

COURSE OUTLINE
MT. HOOD COMMUNITY COLLEGE DISTRICT
Gresham, Oregon 97030

* New _____
 * Revised 1/98
 * Review only (no changes) _____
 (Date)

* COURSE TYPE Please check appropriate box:

- | | |
|---|--|
| <input type="checkbox"/> Lower Division Collegiate | <input checked="" type="checkbox"/> Occupational Preparatory |
| <input type="checkbox"/> Occupational Supplementary | <input type="checkbox"/> Other Education, Including General Ed & Adult Ed |

COURSE TITLE Technical Mathematics II

COURSE NUMBER Mth 85 COURSE CREDIT 4

* Lecture Hours 4 | _____ Lab Hours _____ | _____ Seminar Hours _____ | _____
 Wkly/Term Wkly/Term Wkly/Term

* GRADING STATUS:

- Letter Grade Only S/U Only Optional No Grade

* HEADCOUNT LOADING:

- Yes No * Factor _____

Guided Studies Requirement:

Student must be proficient in:

- Reading (RD90)
 Writing (WR90)
 Mathematics (MTH20)
 Not applicable

| | | |
|---|------------|-----------------|
| For Instruction Office Use Only | | |
| General Education Category | | |
| Apply general requirement or distribution to: | | |
| AA _____ | AS _____ | AS/OT-Bus _____ |
| AAS _____ | AGS _____ | |
| VP Approval _____ | Date _____ | |

Mathematics Division 1/98

1) Prepared by _____ Date _____

2) Approved by Distance Education Admin. _____ Date _____

3) Approved by Department Chair _____ Date _____

4) Approved by Dean _____ Date _____

5) Curriculum Committee _____ Date _____

6) Approved by VP for Student Learning _____ Date _____

* See legend/definition for explanation

COURSE DESCRIPTION: (for catalog)

This is a technical mathematics course for students in selected professional programs. Topics include simple quadratics, oblique triangle trigonometry, exponential and logarithmic functions, vectors, and fitting data with a linear model. Emphasis is placed on modeling problem situations numerically, visually, graphically and/or algebraically. In-depth problems from various fields are a core part of the curriculum. A graphing calculator is required and integrated throughout.

PREREQUISITE:

Math 80 with "C" or better or suitable performance on the mathematics placement exam.

INSTRUCTIONAL MATERIALS REQUIRED OF STUDENT: (text, supplies, etc.)

Text
Graphing Calculator
Engineering Paper
Protractor
15-cm. Ruler

STUDENT LEARNING OUTCOMES:

Upon successful completion of this course, the student will be able to:

Goal: Create capable problem solvers and creative learners able to deal with real world mathematics and communicate at this level.

1.
 - a) Communicate effectively (orally and in writing) a problem solving process, results, and conclusions using mathematical terminology and correct mathematical syntax appropriate to the level of study.
 - b) Apply mathematical reasoning and modeling to solve problems arising from the real world.
 - c) Model problem situations using mathematics verbally, numerically, visually, graphically, and/or algebraically, and make connections among the four models as appropriate at this level.
 - d) Determine if a solution is reasonable and verify results.
 - e) Use skills from previous courses in problem solving and application situations (especially area, volume, trigonometry, ratios, and unit conversions).

2. Quadratics

Goal: Solving and applying simple quadratic equations.

- a) Algebraically solve equations of the form $ax^2 + b = c$.
- b) Apply the Pythagorean Theorem in real world applications.
- c) Solve problems using the law of sines and/or the law of cosines with oblique triangle illustrations.

3. Exponential and Logarithmic Functions

Goal: Build familiarity with exponential and logarithmic functions and their particular characteristics.

- a) Define and recognize an informal function, its inputs, and outputs.
- b) Use function notation with trigonometric functions and with exponential and logarithmic functions.
- c) Define and apply exponential and logarithmic functions.
- d) Demonstrate the inverse relationship between an exponential function and a logarithmic function with the same base (using tables, graphs, and/or equations).
- e) Define and distinguish common and natural logarithms and their notational forms.
- f) Sketch the graphs of exponential and logarithmic functions.
- g) Apply the algebraic properties of logarithms and exponents to solve logarithmic and exponential equations.

h) Estimate solutions to logarithmic and exponential equations both numerically and graphically.

4. Statistics

Goal: Build upon previous knowledge to understand and implement regression and confidence intervals.

- a) Confidence intervals.
- b) Given a set of data points, estimate a linear model based on an eye-ball fit approximation.
- c) Given a set of data points, calculate the least squares regression line using appropriate technology. Plot the data and graph the regression equation.

5. Vectors

Goal: Understand the concept of a directed magnitude and use vectors to solve real-world problems.

- a) Define and distinguish between a vector and a scalar.
- b) Sketch a vector on a plane given its component parts.
- c) Decompose a vector into its component parts and use correct notation(s) to express the result.
- d) Determine the magnitude and direction of a vector.
- e) Perform vector addition geometrically.

GENERAL INSTRUCTIONAL METHODS:

EVALUATION PROCESS: