

**LORETO COLLEGE**  
**Department of Mathematics**

**TIME PLAN 2019-2020**

**Name of the teacher : Dr Satyabrota Kundu**

**Initials : SK**

**Teaching Objective:**

- To impart comprehensive knowledge in theoretical and empirical perspectives on the core mathematical issues.
- To indoctrinate the fundamental mathematical tools required for empirical appraisal of various mathematical problems.
- To give exposure to analytical and logical matters subsumed in mathematical theories.

**3<sup>rd</sup> Semester Topic-wise Time Plan**

<b>Topics</b>	<b>Hours allotted</b>	<b>Topics (as per curriculum)</b>	<b>Teaching method</b>	<b>Learning outcome (output)</b>	<b>Assessment</b>
Integral Calculus	10	<ol style="list-style-type: none"> <li>1. Evaluation of definite integrals.</li> <li>2. Integration as the limit of a sum (with equally spaced as well as unequal intervals).</li> <li>3. Reduction formulae</li> <li>4. Improper Integral</li> <li>5. Working knowledge of double integral.</li> <li>6. Applications of integral calculus.</li> </ol>	Class lecture and problem solving sessions. Revisions and doubt clearing slots	Achieve a fervent understanding of basic integral calculus.	Class test and home assignments
Numerical Methods	25	<ol style="list-style-type: none"> <li>1. Approximate numbers, Significant figures, Rounding off numbers. Error : Absolute, Relative and percentage.</li> <li>2. Operators.</li> <li>3. Interpolation.</li> <li>4. Numerical</li> </ol>	Class lecture and problem solving sessions. Revisions and doubt clearing slots	Getting skilled in problem solving techniques	Class test and home assignments

		Integration 5. Solution of Numerical Equation.			
Linear Programming	25	<p>1. Motivation of Linear Programming problem. Statement of L.P.P. Formulation of L.P.P. Slack and Surplus variables. L.P.P. is matrix form. Convex set, Hyperplane, Extreme points, convex Polyhedron, Basic solutions and Basic Feasible Solutions (B.F.S.). Degenerate and Non-degenerate B.F.S.</p> <p>2. The set of all feasible solutions of an L.P.P. is a convex set. The objective function of an L.P.P. assumes its optimal value at an extreme point of the convex set of feasible solutions, A.B.F.S. to an L.P.P. corresponds to an extreme point of the convex set of feasible solutions.</p> <p>3. Fundamental Theorem of L.P.P. (Statement only) Reduction of a feasible solution to a B.F.S. Standard form of an L.P.P. Solution by graphical method (for two variables), by simplex method and</p>	<p>Class lecture and problem solving sessions. Revisions and doubt clearing slots</p>	<p>Developing a strong aptitude in making basic aspects of LPP.</p>	<p>Class test and home assignments</p>

		<p>method of penalty.</p> <p>Concept of Duality.</p> <p>Duality Theory. The dual of the dual is the primal. Relation between the objective values of dual and the primal problems. Dual problems with at most one unrestricted variable, one constraint of equality.</p> <p>Transportation and Assignment problem and their optimal solutions.</p>		
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