## **Course Name: Pre-calculus**

## Course Code: H2402 Grade: 12 Level: Academic Year: 5X Credits: 5

**Course Description:** This course is designed to help students acquire a thorough and complete understanding of algebra as a preparation for college mathematics. Students develop improved skills in applying algebraic properties, and in using algebraic reasoning to model situations and solve problems in the real world. Topics in advanced algebra and the underpinnings of calculus are developed.

**Course Proficiencies:** The following is a list of the proficiencies that describe what students are expected to know and be able to do as a result of successfully completing this course. The following proficiencies are the basis of the assessment of student achievement. The learner will demonstrate the ability to:

- 1. Use a variety of strategies including logical reasoning to solve problems; compare, evaluate, and select among problem solving strategies. *A-REI.A.1*
- 2. Review the fundamental skills and concepts of Algebra such as writing expressions and equations, relating rational exponents and radicals, and performing operations with polynomials. *A-APR.A.1*
- 3. Use Linear, Quadratic, and Exponential functions to model real-world scenarios.
- 4. Evaluate, Transform, and Combine functions. *F-LE.A.1*
- 5. Apply the Remainder and Factor Theorems.
- 6. Graph Rational functions using key features. F-IF.C.7.d
- 7. Relate and use Exponential and Logarithmic functions to solve problems. *F-IF.C.7.e*
- 8. Solve Rational and Logarithmic equations. *A-REI.D.11*
- 9. Use Trigonometric functions and their Inverses to solve geometry and physics problems.
- 10. Verify and use Trigonometric Identities and Formulas. F-TF.C.8, F-TF.C.9
- 11. Explore Polar Coordinates. G-GPE.B.4
- 12. Solve systems of equations and inequalities. A-REI.D.12
- 13. Graph ellipses, hyperbolas, and parabolas and use them to solve problems. G-GPE.A.3
- 14. Find Limits and use properties of limits.
- 15. Explore Derivatives.
- 16. Apply mathematics in practical situations and in other disciplines.
- 17. Use critical thinking skills to make sense of problems, solve them, and communicate processes. *CRP 2, 4 & 8.*
- 18. Use technology to gather, analyze, and communicate mathematical information. *8.1.12.A.3, 8.1.12.C.1*

## Pre-Calculus Proficiencies – cont'd.

Assessment: Evaluation of student achievement in this course will be based on the following:

- A. Tests
- B. Projects
- C. Classwork/Homework
- D. Maintaining a folder/notebook
- A. Tests are usually given at the end of a unit. These generally require a full period to complete.
- B. During the course, special projects such as research papers, outlines, surveys, and computer-based projects may be assigned to students. These activities are major in scope; the grades on projects will count as major grades when determining the course grade.
- C. Classwork, evidenced by completed and carefully presented daily work and by the meeting of daily responsibilities, is an essential part of learning. The day-to-day work included as classwork may involve quizzes, the written results of learning activities, graded homework, and assessments of learning observed during class. The more a student is involved, the more learning that takes place.
- D. Folders/Notebooks must be maintained by students. These typically include notes and assignments kept in an organized fashion.

## **Board Adopted Materials:**

Teaching Resources and Related Student Materials:

Title: Precalculus, 6<sup>th</sup> Edition Author: Robert Blitzer Publisher: Pearson Copyright: 2018, 2014, 2010 Pearson Education Inc.