Course Syllabus	**EECS 4470 – Electronic Design**
Credits & Contact Hours	3 credit hours & 150 minutes lecture and 150 minutes lab contact hours per week
Instructor's Name	Dr. Roger King
Textbook	R. J. King, "Electronic Design: Course Notes and Lab Manual," rev. 2. January 2003. Available on-line or from bookstore. Reference: student's undergraduate electronics text, manufacturer's datasheets and application notes as applicable.
Course Information	Principles and techniques of analog active circuit design. Selected design problems are given and circuits using standard parts are designed and laboratory tested. A design notebook is kept. Prerequisite: EECS 3210 and EECS 3420 Elective course for EE program
Specific Goals-Student Learning Objectives	The student will be able to 1. Perform design-oriented analysis of op-amp circuits for dc error, bandwidth, finite gain error, slew rate, power/temperature rise, and incremental instability. 2. Perform design-oriented analysis of class A and B output stages for device ratings including SOA and temperature rise. 3. Perform design-oriented distortion analysis of CE amplifiers, including the differential pair. 4. Reinterpret general design requirements as design specifications. 5. Build, test and evaluate a design with respect to meeting its design specifications. 6. Keep a design manual, which documents the progress from general design requirements to a complete, tested design. 7. Demonstrate ability to use web searches of manufacturer's application notes and data sheets to select appropriate candidate devices for specific op-amp circuits.
Topics	1. Design-oriented analysis of op-amp applications 2. Extending op-amp capability with output power boosters 3. Class A and B amplifier design considerations 4. Estimating temperature rise 5. Device safe operating area (SOA) 6. Design oriented analysis of the "two stage" op-amp topology 7. Distortion analysis of the CE amplifier and differential pair 8. Variable gain amplifiers 9. Automatic gain control systems