MA 112   PLANE TRIGONOMETRY

Instructor:	**Class Meetings Location/Time:**	**Office Location**:
Raymond Williams	CRB 204	CRB 210

Phone:	**E-mail Address:**	**Office Hours:**
254-3400	rw2@mvsu.edu	M (2-3 pm)
		W (8-11 am)
		TH (8:00-10:00 am)

COURSE DESCRIPTION
The Six Trigonometric Functions, Right Triangle Trigonometry, Radian Measure, Graphing and Inverse Functions, Identities and Formulas, Equations, Triangles, Complex Numbers and Polar Coordinates.

Credit 3 semester hours

This course expects that students have completed a college algebra course with a minimum grade of 'C' or has an ACT math sub-score of at least 20.

PURPOSE
The purpose of this course is to expose students to the principles and application of trigonometry especially as it relates to problem solving. Additionally, this course is also used as pre-requisite for the beginning calculus course.

GENERAL COURSE GOALS:
The general goal of this course is to prepare the students with the necessary mathematical skills and problem-solving capabilities to be productive (after graduation) in the scientific world of research, teaching, and applications.

COURSE CONTENT
 Required Text:
Textbook: Trigonometry (2017) by Charles P. McKeague, 9th Edition
Graphing calculators, use of computer for exposure to the Mathematica software.

Timeline:
 Week 1 - Chapter 1
 Week 2 - Chapter 1 continued - exam 1
 Week 3 - Chapter 2
 Week 4 - Chapter 2 continued
 Week 5 - Exam 2 chapter 2
 Week 6 - Chapter 3
 Week 7 - Chapter 3 continued
 Week 8 - Exam for chapter for 3 and chapter 4 began
 Week 9 - Chapter 4 continued
 Week 10 - Test for chapter 4
 Week 11 - Chapter 5
 Week 12 - Test for chapter 5

RELATIONSHIP WITH THE HOLISTIC TRANSFORMER MODEL (HTM)
Due to the nature of this courses, the student is forced to use the scholarly approach to critically reflect upon their thinking to solve problems. Technology is constantly changing, and students of this course are made aware of this. To keep abreast of technological advances, learning has to take place continuously. Students are shown how computers and application software are used to facilitate learning. Finally, students of computer science and mathematics have to be scholars to combat the goals and objectives set forth for the course.

COURSE OBJECTIVES
At the conclusion of the course, you should be able to solve problem involving the following concepts:

1. Apply the Pythagorean Theorem and Trigonometrical Functions. Use the Distance Formula to find the distance between two points. Identify the signs of the Trigonometric Functions
2. Define II for Trigonometric Function. Apply the Cofunction Theorem. Solve problems of Degrees, Minutes, and Second. Convert to and from Decimal Degrees. Addition of and horizontal and vertical Vectors.
3. Draw angles in standard position. Convert angles into radian measure. Evaluate Trigonometrical Functions. Find Linear and Angular Velocity.
4. Graph Sine and Cosine Curves, by addition of y-coordinates. Identify amplitude, period, and phase shift. Evaluate in radians with and without a calculator.
5. Prove Identities in Trigonometry. Evaluate the sum and difference formulas, the Double-Angle and High-Angle Formulas, and the product to sum and the sum to product formula.
6. Solve simple trigonometric equation, equations involving multiple angles, and parametric equation
7. The Law of Sines and Cosine. Find the area of a triangle three different ways. Evaluate the magnitude, addition and subtraction, dot product and scalar multiplication of vectors. Prove an Ambiguous Case.
8. Definition of complex numbers. Solve problems with complex numbers in trigonometry form. Graph complex numbers. Convert complex numbers into standard form. Prove the multiplication and division theorem of complex numbers. Use Demoivres Theorem. Definition of polar coordinates. Convert polar coordinates to rectangular coordinates.

TECHNOLOGY INFUSION:
The students use the graphing calculators to assist with many of the in-class and takehome assignments. Additionally, demonstrations are often given in class, especially with its graphing capability. More infusion of technology is available in the computer labs, especially with the use of the computer algebra systems such as Mathematica and Mat Lab software.

MAJOR STUDENT ACTIVITIES
1. Homework
2. In-class problem solving
3. Group Projects
4. Written assignments
5. Oral presentations

INSTRUCTIONAL STRATEGIES:
The major instructional methods for this course include a combination of lectures, demonstrations, class discussions, oral presentations, questions/answers, use of technology including tutorial software, and group activities.

EVALUATION AND GRADING PROCEDURES

The final grades are computed as follows:
There will be an exam after each chapter.
There is a total of six chapters. The final grade will be determined from the average of the six chapter tests. A final exam will be given to increase your average by ten percent if your class average is 90% or less. Final exam is not necessary if your class average is more than 90%.

Attendance Policy:
The students are expected to come to class every day that I come. You will know one day in advance if I am expected to be absent from class.

GRADING SCALE
90–100_____ A
80–89_____ B
70–79_____ C
60–69_____ D
59 and below__ F

ADA/STUDENTS WITH SPECIAL NEEDS:
Mississippi Valley State University is committed to providing reasonable accommodations for students with a documented disability. If you feel you are eligible to receive accommodations for a covered disability (medical, physical, psychiatric, learning, vision, hearing, etc.) and would like to request it for this course, you must be registered with the Services for Students with Disabilities (SSD) program administered by University College. It is recommended that you visit the Disabilities Office located in the Social Science Building Office 105 to register for the program at the beginning of each semester. For more information or to schedule an appointment, please contact Mrs. Kathy Brownlow, via phone or email at 662-254-3443 or kbrownlow@mvsu.edu.

BIBLIOGRAPHY
Kenneth A. Ross, Elementary Analysis: The Theory of Calculus, Springer- Verlag, 1980.

Richard Goldberg, Methods of Real Analysis, second edition, John Wiley & Sons.

Patrick M. Fitzpatrick, Advanced Calculus, PWS Publishing Company, 1996.