Technical Math

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In this course students will learn about how mathematics affects the world and explore a variety of applications that demonstrate the real-life nature of mathematics and its importance to everyday life. The course is intended for students who require a broad-based general overview of mathematics that will prepare them for Algebra, Geometry and a secondary study in a variety of areas at United Technologies Center (UTC), including business, medical sciences, social sciences, and building trades. Students also spend a large part of the course learning personal finance topics. Students will work on solving a variety of real-world problems covering basic skills in number sense, Algebra, Geometry, and Statistics. This course may not meet the requirements for admission to a four year college/university.

Graduation Standards

Standard 1: Reason and model quantitatively, using units and number systems to solve problems.
Standard 4: Prove, understand, and model geometric concepts, theorems, and constructions to solve problems.
Standard 5: Interpret, infer, and apply statistics and probability to analyze data and reach and justify conclusions.

Unit 1	Number Sense with Financial Literacy
Summary	All occupations, from the least to the most highly skilled, require the use of some type of mathematics. The basic operations of mathematics are addition, subtraction, multiplication, and division. These operations are based on the decimal system. This unit will dive into the basics of the decimal system before performing the basic operations and real-world problems involving those operations. This content in this unit lies in the intersection of mathematics and financial literacy. Students will use mathematics to solve problems in topics such as budgets and taxes.
Performance Indicators Assessed in Unit	HS.M.1B: Reason quantitatively and uses units to solve problems. HS.M.1A: Compute with accuracy in the real number system. *5: Understand the place value system.*
Unit 2	Fractions, Percents and Decimals
Summary	Most measurements and calculations made on the job are not limited to whole numbers. Manufacturing and construction occupations require arithmetic operations using values from fractions of an inch to fractions of a mile. Food service employees prepare menus using fractions of ounces and pounds. Stock is ordered, costs are computed, and discounts are determined using fractions. Medical technicians and nurses deal with fractions when computing in the

	apothecaries' system. Fractional arithmetic operations are necessary in the agriculture and horticulture fields in computing liquid and dry measures. This unit will stress that decimals, percents and fractions are different ways of representing parts of a whole in our place value system. Students will become fluent in operations and real world problems involving parts of a whole.
Performance Indicators Assessed in Unit	HS.M.1A: Compute with accuracy in the real number system. *Understand ratio concepts and use ratio reasoning to solve problems.*
Unit 3	**Ratios and Proportions**
Summary	The ability to solve applied problems using ratio and proportion is a requirement of many occupations. A knowledge of ratio and proportion is necessary in solving many everyday food service occupation, health care, manufacturing, electrical, business and agricultural problems. This unit will stress unit conversions as an application of ratios and proportions. Students will become experts in the metric system with knowledge of metric prefixes and converting between the metric system and customary system.
Performance Indicators Assessed in Unit	*G6: Understand ratio concepts and use ratio reasoning to solve problems.* *G7: Analyze proportional relationships and use them to solve real-world and mathematical problems.*
Unit 4	**Measurement**
Summary	Measurement is used to communicate size, quantity, position, and time. Without measurement, a building could not be built nor a product manufactured. The ability to measure with tools and instruments and to compute with measurements is required in almost all occupations. In this unit, students will use various tools to measure objects. They will dive deep into the details involved in a measurement such as precision, accuracy, tolerance and error. Students will use arithmetic to solve real world problems involving measurement.
Performance Indicators Assessed in Unit	*G3: Solve problems involving measurement and estimation.*
Unit 5	**Geometry**
Summary	Many occupations require a knowledge of geometry and the ability to apply this knowledge to practical on-the-job uses such as carpentry, plumbing, machining, drafting, and auto body repair. In addition to occupational uses, a knowledge of geometry is also of value in daily living. It is used, for example, to estimate the amount of paint or wallpaper required for a room, to determine the number of bags of fertilizer needed for a lawn, and to compute the number of feet of lumber needed for a home project. Students will also learn how to find perimeter, area and volume to answer real world problems such as those already mentioned.

	Students will also learn how to measure angles using various tools and solve problems involving angle measure.
Performance Indicators Assessed in Unit	HS.M.4H Compute perimeter, area, surface area and volume of geometric shapes. *Understand concepts of angles and measure angles.*

Unit 6	**Representing Data**
Summary	A graph shows the relationship between sets of quantities in picture form. Graphs are widely used in business, industry, government, and scientific and technical fields. Newspapers, magazines, books, and manuals often contain graphs. Since they are used in both occupations and everyday living, it is important to know how to interpret and construct basic types of graphs. In this unit, students will learn how to create different types of graphs in order to interpret data.
Performance Indicators Assessed in Unit	HS.M.5B: Create and analyze data displays.

Unit 7	**Pre-Algebra**
Summary	Algebra is a branch of mathematics that uses letters to represent numbers; is an extension of arithmetic. The rules and procedures that apply to arithmetic also apply to algebra. In this unit, students will learn about the power of a variable - the reasons why a symbol can be used to represent an unknown quantity. There will also be an introduction to basic algebraic properties in expressions and equations. Students will also learn basic properties of real numbers that can be used to explain algebraic processes.
Performance Indicators Assessed in Unit	HS.M.2A: Use structure and order of operations to manipulate expressions. HS.M.2B: Write and solve equations and inequalities in one variable.

Summative Assessments Retake

- Summative assessments will count as 70% of the grade.
- Students have the opportunity to retake summative assessments.
- The student must submit a retake form to the teacher within five (5) school days of the date that the summative assessment score is reported to the student.
- The highest score a student can receive on a retake or late assessment is a 75.
- The score achieved on a retake will replace the current score (even if the score is lower).
- If a student is making up a test from an absence, that assessment will be graded up to 100.

Finals

- An end of course Final Exam will be conducted, making up 10% of the students overall grade.

Make-up Work

Upon their return to school from an absence, it is the student's responsibility to secure make-up work from their teacher. The due date of the missed work will be one additional class period for each day

of absence from that class or at the discretion of the teacher.

Grading of Formative Assessments
- Formative assessments will count as 30% of the grade.
- Formative assessments may be scored on either a 0-100 scale or a 0-4 scale.
- The 0-4 scale will be represented in Power School as 4=100, 3=87, 2=77, and 1=67.
- The method of scoring of formative assessments will be determined by assignment.