

**PHYSICS 305**

***Electricity and Magnetism-I***

**FALL SEMESTER 2010 (TERM 151)**

**INSTRUCTOR:**

Dr. Zain Yamani

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**COURSE DESCRIPTION:**

**(3-0-3)**

Introduction to classical electromagnetic theory based on vector calculus. Electrostatics; Laplace and Poisson's equations; Dielectric media and magnetostatic fields in matter.

**PREREQUISITE:** Phys201, Math202

**TEXTBOOK:** D. J. Griffiths "Introduction to Electrodynamics Theory", (3<sup>rd</sup> Edition Prentice-Hall, 2008).

**REFERENCES:**

- 1- "Electricity and Magnetism" Edward M. Purcell. Berkley Physics Course –Vol. 2. (McGraw-Hill, NY 1963)
- 2- "Electromagnetic Fields & Waves" by P. Lorrain & D. Corson (2nd Edition, W.H. Freeman, 1970).
- 3- "Foundation of Electromagnetic Theory" by J. Reitz, F. Milford & R.W. Christy (3rd Edition, Addison-Wesley, 1979).
- 4- "Schaum's outline Series Theory and Problems of Electromagnetic" by J. A. Edminister (McGraw-Hill book company, 1979).
- 5- Also, check web-sites on electricity and magnetism

**GRADING POLICY:**

Homeworks/ Interaction/ Quizzes	40%
Major-1 Exam	15%
Major-2 Exam	15%
Final Exam	30%

**Phys-305 Weekly Schedule (151):**

<b><u>WEEK</u></b>	<b><u>TOPICS</u></b>
<b>1-2</b>	<b>Chapter 1: Vector Analysis</b>
<b>3-5</b>	<b>Chapter 2: Electrostatics</b>
<b>5-7</b>	<b>Chapter 3: Special Techniques</b>
<b>8-10</b>	<b>Chapter 4: Electric Fields in Matter</b>
<b>10-12</b>	<b>Chapter 5: Magnetostatics</b>
<b>12-13</b>	<b>Chapter 6: Magnetic Fields in Matter</b>
<b>14-15</b>	<b>Chapter 7: Electrodynamics</b>

**First Major (Ch0-2): ??, 2015**

**Second Major (Ch3-4): ??, 2015**

**Final Exam (Ch0-7): Dec. 20<sup>th</sup>, 2015 at 7:00 p.m.**