LSC Use Only No:	LSC Action-Date:	UWUCC USE ONLY No.	UWUCC Action-Date:	Senate Action

Date:

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Committee

Type and complete information as for [illegible]

Department Curriculum Committee Chair

4/6/09

Department Chair(s)

College Curriculum Committee Chair

Additional signatures

Part II: SYLLABUS OF RECORD

PHYS 451/551 Electricity & Magnetism

I. Catalog Description:

PHYS 451 Electricity and Magnetism 3c-01-3cr
Prerequisites: PHYS 131, 132, MATH 125, 126
Prerequisite or co-requisite: PHYS 441/541 or permission of department

finding electric potential, electric field in matter, magnetostatics, magnetic

c) Separation of variables
d) Multipole expansion

4. Electric fields in matter (5 academic hours)
a) Polarization

c) The electric displacement
d) Linear dielectrics

6. Magnetostatics (5 academic hours)
a) Magnetic fields
b) Magnetic forces

d) Biot-Savart law
e) Divergence and Curl of B
f) Application of Ampere's law
g) Magnetic vector potential
h) Multipole Expansion of the vector potential

7. Magnetic fields in matter (4 academic hours)
a) Magnetization

V. Example Grading Scale

C 70%-79%
D 60%-69%
F less than 60%

VI. Potential textbooks*

Introduction to Electrodynamics, 3rd ed., David J. Griffiths, Prentice Hall, 1999
Electromagnetic Phenomena, 2nd ed., Lorrain, Corson, and Lorrain, W. H.

Freeman and Company, 2000.

VII. Attendance Policy

Attendance and enforcement thereof shall be in accord with the general guidelines provided in the official university "Undergraduate Course Attendance Policy".

VIII. Special Resource Requirements

Scientific calculator, Textbook, Notebook, Paper, Pen or Pencil. No laboratory fee.

IX. Bibliography*

1. Classical Electromagnetic Radiation, 3rd ed, Heald and Marion,Brooks/Cole, 1995.
2. Electromagnetic Fields, 2nd ed., Roald K. Wangsness, 1986.
3. Foundations of Electromagnetic Theory, 3rd ed., Reitz, Milford, and Christy, Addison Wesley, 1979.
4. Electromagnetic Theory, Daniel R. Frankl, Prentice Hall, 1986.
5. Classical Electromagnetic, Jack Vanderlinde, Theory, John Wiley & Sons, Inc., 1993.
6. Principles Of Physics, 4th ed., Raymond A. Serway and John W. Jewett, Saunders College Publishing, 2004.

programs and as a result it is very difficult to offer both courses every year due to low enrollment. The proposed course will replace the current course sequence and provide three credit hours instead of four. The content has been modified to incorporate all the

program? If catalog descriptions of other courses or department programs must be changed

as a result of the adoption of this course, please submit as separate proposals all other changes

are being eliminated as a result of curriculum revisions. Please specify how preparation

and equated workload will be assigned for this course.

Appendix for Graduate Course

I. Catalog Description

PHYS 551 Electricity & Magnetism 3c-01-3cr

Prerequisite: permission of department

Treats at calculus level elements of vector analysis, electrostatics, special techniques for finding electric potential, electric field in matter, magnetostatics, magnetic field in matter, electrodynamics, Maxwell's equations, and electromagnetic waves.

II. Course Outcomes

Upon successful completion of this course students should be able to:

problems of potential, force, field, work and energy in electrostatics.

2. Demonstrate the use of techniques e.g., Laplace's Equations, the method of