PhD QUALIFYING EXAM STUDY GUIDE
Electronic Circuits

Topics and Subtopics
• Basic analog and digital circuits using diodes, bipolar transistors, field-effect transistors, resistors, capacitors, inductors, and transformers
• DC and AC small-signal analysis of single and multistate amplifiers
• Differential amplifiers
• Current sources
• Frequency response of amplifiers
• Operational amplifiers and applications
• Input stage and output stage of op-amp
• Feedback and stability
• Oscillators and waveform generators
• Power amplifiers
• Multipliers
• Analysis and design of filters
• Analysis and design of digital circuits

Suggested Reference Materials
• Sedra and Smith, Microelectronic Circuits
• Kang and Leblebici, CMOS Digital Integrated Circuits, Analysis and Design

Suggested Reference Courses
• EEL 3304C - Electronic Circuits I
• EEL 4306C - Electronic Circuits II
• EEL 4310C - Digital Integrated Circuits

Sample Questions
• Examples in the suggested reference materials.