Required Materials:
Mathematics for Measurement by Mary Parker and Hunter Ellinger. (Photocopies sold by ACC Bookstore.)

Material for Instructors:
Course website: http://www.austincc.edu/mparker/1333/tf/instr/

LEVEL OF THE COURSE: It is very important to teach this course at a level so that students who have the minimal prerequisite find it interesting and succeed in it. Don't do any more algebra than is necessary to do appropriate applications.

PREREQUISITE:
A score on any entrance test that places the student out of mandatory remediation in mathematics or MATD 0360 (Topics in Developmental Math) or equivalent knowledge. (THEA Math - 230+, COMPASS Algebra - 39+). Students who are exempt from THEA and who have not taken ACC's Assessment Test should be encouraged to do so in order to determine if their algebra background is adequate for this course.

WHO SHOULD TAKE IT:
This course does count in the Core Curriculum and will transfer to four-year schools under that umbrella. However, none of the four-year schools in Texas have a MATH 1333, so it remains to be seen exactly how they will deal with this in various degree plans that require the students to have specific mathematics skills to enter higher-level courses. It does satisfy the requirements for many of ACC's AAS degrees as an alternative to MATH 1332.

HISTORY:
When the Texas Higher Education Coordinating Board decided that Technical Math was no longer a permissible general education course, the math department worked with some of the faculty in the technical areas to develop a general education course with topics that would be interesting and useful to students who are particularly oriented to using mathematics for hands-on applications. This course is the result.

GENERAL COMMENTS ON THE SYLLABUS:
See the instructor website listed under material for instructors.
Course Description: A course designed for non-mathematics and non-science majors. Topics include logic, variation, functions, equivalence, congruence, right triangle geometry, and other measurement topics. Prerequisites: A passing score on the mathematics portion of any TSI approved test or a satisfactory score on the assessment test or MATD 0360. (MTH 1573)

Required Texts/Materials:
- *Mathematics for Measurement* by Mary Parker and Hunter Ellinger. (Photocopies sold by ACC Bookstore.)
- Student Geometry Kit from an office supply store with compass, protractor, drafting triangle (with a 90° angle,) ruler (with both cm. and inches)
- Scientific calculator with trig functions
- Access to a computer spreadsheet program, in the ACC Learning Lab or at home

Instructional Methodology: This course is taught in the classroom as a lecture/discussion course.

Course Rationale: This course is designed to introduce topics of right-triangle trigonometry, variation in measurement, and mathematical modeling for students who won't take higher-level mathematics courses. It satisfies the Core Curriculum requirement for mathematics.

Calendar:

<table>
<thead>
<tr>
<th>Part I. Chapters A - J</th>
<th>16-week Semester</th>
<th>11-week Semester</th>
<th>5 1/2 - week Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 weeks</td>
<td>3 weeks</td>
<td>1 ½ weeks</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part II. Chapters K - O</th>
<th>4 weeks</th>
<th>3 weeks</th>
<th>1 ½ week</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Part III. Chapters P - U</th>
<th>4 weeks</th>
<th>2 weeks</th>
<th>1 week</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Part IV. Chapters V - Z</th>
<th>4 weeks</th>
<th>3 weeks</th>
<th>1 ½ weeks</th>
</tr>
</thead>
</table>

Course objectives: The departmental course objectives will be provided to the students as a part of the first-day handout. Find them at [http://www.austincc.edu/mthdept2/tfcourses/obj1333.htm](http://www.austincc.edu/mthdept2/tfcourses/obj1333.htm)

Grading policy: The instructor’s grading criteria will be clearly explained in the first-day handout. The criteria will specify the number of exams and other graded material (homework, assignments, projects, etc.). Guidelines for other graded materials, such as homework or projects, should also be included in the syllabus. These guidelines must also specifically include:
- Missed exam policy
- Policy about late work
- Class participation expectations
**Additional course policies:**

1. Course policies on the following topics will be included. Recommendations by this course committee and the mathematics department are listed below and may be modified by the instructor.
   - Incomplete Grades
   - Attendance
   - Withdrawals (must include withdrawal date)
   - Reinstatement policy (if the instructor allows this option)
   - Testing Center policies (if the instructor uses the Testing Center)
   - Course-specific support services

2. The following statements will be included and instructors must use the statements provided by the college/mathematics department and found in the front part of this *Manual*. Go to [www.austincc.edu/mthdept5/mman06/statements.html](http://www.austincc.edu/mthdept5/mman06/statements.html) Insert full statement for each of the following in your syllabus.
   - Statement on Students with Disabilities
   - Statement on Scholastic Dishonesty
   - Recommended Statement on Scholastic Dishonesty Penalty
   - Statement on Academic Freedom
   - Student Discipline Policy

**Suggestions:**

- **Incomplete Grades**: Recommended version: “Incomplete grades (I) will be given only in very rare circumstances. Generally, to receive a grade of ”I”, a student must have taken all examinations, be passing, and after the last date to withdraw, have a personal tragedy occur which prevents course completion.”
- **Attendance Policy**: Following is the mathematics department’s recommended attendance policy for classes that meet two days per week in a 16-week term. Modifications should be made for classes of different lengths. Instructors must include some attendance policy, even if it is that attendance is not required.
  “Attendance is required in this course. Students who miss more than 4 classes may be withdrawn.”
- **Withdrawal Policy** (including the withdrawal deadline for the semester): Recommended version: “It is the student's responsibility to initiate all withdrawals in this course. The instructor may withdraw students for excessive absences (4) but makes no commitment to do this for the student. After the withdrawal date (include specific date), neither the student nor the instructor may initiate a withdrawal.”
- **Reinstatement Policy**: If the instructor chooses to allow reinstatements, he must include a statement about the circumstances under which it is allowed. One possible statement is: “In order to be reinstated, the student must demonstrate that he is caught up with the required work as of the date on which he wishes to be reinstated. This must be done before the official last date to withdraw for the semester.”
- **Testing Center**: Include “ACC Testing Center policies can be found at: [http://www.austincc.edu/testctr/](http://www.austincc.edu/testctr/)” Then add any instructor-specific policies on the use of the testing center.
- **Course-specific support services**: Recommended version: “ACC main campuses have Learning Labs which offer free first-come first-serve tutoring in mathematics courses. Students should bring their text, course handouts, and notes when they come to the Learning Lab. The locations, contact information and hours of availability of the Learning Labs are available from [http://www.austincc.edu/tutor](http://www.austincc.edu/tutor).”
Topics

Chapter A. Algebra Review - Solving Equations and Evaluating Expressions
Chapter B. Rounding
Chapter C. Using a Calculator
Chapter D. Formulas - Computing and Graphing
Chapter E. Using a Spreadsheet
Chapter F. Angles and Construction of Diagrams
Chapter G. Linear Equations - Algebra
Chapter H. Linear Models - Word Problems
Chapter I. Introduction to Data and Modeling
Chapter J. Propagation of Errors due to Rounding
Chapter K. Introduction to Trigonometry
Chapter L. Trigonometric Ratios and Relationships
Chapter M. Computing with Approximate Numbers: Significant Digits
Chapter N. Measurement Sensitivity: Sensitivity of a Formula to Errors in Input Values.
Chapter O. Communicating the Results of Computing with Measured Numbers
Chapter P. Curve Fitting: Separating "Signal" from "Noise"
Chapter Q. Describing Noise in Measured Values: Standard Deviation
Chapter R. Propagation of Noise I: One Measured Input Value into a Formula.
Chapter S. Sine and Cosine Formulas on Larger Intervals
Chapter T. Solving General Triangles
Chapter U. The "Ambiguous Case"
Chapter V. Removing Bias from a Measurement Process: Calibration
Chapter W. Propagation of Noise, Part II: Averaging Multiple Measurements - - A Rule
Chapter X. Propagation of Noise, Part III: Combining Measured Input Values - Empirical Method
Chapter Y. Propagation of Noise, Part IV: Combining Measured Input Values - Some Rules
Chapter Z. Solving Applications Problems