Spring 2006 MTH 122 (19682) Syllabus

Course Title: Mathematics for Technologists II
Meeting Times: M, W 5:40 – 6:55  Location: D 421
Instructor: Aaron Gold
  ▪ Email: aagold@hartford.edu
  ▪ Phone: 860.778.7032
  ▪ AIM®: drumrdrumr, agold1AtWork
  ▪ Office Hours: Tuesday 6:00–7:30 pm
  ▪ Location: TBD – call cell phone at any time to find out where.
Text Books: Basic Technical Mathematics
  ▪ Allyn J. Washington, 8th Edition,
  ▪ Addison-Wesley Publishing
Prerequisites: MTH 112
Blackboard Course: 19682-200610: MTH122: Precalculus for Techs [Gold, Spring ’06]

Course Objectives:
• Continue the students’ education in algebraic and trigonometric topics.
• Acquire experience in problem-solving.
• Create an understanding of the use and application of mathematical operations in technology courses.
• Promote retention of learned material through constant review.
• Promote confidence on the part of the student in his/her ability to master mathematical problems as applied to technology courses.

Materials You Will Need:
▪ Text Book (see above)  ▪ Access to a Computer  ▪ You !!!
▪ TI-86 or Equivalent Calculator  ▪ Protractor

The Way It Works:
♦ Show up to class.
  ▪ Attendance is mandatory and will be recorded every class period.
  ▪ Repeated unexcused absences will result in failure.
♦ Show up to class on time.
  ▪ Or at least before the instructor. On time.
♦ Don’t cheat.
  ▪ If you think you are cheating, you probably are.
  ▪ If you get caught cheating, you will fail.
  ▪ Examples of cheating:
    ▪ Copying someone else’s homework. Working together is ok, only if both partners are contributing.
    ▪ Wandering eyes during quizzes and tests. If you have a lazy eye, please tell the instructor prior to beginning the examination.
    ▪ Bribing the instructor…
• Consult *The Source* (see the instructor if you need a copy) if you wish to get a better idea on the University’s policy on cheating.

♦ Be prepared for class
• Read the appropriate sections of the text before coming to class. You can then ask informed questions about the material.
• The instructor will demonstrate problems in lecture; students may be called upon to perform “at the board” as well. If you have serious problems speaking in front of others, please advise the instructor accordingly at the beginning of the semester.
• If time permits, students will either be given in-class assignments or time in class to begin homework problems; if so, that time must be utilized *wisely*; i.e. skipping (or running, walking, crawling, etc.) out of class early does not constitute *wisely*.
• Solutions are more important than answers. Even if you understand how to complete a process (i.e. a math problem) now, you may not remember later.

♦ Do your homework.
• Homework is due Mondays at the beginning of class, and may not be turned in late. Some credit will be given for completing the problems; however, certain problems will be graded for accuracy.
• The answers to many assigned problems are in the back of the textbook, so check your work for those problems before coming to class – then ask questions in class if your answers don’t agree with the author’s.
• Complete extra problems whenever possible – this will help prepare you for quizzes and tests.

♦ Quizzes
• Short, unannounced quizzes will be given every two or three lectures. They will cover topics/problems covered in lecture and via homework.
• These quizzes, as well as the homework, should help prepare both the student and instructor for the tests.

♦ Tests/Exams
• After every few chapters of the text, there will be a test, which will consist of problems similar to those in the homework and quizzes.
• Tests may consist of multiple choice questions, short answer, long answer. Show your work on every problem.
Schedule of Topics:

**Chapter 9 Vectors and Oblique Triangles**
- 9-1 Introduction to Vectors
- 9-2 Components of Vectors
- 9-3 Vector Addition by Components
- 9-4 Applications of Vectors
- 9-5 Oblique Triangles, Law of Sines
- 9-6 Law of Cosines

**Chapter 10 Graphs of Trigonometric Functions**
- 10-1 Graphs of \( y = a \sin (x) \) and \( y = a \cos (x) \)
- 10-2 Graphs of \( y = a \sin (bx) \) and \( y = a \cos (bx) \)
- 10-3 Graphs of \( y = a \sin (bx+c) \) and \( y = a \cos (bx+c) \)
- 10-4 Graphs of \( y = \tan (x) \), \( y = \cot (x) \), \( y = \sec (x) \), \( y = \csc (x) \)

**Chapter 20 Additional Topics in Trigonometry**
- 20-1 Fundamental Trigonometric Identities
- 20-2 Sum and Difference Formulas
- 20-3 Double-Angle Formulas
- 20-4 Half-Angle Formulas
- 20-5 Solving Trigonometric Equations
- 20-6 The Inverse Trigonometric Functions

**Chapter 11 Exponents and Radicals**
- 11-1 Simplifying Expressions with Integral Exponents
- 11-2 Fractional Exponents
- 11-3 Simplest Radical Form
- 11-4 Addition and Subtraction of Radicals
- 11-5 Multiplication and Division of Radicals

**Chapter 14 Additional Types of Equations and Systems of Equations**
- 14-1 Graphical Solution of Systems of Equations
- 14-2 Algebraic Solution of Systems of Equations
- 14-3 Equations in Quadratic Form
- 14-4 Equations with Radicals

**Chapter 17 Inequalities**
- 17-1 Properties of Inequalities
- 17-2 Solving Linear Inequalities
- 17-3 Solving Non-linear Inequalities
- 17-4 Inequalities Involving Absolute Values
- 17-5 Graphical Solution of Inequalities with Two Variables
Chapter 16 Matrices
- 16-1 Definitions and Basic Operations
- 16-2 Multiplication of Matrices
- 16-3 Finding the Inverse of a Matrix
- 16-4 Matrices and Linear Equations

Chapter 12 Complex Numbers
- 12-1 Basic Definitions
- 12-2 Basic Operations with Complex Numbers
- 12-3 Graphical Representation of Complex Numbers
- 12-4 Polar Form of a Complex Number
- 12-5 Exponential Form of a Complex Number
- 12-6 Products, Quotients, Powers, and Roots of Complex Numbers
- 12-7 Application to Alternating Current (AC) Circuits

Grading Information
Your final grade will consist of the following:
- 25 % Homework
- 20 % Quizzes
- 40 % Exams
  - 12 % Each for Exam 1 and Exam 2
  - 16 % Final Exam
- 10 % Final Project (Optional)
- 5 % Attendance, Effort, Attitude, Etc.

Ways to Improve your Grade
- Show up to class, do your homework, study.
- Do the optional final project. More info to come on this.
- Other extra credit may or may not be available. You will be advised when these opportunities arise.
## Final Grading:

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## Important Semester Dates:

1. **1.24.06** Tuesday  
   First Day of Classes

2. **2.6.06** Monday  
   Last Day to Change from Audit to Credit Status

3. **2.10.06** Friday  
   Last day to file May degree applications

4. **3.18.06** Saturday  
   Spring Break Begins

5. **3.27.06** Monday  
   Class Resume

6. **4.3.06** Monday  
   Advance Registration Begins

7. **4.10.06** Monday  
   Last day to drop a course and receive a grade of W  
   Last Day to Change from P/NP to letter grade or vice-versa  
   Last Day to Change from Credit Status to Audit Status

8. **5.9.06** Tuesday  
   Spring 2005 Classes End  
   Last day to resolve I grades from preceding term

9. **5.10.06** Wednesday  
   Final Exams Begin  
   MTH 122 Final Exam

10. **5.16.06** Tuesday  
    Final Exams End