

EEPW 3252	<b>Power System Analysis</b>	3 Credit Hours
Prerequisites:	EEPW 3150	
<b>Goal</b>	To provide the student with the understanding of the problems encountered in the design and operation of electric power system.	
<b>Objectives</b>		<b>Outcomes</b>
<p>This course should enable the student to:</p> <ol style="list-style-type: none"> <li>1. Understand the concepts of three-phase analysis and power calculations.</li> <li>2. Understand the concepts of load flow in power system.</li> <li>3. Understand the concepts of symmetrical and unsymmetrical faults.</li> <li>4. Understand the concepts of power system stability.</li> <li>5. Understand the concepts of economic operation.</li> </ol>		<p>A student who satisfactory complete the course should be able to:</p> <ol style="list-style-type: none"> <li>1. Review the basic concepts of three-phase power system and reactive power flow.</li> <li>2. Define the transmission line parameters and use them to determine transmission line properties.</li> <li>3. Analyze power system using single line and reactance diagrams.</li> <li>4. Explain the power factor correction methods and static var compensation.</li> <li>5. Analyze the power-flow in a power system using Gauss Seidel and Newton-Raphson.</li> <li>6. Explain series R-L circuit transients, short circuit currents and reactance of synchronous machines.</li> <li>7. Recognize the development of internal voltages of loaded machines under fault conditions.</li> <li>8. Break down unbalanced currents into symmetrical components.</li> <li>9. Represents unbalanced system by sequence networks.</li> <li>10. Apply Z bus for fault for fault analysis.</li> <li>11. Determine the fault currents due to unsymmetrical fault conditions like single line to ground, line to line and double line to ground.</li> <li>12. Compute the loads between plants for economic distribution of power.</li> <li>13. Determine the economic dispatch of power under transmission power loss conditions.</li> <li>14. State B-coefficient, penalty factor and unit commitment</li> </ol>