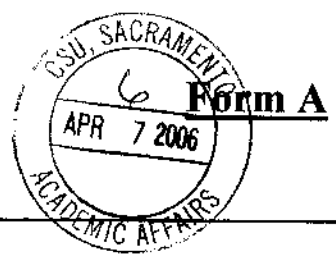




ECs

Academic Affairs - Course Proposal

CALIFORNIA STATE UNIVERSITY, SACRAMENTO



Academic Unit: Mechanical Engineering		Department Chair: Robin Bandy	
Type of Course Proposal: New <input checked="" type="checkbox"/> Change <input type="checkbox"/> Deletion <input type="checkbox"/>		Date: March 7, 2006	
Does this course fulfill a requirement for single-subject or multiple subject credential students? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		For Catalog Copy: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CCE: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
		Semester Effective: Fall <input checked="" type="checkbox"/> Spring <input type="checkbox"/> 2006	
Prefix & No. ME 196M	Title: Fundamentals of Mechatronics Design	Units: 3	
Change to:			
Prefix & No. ME 166	Title: Fundamentals of Mechatronics Design	Units: 3	

JUSTIFICATION:

Mechatronics is the merging of mechanical and electrical systems into product designs. The traditional boundaries between mechanical and electrical systems within product designs are becoming less distinct. New products are highly integrated systems incorporating motors, sensors, and microcontrollers within the mechanical systems. To create successful products, Mechanical Engineers need a fundamental understanding of the interaction between the electrical components and the mechanical system. This course provides the mechanical engineering students with an introduction to the principles of mechatronics design. This course will give the students experience that many of the employers in the area are requesting. This course has been offered twice as the experimental course ME 196M, in the Fall of 2003 and again in Spring 2006.

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

Basic concepts in mechatronics. Foundation to incorporate electronic components, microcontrollers, and software in design of mechanical systems. Hands-on experience with components and measurement equipment used in design of mechatronic products. 2 hours lecture, 3 hours laboratory

Note:	
Prerequisite: ME 118 or MET 164, ME 175 or MET 150	
Corequisite:	
CAN (California Articulation Number):	
Graded: Letter <input checked="" type="checkbox"/> Credit/No Credit <input type="checkbox"/>	Instructor Approval? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Course Classification: 4 and 16	Title for SIS+ (not more than 25 characters) FNDMTL MECHATRONICS DSGN
Cross Listed? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	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>

Students will be able to: 1) Use electronic components in mechanical system design. 2) Program a microcontroller to control a mechanical system. 3) Interface a computer to a physical system to take data and/or to control the system. 4) Understand the control and operation of electrical motors. 5) Understand the concepts of digital and analog systems design.

****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:

The course assessment will consist of homework assignments, examinations, laboratory assignments, and a final project report.

For whom is this course being developed?

Majors in the Dept 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

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.

Signatures:

	Date
Department Chair: <i>Robin Brady</i>	4/5/2006
College Dean or Associate Dean: <i>Maryjane Lee</i>	04-06-06
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 Jerri McAtee, at zip 6016. An electronic copy must also be sent to mcateeji@csus.edu.

ME 196M Mechatronics

Instructor: Dr. Kenneth Sprott
RVR 4031

Units: 3

Location: SCL 1349

Textbook: *Introduction to Mechatronics and Measurement Systems*, Histland, M. B., Alciatore, D. G.,
WCB/McGraw-Hill, Boston, 1999.

Course Description

This course is intended to provide students with basic concepts in mechatronics. It is designed to provide the foundation necessary to incorporate electronic components and microcontrollers and use software in the design of mechanical systems. Hands-on experience with components and measurement equipment used in the design of mechatronic products will culminate in a final project.

Grading

Homework	15%
Lab Assignments	20%
Midterm Exam	30%
Final Project	35%

Course Outline

Topic	Week	Reading/Lab
Introduction to Mechatronics & Electrical Systems	1	Ch 1, 2
Electrical Systems	2	Ch 3, 4
Electrical Systems & Microprocessors	3	Ch 5, 6 Lab
Microprocessors, Controls, C programming	4	Ch 7 Lab
C Programming	5	Ch 8
C Programming, Sensors and Transducers	6	Ch 9 Lab
Sensors and Transducers	7	
Interfacing Sensors and I/O	8	Lab
I/O, Communications, and Networks	9	
Communications and Networks	10	
Actuator Systems	11	Ch 10 Lab
Actuator Systems	12	Lab
Mechanical Components	13	
Special Topics	14	
Final Project Presentations	15	