

MA 103T MATHAMETICS-II										
Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs./Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3	1	---	7	3	30	60	10	---	---	100
<p><b>UNIT I</b> <span style="float: right;"><b>10</b></span>  <b>Complex Analysis:</b> Complex numbers, Function of a Complex variable, Analytic function, C-R equations, Conformal mapping and its type, Some standard &amp; special conformal mappings, Complex line integral, Cauchy's Integral theorem, Cauchy's Integral formula, Residue theorem, Calculation of Residues, Application of Residues.</p> <p><b>UNIT II</b> <span style="float: right;"><b>10</b></span>  <b>Ordinary differential equation:</b> Differential equations of first order and higher degree, Linear independence and independence of vectors. Higher order differential equations with constant coefficient, Rules for finding C.F. and P.I., Method of variation of parameter and method of undetermined coefficients, Cauchy and Legendre's linear differential equations, Simultaneous linear equations with constant coefficients. Orthogonal trajectories, Various applications of higher order differential equations in solution of engineering problems (Rectilinear Motion, Simple Pendulum, Damped motion, Forced Motion, Resonance, Electric Circuit).</p> <p><b>UNIT III</b> <span style="float: right;"><b>10</b></span>  <b>Partial Differential Equations:</b> Formation of P.D.E, Equations solvable by direct integration, Linear and non-linear equations of first order, Lagrange's equations. Homogeneous and non-homogeneous linear P.D.E. with constant coefficients. Rules for finding C.F. &amp; P.I.</p> <p><b>UNIT IV</b> <span style="float: right;"><b>09</b></span>  <b>Laplace transforms:</b> Piecewise continuous functions and exponential order functions, Definition, Existence and Properties of Laplace transform, unit step function and Heaviside function, Inverse Laplace transform, Laplace transform of derivative, Convolution theorem, Applications for solving ordinary differential equations.</p>										
<b>APPROXIMATE TOTAL 39 Hours</b>										
<b>Texts and References</b>										
<ol style="list-style-type: none"> <li>1. R.V. Churchill &amp; J.W. Brown, Complex Variables and Applications, 7<sup>th</sup> Ed., Tata McGraw-Hill (2003).</li> <li>2. J.M. Howie, Complex Analysis, Springer-Verlag (2008)</li> <li>3. K. Jain &amp; S. R. K. Iyengar, Higher Engineering Mathematics, 3<sup>rd</sup> Ed., Narosa (2007).</li> <li>4. E. Kreyszig, Advanced Engineering Mathematics, 8<sup>th</sup> Ed., John Wiley (1999).</li> <li>5. W.E. Boyce &amp; R. DiPrima, Elementary Differential Equations, 8<sup>th</sup> Ed., John Wiley (2005).</li> <li>6. M.D. Raisinghania, Ordinary and Partial Differential Equations by, 8<sup>th</sup> edition, S. Chand Publication (2010).</li> <li>7. K. Sankara Rao, Introduction to Partial Differential Equations, PHI Learning Pvt.Ltd. (2010).</li> </ol>										