

<b>SEMESTER</b>	<b>DEPARTMENT</b>	<b>COURSE TITLE</b>
<i>Third</i>	<i>General Engineering</i>	<i>Numerical Analysis</i>
<b>COURSE CODE</b>	<b>HOURS: 3</b>	<b>COURSE SPECIFICATIONS</b>
<i>EG308</i>	<b>UNITS: 3</b>	<i>Theoretical Contents</i>
<p><b>1. Errors:</b></p> <ul style="list-style-type: none"> <li>➤ Round of errors.</li> <li>➤ Truncation errors.</li> <li>➤ Absolute errors.</li> <li>➤ Relative errors.</li> </ul>		
<p><b>2. Solution of Algebraic Equations:</b></p> <ul style="list-style-type: none"> <li>➤ Guass Elimination Algorithm.</li> <li>➤ Gauss Jordan method.</li> <li>➤ L-Gauss Siedel method.</li> </ul>		
<p><b>3. Solution of Non-Linear Algorithm Equations:</b></p> <ul style="list-style-type: none"> <li>➤ Newton-Raphson method.</li> <li>➤ Iterative method.</li> </ul>		
<p><b>4. Finite- Difference Interpolation:</b></p> <ul style="list-style-type: none"> <li>➤ Forward- Backward and central differences.</li> <li>➤ Linear and quadratic interpolation.</li> <li>➤ Newton's interpolation formula.</li> <li>➤ Lagrang interpolation technique.</li> </ul>		
<p><b>5. Solution of Differential Equations:</b></p> <ul style="list-style-type: none"> <li>➤ Linear Differential Equations.</li> <li>➤ Computational of <math>e^A</math>.</li> <li>➤ Non linear differential equations.</li> </ul>		
<p><b>6. Curve Fitting.</b></p>		
<p><b>7. Numerical Integration.</b></p>		

**8. Numerical Solution of Differential Equations:**

- A simple Runga-Kutta method.
- Runga-Kutta method of higher order.

**References:**

1. *An Introduction to Numerical Analysis for Electrical and Computer Engineers*,  
Christopher J. Zarowski.