

ECE 3600 Exam 1 Study Guide

The 1st Exam will be on Monday 2/12/24

First part may be questions with simple answers and/or word answers. **Closed book, No notes, No Calculator.**

When you hand in the first part, you will get the second part, which will be problems worked out with your calculator. **Closed book**, except for the "**Exam 1 Information**" sheet handed out in class (you may add to this single sheet). **Calculator is allowed.**

The exam will cover

Possible questions

1. HW 1 Energy sources, plant efficiencies

All

2. HW 2 AC steady-state review, used extensively throughout class

3. HW 3 RMS & Single-phase AC power. P Q S $|S|$ pf correction of pf

Basic relationships and units
What is "good"

4. HW 4&5 3-phase AC power.

Basic magnitude and phase relationships

$$V_L \quad V_{LL} \quad V_{LN} \quad I_L \quad I_{LL} \quad I_Y \quad S_{3\phi} \quad S_{1\phi}$$

$$Z_Y = \frac{Z_{\Delta}}{3} \quad Z_{\Delta} = 3 \cdot Z_y \quad \text{pf correction of pf}$$

Basic one-Line diagrams

5. HW 6 Magnetic circuits

Flux density, Field intensity, Permeability, B-H curve.

$$B = \mu \cdot H \quad H = \frac{N \cdot i}{l_c}$$

7. HW 7 Ideal transformers

Transformer basics, including ratings and impedance transformation.

8. HW 8A & 8B Non-ideal transformer model

Open-Circuit and Short-Circuit tests

Calculations $\%VR$ η

9. Lab 1

Electrocution Safety. Deadly current, body resistance, etc. Basic concepts

10. Lab 2

Non-ideal Transformers

You can download old exams from HW page on class web site.
But remember, they may cover more (or less) than we did in our class.