

MATH 1005 - Applied Technical Mathematics (version 202014L)

Course Title Course Development Learning Support

Applied Technical Mathematics Standard No

Course Description

This course focuses on the mathematics needed by technical or trade programs. Emphasis is placed on the application of mathematical skills used in solving occupational and technical problems. Topics include basic mathematical skills, measurements and conversions, consumer applications, geometric concepts, technical applications, linear equations, and sinusoidal waves.

Pre-requisites

Pre-requisites: All Required

Appropriate MATH Placement Score

Regstr. Co-requisites

Regstr. Co-requisites: None

True Co-requisites

True Co-requisites: None

Course Length

	Lecture Contact Time	Regular Lab Type	Reg. Lab Contact Time	Other Lab Type	Oth. Lab Contact Time	Total Contact Hrs
Contact Hours Per Week	3 hrs	N/A	0 hrs	N/A	0 hrs	3 hrs
Contact Min/Hrs Per Semester	2250 min		0 min		0 min	45 hrs
	Lecture Credit Hours	Lab Credit Hours	Total Credit hours	WLU		
Semester Credit Hours	3	0	3	101.25		

Competencies & Outcomes

Order Description

1 Basic Mathematical Skills

Order	Description	Learning Domain	Level of Learning
1	Perform basic mathematical operations using the order of operations on real numbers in various forms including fraction, decimal, and percent.	Cognitive	Synthesis
2	Define and simplify ratios, rates and unit rates in various forms.	Cognitive	Knowledge
3	Identify proportional relationships and solve.	Cognitive	Knowledge
4	Solve problems involving exponential notation including scientific notation.	Cognitive	Application
5	Solve simple quadratic equations by taking the square root.	Cognitive	Application

2 Measurement and Conversion

Order	Description	Learning Domain	Level of Learning
-------	-------------	-----------------	-------------------

1	Identify and express proper notation for the U.S. Customary and International (SI/Metric) system for specific measures such as weight, mass, length, area, volume, temperature, heat, force, energy, pressure, time, electric current, amount of a substance, and luminous intensity.	Cognitive	Knowledge
2	Convert measurements of length, weight, mass, and capacity using the appropriate units.	Cognitive	Comprehension
3	Solve application problems involving measurement using the appropriate units.	Cognitive	Application
4	Read measurements using a ruler to the nearest decimal or fraction such as the nearest 4th, 8th, 16th, or 32nd of an inch.	Cognitive	Knowledge

3 Consumer Applications

Order	Description	Learning Domain	Level of Learning
1	Solve applied problems involving percent of increase and decrease such as markups and markdowns.	Cognitive	Application
2	Calculate simple interest and compound interest.	Cognitive	Application

4 Geometric Concepts

Order	Description	Learning Domain	Level of Learning
1	Define terminology associated with points, lines, planes, and angles.	Cognitive	Knowledge
2	Identify basic two-dimensional figures such as rectangles, squares, triangles, trapezoids, circles, and regular polygons.	Cognitive	Knowledge
3	Use Pythagorean Theorem to calculate the length of a missing side in a right triangle.	Cognitive	Application
4	Calculate the radius, diameter, circumference, and area of a circle using appropriate units.	Cognitive	Application
5	Calculate the perimeter and area of two-dimensional figures such as rectangles, squares, triangles, trapezoids, and regular polygons, using appropriate units.	Cognitive	Application
6	Calculate volumes of basic three dimensional shapes such as rectangular solid, right cylinder, cone, pyramid, prism, and sphere using appropriate units.	Cognitive	Application

5 Technical Applications

Order	Description	Learning Domain	Level of Learning
1	Solve problems involving simple electrical applications applying laws such as Ohm's and Watt's Laws.	Cognitive	Application
2	Solve problems involving direct and inverse variation.	Cognitive	Application
3	Solve a formula for a specific variable using appropriate units.	Cognitive	Application

6 Linear Equations

Order	Description	Learning Domain	Level of Learning
1	Solve linear equations.	Cognitive	Application

2	Draw graphs of linear functions.	Cognitive	Knowledge
3	Construct linear models that describe real-world phenomena.	Cognitive	Synthesis

7 Sinusoidal Waves

Order	Description	Learning Domain	Level of Learning
1	Calculate the amplitude, period, frequency, and phase angle of sinusoidal waves.	Cognitive	Application
2	Draw graphs of sinusoidal waves.	Cognitive	Application