

ECE 320: Lecture 19

Notes

- **Reminder:** Exam 1 will be next Friday, October 10.
 - * Anyone who is interested in an early exam needs to notify me today and give me the times they are available after 5:00pm on Wednesday

- **Exam I:**
 1. In Class, so roughly 50 minutes
 2. Closed book, closed notes. You can bring 1 page of notes
 3. Mixture of problems and short answer questions
 4. Topics:
 - A. Single phase AC circuits (time domain and phasors)
 - B. Complex power, real power, reactive power, and power factor
 - C. Harmonics analysis
 - * Fourier series
 - * Fundamental component RMS versus true RMS
 - * Total Harmonic Distortion
 - * Crest Factor
 - * True power factor, displacement factor, distortion factor
 - D. Transformers
 - * Ideal transformer relationships
 - * Transformer equivalent circuit with resistances and inductances
 - * Short circuit/open circuit tests
 - * Transforming impedances across the transformer
 - * Voltage regulation
 - * Efficiency
 - E. Magnetic circuit analysis
 - * Ampere's Law
 - * Faraday's Law
 - * Lenz's Law
 - * Relationships between H , B , ϕ , e
 - * Reluctance
 - * Magnetic saturation
 - * Computing inductance
 - * Determining leakage and magnetizing inductances of transformers
 5. Sample exam on web page, solutions posted. Does not cover every one of the topics listed above, that doesn't mean that they won't be on the exam.
 6. Missing lecture summaries up soon too.