSP (for school personnel courses ONLY)**

**Associate Vice President**

and **Dean for Academic Programs**

Distribution: Academic Affairs (original), Department Chair and College Dean. Dean’s office to send original after approval to Academic Affairs, at mail zip 6016. An electronic copy must also be sent.

9/10/2008