

<b>Course Syllabus</b>	<b>EECS 3220 – Electric Circuits II</b>
<b>Credits &amp; Contact Hours</b>	3 credit hours & two 75-minute lecture contact hours per week
<b>Instructor's Name</b>	Dr. Roger King
<b>Textbook</b>	C. Alexander and M. Sadiku, "Fundamentals of Electric Circuits," 5 <sup>th</sup> ed., McGraw-Hill, 2013. Recommended supplement: J. Tront, "PSpice for Basic Microelectronics," McGraw-Hill, 2008.
<b>Course Information</b>	<p>Advanced topics including three-phase systems, magnetically-coupled systems, resonance and second-order systems, Laplace transform circuit analysis, Fourier series for periodic waveforms and applications to electric circuits, ideal filters, system modeling and two-port networks.</p> <p>Prerequisite: EECS 2300; Corequisite: EECS 3210 Required course for EE</p>
<b>Specific Goals-Student Learning Objectives (SLOs)</b>	<p>The student will be able to</p> <ol style="list-style-type: none"> <li>1. Write circuit equations for a coupled-inductor system.</li> <li>2. Analyze circuits containing ideal transformers and autotransformers.</li> <li>3. Analyze three-phase wye- and delta-connected balanced circuits.</li> <li>4. Derive and Bode plot frequency domain transfer functions for SISO circuits.</li> <li>5. Write behavioral descriptive equations for series- and parallel-resonant circuits in the time- and frequency domains.</li> <li>6. Use Fourier series techniques to analyze circuit responses to periodic signals.</li> <li>7. Derive two-port parameter descriptions for circuits.</li> </ol>
<b>Topics</b>	<ol style="list-style-type: none"> <li>1. Three phase balanced circuits and power</li> <li>2. Mutual inductance</li> <li>3. Linear transformer, ideal transformer, autotransformer</li> <li>4. Frequency response, transfer function, Bode plots</li> <li>5. Series &amp; parallel resonance in the frequency domain</li> <li>6. Series &amp; parallel resonance in the time domain</li> <li>7. Fourier series in circuit analysis</li> <li>8. Two-port parameters</li> <li>9. Laplace transform circuit analysis</li> </ol>