General Course Information

Course Name: Pre-Calculus	
Department: Math	Grade Level(s): 11-12
Duration/Credits: Full Year/1 Credit	Prerequisites: Algebra II and Geometry
BOE Approval Date: 12/19/19	Course Code: H2405W

Course Description:

This course brings together and organizes the arithmetic, algebraic, geometric and trigonometric concepts studied throughout the student's educational career. Emphasis will be placed on graphs of functions, solving equations and their applications, and trigonometric identities.

Course Rationale:

The need to understand and be able to use mathematics in everyday life and in the workplace has never been greater and will continue to increase. The underpinnings of everyday life are increasingly mathematical and technological. Just as the level of mathematics needed for intelligent citizenship has increased, so has the level of mathematical thinking and problem solving needed in the workplace. Those who understand and can do mathematics will have significantly enhanced opportunities and options for shaping their futures. Mathematical competence opens doors to productive futures.

Course Objectives:

1. The student will construct viable arguments and critique the reasoning of others, both verbally and written. (A+ Speaking and Listening) (A+ Writing)
2. The student will read and interpret real world situations in order to model and apply their understanding of precalculus concepts. (A+ Reading)
3. The student will explore and discover real world situations in which precalculus skills are relevant, such as a business model. (A+ Research)
4. The student will understand the real number system and be able to classify real numbers as natural numbers whole numbers, integers, rational numbers and/or irrational numbers.
5. The student will be able to graph functions, determine their domain and range, use graphs of functions to solve equations, and optimize functions.
6. The student will be able to perform operations on functions, transform functions, find their inverses, and build composite functions.
7. The student will be able to identify, characterize, graph, apply, and optimize polynomial, rational, radical, exponential, logarithmic, and trigonometric functions.

8. The student will be able to solve polynomial, rational, radical, exponential, logarithmic, and trigonometric equations, as well as systems of equations and inequalities.
9. The student will be able to identify angles, determine the six trigonometric functions for an angle, graph the six trigonometric functions, and use the trigonometric functions, the law of sines, and the law of cosines to solve triangles.
10. The student will be able to use trigonometric identities to simplify expressions, solve equations, derive and verify identities.
11. The student will understand the inverse trigonometric functions and be able to apply them to the solution of problems.
12. The student will be able to work in both Cartesian and polar coordinate systems and represent vector quantities in component and magnitude/angle forms.

Dual Credit

- Missouri Baptist University: Students who enroll in the dual credit course will receive 5 college credits for this course. Information on how to sign up will be given in class. The college course grade received will be an average of the two high school semester grades earned.
    - MBU Course title: MATH155 Precalculus

Standards Alignment:

ACT College and Career Readiness Standards