

## ECE 3600 Exam 2 Study Guide

The 2<sup>nd</sup> Exam will be on Thursday 11/12/15.

The first part will be a **closed book, no calculator** questions, ~ 25 - 35 points

The second part will be a **open book, open notes, with calculator** problems.

### The exam will cover

### Possible questions

#### 1. Non-ideal transformer model

%VR      $\eta$

%VR      $\eta$

#### 2. 3-phase transformers

Y or  $\Delta$

#### 3. Auto-transformers

Wiring  
New rating

#### 4. One-Line Diagrams, variations and Per-Unit analysis

Base Values      $S_{\text{base}}$       $V_{\text{base}}$       $I_{\text{base}}$       $Z_{\text{base}}$

Common symbols, why PU  
Bases selections, why  
and when do they change  
Why?

#### 5. Synchronous generators and motors

Know the phasor diagram! Problems like Hw SG1 & SG2

losses, construction,  
limits, operation  
poles - speed

#### 6. 3-phase induction motors (not single phase)

Know how to work with the model.

Powers  $P_{\text{AG}}$   $P_{\text{conv}}$   $P_{\text{out}}$  etc.      $\eta$

Torque & speeds

Types & effect of  $R_2$

No load, Locked rotor, DC tests to find model

Operation

Slip

Poles - speed

Questions from homeworks

Typ torque-speed curves

What test gives what model part

#### 7. Homeworks 9 - Ind2

#### 8. Labs 1 - 3

Transformer modeling

Bringing a generator on line