

ENVH 417, Winter 2007

Nonionizing Radiation Protection and Electrical Safety

Course description

This is an introductory course covering electrical and physical hazards mainly in the nonionizing spectrum. The course is intended for upper division undergraduates or graduate students interested in environmental health, occupational health and safety or engineering (IE/EE) concerns in electrical safety. A basic understanding of Physics related to electricity and magnetism will be useful for the class.

Learning objectives:

At the end of this class, students will be able to:

1. Describe the relationship between basic electrical parameters such as voltage, current, power and resistance.
2. Explain the relationship between electrical parameters and electric and magnetic fields.
3. Contrast the characteristics of static electric or magnetic fields with time varying fields.
4. Describe electromagnetic radiation in terms of frequency, wavelength and energy.
5. Distinguish health hazards of nonionizing radiation from the hazards of ionizing radiation.
6. Identify potential health hazards from ultraviolet radiation,
7. Assess optical radiation, infrared radiation, and laser hazards,
8. Evaluate exposures to radio frequency radiation in simple geometries
9. Assess potential hazards due to body heating from external radiation.
10. Identify potential hazards for electrical shock,
11. Assess exposures to VLF and ELF electric and magnetic fields.
12. Apply current exposure standards to evaluate occupational exposure hazards where appropriate.

Grading policy

There will be 2 problem sets, a midterm, and final. The midterm will count for approximately 25% of the total and the final exam 35%. Late assignments will be reduced in credit by 10% for each day they are past due.

Required readings

Required Texts: 1. Nonionizing Radiation (ISBN 3-9804789-1-2) (by special order at UW Health sciences bookstore)

2. Nonionizing Radiation protection, 2nd Ed, WHO Serial #25; available as a course Pac at Health Sciences Book Store

Other information

NOTE: If you would like to request academic accommodations due to a disability, please contact Disabled Student Services, 448 Schmitz, 543-8924 (V/TDD). If you have a letter from Disabled Student Services indicating you have a disability that requires academic accommodations, please present the letter to me so we can discuss the accommodations you might need for class.

Send mail to: Contact Email
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