

___ Elective

iv. Does this course satisfy the diversity requirement for the AA in Liberal Arts degree?

___ yes X no

[The diversity requirement is defined as “any course whose primary purpose is to help students analyze the implications of the commonalities and differences among culturally diverse people(s). This requirement may include courses in gender studies or in non-western history and thought.”]

If yes, please explain: _____

v. Does this course satisfy the computer literacy requirement? ___ yes X no

c. Related courses in other institutions:

[NOTE: The two charts below need to be completed when submitting a new course proposal. They do not need to be completed for most course revisions, unless an Official Course Description is so old that the course’s transferability needs to be reconsidered, as in the case of an obsolete course which may be reactivated.]

i. List any comparable course(s) by completing the table below. Insert “None” if there are no comparable courses.

Comparable Courses at NJ Community Colleges				
Institution	Course Title	Course Number	Number Of Credits	Comments
Brookdale CC	General Physics III	223	4	“Students will relate classical and relativistic mechanics in the investigation of contemporary physics. They will solve problems related to harmonic motion, thermodynamics, special relativity, elementary quantum theory, atomic nature of matter and elementary nuclear and particle physics.”
Mercer CC	University Physics III	218	4	“Third course in a three-semester calculus-based sequence. The first half covers geometrical optics, optical instruments, interference, diffraction, and polarization. The second half includes an introduction to quantum mechanics, blackbody radiation, the Bohr hydrogen atom, the Pauli exclusion principle, Schrodinger's equation, X-rays, radioactivity, elementary particles, and the theory of relativity. <i>3 lecture/3 laboratory hours.</i> ”
Raritan Valley CC	Engineering Physics III	250	4	“The final semester of a three-semester sequence in introductory calculus-based physics which is required for students majoring in the engineering sciences. Also highly recommended for transfer students majoring in the physical sciences. Topics studied include thermodynamics, waves, geometrical and

				physical optics, relativity, elements of quantum theory, atomic and nuclear structure and radioactive decay processes.”
Burlington CC	General Physics III	214/215	3+1	No description available
Morris CC	Engineering Physics III	232/233	3+1	“This is the final course of a three-semester, calculus-based physics sequence. Topics include geometric optics, Maxwell’s equations in differential form, electromagnetic radiation and fundamentals of physical optics, the development of the Schrodinger Equation approach to quantum mechanics and selected applications of quantum theory to the understanding of atomic and nuclear structure..”
Bergen CC	Physics III	291	4	“This course is the continuation of PHY-290 Physics II, and is a study of waves, heat, and modern physics. It covers sound and light, geometrical and physical optics, thermodynamics, relativity, and quantum theory.”

- ii. If “None” was inserted, please explain.
- iii. Complete the table below. The institutions listed comprise the top six institutions queried on NJTransfer by OCC students.

Transferability of Proposed Course				
Institution	Course Code, Title, And Credits	Transfer Category (Major, General Ed., or Elective)	Will NOT Transfer (Place an “x” in box)	Unable to Determine Status (Place “U” in box)
Rutgers- New Brunswick	Physics 228/230 Analytical Physics IIB + Lab (3+1)	Major, General Ed		
Georgian Court University	Physics 227 Modern Physics I (4)	Major, General Ed		
Richard Stockton College	Physics 3010 Physics III (4)	Major, General Ed		
Monmouth University	Physics 301 Modern Physics (3)	Major, General Ed		
Kean University	Phys 4592 Modern Physics (4)	Major, General Ed		
Rowan University	PHYS 02.300 Modern Physics (4)	Major, General Ed		
NJIT	Physics 234 Physics III 3	Major, General Ed		
Rutgers Engineering	Physics 228/230 Analytical	Major, General Ed		

	Physics IIB + Lab (3+1)			
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- iv. If a “U” was inserted above, document the course transferability by providing either (a) the name of a contact person at the four-year institution, or (b) an email from the contact person (attach to this proposal).
 - v. If not transferable to any institution, explain.
- d. Consistency with the mission, Academic Master Plan, and strategic initiatives of the College:

This course addresses the College’s vision, mission, and Academic Master Plan by

- i. Demonstrating the college’s commitment to offer comprehensive educational programs that develop intentional learners of all ages. (Mission Statement)
 - ii. Seeking to ensure that students will thrive in an increasingly diverse and complex world. (Vision Statement)
 - iii. Preparing students for successful transfer to other educational institutions and/or for entrance into the workforce. (Academic Master Plan)
 - iv. Seeking to empower students through the mastery of intellectual and practical skills. (Academic Master Plan)
 - v. Challenging students to transfer information into knowledge and knowledge into action. (Academic Master Plan)
- e. Mark with an “x” the General Education goal(s) addressed by this course:

- | | | |
|---|---|---|
| <input checked="" type="checkbox"/> 1. Independent Thinking | <input checked="" type="checkbox"/> 5. Science & Social Science | <input checked="" type="checkbox"/> 9. Global Perspective |
| <input checked="" type="checkbox"/> 2. Communication | <input type="checkbox"/> 6. Aesthetic Appreciation | <input type="checkbox"/> 10. Health & Well Being |
| <input checked="" type="checkbox"/> 3. Problem Solving | <input checked="" type="checkbox"/> 7. Historical Consciousness | <input type="checkbox"/> 11. Civic Responsibility |
| <input checked="" type="checkbox"/> 4. Ethical Judgment | <input type="checkbox"/> 8. Diversity | <input checked="" type="checkbox"/> 12. Technology |
| | | <input type="checkbox"/> 13. Lifelong Learning |

7. Specific Course Learning Objectives:

Students who successfully complete this course will be able to:

- a. Understand the fundamental concepts, laws, and relationships of relativity, quantum mechanics, atomic physics, nuclear physics, and particle physics.
 - b. Obtain a working knowledge of the instruments and techniques of scientific inquiry including the calibration, use, and critical analysis of the results.
 - c. Obtain the skills necessary for scientific inquiry including the application of mathematics through differential and integral calculus.
8. Methods of Instruction: Lecture/Discussion and Laboratory
9. Instructional Materials:

Text: An appropriate text will be selected. Contact the department for current adoptions.
 Laboratory Exercises (Instructor-supplied)
 A pocket calculator with trigonometric functions.
 Optional Materials: None

10. Tentative Topical Outline:

Course Week	Topic & Chapter
1	Review of Waves
2	Wave Optics
3	Relativity
4	Relativity
5	Quantum Mechanics
6	Quantum Mechanics
7	Atomic Physics
8	Atomic Physics
9	Atomic Physics
10	Nuclear Physics
11	Nuclear Physics
12	Nuclear Physics
13	Particle Physics
14	Particle Physics
15	Cosmology

11. Grade Determinants:

The final grade in this course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations:

A	Excellent	C	Average	I	Incomplete
B+	Very Good	D	Below Average	W	Withdrawal
B	Good	F	Failure	R	Audit
C+	Above Average	P	Passing	NC	No Credit

12. Number of Papers and Examinations:

A minimum of three major examinations and weekly written lab assignments.

Revised: May, 2006