| Class/Section | Technical Mathematics Fall 09  
M 111-01 (8-9:30)  
Formerly Math 103 |
| Instructor/Office | Richard Pierce  
HSCT 110 |
| Room/Time/Days | HSCT 103  
Tues and Thurs |
| Email/Phone | rpierce@msubillings.edu  
/ 406.247.3087 |
| Office Hours | MWF – 9:10-10:10,  
Tues – 10:30-11:30,  
Wed – 1:00-2:00 |
| Website | www.msubillings.edu/cotfaculty/pierce |
| Cell Phones | Please refrain from receiving or sending calls/texts from cell phones during class. If the device must remain on during class, please set the ringer to vibrate.  
**No cell phones allowed out on test days!** |
| Text | Mathematics for the Trades, 8th Ed. Carman & Saunders |
| Course Description | Prerequisite: M 061, or appropriate placement scores  
Applies math to problems drawn from diverse occupational fields. Topics of introductory algebra, measurement, percents, proportions and variations, and practical plane and solid geometry are developed and integrated for use in a field setting. |
| Calculator | A scientific calculator (fraction capabilities preferred) is **required** for this course. If your particular program requires a specific calculator, now is the time to learn to use it. For those of you planning on purchasing a calculator for this course, the bookstore usually carries the TI-30X II and I strongly recommend it. |
| University Policies | ***Disability Support Services (DSS)***  
Students with disabilities, whether physical, learning, or psychological, who believe that they may need accommodations in this class, are encouraged to contact Disability Support Services (DSS) as soon as possible to ensure that such accommodations are implemented in a timely fashion. Please meet with DSS staff to verify your eligibility for any classroom accommodations and for academic assistance related to your disability. Disability Support Services is located in the Academic Support Center. COT, 247-3029 (voice/tty/video phone) 8:30am - 3:00pm  
Main Campus, 657-2283 (voice/tty) and 657-2159 (voice/tty/video phone) 8:00am – 5:00pm. |
| Helpful resources | **Academic Support Center (ASC)**  
Free tutoring services for students are available in the Academic Support Center at the COT, A035, Monday through Thursday, 8 a.m.-6 p.m. and Friday, 8 a.m.-5 p.m. The Academic Support Center on the senior campus is open from 8 a.m.-7 p.m. Monday through Thursday, 8 a.m. -5 p.m. Friday, and 9 a.m. – noon Saturday. Tutors are available to assist students with math,
writing, reading, anatomy and physiology, and other specialty areas for specific majors. See http://www.msubillings.edu/asc/ for more information or call 247-3022 (COT) or 657-1641 (senior campus).

- There is online tutoring offered through the ASC. Outside of the normal hours above, they offer 8-10pm Mon-Thurs and 6-10pm on Sunday online only. http://www.msubillings.edu/asc/Online_Tutoring_Center.htm
- Your classmates would make a great study group. Get to know each other and ask for each other’s help. You can also email each other through portal for more communication.
- Your instructor has office hours. These hours are dedicated to students and their questions.

Grading Policies

- **Chapter Exams**
  There will be four exams throughout the semester. Each exam is worth 100 points. It is possible that one of the exams may be or part may be a take home exam. **NO** make-up exams will be given unless the student receives permission to take an exam **prior** to exam day. I will do my best to keep the classroom quiet and beneficial to your testing. I can not control a student that may have a cold or loud students in the hall. This is part of taking a test or any working environment you will be part of in the future. For this reason, all students are required to take all tests in the classroom unless they have a DSS card or permission from me.

- **Graded Assignments**
  There will be specific homework assignments given, collected, and graded throughout the term. Homework assignments will be given weekly. **For homework, everyday the assignment is past the due date will cost you 10 points. This will start at the beginning of class, so have your work done BEFORE class.**
  Because of this penalty, I will drop your lowest (one) weekly homework grade. We will also have assignments from the book and projects. These are **not included** as weekly homework and **CANNOT** be dropped. Assessment will be based on points earned from a combination of assignments, attendance, quizzes, and exams. In the more difficult sections, there may be problems assigned from the text.

- **Final Exam**
  A cumulative final exam will be given at the end of the semester. The final is worth 200 points. Each student **must** take the final.

- **Allowance**
  In the event of a missed exam or a low score, you will be able to substitute your final exam grade (percentage) for one of the exam grades. If more than one exam is missed, the score for that exam will be recorded as a “0”.

- **Attendance**
  Success in this course depends highly upon student participation and attendance. If a class is missed, it is the responsibility of the
student to obtain class notes and suggested homework problems from another student or the internet.

- **Grade assignments**

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<thead>
<tr>
<th>Grade</th>
<th>Range</th>
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<tbody>
<tr>
<td>A</td>
<td>94 or higher</td>
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<tr>
<td>A-</td>
<td>90 to 93</td>
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<tr>
<td>B+</td>
<td>87 to 89</td>
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<tr>
<td>B</td>
<td>84 to 86</td>
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<tr>
<td>B-</td>
<td>80 to 83</td>
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<tr>
<td>C+</td>
<td>77 or 79</td>
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<tr>
<td>C</td>
<td>70 to 76</td>
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<tr>
<td>D</td>
<td>60 to 69</td>
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<tr>
<td>F</td>
<td>59 or lower</td>
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Cheating

Your student handbook (http://www.msubillings.edu/studenthandbook/) clarifies what happens when you cheat. Note that cheating falls under the heading Academic Misconduct, which includes all acts of dishonesty. When academic dishonesty occurs or is alleged to have occurred, the instructor has the right and obligation to take appropriate action which may include a verbal or written reprimand or warning, a grade of “F” for the assignment or test involved or a grade of “F” for the course. I take this very seriously. Please do not cheat.

Course Outcomes

Students successfully completing Technical Mathematics will be able to apply the material acquired to:

- Utilize and apply mathematical operations, measurement, introductory geometric principles and applied algebra into technical applications in academic and workplace situations.
- Read interpret and produce solutions to applications at the introductory technical mathematics level.
- Apply appropriate technology in a mathematical situation.
- Determine the validity of results and data.

Course Goals

1) **Operations with Rational Numbers**
   a) **Arithmetic of Whole Numbers**
      i) Add and subtract whole numbers.
      ii) Multiply and divide whole numbers.
      iii) Solve applied problems from technical fields involving whole numbers.
      iv) Determine factors and prime factors.
      v) Use the correct order of operations with addition, subtraction, multiplication, and division.
   b) **Fractions**
      i) Explain the properties and attributes of fractions.
      ii) Multiply and divide fractions.
      iii) Add and subtract fractions.
      iv) Solve applied problems from technical fields involving fractions.
   c) **Decimal Numbers**
      i) Add, subtract, multiply, and divide decimal numbers.
      ii) Find averages.
      iii) Work with decimal fractions.
      iv) Solve applied problems from technical fields involving decimal numbers.
2) **Ratio, Proportion, and Percent**
   a) Calculate ratios.
   b) Solve proportions.
   c) Solve problems from technical fields involving direct and indirect proportions.
   d) Write fractions and decimal numbers as percents.
   e) Convert percents to decimal numbers and fractions.
   f) Solve applied problems from technical fields involving percent.
### 3) Measurement
- a) Determine the precision and accuracy of measurement numbers.
- b) Add and subtract measurement numbers. (Round to the correct precision.)
- c) Multiply and divide measurement numbers. (Round to the proper accuracy.)
- d) Convert units within the English system. (Round to the correct number of significant digits.)
- e) Think metric – Apply the most appropriate measure to common items. (The weight of a paper clip is closer to a gram or kilogram?)
- f) Convert units within the metric system. (Round to the correct number of significant digits.)
- g) Convert between English and metric system units.
- h) Apply rounding relative to required unit of measurement.
- i) Solve applied problems from technical fields involving the use of measurements.

### 4) Pre-Algebra
- a) Interpret signed numbers as applied to everyday situations.
- b) Add signed numbers. Subtract signed numbers.
- c) Multiply and divide signed numbers.
- d) Work with exponents.
- e) Use the order of operations.
- f) Compute roots.

### 5) Basic Algebra
- a) Evaluate formulas and literal expressions.
- b) Perform the basic algebraic operations.
- c) Solve linear equations in one unknown
- d) Solve trade formulas for specific variable.
- e) Translate simple English phrases and sentences into algebraic expressions and equations.
- f) Multiply and divide simple algebraic expressions.
- g) Use scientific notation.
- h) Apply algebraic operations to solve problems from the trades or technical fields.

### 6) Practical Plane Geometry
- a) Identify polygons, including triangles and quadrilaterals.
- b) Use the Pythagorean theorem.
- c) Find the area and perimeter of geometric figures.
- d) Solve applied problems from technical fields involving two dimensional figures.

### 7) Solid Figures
- a) Identify solid figures, including prisms, cubes, cylinders, and spheres.
- b) Find the surface area and volume of solid objects.
- c) Solve applied problems from technical fields involving practical problems with solid figures.

### 8) Intermediate Algebra Topics
- a) Solve quadratic equations.
- b) Solve word problems involving quadratic equations.