

Part II: **SYLLABUS OF RECORD**

PHYS 451/551 Electricity & Magnetism

I. **Catalog Description:**

PHYS 451 Electricity and Magnetism
Prerequisites: PHYS 131, 132, MATH 125, 126

3c-01-3cr

	Prerequisite or co-requisite: PHYS 441/541 or nermission of denartment	
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	finding electric potential, electric field in matter, magnetostatics, magnetic	
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		a) Concention of variables	
		c) Separation of variablesd) Multipole expansion	
	4.	Electric fields in matter	(5 academic hours)
<u>. </u>		a) Polarization	
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		c) The electric displacement	
		d) Linear dielectrics	
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	6.	Magnetostatics	(5 academic hours)
		a) Magnetic fields	(e neadenne neade)
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		d) Biot-Savart law	
		e) Divergence and Curl of B	
		f) Application of Ampere's lawg) Magnetic vector potential	
		h) Multipole Expansion of the vector potential	
	7.	Magnetic fields in matter	(4 academic hours)
		a) Magnetization	
		h) The field of a magnetic chiest	

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

VI. Potential textbooks*

Introduction to Electrodynamics, 3rd ed., David J. Griffiths, Prentice Hall, 1999

Freeman and Company, 2000.

VII. Attendance Policy

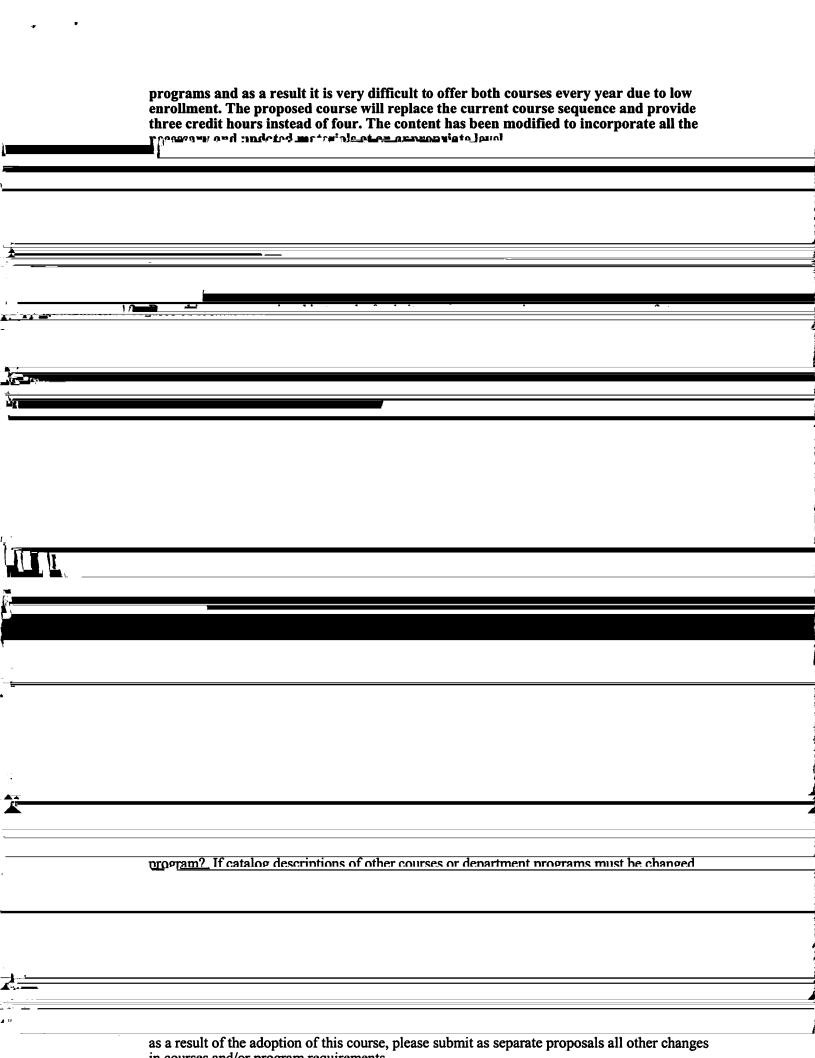
Attendance and enforcement thereof shall be in accord with the general guidelines provided in the official university "Undergraduate Course Attendance Policy".

VIII. Special Resource Requirements

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

IX. Bibliography*

- 1. <u>Classical Electromagnetic Radiation</u>, 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.
- Classical Electromagnetic, Jack Vanderlinde, Theory, John Wiley & Sons, Inc., 1993.
- 6. <u>Principles Of Physics</u>, 4th ed., Raymond A. Serway and John W. Jewett, Saunders College Publishing, 2004.



Appendix for Graduate Course

I. Catalog Description

PHYS 551 Electricity & Magnetism

3c-01-3cr

	•	11 15 551 Electricity & Magnetism 50-01-501
		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
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		matter, electrodynamics, Maxwell's equations, and electromagnetic waves.
	II.	Course Outcomes Upon successful completion of this course students should be able to:
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		problems of potential, force, field, work and energy in electrostatics.
		2. Demonstrate the use of techniques e.g., Laplace's Equations, the method of