

# TAM 121 Syllabus

## Course Description:

TAM 121 is basic mathematics course for beginning machinists. This course is designed to acquaint the entry-level tooling and machining student with the mathematical concepts, terms, and formulas required to function as a machinist. The emphasis of the course is upon application of mathematical principles to the machine trades and developing mathematical/mechanical problem-solving skills.

**Course Credits:** 3 credits **Course Prerequisites/Co-requisites:** None

## Course Learning Outcomes:

By the end of this course, the students will be able to:

- Solve problems involving combinations of powers and roots with other basic arithmetic operations, using a calculator.
- Solve machine technology problems using algebraic equations and formulas.
- Determine unknown angles and side lengths in triangles and polygons using geometric principles.
- Solve problems using geometric principles which involve chords, arcs, central and inscribed angles, perpendiculars, and tangents.
- Compute the unknown angles and side lengths in a right triangle using the sine, cosine, or tangent trigonometric functions.
- Employ auxiliary lines, use geometric principles, and use trigonometric functions to solve machine technology problems.

## Textbook:

“Mathematics for Machine Technology, 8th Edition,” by John C. Peterson and Robert D. Smith. ISBN: 978-1-337-79831-0

## Assignments:

Assessment #	Unit #	Topic
Homework 1.1:	1	Introduction to Common Fractions and Mixed Numbers
Homework 1.2:	2	Addition of Common Fractions and Mixed Numbers
	3	Subtraction of Common Fractions and Mixed Numbers
Quiz 1.1:	1-3	
Homework 1.3:	4	Multiplication of Common Fractions and Mixed Numbers
	5	Division of Common Fractions and Mixed Numbers
Homework 1.4:	6	Combined Operations of Common Fractions and Mixed Numbers
Quiz 1.2:	4-6	
Homework 1.5:	9	Introduction to Decimal Fractions
	10	Rounding Decimal Fractions and Equivalent Decimal and Common Fractions

Quiz 1.3:	9-10	
Homework 1.6:	11	Addition and Subtraction of Decimal Fractions
Homework 1.7:	12	Multiplication of Decimal Fractions
Homework 1.8:	13	Division of Decimal Fractions
Quiz 1.4:	11-13	
Homework 1.9:	14	Powers
Homework 1.10:	15	Roots
Homework 1.11:	16	Table of Decimal Equivalents and Combined Operations of Decimal Fractions
Quiz 1.5:	14-16	
<b>Module 1 Test</b>	1-6, 9-16	Common Fractions and Decimal Fractions
Homework 2.1:	39	Symbolism and Algebraic Expressions
Homework 2.2:	40	Signed Numbers
Quiz 2.1:	39 & 40	
Homework 2.3:	41	Algebraic Operations of Addition, Subtraction and Multiplication
Homework 2.4:	42	Algebraic Operations of Division, Powers and Roots
Quiz 2.2:	41 & 42	
Homework 2.5:	43	Introduction to Equations
Homework 2.6:	44	Solution of Equations by the Subtraction Addition and Division Principles of Equality
	45	Solution of Equations by the Multiplication, Root and Power Principles of Equality
Quiz 2.3:	43-45	
Homework 2.7:	46	Solution of Equations Consisting of Combined Operations and Rearrangement of Formulas
Homework 2.8:	47	Applications of Formulas to Cutting Speed, Revolutions per Minute and Cutting Time
Quiz 2.4:	46 & 47	
<b>Module 2 Test</b>	39-47	Fundamentals of Algebra
Homework 3.1:	50	Lines and Angular Measure
Homework 3.2:	52	Types of Angles and Angular Geometric Principles
Quiz 3.1:	50 & 52	
Homework 3.3:	53	Introduction to Triangles
Homework 3.4:	54	Geometric Principles for Triangles and Other Common Polygons

Quiz 3.2:	53 & 54	
Homework 3.5:	55	Introduction to Circles
Homework 3.6:	56	Arcs and Angles of Circles, Tangent Circles
Quiz 3.3:	55 & 56	
<b>Module 3 Test</b>	55, 52-56	Fundamentals of Plane Geometry
Homework 4.1:	66	Introduction to Trigonometric Functions
Homework 4.2:	68	Basic Calculations of Angles and Sides of Right Triangles
Quiz 4.1:	66 & 68	
Homework 4.3:	69	Simple Practical Machine Applications
Homework 4.4:	70	Complex Practical Machine Applications
Quiz 4.2:	69 & 70	
<b>Module 4 Test</b>	66, 68-70	Trigonometry
<b>Final Exam</b>		Cumulative: Fractions & Decimals, Algebra, Geometry, Trigonometry