HIBBING COMMUNITY COLLEGE  
COURSE OUTLINE  

COURSE TITLE & NUMBER: Trigonometry: MATH 1300  
CREDITS: 2 (2 Lec / 0 Lab)  
PREREQUISITES: MATH 1020: Advanced Algebra with a grade of “C” or better, or Placement Exam  

CATALOG DESCRIPTION:  
In Trigonometry, the students study right triangles, trigonometric functions and their graphs, trigonometric identities, inverse trigonometric functions and their graphs, trigonometric equations, oblique triangles, the Law of Sines, the Law of Cosines, complex numbers, DeMoivre’s Theorem, vectors, and polar coordinates.  

OUTLINE OF MAJOR CONTENT AREAS:  
1. The trigonometric functions  
   A. The trigonometric functions of acute angles  
   B. Applications of right triangles  
   C. Trigonometric functions of any angle  
   D. Radians, arc length, and angular speed  
   E. Circular functions  
      1. graphs  
      2. properties  
   F. Graphs of transformed sine and cosine functions  
2. Trigonometric identities, inverse functions, and equations  
   A. Identities: Pythagorean and sum and difference  
   B. Identities: cofunction double-angle, and half-angle  
   C. Proving trigonometric identities  
   D. Inverses of the trigonometric functions  
   E. Solving trigonometric equations  
3. Applications of trigonometry  
   A. The Law of Sines  
   B. The Law of Cosines  
   C. Introduction to complex numbers  
   D. Complex numbers: trigonometric form  
   E. DeMoivre’s theorem  
   F. Vectors and applications  
   G. Vector operations  
4. Polar coordinates and graphs  

COURSE GOALS/OBJECTIVES/OUTCOMES:  
1. Students will define the trigonometric functions in terms of the coordinates of a point on an angle’s terminal side, in terms of the sides of a right triangle, and in terms of the coordinates of a point on the unit circle.
2. Students will state trigonometric identities and use those identities to prove others and do calculations.
3. Students will graph the six trigonometric functions, inverse trigonometric functions, and transformations of those functions.
4. Students will use trigonometric functions, the Law of Sines, and the Law of Cosines to solve triangles.
5. Students will perform computations with complex numbers in rectangular form and in trigonometric form.
6. Students will utilize radian measure to calculate arc length, sector area, and velocity.
7. Students will solve trigonometric equations.
8. Students will solve vector problems using geometric and algebraic approaches.
9. Students will graph curves in polar coordinates.

MNTC GOALS AND COMPETENCIES MET:
Goal 4: Mathematical/Logical Reasoning

HCC COMPETENCIES MET:
Communicating Clearly & Effectively
Thinking Creatively & Critically

STUDENT CONTRIBUTIONS:
The student will attend class regularly, participate in class discussion, complete daily assignments, in class exercises, exams, and a comprehensive final examination. The student will spend a minimum of two hours completing assignments for every hour in class. These must be accomplished in such a way that they meet minimum standards set by the instructor.

STUDENT ASSESSMENT SHALL TAKE PLACE USING INSTRUMENTS SELECTED/DEVELOPED BY THE COURSE INSTRUCTOR.

SPECIAL INFORMATION:
The student may be required to provide a calculator for this course. If a specific calculator model is required, this model will be specified by the instructor on the course syllabus.

Curriculum Approval Date: October 2, 2017

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