



**SYLLABUS AND LESSON PLAN  
GRADE 10 MATHEMATICS  
INSTRUCTOR: MS. FARISHTA MURAD**

**CLASS AND EXAM SCHEDULE, TOPIC AND READINGS:**

- 1. Course Description:** *This course is based on the 10th grade Math syllabus. Simultaneously, the modules are designed to push students to an advanced level in each unit to prepare a solid foundation for the future.*
- 2. Course Timeline:** *This course is intended to be finished in 23 online sessions of 1 hour and 10 minutes each.*
- 3. Class Hours:** *Students are strictly advised to turn on their video cameras during live class sessions or quizzes. It is highly encouraged to ask relevant questions during lectures.*
- 4. Quiz:** *This course includes three quizzes in total. The timetable and syllabus of the quizzes are already scheduled; nevertheless, a reminder notification will be made in advance.*
- 5. Attendance:** *Consistent attendance is essential for improved understanding of concepts.*
- 6. Technical Issue:** *If anybody (student or tutor) gets disconnected, please do not leave the meeting room until the session is over or any further notice from either side(s).*

Sessions	Topic	Learning Outcomes	Teaching Methodologies
Session 1, 2 & 3	<b>UNIT 1: LINEAR FUNCTIONS</b>	<ul style="list-style-type: none"> <li>• Linear Functions (Definition, Writing, Solving)</li> <li>• Linear Function in Three Variables</li> <li>• Absolute Value Functions</li> <li>• Identifying Function Families</li> <li>• Domain and Range</li> <li>• Line of Fit and Line of Best Fit</li> <li>• Correlation Coefficient</li> </ul>	<p><b><i>A concise overview of the learning outcomes.</i></b></p> <p><b><i>Topic and concept discussion.</i></b></p> <p><b><i>Class exercise of selected problems.</i></b></p> <p><b><i>Classwork will be allocated to students during class hours.</i></b></p> <p><b><i>Homework will be assigned for practice when required.</i></b></p>
Session 4 & 5	<b>UNIT 2: QUADRATIC FUNCTIONS</b>	<ul style="list-style-type: none"> <li>• Quadratic Functions (Definition, Writing, Solving)</li> <li>• Parabola</li> <li>• Equation of Parabola</li> <li>• Identifying Function Families</li> <li>• Domain and Range</li> </ul>	
Session 6	<b>REVIEW QUIZ 1</b>	<p><b>TOPICS:</b></p> <p><b>UNIT 1: LINEAR FUNCTIONS</b></p> <p><b>UNIT 2: QUADRATIC FUNCTIONS</b></p>	<p><b><i>Class quizzes will be notified in advance. The first 15-30 minutes before the quiz is reserved for reviewing the units. Students must finish the quiz within the time limit and turn in their work to the tutor. Quizzes will be graded and returned within a week.</i></b></p>
Session 7 & 8	<b>UNIT 3: POLYNOMIAL FUNCTIONS</b>	<ul style="list-style-type: none"> <li>• Polynomial Functions (Definition, Writing, Solving)</li> <li>• Leading Coefficient</li> <li>• 5 Types</li> <li>• Degree</li> <li>• End behavior</li> <li>• Adding, Subtracting, Multiplying and Dividing</li> </ul>	

Session 9 & 10	<b>UNIT 4: RATIONAL AND RADICAL FUNCTIONS</b>	<ul style="list-style-type: none"> <li>• Rational Functions (Definition, Properties, Solving)</li> <li>• Radical Functions (Definition, Properties, Solving)</li> <li>• Not Rational Function</li> <li>• Evaluating in Rational Form and Radical Form</li> <li>• Variable Expression</li> </ul>	
Session 11	<b>REVIEW QUIZ 2</b>	<p><b>TOPICS:</b></p> <p><b>UNIT 3: POLYNOMIAL FUNCTIONS</b></p> <p><b>UNIT 4: RATIONAL AND RADICAL FUNCTIONS</b></p>	<p><i>Class quizzes will be notified in advance. Students must finish the quiz within the time limit and turn in their work to the tutor. Quizzes will be graded and returned within a week.</i></p>
Session 12 & 13	<b>UNIT 5: EXPONENTIAL AND LOGARITHMIC FUNCTIONS</b>	<ul style="list-style-type: none"> <li>• Exponential Function</li> <li>• Natural Exponential Function</li> <li>• Exponential Growth</li> <li>• Exponential Decay</li> <li>• Properties of Exponents</li> <li>• Logarithmic Function</li> <li>• Natural Logarithmic Function</li> <li>• Properties of Logarithms</li> </ul>	
Session 14, 15 & 16	<b>UNIT 6: SEQUENCE AND SERIES</b>	<ul style="list-style-type: none"> <li>• Sequence</li> <li>• Finite and Infinite Sequence</li> <li>• Arithmetic Sequence</li> <li>• <math>N^{th}</math> term of Arithmetic Sequence</li> <li>• Sum of Arithmetic Sequence</li>   <li>• Geometric Sequence</li> <li>• <math>N^{th}</math> term of Geometric Sequence</li> <li>• Sum of Finite Geometric Sequence</li> <li>• Sum of Infinite</li> </ul>	

		<ul style="list-style-type: none"> <li>Geometric Sequence</li> <li>• Recursive Rule for Sequence, Arithmetic Sequence and Geometric Sequence</li> <li>• Series</li> <li>• Finite and Infinite Series</li> <li>• Sigma Notation for Series</li> <li>• Sum of Series</li> </ul>	
Session 17	REVIEW QUIZ 3	<p><b>TOPICS:</b></p> <p><b>UNIT 5: EXPONENTIAL AND LOGARITHMIC FUNCTIONS</b></p> <p><b>UNIT 6: SEQUENCE AND SERIES</b></p>	<p><i>Class quizzes will be notified in advance. Students must finish the quiz within the time limit and turn in their work to the tutor. Quizzes will be graded and returned within a week.</i></p>
Session 18 & 19	UNIT 7: TRIGONOMETRY	<ul style="list-style-type: none"> <li>• Trigonometric Function for Right-angled Triangle</li> <li>• Trigonometric Function for Circle</li> <li>• Degree and Radian</li> <li>• Using Trigonometric Identities</li> <li>• Evaluating/Simplifying /Verifying Trigonometric Function</li> <li>• Trigonometric sum/difference</li> </ul>	
Session 20, 21 & 22	UNIT 8: PROBABILITY AND STATISTICS	<ul style="list-style-type: none"> <li>• Probability</li> <li>• Theoretical Probability</li> <li>• Experimental Probability</li> <li>• Sample Space</li> <li>• Conditional Probability</li> <li>• Probability of Independent and Dependent Events</li> <li>• Probability of Compound Events</li> <li>• Permutation and Combination</li> <li>• Probability Distribution</li> </ul>	

		<ul style="list-style-type: none"> <li>• Binomial Distribution</li> <li>• Statistics</li> <li>• Parameters</li> <li>• Population</li> <li>• Sample</li> <li>• Normal Distribution</li> <li>• Z-score and Standard Normal Table</li> </ul>	
<b>Session 23</b>	<b>REVIEW QUIZ 4</b>	<b><u>TOPICS:</u></b>  <b>UNIT 7: TRIGONOMETRY UNIT 8: PROBABILITY AND STATISTICS</b>	<i><b>Class quizzes will be notified in advance. Students must finish the quiz within the time limit and turn in their work to the tutor. Quizzes will be graded and returned within a week.</b></i>