

MT-515	Transforms and their Applications
	<p><u>Laplace Transformation:</u>  Laplace transformation, Standard Laplace transforms, Linearity, Scaling, First shifting principle, Second shift principle, Inverse Laplace transformation, Properties of inverse Laplace, Initial value theorem, Final value theorem, Convolution theorem, Solution of ordinary differential equations, System of differential equations, Application problems.</p> <p><u>Fourier Transformation:</u>  Fourier series, Fourier coefficients using Euler's formula, Fourier series of the function having fundamental and arbitrary period, Even and odd functions, Even extension, Odd extension, Fourier cosine and sine integrals, Laplace integral, Fourier cosine and sine transform, Cosine and sine transform of the derivative, Discrete Fourier transform (DFT), Fast Fourier transform (FFT), Application problems</p> <p><u>Z-Transformation:</u>  Z-transform, Sequences and series, Properties of Z-transform, linearity and scaling, Standard Z-transform, Inverse Z-transform, Inverse Z-transform by using residue, convolution theorem of Z-transform, Formation of difference equation and its solution using Z-transform.</p> <p><u>Reference Books:</u></p> <ul style="list-style-type: none"> <li>• Kreyszig E, <i>Advanced Engineering Mathematics</i>, 8th Edition, John Wiley &amp; Sons, 2006.</li> <li>• Jeffry A, <i>Advanced Engineering Mathematics</i>, Elsevier, 2003.</li> <li>• Miller F.P, Vandome A.F and Mcbrewster J, <i>Laplace Transforms</i>, Alpha Script, 2009.</li> </ul>