

# ECE 3600 Exam 2 Study Guide      The 2<sup>nd</sup> Exam will be on Wednesday 10/30/24 3:00 pm in WEB L102

The first part may be a **closed everything, no calculator** questions, ~ 15 - 25 points. Rest of Exam is **closed book**, except for the note sheets handed out in class for exam 1 and exam 2. You may add to these sheets.

## The exam will cover

1. Transformers  
Non-ideal transformer model tests      OC      SC
2. Auto-transformers
3. 3-phase transformers
4. One-Line Diagrams, variations and Per-Unit analysis  
Base Values       $S_{base}$        $V_{base}$        $I_{base}$        $Z_{base}$   
Basic per-unit modeling and calculations
5. Motor Basics
6. Synchronous generators and motors  
Know the phasor diagram!  
Problems like Hw SG1 & SG2
7. 3-phase induction motors  
Torque - speed curves  
Know the model!  
Problems like Hw Ind1 & Ind2
8. Homeworks 8 - Ind2
9. Labs 1 - 2
10. Field Trips

## Possible questions

- Misc. Information from transformer notes
- Wiring  
New rating
- Y or  $\Delta$
- Common symbols, why PU  
Bases, why and when do they change  
Why per-unit?
- Terms, Stator, Rotor, etc.  
Armature, Field, back EMF  
Torque, Speed, Power  
Friction, Windage  
Slip rings, brushes
- losses, construction, limits, operation  
poles - speed  
Bringing a generator on line
- Operation  
Slip and frequencies  
Poles - speed  
Questions from homework Ind1  
Typ torque-speed curves
- Transformer modeling
- Basic questions