ECE 3600 Final Exam Study Guide

Review: Friday, 12/7, 12:00 - 2:00 pm in regular classroom?

Final Exam: Monday, 12/10, 1:00 pm in regular classroom

Arn will be in WEB L105 Thursday 12/13 1:00 - 4:00 for a ECE 2210 review and Friday 8:00am - 10:00 for their Final

Exam is closed book, except for the note sheets handed out in class for exam 1 and exam 2 and the final. You may add to these sheets. The first part will be questions, ~ 30 - 80 points. The second part will be problems.

The exam will cover

1. Material from Exam 1 and Exam 2
   Study the questions from exam 1 and 2

2. HW 1 AC steady-state review, used extensively throughout class

3. HW 2 RMS & Single-phase AC power. Possibly part of 3φ problem
   Basic relationships and units
   P  Q  S  |S|  pf  correction of pf

4. HW 3 Energy sources, plant efficiencies
   Lots possible

5. HW 4 & 5 3-phase AC power.
   Basic magnitude and phase relationships
   \[ V_L \quad V_{LL} \quad V_{LN} \quad I_L \quad I_{LL} \quad I_Y \quad S_{3\phi} \quad S_{1\phi} \]
   \[ Z_Y = \frac{Z_\Delta}{3} \quad Z_\Delta = 3 \cdot Z_Y \quad pf \quad correction \ of \ pf \]

6. HW 6 Magnetic circuits
   Flux density, Field intensity, Permeability, B-H curve. effects of nonlinearity on some currents (3rd harmonic).
   \[ B = \mu H \quad H = \frac{N \cdot i}{l_m} \]

7. HW 7 - 9 Transformers
   Basic relationships
   Calculations
   Impedance transformation
   OC & SC Tests --> model
   \[ \eta \ & \ VR \]
   Autotransformers
   3φ Transformers Δ & 3rd harmonic

ECE 3600 Final Exam Study Guide
8. HW SG1 & SG2 Synchronous generators and motors
   Basic relationships
   Know the phasor diagram!
   losses, construction, limits, operation

9. HW Ind1 - Ind3 Induction motors
   Basic relationships
   Know the model!
   Poles, slip, why, how
   Powers $P_{AG}$ $P_{conv}$ $P_{out}$ etc. $\eta$
   Torque & speeds
   Types & effect of $R_2$
   Single phase motors
   Question 7-11 HW17, p3
   Typ torque-speed curves
   Single phase starting

10. HW DC1 - DC2 DC motors
    Basic relationships
    Know the model!
    Powers $P_{conv}$ $P_{out}$ etc. $\eta$
    Torque & speeds
    Torque-speed curve
    Torque-speed curve

11. HW TL1 Transmission Lines
    Basic relationships
    Short, Med, Long $Z_C$ SIL
    Common line voltages
    Series impedance $Z_{series}$
    Shunt admittance & $\frac{Y_{shunt}}{2}$
    Shunt impedance & $2 \cdot Z_{shunt}$
    Surge impedance
    Surge impedance loading
    What is & why use bundling

12. All Labs
    questions

13. All Field trips
    questions

Bolded items are more likely