Tompkins Cortland Community College

Master Course Syllabus

Course Discipline and Number: MATH 122 **Year: 2025-2026**
Course Title: Technical Mathematics **Credit Hours: 3**

Attendance Policy: *To maintain good grades, regular attendance in class is necessary. Absence from class is considered a serious matter and absence never excuses a student from class work. It is the responsibility of all instructors to distribute reasonable attendance policies in writing during the first week of class. Students are required to comply with the attendance policy set by each of their instructors. Students are not penalized if they are unable to attend classes or participate in exams on particular days because of religious beliefs, in accordance with Chapter 161, Section 224-a of the Education Law of the State of New York. Students who plan to be absent from classroom activity for religious reasons should discuss the absence in advance with their instructors. See college catalog for more information.*

Services for Students with Disabilities: *It is the College's policy to provide, on an individual basis, appropriate academic adjustments for students with disabilities, which may affect their ability to fully participate in program or course activities or to meet course requirements. Students with disabilities should contact the Coordinator of Access and Equity Services, to discuss their particular need for accommodations. All course materials are available in alternate formats upon request.*

Course Description

Designed specifically to meet the needs of students in technology programs, this course is a study of fundamental algebraic operations, linear equations, functions, applied geometry, trigonometry, and vector analysis. MATH 122 fulfills the SUNY General Education Mathematics requirement. Prerequisites: C or better grade in MATH 095 or appropriate qualifying test score; prior completion or concurrent enrollment in RDNG 116 if required by placement testing.
3 Cr. (3 Lec.) Occasionally.

Course Context/Audience

This is an applied mathematics course designed to provide the required mathematical tools for students in technology programs. It is a required course in the Construction Technology and Electrical Technology degree and certificate programs.

Basic Skills/Entry Level Expectations

Writing:	W0	Course requires very limited or no writing.
Math:	MC	College level math skills – Course requires college level math skills. See course description for co-requisite and/or prerequisite requirement(s).
Reading:	R3	Course may be taken concurrently with RDNG 116.

Course Goals

Students will learn the basic mathematical concepts that are used in technology fields. The learned mathematical tools will be applied to the solution of stated problems that parallel those commonly encountered in the construction and electrical fields. The material is presented from an applied perspective rather than from a theoretical one using examples from both the construction and electrical fields.

Course Objectives/Topics

Objective/Topic	% Course
The student will be able to demonstrate an understanding of significant figures and their uses for conversion and reduction of measured quantities (including the metric system).	10%

The student will be able to demonstrate an understanding of the concept of a function and rectangular coordinates and be able to solve an equation graphically.	15%
The student will be able to set-up and solve linear equations in two unknowns by graphical and algebraic methods (elimination and substitution). In addition, he/she will understand the use of determinates to solve linear equations.	15%
The student will be able to use geometrical concepts to solve problems involving perimeter, area and volume.	10%
The student will demonstrate an understanding and the ability to use the trigonometric functions to solve problems and to graph the sine and cosine functions using the concepts of period, amplitude and phase shift.	20%
The student will demonstrate an understanding of using vectors to solve problems involving forces; distance and velocity.	20%
The student will understand and be able to use the law of Sines and Cosines to solve vector problems.	10%

General Education Goals - Critical Thinking & Social/Global Awareness

CRITICAL THINKING OUTCOMES	**HOW DOES THE COURSE ADDRESS THE OUTCOMES** (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
Students will be able to ➢ develop meaningful questions to address problems or issues. ➢ gather, interpret, and evaluate relevant sources of information. ➢ reach informed conclusions and solutions. ➢ consider analytically the viewpoints of self and others.	Not addressed
SOCIAL/GLOBAL AWARENESS OUTCOMES	**HOW DOES THE COURSE ADDRESS THE OUTCOMES** (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
➢ Students will begin to understand how their lives are shaped by the complex world in which they live. ➢ Students will understand that their actions have social, economic and environmental consequences.	. Not addressed

Instructional Methods
This course should be taught in a lecture format with student participating in interactive exercises.

Methods of Assessment/Evaluation

Method	% Course Grade
Unit Exams/Quizzes	60 - 70%
Final Exam	30 - 40%

Text(s)

Basic Technical Mathematics, Washington, Allyn J., 8th Edition, © 2005 Addison-Wesley, Inc.

Basic Technical Mathematics Solution Manual, Washington, Allyn J., 8th Edition, © 2005 Addison-Wesley, Inc.

Bibliography

No print resources specified

Other Learning Resources

Audiovisual No resources specified
Electronic scientific calculator
Other No resources specified