MATH 151: PLANE TRIGONOMETRY

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2024
Credits:	4
Total Contact Hours:	72
Lecture Hours :	72
Lab Hours:	0
Hours Arranged:	0
Outside of Class Hours:	144
Total Student Learning Hours:	216
Prerequisite:	Direct placement based on multiple measures.
District General Education:	A3. Mathematics
Transferable to CSU:	Yes
Transferable to UC:	No
Grading Method:	Standard Letter, Pass/No Pass

Catalog Course Description

The study of trigonometric functions, their inverses and their graphs, identities and proofs related to trigonometic expressions, trigonometric equations, solving right triangles, solving triangles using the Law of Cosines and the Law of Sines, polar coordinates, and introduction to vectors. 72 lecture hours.

Course Objectives

- Identify special triangles and their related angle and side measures;
- Calculate powers and roots of complex numbers using DeMoivre's Theorem; and
- Represent a vector (a quantity with magnitude and direction).
- Evaluate the trigonometric function of an angle in degree and radian measure;
- Manipulate and simplify a trigonometric expression;
- Solve trigonometric equations, triangles, and applications;
- Graph the basic trigonometric functions and apply changes in period, phase, and amplitude to generate new graphs;
- Evaluate and graph inverse trigonometric functions;
- Prove trigonometric identities;
- Convert between polar and rectangular coordinates and equations;
- Graph polar equations;

Major Course Content

1. Rectangular coordinates, angles and circular/radian measure;
2. Definitions of the six trigonometric functions according to the right angle, the unit circle, and the rectangular coordinate system;
3. Applications of the right triangle;
4. Simplification of trigonometric expressions;
5. Proofs of trigonometric identities;
6. Graphs of trigonometric functions: period, amplitude, phase shift, asymptotes;
7. Inverse trigonometric functions and their graphs;
8. Trigonometric equations;
9. Solving Triangles: Low of Sines and Law of Cosines;
10. Polar coordinates and equations;
11. DeMoivre's Theorem and applications; and
12. Introduction to vectors.

Examples of Outside Assignments

1. Given a trigonometric equation, students must use factoring, identities, or the quadratic formula to determine the solutions to the equation.
2. Given a trigonometric identity, students must show the steps for proving an identity by showing that one side of the identity is equal to the other side for all values of the variables in the domain.

Instruction Type(s)

Lecture, Online Education Lecture