

<b>SEMESTER</b> <i>Third</i>	<b>DEPARTMENT</b> <i>General Engineering</i>	<b>COURSE TITLE</b> <i>Differential Equations</i>
<b>COURSE CODE</b> <i>EG301</i>	<b>HOURS:</b> 3 <b>UNITS:</b> 3	<b>COURSE SPECIFICATIONS</b> <i>Theoretical Contents</i>
<b>1. Differential Equations:</b> <ul style="list-style-type: none"> <li>➤ Definition of differential equations.</li> <li>➤ Order and degree of differential equation.</li> </ul>		
<b>2. First Order Differential Equations:</b> <ul style="list-style-type: none"> <li>➤ Solution of first order differential equations.</li> <li>➤ Separation of variables method.</li> <li>➤ Exact differential equations.</li> <li>➤ Non exact of differential equations</li> <li>➤ Integrating factor.</li> <li>➤ Linear first order differential equation.</li> <li>➤ Bernoulli's equation.</li> </ul>		
<b>3. Second Order DE:</b> <ul style="list-style-type: none"> <li>➤ Transforming second order to first order DE.</li> <li>➤ Homogeneous second order DE.</li> <li>➤ Non homogeneous second order DE.</li> <li>➤ Power series method.</li> </ul>		
<b>4. Laplace Transform:</b> <ul style="list-style-type: none"> <li>➤ Definition of Laplace transform and its properties.</li> <li>➤ Table of Laplace transform.</li> <li>➤ Inverse Laplace transform and its properties.</li> <li>➤ Solving first and second order DEs using Laplace transform.</li> </ul>		
<b>References:</b> <ol style="list-style-type: none"> <li>1. Shepley L. Ross, <i>Introduction to Ordinary Differential Equations</i>, 1966</li> <li>2. Dennis . G. Zill, <i>A First Course in Differential Equations with Applications</i>.</li> <li>3. الدكتور فرنك ايرز , سلسلة ملخصات شوم في المعادلات التفاضلي , الدار الدولية للنشر والتوزيع , 1998.</li> </ol>		

