ECE 3113 - Energy Conversion I
Spring 1999

1997-1999 Catalog Data: ECE 3113: Energy Conversion I. Prerequisite: ECE 3613, ENGR 2613. Survey of methods of energy conversion; field-energy force relationships, equations of motion, incremental motion transducers, transformer theory; introduction to rotating machines. (F, Sp)

Prerequisites: ECE 3613, ENGR 2613.


References: None.

Course Objectives: To acquaint students with the operating principles and equivalent circuits of energy conversion.

Coordinator: Fred N. Lee, Professor, School of Electrical and Computer Engineering.

Prerequisites by Topic: Ohm’s law, KCL, KVL; Phasors; Ampere’s and Faraday’s laws; Energy conservation and power; Forces and torques.

Topics:
1. Transformers.
2. Polyphase systems.
3. DC machines.
4. Induction machines.
5. Synchronous machines.
6. Renewable sources, e.g. solar etc.

Schedule: Lecture - 3 hrs. (Class meets twice/week).

Computer Usage: Use computer to solve assigned problems.

Design Projects:

Laboratory Projects:

Written and/or Oral Communications:

Teamwork:

Assessment Methods Used:
1. Standard course evaluation.

Contribution to Professional Component: Engineering Science - 3 credit hours or 100%

ECE 3113 - Energy Conversion I (continued)
Program Objectives: Related Strategy and Actions:
2i, 2iii

ABET 2000 Criterion 3 Contents:
a,b,e,i,k

Prepared by: Fred N. Lee ____________________________ Date: April 5, 1999