



C-ID Descriptor

Precalculus

Descriptor Details

- **Descriptor Title:** Precalculus
- **C-ID Number:** 155
- **Units:** 4.0
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General Description

Preparation for calculus: polynomial, absolute value, radical, rational, exponential, logarithmic, and trigonometric functions and their graphs; analytic geometry, polar coordinates

Prerequisites

Trigonometry

Corequisites

No information provided

Advisories

No information provided

Content

1. Functions including linear, polynomial, rational, radical, exponential, absolute value, logarithmic, trigonometric; definitions, evaluation, domain and range;

2. Inverses of functions;
3. Algebra of functions;
4. Graphs of functions including asymptotic behavior, intercepts, and vertices;
5. Transformations of quadratic, absolute value, radical, rational, logarithmic, exponential functions;
6. Equations including rational, linear, radical, polynomial, exponential, trigonometric, logarithmic, and absolute value;
7. Linear, nonlinear, and absolute value inequalities;
8. Systems of equations and inequalities;
9. Characterization of real and complex zeros of polynomials;
10. Unit circle and right triangle trigonometry;
11. Trigonometric and inverse trigonometric identities and formulas;
12. Graphing trigonometric functions: period, amplitude, phase shift, inverse trigonometric functions; and
13. Polar coordinates

Lab Activities

No information provided

Objectives

Upon successful completion of the course, students will be able to:

1. Graph functions and relations in rectangular coordinates and polar coordinates;
2. Synthesize results from the graphs and/or equations of functions and relations;
3. Apply transformations to the graphs of functions and relations;
4. Recognize the relationship between functions and their inverses graphically and algebraically;
5. Solve and apply equations including rational, linear, polynomial, exponential, absolute value, radical, and logarithmic, and solve linear, nonlinear, and absolute value inequalities;
6. Solve systems of equations and inequalities;
7. Apply functions to model real world applications;
8. Identify special triangles and their related angle and side measures;
9. Evaluate the trigonometric function of an angle given in degree and radian measure;
10. Manipulate and simplify a trigonometric expression;

11. Solve trigonometric equations, triangles, and applications;
12. Graph the basic trigonometric functions and apply changes in period, phase and amplitude to generate new graphs; and
13. Prove trigonometric identities

Evaluation Methods

Tests, examinations, homework or projects where students demonstrate their mastery of the learning objectives and their ability to devise, organize and present complete solutions to problems.

Textbooks

A college level text designed for science, technology, engineering and math majors, and supporting the learning objectives of this course.