STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK

MASTER SYLLABUS

MATH 099 – Fundamentals of Applied Mathematics

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CANINO SCHOOL OF ENGINEERING TECHNOLOGY
MATHEMATICS DEPARTMENT
Spring 2019

A. **TITLE**: FUNDAMENTALS OF APPLIED MATHEMATICS

B. **COURSE NUMBER:** Math 099

C. **CREDIT HOURS: (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)**

Credit Hours: 3 Credit hours (imputed)
Lecture Hours: 3 per week
Course Length: 15 Weeks

D. **WRITING INTENSIVE COURSE**: No

E. **GER CATEGORY:** None

F. **SEMESTER(S) OFFERED:** Fall & Spring

G. **COURSE DESCRIPTION:** This course connects mathematical concepts and procedures to real-life applications relevant to a variety of technical trade fields. Topics include: a review of fundamental arithmetic concepts, order of operations, measurement and conversions, ratio and proportion, signed numbers, exponents and radicals, estimation, and an introduction to algebra.

H. **PRE-REQUISITES:** For students with no algebra background or for those receiving less than 70 on the New York State Math A or Integrated Algebra Regents or equivalent examination, or permission of instructor.

I. **CO-REQUISITES:** None

J. STUDENT LEARNING OUTCOMES: (*see key below*)

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

Course Student Learning Outcome [SLO]	***Program Student Learning Outcome [PSLO]***	***GER*** *[If Applicable]*	***ISLO & SUBSETS***	
a. Perform basic arithmetic calculations without the use of a calculator.			3 Foundational Skills	QTR
b. Round the answer of a calculation using the "Rules of Accuracy".			3 Foundational Skills	QTR
c. Use Dimensional Analysis to perform basic conversions of measurement within the English system.			3 Foundational Skills	QTR
d. Demonstrate the ability to solve two-step equations.			3 Foundational Skills	QTR
e. Solve simple trade word problems.			3 Foundational Skills	QTR
f. Organize the solution to a problem and use estimation to determine the reasonableness of the answer.			3 Foundational Skills	QTR

KEY	**Institutional Student Learning Outcomes [ISLO 1 – 5]**
ISLO #	**ISLO & Subsets**
1	**Communication Skills** Oral [O], Written [W]
2	**Critical Thinking** *Critical Analysis [CA] , Inquiry & Analysis [IA] , Problem Solving [PS]*
3	**Foundational Skills** *Information Management [IM], Quantitative Lit,/Reasoning [QTR]*
4	**Social Responsibility** *Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]*
5	**Industry, Professional, Discipline Specific Knowledge and Skills**

*Include program objectives if applicable. Please consult with Program Coordinator

K. APPLIED LEARNING COMPONENT: No

L. ! TEXT: Carman and Saunders (2014), *Mathematics for the Trades: A Guided Approach 10th Ed.).* Boston, MA: Pearson Education.

L. ! REFERENCES: N/A

M. ! EQUIPMENT: A technology enhanced classroom.

N. ! GRADING METHOD: A - F

O. ! SUGGESTED MEASUREMENT CRITERIA/METHODS:

- Homework
- Quizzes
- Exams
- Participation
- Projects

P. DETAILED COURSE OUTLINE:

I. ! Review of Fundamental Arithmetic Concepts
- A. Operations with real numbers
- B. Prime factors
- C. Order of operations
- D. Equivalent fractions and writing in lowest terms
- E. Reciprocals
- F. Least common denominator
- G. Estimation and predictions
- H. Applications

II. ! Ratio, Proportion, and Percent
- A. Ratio and proportion
- B. Simple ratio and proportion equations
- C. Introduction to percent problems
- D. Converting percent to fractions and decimals and vice versa
- E. Applications of percent calculations
- F. Applications of ratio and proportion

III. ! Measurement
- A. Working with measurement numbers
- B. Accuracy
- C. English units and unit conversion
- D. Technical applications with measurement

IV. Pre-Algebra Topics
   A. Operations with signed numbers
   B. Absolute value
   C. Exponents and square roots
   D. Order of operations with exponents
   E. Scientific notation and powers of 10

V. Basic Algebra
   A. Algebraic language and formulas
   B. Algebraic expressions
   C. Evaluating formulas
   D. Solve simple equations
   E. Solve simple 2-step equations
   F. Manipulate simple formulas
   G. Applications

VI. Practical Plane Geometry
   A. Labeling, measuring, classifying, and drawing angles
   B. Area and perimeter of polygons
   C. Applications

Q. <u>LABORATORY OUTLINE</u>: N/A