

1. Arithmancy & Mean, Median, and Mode		Click HERE to view unit details & resources			
<i>Performance & Conditions</i>					
1.01	Given two or more integers, be able to add, subtract, multiply and divide them.	MOOC: Complete Beginners Course to Master Microsoft Excel Microsoft Excel Application: Formulas	How do technicians use math? Math Relevance Presentation from Industry Representative Nuclear Energy through a Virtual Field Trip	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: A.1 Addition & Subtraction of Whole Numbers A.2 Multiplication & Division of Whole Numbers A.3 Fractions A.4 Equivalent Fractions A.5 Addition & Subtraction of Fractions A.6 Multiplication & Division of Fractions A.7 Decimals A.8 Percent 17.3 Measures of Central Tendency (Mean, Median, Mode)	
1.02	Given a fraction, be able to identify the parts and types of fractions.				
1.03	Given a fraction, be able to find equivalent fractions.				
1.04	Given a fraction, be able to convert it to a decimal number.				
1.05	Given a decimal, be able to convert it to a fraction.				
1.06	Given a percent, be able to convert it to a fraction.				
1.07	Given a percent, be able to convert it to a decimal.				
1.08	Given a set of numbers, be able to determine the mean, median and mode.				
2. Units of Measure & Scientific Notation		Click here to view unit details & resources			
<i>Performance & Conditions</i>					
2.01	Given two or more integers, be able to add, subtract, multiply and divide them.	MOOC: Complete Beginners Course to Master Microsoft Excel Microsoft Excel Application: Order of Operations & Finding Roots Microsoft Excel Application: Convert Measurements in Excel	Measuring and Units: Is it Radioactive? Comparing the Effects of Where you Live and How you Live The Math of Energy	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 1.1 Signed Numbers 1.2 Addition & Subtraction of Signed Numbers 1.3 Multiplication & Division of Signed Numbers 1.4 Power and Roots 1.5 Orders of Operations 1.6 Scientific Notations 1.7 Problem Solving Strategies 2.1 Working with Units of Measure 2.2 Units of Measure: The Metric System 2.3 Reduction and Conversion of Units	Unit Quiz Unit Two Review Unit Two Test
2.02	Given a number, be able to switch from ordinary notation to scientific notation and reverse.				
2.03	Given two or more numbers in scientific notation, be able to add, subtract, multiply and divide them.				
2.04	Using the US Customary System of measurement, be able to identify units of measurement for length, weight, and capacity.				
2.05	Given a number in the US Customary System of measurement, be able to convert units from one to another.				
2.06	Using the International System of Units (SI or Metric Units), be able to identify units of measurement for length, mass,				
2.07	Given a list of metric prefixes, be able to identify their common meaning and their factor of multiplication.				
2.08	Given a number in the SI/Metric unit of measurement, be able to convert units from one to another.				
2.09	Given a measurement in US Customary System, be able to convert measure to the SI system.				
2.10	Given a measurement in the SI system, be able to convert measure to the US customary system.				
3. Simple Equations & Inequalities		Click HERE to view unit details & resources			
<i>Performance & Conditions</i>					
3.01	Given an example of both, be able to identify the differences between an algebraic expression and an equation.	MOOC: Complete Beginners Course to Master Microsoft Excel	How does a Nuclear Power Plant Work?	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Unit Three Review Unit Three Test

		Technology Applications	Industry Related Resources	Formal Instruction	Assessment
3.02	Given a simple equation, be able to solve it.	Microsoft Excel Application: 2nd Tier Formula and Calculations	Webquest: Math Equations Ohm's Law Lab Activity	Chapter.Section: 3.1 Working with Formulas 3.2 Basic Algebraic Expression 4.1 Solving a Simple Equation 4.3 Simple Inequalities 4.4 Problem Solving Strategies & Word Problems 4.5 Ratio, Proportions & Variations 8.1 The Distributive Property & Common Factors	
3.03	Given a simple formula, be able to use it to solve an equation.				
3.04	Given an example, be able to identify the components of simple inequalities.				
3.05	Given an equation, be able to solve simple inequalities.				
3.06	Given a written statement, be able to translate it into symbol representations.				
3.07	Given a word problem, be able to apply general strategies to solve it.				
3.08	Given two numbers, be able to identify their ratio and proportion to one another.				
3.09	Given a problem, be able to solve using proportions.				
3.10	Given an algebraic expression, be able to identify common factors.				
3.11	Given an algebraic expression, be able to factor by grouping.				
4. Algebraic Fractions		Click HERE to view unit details & resources			
Performance & Conditions					
4.01	Given a rational expression, be able to simplify or reduce the expression.	MOOC: Complete Beginners Course to Master Microsoft Excel	The Units Used to Measure Radiation Electronic Circuits & Systems of Equations Lab Activity	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 9.1 Equivalent Algebraic Fractions 9.2 Multiplication & Division of Algebraic Fractions 9.3 The Lowest Common Denominator 9.4 Addition & Subtraction of Algebraic Fractions 9.5 Solving Fractional Equations	Unit Four Review Unit Four Test
4.02	Given an algebraic fraction, be able to multiply or divide the fraction				
4.03	Given an algebraic fraction, correctly determine the lowest common denominator.				
4.04	Given an algebraic equation, be able to add and subtract fractions.				
4.05	Given an equation with fractions, be able to solve the equation.				
5. Graphing		Click HERE to view unit details & resources			
Performance & Conditions					
5.01	Given a representation of the rectangular coordinate system, be able to identify quadrants, axes, origins, ordered pairs, and coordinates.	MOOC: Complete Beginners Course to Master Microsoft Excel Microsoft Excel Application: Create and Format a Line Graph in Excel in 5 easy Steps	Heat Transfer Lab Activity	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 5.2 The Rectangular Coordinate System 5.4 Graph of a Linear Function 5.6 Graphical Solutions	Unit Five Review Unit Five Test
5.02	Given a representation of rectangular coordinate system, be able to graph points.				
5.03	Given an ordered pair, be able to find the slope of a line.				
5.04	Given a horizontal or vertical line, be able to describe the slope of the lines.				

		Technology Applications	Industry Related Resources	Formal Instruction	Assessment
5.05	Given a graph, accurately read the information				
6. Geometry & Triangles		Click HERE to view unit details & resources			
Performance & Conditions					
6.01	Given a basic geometric image, be able to identify points, lines and angles.	MOOC: Complete Beginners Course to Master Microsoft Excel	Volumes of Complex Solids	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 6.1 Basic Geometric Figures 6.2 Perimeter 6.3 Area 6.4 Volume	Unit Six Review Unit Six Test
6.02	Given a basic geometric image, be able to identify basic geometric shapes such as triangles, quadrilaterals and circles.				
6.03	Given a geometric image be able to identify the perimeter.				
6.04	Given a triangle or quadrilateral image, be able to find the perimeter.				
6.05	Given a circle image, be able to find the circumference.				
6.06	Given a geometric image, be able to explain the concept of area.				
6.07	Given a geometric image, be able to find the area (including triangles, quadrilaterals, and circles).				
6.08	Given a geometric representation, be able to explain the concept of volume.				
6.09	Given a geometric representation, be able to find the volume (including a rectangular solid, cylinder, pyramid, cone and sphere).				
7. Geometry & Right Triangle Trigonometry		Click HERE to view unit details & resources			
Performance & Conditions					
7.01	Given a basic geometric image, be able to identify different types of angles.	MOOC: Complete Beginners Course to Master Microsoft Excel Microsoft Excel Application: Order of Operations & Finding Roots	Exploring Nondestructive Evaluation Methods	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 13.1 Angles & Their Measure 13.2 Other Geometric Figures 13.3 Right Triangles & Pythagorean Theorem 13.5 The Trigonometric Ratios 13.6 Values of the Trigonometric Ratios 13.7 Right Triangle Applications	Unit Seven Review Unit Seven Test
7.02	Given a basic geometric image, be able to determine the measures of the angles of a triangle.				
7.03	Given a basic geometric image, be able to determine the measures of the angles of a quadrilateral.				
7.04	Given the formula, be able to identify the Pythagorean theorem.				
7.05	Given the Pythagorean theorem, be able to find the missing sides and angles of a right triangle.				
7.06	Given a geometric image, be able to define the trigonometric ratios of sine, cosine, and tangent.				
7.07	Given two sides of a right triangle, be able to find the value of the three trigonometric ratios of that angle.				
7.08	Given a right triangle, be able to find the missing sides and angles of the triangle.				
8. Exponents & Radical Expressions		Click HERE to view unit details & resources			
Performance & Conditions					
8.01	Given an expression, be able to explain how to use the law of exponents.	MOOC: Complete Beginners Course to Master Microsoft Excel	Half Life Lab Activity	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-	Unit Eight Review

		Technology Applications	Industry Related Resources	Formal Instruction	Assessment
8.02	Given an expression, be able to use the law of exponents to simplify it.	Microsoft Excel Application: 2nd Tier - Order of Opeations & Finding Roots		321-374417-2) Chapter.Section: 10.1 Integral Exponents 10.2 Fractional Exponents 10.3 Imaginary Roots 10.4 Simplifying Radicals 10.5 Operations with Radicals 10.6 Solve Equations containing radical expressions	Unit Eight Test
8.03	Given an example of the two, be able to describe the relationship between radicals and fractional exponents.				
8.04	Given an example of an imaginary number, be able to describe the concept of imaginary numbers.				
8.05	Given an expression, be able simplify radicals having negative values under the radical sign.				
8.06	Given an example of the two, be able to identify the root of a product rule and a quotient rule.				
8.07	Given an expression, be able to write a radical expression in its simplest form.				
8.08	Given an expression, be able to rationalize a denominator.				
8.09	Given radical expressions, be able to add or subtract them.				
8.10	Given radical expressions, be able to multiply or divide them.				
8.11	Given an equation containing a radical expression, be able to solve it.				
9. Exponential & Logarithmic Functions					
Performance & Conditions					
9.01	Given an exponential equation, be able to identify the base.	MOOC: Complete Beginners Course to Master Microsoft Excel Microsoft Excel Application: 2nd Tier - Order of Opeations & Finding Roots	Half Life Lab Activity	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 12.1 Exponential Functions 12.2 Logarithms 12.3 Properties of Logarithms 12.4 Natural Logarithms 12.5 Exponential & Logarithm Equations	Unit Nine Review Unit Nine Test
9.02	Given an expression, be able to convert between exponential and logarithmic form.				
9.03	Given a logarithmic expression, be able to simplify the expression using the properties of logarithms.				
9.04	Given an exponential equation, be able to solve it.				
9.05	Given a logarithmic equation, be able to solve it.				
10. Percent Error & Standard Deviation		Click HERE to view unit details & resources			
Performance & Conditions					
10.01	Given a set of data, be able to determine the range for the set of data.	Microsoft Excel Application: How to Estimate Standard Deviation with Excel's STDEV Function	Statistical Analysis of Temperature Sensors Measurement Certainty: How Certain Are You?	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 17.4 Measures of Spread & Variation 17.5 Probability	Unit Nine Review Unit Nine Test
10.02	Given a set of data, be able to find the standard deviation for the set of data.				
10.03	Given a scenario, be able to determine the probability of an event.				
10.04	Given a scenario and a set of data, be able to determine the percent error.				

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Technology Application				
<p><i>Instructional Enrichment Technology Practice</i></p>	<p>MOOC: Complete Beginners Course to Master Microsoft Excel</p> <p>Excel is commonly used in industries to track and analyze data.</p> <p>This MOOC is used to give a general overview of the capabilities of Microsoft Excel</p>	<p>Link to MOOC: https://www.eduonix.com/courses/Office-Productivity/Complete-Beginners-Course-to-Master-Microsoft-Excel</p> <p>Section 1: Course Introduction</p> <p>Section 2: Basic Excel Workbook, Worksheets and Cells</p>	<p>Students should work through the course and electronically turn in spreadsheets.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
<p><i>Instructional Enrichment Technology Practice</i></p>	<p>Blog: Microsoft Excel Application: Formulas</p> <p><i>Excel is commonly used in industries to track and analyze data.</i></p>	<p>How to use Basic math Formulas like Addition and Subtraction in Excel: https://www.thoughtco.com/excel-math-basics-3123478</p> <p>How to Add Numbers in Excel Using a Formula: https://www.thoughtco.com/how-to-add-in-excel-3985531</p> <p>How to Subtract Numbers in Excel: https://www.thoughtco.com/how-to-subtract-in-excel-3124091</p> <p>How to Divide in Excel Using a Formula: https://www.thoughtco.com/how-to-divide-in-excel-3124080</p>	<p>Create a spread sheet with populated data for students to work from.</p> <p>Demonstrate Excel formula capabilities in class using the student spread sheet.</p> <p>Provide links to tutorials.</p> <p>Assign students to review the tutorials and complete the formulas in the data populated spread sheet. Completed spread sheets should be turned in electronically for instructor review.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>

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		<p>How to Multiply Numbers in Excel: https://www.thoughtco.com/how-to-multiply-in-excel-3124086</p> <p>Excel Median Function: Find the Middle (Average) Value: https://www.thoughtco.com/excel-median-function-3123786</p> <p>Find the Average (Mode) with Excel's MODE Function: https://www.thoughtco.com/excel-modesngl-function-4072671</p>		

Industry Related Resources

<p><i>Pre-Instructional</i> <i>Instructional</i> <i>Enrichment</i> <i>Problem Based Learning</i> <i>Case Study</i></p>	<p>How do technicians use math?</p>	<p>Instructor presents the Department of Labor's (DOL) statistics for Nuclear Technicians, reviewing the job skills, and starting a discussion on how math skills will be necessary to complete the job.</p> <p>DOL statistics for Nuclear Technicians: https://www.bls.gov/ooh/life-physical-and-social-science/nuclear-technicians.htm#tab-2</p>	<p>Students research industry job descriptions and/or profiles to find out how math is used in their chosen career path.</p>	<p>Student report findings in 2-minute informal presentations to entire class, being sure to highlight how math is used in the career path.</p> <p>Questions to consider / answer:</p> <ol style="list-style-type: none"> 1. Where did you find the job description? (Indeed.com, Industry website, etc.) 2. What is the title of the job? 3. What math skills did you find in the job description? 4. Why do you think a person in that job will need those skills? <p>Instructor can use the white board to keep track of the math skills identified by students in order to complete the discussion.</p>
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<i>Pre-Instructional Instructional Enrichment Case Study</i>	Math Relevance Presentation from Industry Representative	Industry partnerships, subject to availability	During the first week, invite an industry partner to speak to class about the relevancy of math in their chosen industry.	Students will hear, first hand, from industry personnel how relevant math is in their career path which should help them relate math to their career goals.
<i>Pre-Instructional Instructional Enrichment Case Study</i>	Nuclear Energy through a Virtual Field Trip	Students learn about nuclear energy generation through a nuclear power plant virtual tour. https://www.teachengineering.org/lessons/view/ncs-2026-nuclear-energy-virtual-field-trip	Students view the video touring through different nuclear power plants.	Students will be able to identify and discuss many aspects of nuclear energy generation.
Formal Instruction				
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: A.1 Examples: 1-5	Chapter.Section: A.1 Addition & Subtraction of Whole Numbers Exercises: 1-12, selected problems	Students will be able to add, subtract, multiply and divide them.
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: A.2 Examples: 1-9	Chapter.Section: A.2 Multiplication & Division of Whole Numbers Exercises: 1-40, selected problems	Students will be able to add, subtract, multiply and divide them.
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: A.3 Examples: 1-5	Chapter.Section: A.3 Fractions Exercises: 1-36, selected problems	Students will be able to identify the parts and types of fractions.

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<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: A.4 Examples: 1-11	Chapter.Section: A.4 Equivalent Fractions Exercises: 1-69, selected problems	Students will be able to identify the parts and types of fractions. Students will be able to find equivalent fractions.
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Examples: 1-9	Chapter.Section: A.5 Addition & Subtraction of Fractions Exercises: 1-44, selected problems	Students will be able to identify the parts and types of fractions. Students will be able to find equivalent fractions.
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: A.6 Examples: 1-9	Chapter.Section: A.6 Multiplication & Division of Fractions Exercises: 1-52, selected problems	Students will be able to identify the parts and types of fractions. Given a fraction, students will be able to find equivalent fractions.
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: A.7 Examples: 1-9	Chapter.Section: A.7 Decimals Exercises: 1-64, selected problems	Students will be able to convert it to a decimal number. Given a decimal, students will be able to convert it to a fraction.
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: A.8 Examples: 1-7	Chapter.Section: A.8 Percent Exercises: 1-62, selected problems	Students will be able to convert it to a fraction. Students will be able to convert it to a decimal.

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<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 17.3 Examples: 1-5	Chapter.Section: 17.3 Measures of Central Tendency (Mean, Median, Mode) Exercises: 1-14, selected problems	Students will be able to determine the mean, median and mode
Assessment				

2. Units of Measure & Scientific Notation

Stage	Title & Description	Resource	Task	Outcome
Technology Application				
<p><i>Instructional Enrichment Technology Practice</i></p>	<p>MOOC: Complete Beginners Course to Master Microsoft Excel</p> <p>Excel is commonly used in industries to track and analyze data.</p> <p>This MOOC is used to give a general overview of the capabilities of Microsoft Excel</p>	<p>Link to MOOC: https://www.eduoix.com/courses/Office-Productivity/Complete-Beginners-Course-to-Master-Microsoft-Excel</p> <p>Section 3: Data in Excel <i>Data handling in Excel</i></p> <p>Section 4: Math Functions <i>Basic Arithmetic Functions</i> <i>Working with mathematical Functions in Excel</i></p>	<p>Students should work through the course and electronically turn in spreadsheets.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
<p><i>Instructional Enrichment Technology Practice</i></p>	<p>Microsoft Excel Application: Order of Operations & Finding Roots</p> <p><i>Excel is commonly used in industries to track and analyze data.</i></p>	<p>Changing the Order of Operations in Excel: https://www.thoughtco.com/changing-the-order-of-operations-excel-3123735</p> <p>Finiding Square Roots, Cube Roots, and nth Roots in Excel: https://www.thoughtco.com/finding-square-cube-nth-roots-excel-3123674</p>	<p>Create a spread sheet with populated data for students to work from.</p> <p>Demonstrate Excel capabilities in class using the student spread sheet.</p> <p>Provide links to tutorials.</p> <p>Assign students to review the tutorials and complete the formulas in the data populated spread sheet. Completed spread sheets should be turned in electronically for instructor review.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>

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Stage	Title & Description	Resource	Task	Outcome
Instructional Enrichment Technology Practice	Microsoft Excel Application: Convert Measurements in Excel <i>Excel is commonly used in industries to track and analyze data.</i>	Convert Measurements in Excel: https://www.thoughtco.com/convert-measurements-in-excel-3123546 Convert Function Measurements Units and Their Shortforms: https://www.thoughtco.com/convert-measurements-in-excel-3123546	Create a spread sheet with populated data for students to work from. Demonstrate Excel capabilities in class using the student spread sheet. Provide links to tutorials. Assign students to review the tutorials and complete the formulas in the data populated spread sheet. Completed spread sheets should be turned in electronically for instructor review.	Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.
Industry Related Resources				
Instructional Enrichment Problem Based Learning Case Study Practice	Measuring and Units: Is it Radioactive?	Provide students with link, tools of measurements (geiger counter), and items to measure. http://www.nuclearconnect.org/in-the-classroom/for-teachers/measuring-and-units-is-it-radioactive	Students can work in groups or independently to measure the items and record data. Measurements taken in US customary system must be converted to the SI system, including full range of prefixes.	Student report findings in 2-minute informal presentations to entire class. Students can turn in completed calculations for instructor review.
Instructional Enrichment Problem Based Learning Case Study Practice	Comparing the Effects of Where you Live and How you Live	Provide students with worksheet, found at: http://www.nuclearconnect.org/in-the-classroom/for-teachers/using-the-radiation-dose-chart	Students can work in groups or independently to figure what their dose of radiation is based on their lifestyle.	Student report findings in 2-minute informal presentations to entire class. Students can turn in completed calculations for instructor review.
Instructional Enrichment Problem Based Learning Case Study Practice	The Math of Energy	Provide students with video link to the Math of Energy. https://florida.pbslearningmedia.org/resource/2edeb33c-2bd1-411f-bfb6-9a0c39ba018f/us-energy-per-capita/#.WondaKjwZPY	Students can work in groups or independently to view the video and complete the problems at the end.	Student report findings in 2-minute informal presentations to entire class.

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Formal Instruction				
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 1.1</p> <p>Examples: 1-6</p>	<p>Chapter.Section: 1.1 Signed Numbers</p> <p>Exercises: 1-41, selected problems</p>	Students will be able add, subtract, multiply and divide two or more integars.
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 1.2</p> <p>Examples: 1-8</p> <p>Now Try It!: 1-6 (p. 10)</p>	<p>Chapter.Section: 1.2 Addition & Subtraction of Signed Numbers</p> <p>Exercises: 1-45, selected problems</p>	Students will be able add, subtract, multiply and divide two or more integars.
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 1.3</p> <p>Examples: 1-10</p> <p>Now Try It!1: 1-5 (p. 15)</p> <p>Now Try It!2: 1-6 (p. 16)</p>	<p>Chapter.Section: 1.3 Multiplication & Division of Signed Numbers</p> <p>Exercises: 1-58, selected problems</p>	Students will be able add, subtract, multiply and divide two or more integars.
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 1.4</p> <p>Examples: 1-7</p>	<p>Chapter.Section: 1.4 Powers and Roots</p> <p>Exercises: 1-56, selected problems</p>	Students will be able add, subtract, multiply and divide two or more integars.

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<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 1.5</p> <p>Examples: 1-7</p> <p>Now Try It!: 1-6 (p. 28)</p>	<p>Chapter.Section: 1.5 Orders of Operations</p> <p>Exercises: 1-41, selected problems</p>	Students will be able add, subtract, multiply and divide two or more integars.
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 1.6</p> <p>Examples: 1-10</p> <p>Now Try It!1: (p. 33)</p> <p>Now Try It!2: 1-5 (p. 35)</p>	<p>Chapter.Section: 1.6 Scientific Notations</p> <p>Exercises: 1-54, selected problems</p>	<p>Students will be able to switch from ordinary notation to scientific notation and reverse.</p> <p>Students will be able to add, subtract, multiply and divide numbers in scientific notation.</p>
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 1.7</p> <p>Examples: 1</p>	<p>Chapter.Section: 1.7 Problem Solving Strategies</p> <p>Exercises: 1-10, selected problems</p>	<p>Students will be able add, subtract, multiply and divide two or more integars.</p> <p>Students will be able to switch from ordinary notation to scientific notation and reverse.</p> <p>Students will be able to add, subtract, multiply and divide numbers in scientific notation.</p>
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 2.1</p> <p>Examples: 1-3</p>	<p>Chapter.Section: 2.1 Working with Units of Measure</p> <p>Exercises: 1-16, selected problems</p>	Students will be able to identify units of measurement for length, weight, and capacity.

2. Units of Measure & Scientific Notation

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 2.2 Examples: 1-5 Now Try It!: 1-5 (p. 54)</p>	<p>Chapter.Section: 2.2 Units of Measure: The Metric System</p> <p>Exercises: 1-44, selected problems</p>	<p>Students will be able to identify units of measurement for length, mass, capacity, temperature, time and electrical units.</p> <p>Students will be able to convert units from the US Customary system to the SI system.</p> <p>Students will be able to identify their common meaning and their factor of multiplication for metric prefixes.</p>
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 2.3 Examples: 1-8 Now Try It!: 1-5 (p. 59)</p>	<p>Chapter.Section: 2.3 Reduction and Conversion of Units</p> <p>Exercises: 1-30, selected problems</p>	<p>Students will be able to convert units from one to another within the SI system.</p> <p>Students will be able to convert measures in the US customary system to the SI system.</p> <p>Students will be able to convert measures in the SI system to the US customary system.</p>
<i>Practice Review</i>	Unit Two Review	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter One Summary: (p. 42) Key Terms Key Concepts</p> <p>Chapter Two Summary: (p. 68) Key Terms Key Concepts</p>	<p>Chapter One Summary: (p. 42) Review Exercises: 1-66</p> <p>Chapter Two Summary: (p. 68) Review Exercises: 1-8, 17-42</p>	<p>Review of unit concepts and objectives.</p>

Assessment

2. Units of Measure & Scientific Notation

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
	Unit Two Quiz Unit quizzes will be taken in the classroom on the scheduled quiz day prior to the start of instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Problems to be pulled from unit review bank	
	Unit Two Test Unit Tests will be taken in the college assessment center. Students will be given a 3 day window to take the test, after the unit review has been completed	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Chapter One Test: (p. 44) Exercises: 1-23 Chapter Two Test: (P. 70) Exercises: 1, 3-10	

3. Simple Equations & Inequalities

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
Technology Application				
<p><i>Instructional Enrichment Technology Practice</i></p>	<p>MOOC: Complete Beginners Course to Master Microsoft Excel</p> <p>Excel is commonly used in industries to track and analyze data.</p> <p>This MOOC is used to give a general overview of the capabilities of Microsoft Excel</p>	<p>Link to MOOC: https://www.eduonix.com/courses/Office-Productivity/Complete-Beginners-Course-to-Master-Microsoft-Excel</p> <p>Section 5: Formatting Worksheets Formatting Worksheets Conditional Formatting</p> <p>Section 6: Worksheet Management Managing multiple worksheets Advanced Management Techniques</p>	<p>Students should work through the course and electronically turn in spreadsheets.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>

3. Simple Equations & Inequalities

Stage	Title & Description	Resource	Task	Outcome
<p><i>Instructional Enrichment Technology Practice</i></p>	<p>Microsoft Excel Application: 2nd Tier Formula and Calculations</p> <p><i>Excel is commonly used in industries to track and analyze data.</i></p>	<p>A Beginner's guide to Excel Formulas: https://www.thoughtco.com/excel-formulas-step-by-step-tutorial-3123636</p> <p>How to use Basic math Formulas like Addition and Subtraction in Excel: https://www.thoughtco.com/excel-math-basics-3123478</p> <p>How to Add Numbers in Excel Using a Formula: https://www.thoughtco.com/how-to-add-in-excel-3985531</p> <p>How to Subtract Numbers in Excel: https://www.thoughtco.com/how-to-subtract-in-excel-3124091</p> <p>How to Divide in Excel Using a Formula: https://www.thoughtco.com/how-to-divide-in-excel-3124080</p>	<p>Create a spread sheet with populated data for students to work from. Although the tutorials are the same as the first unit, the spread sheet should contain 2nd tier calculations reflective of the progression of the course.</p> <p>Demonstrate Excel capabilities in class using the student spread sheet.</p> <p>Provide links to tutorials.</p> <p>Assign students to review the tutorials and complete the formulas in the data populated spread sheet. Completed spread sheets should be turned in electronically for instructor review.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>

3. Simple Equations & Inequalities

Stage	Title & Description	Resource	Task	Outcome
		<p>How to Multiply Numbers in Excel: https://www.thoughtco.com/how-to-multiply-in-excel-3124086</p> <p>Excel Median Function: Find the Middle (Average) Value: https://www.thoughtco.com/excel-median-function-3123786</p> <p>Find the Average (Mode) with Excel's MODE Function: https://www.thoughtco.com/excel-modesngl-function-4072671</p>		
Industry Related Resources				
<i>Pre-Instructional</i> <i>Instructional</i> <i>Enrichment</i> <i>Problem Based Learning</i> <i>Case Study</i> <i>Practice</i>	How does a Nuclear Power Plant Work?	Provide students with link to material: http://www.explainthatstuff.com/how-nuclear-power-plants-work.html <i>(and suggested links at bottom of page)</i>	Students can work in groups or independently to view the article and supporting links to identify and define math formulas that are related to the nuclear industry.	Student report findings in 2-minute informal presentations to entire class.
<i>Pre-Instructional</i> <i>Instructional</i> <i>Enrichment</i> <i>Problem Based Learning</i> <i>Case Study</i> <i>Practice</i>	Webquest: Math Equations	Provide students with link to video: https://youtu.be/KGpb3_XkEvg	Students can work in groups or independently to view the video and then research equations that are related to nuclear energy	Student report findings in 2-minute informal presentations to entire class. Students can turn in completed calculations for instructor review.

3. Simple Equations & Inequalities

Stage	Title & Description	Resource	Task	Outcome
<i>Instructional Enrichment</i> <i>Problem Based Learning</i> <i>Case Study</i> <i>Practice</i>	Ohm's Law Lab Activity <i>Ohm's Law is a key equation in the analysis of electrical circuits since it relates the voltage to the current scaled by the resistance. The resistance is a measure of the potential difference of the voltage divided by the flow of the current. The resistance is typically a function of the temperature. Nuclear technicians need to have a complete understanding of Ohm's Law to safely work in a nuclear power plant.</i>	Ohm's Law Lab Activity*: https://1drv.ms/f/s!Aj_96S4K2iNSuxNFaGixRI-wrDdo * Includes Activity, Worksheet, & Answer Key	Students will use multimeters to complete the lab activity and solve the equations using Ohm's Law. The included worksheet should be collected and reviewed for correct calculations.	Students will have a complete understanding of Ohm's Law to safely work in a nuclear power plant.
Formal Instruction				
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 3.1 Examples: 1-7	Chapter.Section: 3.1 Working with Formulas Exercises: 1-44, selected problems	Students will be able to identify the differences between an algebraic expression and an equation. Students will be able to use a simple formula to solve an equation.
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 3.2 Examples: 1-2, 4-8	Chapter.Section: 3.2 Basic Algebraic Expression Exercises: 1-45, selected problems	Students will be able to identify the differences between an algebraic expression and an equation. Students will be able to use a simple formula to solve an equation.

3. Simple Equations & Inequalities

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 4.1</p> <p>Examples: 1-11</p> <p>Now Try It!1: A-E (p. 116)</p> <p>Now Try It!2: A-E (p. 118)</p>	<p>Chapter.Section: 4.1 Solving a Simple Equation</p> <p>Exercises: 1-52, selected problems</p>	<p>Students will be able to identify the differences between an algebraic expression and an equation.</p> <p>Students will be able to use a simple formula to solve an equation.</p> <p>Students will be able to solve a simple equation.</p>
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 4.3</p> <p>Examples: 1-10</p> <p>Now Try It!: A-E (p. 130)</p>	<p>Chapter.Section: 4.3 Simple Inequalities</p> <p>Exercises: 1-30, selected problems</p>	<p>Students will be able to identify the components of simple inequalities.</p> <p>Students will be able to solve simple inequalities.</p>
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 4.4</p> <p>Examples: 1-7</p>	<p>Chapter.Section: 4.4 Problem Solving Strategies & Word Problems</p> <p>Exercises: 1-30, selected problems</p>	<p>Students will be able to translate a written statement into symbol representations.</p> <p>Students will be able to apply general strategies to solve word problems.</p>
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 4.5</p> <p>Examples: 1-7</p>	<p>Chapter.Section: 4.5 Ratio, Proportions & Variations</p> <p>Exercises: 1-58, 65-82, selected problems</p>	<p>Students will be able to identify the ratio and proportion of two numbers.</p> <p>Students will be able to solve a problem using proportions.</p>

3. Simple Equations & Inequalities

Stage	Title & Description	Resource	Task	Outcome
Instructional Practice	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 8.1</p> <p>Examples: 1-10</p> <p>Now Try It!: 1-5 (p. 273)</p>	<p>Chapter.Section: 8.1 The Distributive Property & Common Factors</p> <p>Exercises: 1-56, selected problems</p>	<p>Students will be able to identify common factors in an algebraic expression.</p> <p>Students will be able to factor an algebraic expression by grouping.</p>
Practice Review	Unit Three Review	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter Three Summary: (p. 107) Key Terms: <i>formula, factors, coefficient, algebraic expression, like terms,</i> Key Concepts</p> <p>Chapter Four Summary: (p. 151) Key Terms: <i>equation, formula, inequality, solution, ration, proportion</i> Key Concepts Key Formulas</p> <p>Chapter Eight Summary: (p. 292) Key Terms: <i>factoring, factored completely, factor by grouping</i> Key Concepts Key Formulas: <i>distributive property, difference between two squares</i></p>	<p>Chapter Three Review Exercises (p. 107): 1-66</p> <p>Chapter Four Review Exercises (p. 152): 1-84</p> <p>Chapter Eight Review Exercises (p. 292): 1-62</p>	Review of unit concepts and objectives.
Assessment				

3. Simple Equations & Inequalities

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
	Unit Three Quiz Unit quizzes will be taken in the classroom on the scheduled quiz day prior to the start of instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Problems to be pulled from unit review bank	
	Unit Three Test Unit Tests will be taken in the college assessment center. Students will be given a 3 day window to take the test, after the unit review has been complete	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Chapter Three Test (p. 110): 1-9 Chapter Four Test (p. 154): 1-8, 12-15 Chapter Eight Test (p. 294): 1-8	

4. Algebraic Fractions

Stage	Title & Description	Resource	Task	Outcome
Technology Application				
<i>Instructional Enrichment Technology Practice</i>	<p>MOOC: Complete Beginners Course to Master Microsoft Excel</p> <p>Excel is commonly used in industries to track and analyze data.</p> <p>This MOOC is used to give a general overview of the capabilities of Microsoft Excel</p>	<p>Link to MOOC: https://www.eduonix.com/courses/Office-Productivity/Complete-Beginners-Course-to-Master-Microsoft-Excel</p> <p>Section 7: Printing Printing Worksheets Printing Templates Printing Techniques - Final Steps</p>	<p>Students should work through the course and electronically turn in spreadsheets.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
Industry Related Resources				
<i>Instructional Enrichment Problem Based Learning Case Study Practice</i>	<p>The Units Used to Measure Radiation</p>	<p>Provide students with worksheet, found at:</p> <p>http://www.nuclearconnect.org/in-the-classroom/for-teachers/using-the-radiation-dose-chart (Second half of page)</p>	<p>Students can work in groups or independently to review the dose chart and solve the conversion problems.</p>	<p>Student report findings in 2-minute informal presentations to entire class.</p> <p>Students can turn in completed calculations for instructor review.</p>

4. Algebraic Fractions

Stage	Title & Description	Resource	Task	Outcome
<i>Instructional Enrichment Problem Based Learning Case Study Practice</i>	<p>Electronic Circuits & Systems of Equations Lab Activity</p> <p><i>Student's experience a real-world application of a systems of equations in relation to circuits. The activity starts with students solving a system of 3 equations for the currents and then use a breadboard, resistors and jumper wires to each build the same electric circuit from the provided circuit diagram. Voltmeters are used to measure the current flow across each resistor and calculate the current using Ohm's law. Student then compare their mathematically derived current values to the measured values and calculate the percentage difference of their results</i></p>	<p>Electronic Circuits & Systems of Equations Lab Activity*: https://1drv.ms/f/s!Aj_96S4K2iNSuyT9n5RK9mAleFnb</p> <p>* Includes Activity, Worksheet, Quiz, Answer Keys, Supply List, & Breadboard Visual Aid</p>	<p>Students will use breadboards to complete the lab activity and solve the equations on the worksheet.</p> <p>The included worksheet should be collected and reviewed for correct calculations.</p>	<p>Students will have a working knowledge of circuits.</p>
Formal Instruction				
<i>Instructional Practice</i>	<p>Classroom Instruction</p>	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 9.1 Examples: 1-9 Now Try It!: 1-3 (p. 300)</p>	<p>Chapter.Section: 9.1 Equivalent Algebraic Fractions</p> <p>Exercises: 1-38, selected problems</p>	<p>Students will be able to simplify or reduce rational expressions.</p>
<i>Instructional Practice</i>	<p>Classroom Instruction</p>	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 9.2 Examples: 1-9 Now Try It!: 1-4 (p. 306)</p>	<p>Chapter.Section: 9.2 Multiplication & Division of Algebraic Fractions</p> <p>Exercises: 1-46, selected problems</p>	<p>Students will be able to multiply or divide the algebraic fractions.</p>

4. Algebraic Fractions

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 9.3</p> <p>Examples: 1-6</p>	<p>Chapter.Section: 9.3 The Lowest Common Denominator</p> <p>Exercises: 1-40, selected problems</p>	Students will be able to correctly determine the lowest common denominator of an algebraic fraction.
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 9.4</p> <p>Examples: 1-5</p> <p>Now Try It!: 1-4 (p. 317)</p>	<p>Chapter.Section: 9.4 Addition & Subtraction of Algebraic Fractions</p> <p>Exercises: 1-42, selected problems</p>	Students will be able to add and subtract fractions.
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 9.5</p> <p>Examples: 1-7</p> <p>Now Try It!: 1-3 (p. 322)</p>	<p>Chapter.Section: 9.5 Solving Fractional Equations</p> <p>Exercises: 1-36, selected problems</p>	Students will be able to solve an equation with fractions.
<i>Practice Review</i>	Unit Four Review	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter Nine Summary: (p. 328)</p> <p>Key Terms</p> <p>Key Concepts</p> <p>Key Formulas</p>	Chapter Nine Review Exercises (p. 328): 1-74	Review of unit concepts and objectives.
Assessment				

4. Algebraic Fractions

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
	Unit Four Quiz Unit quizzes will be taken in the classroom on the scheduled quiz day prior to the start of instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Problems to be pulled from unit review bank	
	Unit Four Test Unit Tests will be taken in the college assessment center. Students will be given a 3 day window to take the test, after the unit review has been complete	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Chapter Nine Test (p. 330): 1-10	

5. Graphing

Stage	Title & Description	Resource	Task	Outcome
Technology Application				
<i>Instructional Enrichment Technology Practice</i>	<p>MOOC: Complete Beginners Course to Master Microsoft Excel</p> <p>Excel is commonly used in industries to track and analyze data.</p> <p>This MOOC is used to give a general overview of the capabilities of Microsoft Excel</p>	<p>Link to MOOC: https://www.eduonix.com/courses/Office-Productivity/Complete-Beginners-Course-to-Master-Microsoft-Excel</p> <p>Section 8: Formulas Formulas in Excel Formula on Data Range Major Functions Advance Formulas</p>	<p>Students should work through the course and electronically turn in spreadsheets.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
<i>Instructional Enrichment Practice</i>	<p>Microsoft Excel Application: Create and Format a Line Graph in Excel in 5 easy Steps</p> <p><i>Excel is commonly used in industries to track and analyze data.</i></p>	<p>Create and Format a Line Graph in Excel in 5 easy Steps: https://www.thoughtco.com/create-a-line-graph-in-excel-3123563</p>	<p>Create a spread sheet with populated data for students to work from.</p> <p>Demonstrate Excel capabilities in class using the student spread sheet.</p> <p>Provide links to tutorials.</p> <p>Assign students to review the tutorials and complete the formulas in the data populated spread sheet. Completed spread sheets should be turned in electronically for instructor review.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
Industry Related Resources				
<i>Instructional Enrichment Problem Based Learning Case Study Practice</i>	<p>Heat Transfer Lab Activity</p>	<p>Electronic Circuits & Systems of Equations Lab Activity*: https://1drv.ms/f/s!Aj_96S4K2iNSuxfr6wspAw7Zsayg</p> <p>*Includes Activity & Worksheet</p>	<p>Students can work in groups or independently to view the complete the lab and worksheet</p>	<p>Student report findings in 2-minute informal presentations to entire class.</p> <p>Students can turn in completed calculations for instructor review.</p>
Formal Instruction				

5. Graphing

Stage	Title & Description	Resource	Task	Outcome
Instructional Practice	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 5.2</p> <p>Examples: 1-4</p>	<p>Chapter.Section: 5.2 The Rectangular Coordinate System</p> <p>Exercises: 1-26, selected problems</p>	<p>Students will be able to identify quadrants, axes, origins, ordered pairs, and coordinates in the rectangular coordinate system.</p> <p>Students will be able to graph points in the rectangular coordinate system.</p>
Instructional Practice	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 5.4</p> <p>Examples: 1-3</p>	<p>Chapter.Section: 5.4 Graph of a Linear Function</p> <p>Exercises: 1-16, selected problems</p>	<p>Students will be able to find the slope of a line.</p> <p>Students will be able to describe the slope of lines.</p>
Instructional Practice	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 5.6</p> <p>Examples: 1-3</p>	<p>Chapter.Section: 5.6 Graphical Solutions</p> <p>Exercises: 25-28-, selected problems</p>	<p>Students will be able to accurately read the information on a graph.</p>
Practice Review	Unit Five Review	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter Five Summary: (p. 195)</p> <p>Key Terms: <i>rectangular coordinate system, origin, x axis, y axis, quadrants, ordered pair, ordinate, coordinates, slope, run, intercepts</i></p> <p>Key Concepts</p>	<p>Chapter Five Review Exercises (p. 196): 13-20, 33-38, 67-70</p>	<p>Review of unit concepts and objectives.</p>

Assessment

5. Graphing

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
	Unit Five Quiz Unit quizzes will be taken in the classroom on the scheduled quiz day prior to the start of instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Problems to be pulled from unit review bank	
	Unit Five Test Unit Tests will be taken in the college assessment center. Students will be given a 3 day window to take the test, after the unit review has been complete	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Chapter Five Test (p. 198): 3 (& review questions from list above)	

6. Geometry & Triangles

Stage	Title & Description	Resource	Task	Outcome
Technology Application				
<i>Instructional Enrichment Technology Practice</i>	<p>MOOC: Complete Beginners Course to Master Microsoft Excel</p> <p>Excel is commonly used in industries to track and analyze data.</p> <p>This MOOC is used to give a general overview of the capabilities of Microsoft Excel</p>	<p>Link to MOOC: https://www.eduonix.com/courses/Office-Productivity/Complete-Beginners-Course-to-Master-Microsoft-Excel</p> <p>Section 9: More Excel Features Adding Pictures Smart Art Clipart Internet</p>	Students should work through the course and electronically turn in spreadsheets.	Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.
Industry Related Resources				
<i>Instructional Enrichment Problem Based Learning Case Study Practice</i>	<p>Volumes of Complex Solids</p> <p><i>Students determine how accurate temperature sensors are by comparing them to each other.</i></p>	<p>Provide students with materials from the link:</p> <p>https://www.teachengineering.org/activities/view/ind_complex_solids_activity1</p>	Students can work in groups or independently to view the materials and complete the problems at the end.	<p>Student report findings in 2-minute informal presentations to entire class.</p> <p>Students can turn in completed calculations for instructor review</p>
Formal Instruction				
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 6.1 Examples: 1-6</p>	<p>Chapter.Section: 6.1 Basic Geometric Figures</p> <p>Exercises: 1-52, selected problems</p>	<p>Students will be able to identify points, lines and angles in a basic geometric image.</p> <p>Students will be able to identify basic geometric shapes such as triangles, quadrilaterals and circles.</p>

6. Geometry & Triangles

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 6.2 Examples: 1-7	Chapter.Section: 6.2 Perimeter Exercises: 1-58, selected problems	Students will be able to identify the perimeter of a geometric image. Students will be able to find the perimeter of a quadrilateral. Students will be able to find the circumference of a circle.
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 6.3 Examples: 1-7	Chapter.Section: 6.3 Area Exercises: 1-62, selected problems	Students will be able to explain the concept of area. Students will be able to find the area (including triangles, quadrilaterals, and circles).
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 6.4 Examples: 1-13	Chapter.Section: 6.4 Volume Exercises: 1-58, selected problems	Students will be able to explain the concept of volume. Students will be able to find the volume (including a rectangular solid, cylinder, pyramid, cone and sphere).
<i>Practice Review</i>	Unit Six Review	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter Six Summary: (p. 228) Key Terms Key Concepts Formulas	Chapter Six Review Exercises (p. 229): 1-60	Review of unit concepts and objectives.
<i>Assessment</i>				

6. Geometry & Triangles

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
	<p>Unit Six Quiz</p> <p>Unit quizzes will be taken in the classroom on the scheduled quiz day prior to the start of instruction</p>	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p>	<p>Problems to be pulled from unit review bank</p>	
	<p>Unit Six Test</p> <p>Unit Tests will be taken in the college assessment center. Students will be given a 3 day window to take the test, after the unit review has been complete</p>	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p>	<p>Chapter Six Test (p. 231): 1-10</p>	

7. Geometry & Right Triangle Trigonometry

Stage	Title & Description	Resource	Task	Outcome
Technology Application				
<p><i>Instructional Enrichment Technology Practice</i></p>	<p>MOOC: Complete Beginners Course to Master Microsoft Excel</p> <p>Excel is commonly used in industries to track and analyze data.</p> <p>This MOOC is used to give a general overview of the capabilities of Microsoft Excel</p>	<p>Link to MOOC: https://www.eduoix.com/courses/Office-Productivity/Complete-Beginners-Course-to-Master-Microsoft-Excel</p> <p>Section 10: Charts in Excel <i>Using Charts</i> <i>Using Graphs</i></p>	<p>Students should work through the course and electronically turn in spreadsheets.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
<p><i>Instructional Enrichment Problem Based Learning Case Study Practice</i></p>	<p>Microsoft Excel Application: Order of Operations & Finding Roots</p> <p><i>Excel is commonly used in industries to track and analyze data.</i></p>	<p>How to Convert Angles from Radians to Degrees in Excel https://www.thoughtco.com/convert-angles-from-radians-to-degrees-3123667</p> <p>Finding Square Roots, Cube Roots, and nth Roots in Excel: https://www.thoughtco.com/finding-square-cube-nth-roots-excel-3123674</p>	<p>Create a spread sheet with populated data for students to work from.</p> <p>Demonstrate Excel capabilities in class using the student spread sheet.</p> <p>Provide links to tutorials.</p> <p>Assign students to review the tutorials and complete the formulas in the data populated spread sheet. Completed spread sheets should be turned in electronically for instructor review.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
Industry Related Resources				

7. Geometry & Right Triangle Trigonometry

Stage	Title & Description	Resource	Task	Outcome
<i>Pre-Instructional</i> <i>Instructional</i> <i>Enrichment</i> <i>Problem Based Learning</i> <i>Case Study</i> <i>Practice</i>	Exploring Nondestructive Evaluation Methods <i>How can we investigate and measure the inside of an object or its structure if we cannot take it apart? Unlike the destructive nuclear weapon test (!), nondestructive evaluation (NDE) methods are able to accomplish this.</i>	Provide students with materials from the link: https://www.teachengineering.org/lessons/view/mis-1616-nondestructive-evaluation-systems-equations-fem	Students can work in groups or independently to view the materials and complete the problems at the end.	Student report findings in 2-minute informal presentations to entire class. Students can turn in completed calculations for instructor review
Formal Instruction				
<i>Instructional</i> <i>Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 13.1 Examples: 1-5 Now Try It!: 1-4 (p. 433)	Chapter.Section: 13.1 Angles & Their Measure Exercises: 1-40, selected problems	Students will be able to identify different types of angles.
<i>Instructional</i> <i>Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 13.2 Examples: 1-3	Chapter.Section: 13.2 Other Geometric Figures Exercises: 1-12, selected problems	Students will be able to determine the measures of the angles of a triangle. Students will be able to determine the measures of the angles of a quadrilateral.
<i>Instructional</i> <i>Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 13.3 Examples: 1-5	Chapter.Section: 13.3 Right Triangles & Pythagorean Theorem Exercises: 1-40, selected problems	Students will be able to identify the Pythagorean theorem. Students will be able to find the missing sides and angles of a right triangle using the Pythagorean theorem.

7. Geometry & Right Triangle Trigonometry

Stage	Title & Description	Resource	Task	Outcome
Instructional Practice	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 13.5</p> <p>Examples: 1-4 (finding sine, cosine, & tangent)</p> <p>Now Try It!: 1-2 (p. 459) (finding sine, cosine, & tangent)</p>	<p>Chapter.Section: 13.5 The Trigonometric Ratios</p> <p>Exercises: 1,2, 13, 21, 25,31,32,33,40,41,43,44, selected problems</p>	<p>Students will be able to define the trigonometric ratios of sine, cosine, and tangent.</p> <p>Students will be able to find the value of the three trigonometric ratios of that angle.</p>
Instructional Practice	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 13.6</p> <p>Examples: 1-7</p> <p>Now Try It!: 1, 2, 5, 7, 8, 9 (p. 465) (finding sine, cosine, & tangent)</p>	<p>Chapter.Section: 13.6 Values of the Trigonometric Ratios</p> <p>Exercises: 1,2, 3, 7, 11, 8, 10, 12, 15, 17, 18, 20, 23, 24, 27, 29, 30, 32, 33, 34, 35, 37-44, selected problems</p>	<p>Students will be able to define the trigonometric ratios of sine, cosine, and tangent.</p> <p>Students will be able to find the value of the three trigonometric ratios of that angle.</p>
Instructional Practice	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 13.7</p> <p>Examples: 1-8</p> <p>Now Try It!: (p. 469)</p>	<p>Chapter.Section: 13.7 Right Triangle Applications</p> <p>Exercises: 1-36, selected problems</p>	<p>Students will be able to define the trigonometric ratios of sine, cosine, and tangent.</p> <p>Students will be able to find the value of the three trigonometric ratios of that angle.</p>

7. Geometry & Right Triangle Trigonometry

Stage	Title & Description	Resource	Task	Outcome
Practice Review	Unit Seven Review	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter Thirteen Summary: (p. 475) Key Terms: <i>angle, straight angle, right angle, acute angle, obtuse angle, adjacent angle, tangent line, Pythagorean theorem, trigonometry, supplementary angles,</i> Formulas	Chapter Thirteen Review Exercises (p. 475): 1, 2, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 35-42, 45, 46, 47, 48, 53, 54, 55, 56, 61, 62, 65, 67, 71, 73-122	Review of unit concepts and objectives.
Assessment				
	Unit Seven Quiz Unit quizzes will be taken in the classroom on the scheduled quiz day prior to the start of instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Problems to be pulled from unit review bank	
	Unit Seven Test Unit Tests will be taken in the college assessment center. Students will be given a 3 day window to take the test, after the unit review has been complete	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Chapter Thirteen Test (p. 481): 1-12, 14-15	

8. Exponents & Radical Expressions

Stage	Title & Description	Resource	Task	Outcome
Technology Application				
<p><i>Instructional Enrichment Technology Practice</i></p>	<p>MOOC: Complete Beginners Course to Master Microsoft Excel</p> <p>Excel is commonly used in industries to track and analyze data.</p> <p>This MOOC is used to give a general overview of the capabilities of Microsoft Excel</p>	<p>Link to MOOC: https://www.edunix.com/courses/Office-Productivity/Complete-Beginners-Course-to-Master-Microsoft-Excel</p> <p>Section 11: Manipulating Sort Filter in Excel Text Manipulation</p>	<p>Students should work through the course and electronically turn in spreadsheets.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
<p><i>Instructional Enrichment Problem Based Learning Case Study Practice</i></p>	<p>Microsoft Excel Application: 2nd Tier - Order of Operations & Finding Roots</p> <p><i>Excel is commonly used in industries to track and analyze data.</i></p>	<p>Finiding Square Roots, Cube Roots, and nth Roots in Excel: https://www.thoughtco.com/finding-square-cube-nth-roots-excel-3123674</p>	<p>Create a spread sheet with populated data for students to work from. Although the tutorials are the same as the first unit, the spread sheet should contain 2nd tier calculations reflective of the progression of the course.</p> <p>Demonstrate Excel capabilities in class using the student spread sheet.</p> <p>Provide links to tutorials.</p> <p>Assign students to review the tutorials and complete the formulas in the data populated spread sheet. Completed spread sheets should be turned in electronically for instructor review.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
Industry Related Resources				

8. Exponents & Radical Expressions

Stage	Title & Description	Resource	Task	Outcome
<i>Pre-Instructional</i> <i>Instructional</i> <i>Enrichment</i> <i>Problem Based Learning</i> <i>Case Study</i> <i>Practice</i>	Half Life Lab Activity <i>Radioactive decay is the process where an unstable nucleus attempts to become stable by emitting radiation and changing into a different element as the number or protons change. This process will continue until the forces in the nucleus are balanced and stable. The series of changes that a given radioactive element undergoes is called a decay chain. Each radioactive element decays at a unique rate. This rate is known as a half-life; the amount of time it takes for approximately half of the radioactive atoms in a sample to decay into a more stable form. It is possible, as radioactive elements decay, their form (metal, gas, liquid, etc) may change.</i>	Half Life Lab Activity*: https://1drv.ms/f/s!Aj_96S4K2iNSuxqdYppIX7Y5b8ik *Includes Activity, Worksheet, & Answer Key	Students can work in groups or independently to view the video and complete the problems at the end.	Students will gain an understanding of radioactive decay to safely work in a nuclear power plant. Students can turn in completed calculations for instructor review.
Formal Instruction				
<i>Instructional</i> <i>Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 10.1 Examples: 1-9 Now Try It!: 1-4 (p. 333)	Chapter.Section: 10.1 Integral Exponents Exercises: 1-50, selected problems	Students will be able to explain how to use the law of exponents. Students will be able to use the law of exponents to simplify an expression.
<i>Instructional</i> <i>Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 10.2 Examples: 1-7	Chapter.Section: 10.2 Fractional Exponents Exercises: 1-52, selected problems	Students will be able to describe the relationship between radicals and fractional exponents.

8. Exponents & Radical Expressions

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 10.3 Examples: 1-6	Chapter.Section: 10.3 Imaginary Roots Exercises: 1-46, selected problems	Students will be able to describe the concept of imaginary numbers. Students will be able simplify radicals having negative values under the radical sign.
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 10.4 Examples: 1-9	Chapter.Section: 10.4 Simplifying Radicals Exercises: 1-55, selected problems	Students will be able to identify the root of a product rule and a quotient rule. Students will be able to write a radical expression in its simplest form. Students will be able to rationalize a denominator.
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 10.5 Examples: 1-9	Chapter.Section: 10.5 Operations with Radicals Exercises: 1-50, selected problems	Students will be able to add or subtract radical expressions. Students will be able to multiply or divide radical expressions.
<i>Instructional Practice</i>	Classroom Instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter.Section: 10.6 Examples: 1-5	Chapter.Section: 10.6 Solve Equations containing radical expressions Exercises: 1-26, selected problems	Students will be able to solve equation containing a radical expression.

8. Exponents & Radical Expressions

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
<i>Practice Review</i>	Unit Eight Review	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2) Chapter Ten Summary: (p. 360) Key Terms Key Concepts Key Formulas	Chapter Ten Review Exercises (p. 361): 1-86	Review of unit concepts and objectives.
Assessment				
	Unit Eight Quiz Unit quizzes will be taken in the classroom on the scheduled quiz day prior to the start of instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Problems to be pulled from unit review bank	
	Unit Eight Test Unit Tests will be taken in the college assessment center. Students will be given a 3 day window to take the test, after the unit review has been complete	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Chapter Ten Test (p. 363): 1-10	

9. Exponential & Logarithmic Functions

Stage	Title & Description	Resource	Task	Outcome
Technology Application				
<p><i>Instructional Enrichment Technology Practice</i></p>	<p>MOOC: Complete Beginners Course to Master Microsoft Excel</p> <p>Excel is commonly used in industries to track and analyze data.</p> <p>This MOOC is used to give a general overview of the capabilities of Microsoft Excel</p>	<p>Link to MOOC: https://www.edunix.com/courses/Office-Productivity/Complete-Beginners-Course-to-Master-Microsoft-Excel</p> <p>Section 12: Course Summary Summary</p>	<p>Students should work through the course and electronically turn in spreadsheets.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
<p><i>Instructional Enrichment Technology Practice</i></p>	<p>Microsoft Excel Application: 2nd Tier - Order of Operations & Finding Roots</p> <p><i>Excel is commonly used in industries to track and analyze data.</i></p>	<p>Finiding Square Roots, Cube Roots, and nth Roots in Excel: https://www.thoughtco.com/finding-square-cube-nth-roots-excel-3123674</p>	<p>Create a spread sheet with populated data for students to work from. Although the tutorials are the same as the first unit, the spread sheet should contain 2nd tier calculations reflective of the progression of the course.</p> <p>Demonstrate Excel capabilities in class using the student spread sheet.</p> <p>Provide links to tutorials.</p> <p>Assign students to review the tutorials and complete the formulas in the data populated spread sheet. Completed spread sheets should be turned in electronically for instructor review.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
Industry Related Resources				

9. Exponential & Logarithmic Functions

Stage	Title & Description	Resource	Task	Outcome
<p><i>Instructional Enrichment</i> <i>Problem Based Learning</i> <i>Case Study</i> <i>Practice</i></p>	<p>Half Life Lab Activity</p> <p><i>Radioactive decay is the process where an unstable nucleus attempts to become stable by emitting radiation and changing into a different element as the number or protons change. This process will continue until the forces in the nucleus are balanced and stable. The series of changes that a given radioactive element undergoes is called a decay chain. Each radioactive element decays at a unique rate. This rate is known as a half-life; the amount of time it takes for approximately half of the radioactive atoms in a sample to decay into a more stable form. It is possible, as radioactive elements decay, their form (metal, gas, liquid, etc) may change.</i></p>	<p>Half Life Lab Activity*: https://1drv.ms/f/s!Aj_96S4K2iNSuxqdYppIX7Y5b8ik</p> <p>*Includes Activity, Worksheet, & Answer Key</p>	<p>Students can work in groups or independently to view the video and complete the problems at the end.</p>	<p>Students will gain an understanding of radioactive decay to safely work in a nuclear power plant.</p> <p>Students can turn in completed calculations for instructor review.</p>
Formal Instruction				
<p><i>Instructional Practice</i></p>	<p>Classroom Instruction</p>	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 12.1 Examples: 1-2</p>	<p>Chapter.Section: 12.1 Exponential Functions</p> <p>Exercises: 1-12, selected problems</p>	<p>Students will be able to identify the base of an exponential equation.</p>
<p><i>Instructional Practice</i></p>	<p>Classroom Instruction</p>	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 12.2 Examples: 1-2</p>	<p>Chapter.Section: 12.2 Logarithms</p> <p>Exercises: 1-36, selected problems</p>	<p>Students will be able to convert between exponential and logarithmic form.</p>

9. Exponential & Logarithmic Functions

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 12.3</p> <p>Examples: 1-11</p>	<p>Chapter.Section: 12.3 Properties of Logarithms</p> <p>Exercises: 1-42, selected problems</p>	Students will be able to simplify the expression using the properties of logarithms.
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 12.4</p> <p>Examples: 1-6</p>	<p>Chapter.Section: 12.4 Natural Logarithms</p> <p>Exercises: 1-30, selected problems</p>	Students will be able to solve logarithmic equation.
<i>Instructional Practice</i>	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 12.5</p> <p>Examples: 1-7</p>	<p>Chapter.Section: 12.5 Exponential & Logarithm Equations</p> <p>Exercises: 1-30, selected problems</p>	Students will be able to solve an exponential equation.
<i>Practice Review</i>	Unit Nine Review	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter Twelve Summary: (p. 426) Key Terms Key Concepts Formulas</p>	Chapter Twelve Review Exercises (p. 426): 1-64	Review of unit concepts and objectives.
Assessment				

9. Exponential & Logarithmic Functions

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
	Unit Nine Quiz Unit quizzes will be taken in the classroom on the scheduled quiz day prior to the start of instruction	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Problems to be pulled from unit review bank	
	Unit Nine Test Unit Tests will be taken in the college assessment center. Students will be given a 3 day window to take the test, after the unit review has been complete	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Chapter Twelve Test (p. 363): 1-6, 8-9	

10. Percent Error & Standard Deviation

Stage	Title & Description	Resource	Task	Outcome
Technology Application				
<i>Instructional Enrichment Technology Practice</i>	<p>Microsoft Excel Application: How to Estimate Standard Deviation with Excel's STDEV Function</p> <p><i>Excel is commonly used in industries to track and analyze data.</i></p>	<p>How to Estimate Standard Deviation with Excel's STDEV Function</p> <p>https://www.thoughtco.com/excels-stdev-function-standard-deviation-3123788</p>	<p>Create a spread sheet with populated data for students to work from.</p> <p>Demonstrate Excel capabilities in class using the student spread sheet.</p> <p>Provide links to tutorials.</p> <p>Assign students to review the tutorials and complete the formulas in the data populated spread sheet. Completed spread sheets should be turned in electronically for instructor review.</p>	<p>Having experience and knowledge of the computing capabilities of Microsoft Excel will better prepare students for their chosen career path.</p>
Industry Related Resources				
<i>Pre-Instructional Instructional Enrichment</i>	<p>Statistical Analysis of Temperature Sensors</p> <p><i>Students determine how accurate temperature sensors are by comparing them to each other.</i></p>	<p>Provide students with materials from the link:</p> <p>https://www.teachengineering.org/activities/view/nds-1741-statistical-analysis-temperature-sensors-accuracy</p>	<p>Students can work in groups or independently to view the materials and complete the problems at the end.</p>	<p>Student report findings in 2-minute informal presentations to entire class.</p> <p>Students can turn in completed calculations for instructor review</p>
<i>Pre-Instructional Instructional Enrichment</i>	<p>Measurement Certainty: How Certain Are You?</p> <p><i>Students determine how accurate temperature sensors are by comparing them to each other.</i></p>	<p>Provide students with materials from the link:</p> <p>https://www.teachengineering.org/activities/view/rice_density_activity1</p>	<p>Students can work in groups or independently to view the materials and complete the problems at the end.</p>	<p>Student report findings in 2-minute informal presentations to entire class.</p> <p>Students can turn in completed calculations for instructor review</p>
Formal Instruction				

10. Percent Error & Standard Deviation

Stage	Title & Description	Resource	Task	Outcome
Instructional Practice	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 17.4 Examples: 1-3 Now Try It!: 1-3 (p. 627)</p>	<p>Chapter.Section: 17.4 Measures of Spread & Variation</p> <p>Exercises: 1-14, selected problems</p>	<p>Students will be able to determine the range for a set of data.</p> <p>Students will be able to find the standard deviation for a set of data.</p>
Instructional Practice	Classroom Instruction	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter.Section: 17.5 Examples: 1-6 Now Try It!: 1-4 (p. 632)</p>	<p>Chapter.Section: 17.5 Probability</p> <p>Exercises: 1-16, selected problems</p>	<p>Students will be able to determine the probability of an event from a given data set.</p>
Practice Review	Unit Ten Review	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p> <p>Chapter Twelve Summary: (p. 426) Key Terms: <i>raw data, frequency, standard deviation, probability,</i> Key Concepts Formulas</p>	<p>Chapter Seventeen Review Exercises (p. 634): 9, 16, 23, 24-27</p>	<p>Review of unit concepts and objectives.</p>
Assessment				
	<p>Unit Ten Quiz</p> <p>Unit quizzes will be taken in the classroom on the scheduled quiz day prior to the start of instruction</p>	<p>Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)</p>	<p>Problems to be pulled from unit review bank</p>	

10. Percent Error & Standard Deviation

<i>Stage</i>	<i>Title & Description</i>	<i>Resource</i>	<i>Task</i>	<i>Outcome</i>
	Unit Ten Test Unit Tests will be taken in the college assessment center. Students will be given a 3 day window to take the test, after the unit review has been complete	Book: Introduction to Technical Mathematics Fifth Edition (ISBN: 978-0-321-374417-2)	Chapter Seventeen Test (p. 636): 8, 9, 10	