Course Outline
MAC 1114
College Trigonometry Rev. Spring 2012

General Course Information

Common Course Number: MAC1114

Course Title: College Trigonometry Rev. Spring 2012

Prerequisite(s): Minimum grade of C in MAC 1102 or Mac 1104 or 1105 or appropriate score on placement test.

Contact Hour Breakdown: **CR** 3 **CLASS** 3 **LAB** 0

Discipline: Mathematics

Catalog Description: Topics include a symbolical, graphical, and numerical analysis of trigonometric functions; solutions of plane triangles and vectors. Applications emphasizing connections with other disciplines and with the real world will be included. Technology tools will be utilized in addition to analytical methods. Gordon Rule course. Minimum grade of C required if MAC 1114 is used to satisfy Gordon Rule and general education requirements. Credit not given for both MAC 1114 and MAC 1132 nor for MAC 1114 and MAC 1142. nor for MAC 1114 and MAC 1147.

Major Topics/ Concepts/ Skills/ Issues

- TRIGONOMETRIC FUNCTIONS, THEIR PROPERTIES AND GRAPHS
- INVERSE TRIGONOMETRIC FUNCTIONS, THEIR PROPERTIES AND GRAPHS
- TRIGONOMETRIC IDENTITIES
- CONDITIONAL TRIGONOMETRIC EQUATIONS
- SOLUTIONS OF TRIANGLES
- VECTOR ALGEBRA
- PARAMETRIC EQUATIONS
- POLAR COORDINATES
- APPLICATIONS

Major Learning Outcomes with Evidence, Core Competencies and Indicators

Demonstrate an understanding of the definitions of the trigonometric functions.

Corresponding Evidence of Learning

- Student will be able to find the x- coordinate, y-coordinate, or radius, given the other two and an angle in standard position..
- Student will be able to find the values of the trigonometric functions, given a point on the terminal side of an angle in standard position.
- Student will be able to find the exact values of the trigonometric functions, given special angles (multiples of pi/2, pi/3, pi/4, pi/6).
- Student will be able to express the trigonometric ratios in terms of the sides of the triangle, given a right triangle.

Core Competency: Think

Indicators	Assessments
• analyze data, ideas, patterns, principles, perspectives • employ the facts, formulas, procedures of the discipline • integrate ideas and values from different disciplines • draw well-supported conclusions • revise conclusions consistent with new observations, interpretations, or reasons	• Group presentation • Knowledge recall quiz • Locally developed exam/objective • Locally developed multiple choice exam • Problem-solving quiz • Project • Instructor may choose one or more of the above assessments, or use one of their own.

Core Competency: Communicate

Indicators	Assessments
• employ methods of communication appropriate to your audience and purpose	• Group presentation • Knowledge recall quiz • Locally developed exam/objective • Locally developed multiple choice exam • Problem-solving quiz • Instructor may choose one or more of the above assessments, or use one of their own.
Core Competency: Act	
Indicators	**Assessments**
• implement effective problem-solving, decision-making, and goal-setting strategies • apply disciplinary knowledge, skills, and values to educational and career goals	• Group presentation • Knowledge recall quiz • Locally developed exam/objective • Locally developed multiple choice exam • Problem-solving quiz • Instructor may choose one or more of the above assessments, or use one of their own.
Use the trigonometric functions to solve problems that are based on triangles.	
Corresponding Evidence of Learning	
• Student will be able to make a graphic representation that describes the situation and solve the problem, given an applied problem involving right triangles. • Student will be able to use of the Law of Sines and/or the Law of Cosines, make a graphic representation that describes the situation and solve the problem, given an applied problem.	
Core Competency: Think	
Indicators	**Assessments**
• integrate ideas and values from different disciplines • revise conclusions consistent with new observations, interpretations, or reasons • draw well-supported conclusions • employ the facts, formulas, procedures of the discipline	• Group presentation • Knowledge recall quiz • Locally developed exam/objective • Locally developed multiple choice exam • Problem-solving quiz • Project • Instructor may choose one or more of the above assessments, or use one of their own.
Core Competency: Communicate	
Indicators	**Assessments**
• employ methods of communication appropriate to your audience and purpose	• Group presentation • Knowledge recall quiz • Locally developed exam/objective • Locally developed multiple choice exam • Problem-solving quiz • Instructor may choose one or more of the above assessments, or use one of their own.
Core Competency: Act	
Indicators	**Assessments**
• implement effective problem-solving, decision-making, and goal-setting strategies • apply disciplinary knowledge, skills, and values to educational and career goals	• Group presentation • Knowledge recall quiz • Locally developed exam/objective • Locally developed multiple choice exam • Problem-solving quiz • Instructor may choose one or more of the above assessments, or use one of their own.
Demonstrate an understanding of the graphs of the trigonometric functions.	
Corresponding Evidence of Learning	
• Student will be able to determine the amplitude, period, phase shift, and vertical shift, and the graph of the function, given the equation of a trigonometric function. • Student will be able to determine the equation of the function, given the graph of a sine or cosine function. • Student will be able to determine a graphic and symbolic representation of the problem, given an applied problem involving a periodic function.	

- Student will be able to determine the graph of an inverse trigonometric function.

Core Competency: Think

Indicators	Assessments
• integrate ideas and values from different disciplines • draw well-supported conclusions • revise conclusions consistent with new observations, interpretations, or reasons • employ the facts, formulas, procedures of the discipline • analyze data, ideas, patterns, principles, perspectives	• Group presentation • Knowledge recall quiz • Locally developed exam/objective • Locally developed multiple choice exam • Problem-solving quiz • Project • Instructor may choose one or more of the above assessments, or use one of their own.

Core Competency: Communicate

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Use trigonometric identities to find equivalent expressions.

Corresponding Evidence of Learning

- Student will be able to simplify trigonometric expressions using the fundamental identities.
- Student will be able to prove or verify trigonometric identities using algebraic manipulation.
- Student will be able to apply trigonometric identities for sum, difference, or multiple angles to find equivalent trigonometric expressions.

Core Competency: Think

Indicators	Assessments
• employ the facts, formulas, procedures of the discipline • draw well-supported conclusions • integrate ideas and values from different disciplines • revise conclusions consistent with new observations, interpretations, or reasons	• Group presentation • Knowledge recall quiz • Locally developed exam/objective • Locally developed multiple choice exam • Problem-solving quiz • Instructor may choose one or more of the above assessments, or use one of their own.

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Demonstrate the ability to solve equations involving trigonometric functions.

Corresponding Evidence of Learning

- Student will be able to determine the solutions of a trigonometric equation within a given interval.
- Student will be able to use the inverse trigonometric functions to solve trigonometric equations.
- Student will be able to solve trigonometric equations that arise from applied problems.
- Student will be able to solve trigonometric equations that arise from applied problems, using vectors

Core Competency: Think

Indicators	Assessments
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	• Project • Instructor may choose one or more of the above assessments, or use one of their own.
Core Competency: Communicate	
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