

Outcomes Based Learning Matrix

Course: ENGT 270 Eng Circuit Theory I

Department: ENGT

Course Outcomes	Outcome Activities	Assessment Tools
<p>Students will be able to:</p>		
<p>Demonstrate an understanding Ohm's, Kirchoff's, and Watt's laws in resistive circuits.</p> <p>(WC, QL, IL, CCT, Int L)</p>	<p>Use theoretical problem solving, circuit building and analysis, and circuit simulation techniques to develop the skills for performing circuit analysis for the voltage, current and power in a resistive circuit.</p>	<p>Homework assignments to evaluate theoretical understanding are given on a per Chapter basis. Multiple exams assess the students comprehensive understanding of the subject material. Regularly scheduled laboratory circuit building or simulation is used to teach hands-on skills, and lab reports are assigned to assess a student's understanding of circuit construction and analysis techniques as well as their ability to troubleshoot circuits.</p>
<p>Design circuits to demonstrate the basic electrical properties of capacitors and inductors in resistive circuits.</p> <p>(WC, QL, IL, CCT, Int L)</p>	<p>Use theoretical problem solving, circuit building and analysis, and simulation techniques to develop the skills for analyzing the electrical characteristics of RL and RC circuits.</p>	<p>Homework assignments to evaluate theoretical understanding are given on a per Chapter basis. Multiple exams assess the students comprehensive understanding of the subject material. Regularly scheduled laboratory circuit building or simulation is used to teach hands-on skills, and lab reports are assigned to assess a student's understanding of circuit construction and analysis techniques as well as their ability to troubleshoot circuits.</p>
<p>Apply Node and Mesh analysis techniques for first order circuits.</p> <p>(WC, QL, IL, CCT, Int L)</p>	<p>Use theoretical problem solving, circuit building and analysis to learn new approaches to solving complex electrical circuit configurations.</p>	<p>Homework assignments to evaluate theoretical understanding are given on a per Chapter basis. Multiple exams assess the students comprehensive understanding of the subject material. Regularly scheduled laboratory circuit building or simulation is used to teach hands-on skills, and lab reports are assigned to assess a student's understanding of circuit construction and analysis techniques as well as their ability to troubleshoot circuits.</p>

<p>Design circuit models by applying Thevenin's, and Norton's theorems in addition to the Max Power Transfer Theorem.</p> <p>(WC, QL, IL, CCT, Int L)</p>	<p>Use theoretical problem solving, circuit building and analysis, and circuit simulation techniques to develop the skills to model circuits by applying Thevenin's and Norton's theorems from any particular load point. Apply the Max Power Transfer Theorem to determine best circuit loading for maximum power to the load.</p>	<p>Homework assignments to evaluate theoretical understanding are given on a per Chapter basis. Multiple exams assess the students comprehensive understanding of the subject material. Regularly scheduled laboratory circuit building or simulation is used to teach hands-on skills, and lab reports are assigned to assess a student's understanding of circuit construction and analysis techniques as well as their ability to troubleshoot circuits.</p>
<p>Perform circuit analysis on ac sourced circuits.</p> <p>(WC, QL, IL, CCT, Int L)</p>	<p>Use theoretical problem solving, circuit building and analysis, and circuit simulation techniques to calculate circuit element responses to an AC source.</p>	<p>Homework assignments to evaluate theoretical understanding are given on a per Chapter basis. Multiple exams assess the students comprehensive understanding of the subject material. Regularly scheduled laboratory circuit building or simulation is used to teach hands-on skills, and lab reports are assigned to assess a student's understanding of circuit construction and analysis techniques as well as their ability to troubleshoot circuits.</p>
<p>Evaluate the natural and step responses of first and second order circuits.</p> <p>(WC, QL, IL, CCT, Int L)</p>	<p>Use theoretical problem solving, circuit building and analysis, and circuit simulation techniques to analyze the circuit responses to sudden changes of inputs on 1st and 2nd order circuits</p>	<p>Homework assignments to evaluate theoretical understanding are given on a per Chapter basis. Multiple exams assess the students comprehensive understanding of the subject material. Regularly scheduled laboratory circuit building or simulation is used to teach hands-on skills, and lab reports are assigned to assess a student's understanding of circuit construction and analysis techniques as well as their ability to troubleshoot circuits.</p>