CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM AREA _____ BIOLOGICAL AND PHYSICAL SCIENCES

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1. **Catalog Description of the Course.** *[Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]*

   PHYS 201: GENERAL PHYSICS II (4)
   Three hours of lecture and one three-hour lab per week. Lab fee required.
   Prerequisite: PHYS 200
   A calculus-based introduction to the concepts and principles of physics. The areas covered include electromagnetic theory, light, and atomic and nuclear physics. Practical examples will be used to illustrate the relationship between physics and other disciplines, including the life sciences, and to develop problem-solving skills. Laboratory sessions will focus on computer-simulated experiments.
   GenEd: B1

2. **Mode of Instruction.**

	Units	**Hours per Unit**	**Benchmark Enrollment**
Lecture	____3____	___1_____	__20_____
Seminar	_____	_____	_____
Laboratory	____1____	___3_____	__20_____
Activity	_____	_____	_____

3. **Justification and Learning Objectives for the Course.** (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*

   This course is a requirement for Math majors and for those taking the Applied Physics minor. It is an option for Compter Science and Biology Majors

   Through this course, students will be able to
   - explain the basic concepts and principles of physics
   - apply problem-solving skills to practical problems of everyday life
   - demonstrate the role of physics in other disciplines, and apply their understanding to these disciplines
   - search and retrieve practical information
   - use a variety of simulation programs, featuring data analysis and display, to derive conclusions about experimental situations
   - organize and express ideas clearly and convincingly in oral and written forms.

4. **Is this a General Education Course** **YES** **NO**
   If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Mathematics & Sciences)	**X**
C (Fine Arts, Literature, Languages & Cultures)	
D (Social Perspectives)	
E (Human Psychological and Physiological Perspectives)	

5. **Course Content in Outline Form.** *[Be as brief as possible, but use as much space as necessary]*

Properties of electric charges, Coulomb's Law, electric fields, electric field lines
Electric flux, Gauss's Law, applications
Potential difference and electric potential
Capacitance and capacitors, energy storage, dielectrics
Electric current, resistance and Ohm's Law, a model for conduction, effect of temperature
Electromotive force, Kirchoff's rules, RC circuits
Magnetic fields, Biot-Savart Law, Ampere's law
Faraday's law of Induction, Lenz's law
Self-inductance and mutual inductance
AC circuits, oscillations
Electromagnetic waves
Light, geometric optics, refraction, dispersion
Images formed by mirrors and lenses
Interference, diffraction, polarization
Quantum physics and atomic physics
Nuclear structure, nuclear fusion and fission

6. References. [Provide 3 - 5 references on which this course is based and/or support it.]

Text Book:
Physics for Scientists and Engineers with CD-ROM. R.A.Serway, R.J.Beichner. 5th Ed. Harcourt College Publishers, 2000. (ISBN 0-03-022657-0)

(Other references:
Physics, Douglas C. Giancoli, 5th edition, Prentice Hall, 1998
Contemporary College Physics, E. Jones, R. Childers, McGraw-Hill, 1999
Conceptual Physics, Paul G. Hewitt, 9th edition, Addison Wesley Publishing, 2001).

7. List Faculty Qualified to Teach This Course.

New faculty
Dr. Geoff Dougherty

8. Frequency.
a. Projected semesters to be offered: Fall _____ Spring __X___ Summer _____

9. New Resources Required.
a. Computer (data processing), audio visual, broadcasting needs, other equipment
b. Library needs
c. Facility/space needs
To be run in the PC Lab

10. Consultation.
Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

____Geoff Doughtery_____12/12/02_____
Proposer of Course Date