# Technical Math MTH203 (Lecture) (ACTS: MATH1013)
# University of Arkansas Rich Mountain
# Fall 2020

**Class Time and Location: TR** 12:30 - 1:50, **Room**: S245

**Instructor Name:** Ron Webb --- B.S. Mathematics, Sam Houston State University;
ME, Southeastern Oklahoma State University

**Instructor Email:** rwebb@uarichmountain.edu;
ronwebb55@att.net;
ronaldpatrickwebb@gmail.com

**Cell Phone:** 479-234-2267

**Required Textbook:** *Technical Math, A Project Based Learning Approach*, 1st Edition, by Talanda Anglin: Rich Mountain Community College. 2016-2018.

**Prerequisite:** Grade "C" or better in MTH013 or a minimum score of 39 on the ASSET Numerical Skills Placement Exam, 42 on the Compass Pre-Algebra Placement Exam, 26 on the Compass Algebra Placement Exam, 17 on the ACT Exam, 41 on the Accuplacer Elementary Algebra, or 470 on the SAT Exam.

**Face Mask Policy:** As per the Executive Order from the governor of Arkansas, all students are required to wear a proper face covering that completely covers the nose and mouth while on campus and in class. Masks with holes or masks that do not completely cover nose and mouth are not acceptable. Any student that does not have a proper mask will leave class and be referred to the Vice Chancellor for Student Affairs for possible disciplinary action.

**Food and Drink:** Food and drinks, including water are not allowed in the classroom at any time. Students will clean their workstation upon arriving to class and again before they depart.

**Course Description:** Course content includes the fundamental processes of mathematics with emphasis on problem-solving techniques. Included is a review of arithmetic, introductory algebra, and rudiments of analytic geometry. A project of student's choice will be created to encompass class content with hands-on experience.

**Program Outcomes:** The knowledge and critical thinking skills acquired in the general education component enable students to analyze problems, to arrive at intelligent conclusions, and to make reasoned choices in their professional and personal lives. Many general education courses are designed to deal primarily with processes rather than simply with facts, to help students to develop individually and as members of a group and instill in students the desire to develop intellectual and emotional skills through lifelong learning.

- Use computational mathematics to solve problems which they encounter at home and the workplace.

- Apply algebraic operations and their practical applications to problems.

**Rationale:** An objective of post-secondary education is to provide a core of knowledge that is shared with most educated people. By studying and developing a deeper understanding of mathematical computations, students can better analyze, problem solve and prepare critical thinking strategies for real world scenarios.

**Course Objectives:** Upon successful completion of Technical Math, the student should be able to do the following:

- Perform the basic arithmetic operations.
- Recognize the English and Metric systems.
- Apply content knowledge to a concrete project of their choosing.
- Apply concepts of algebra to occupational areas of study.
- Measure area and volume of three dimensional objects.
- Use triangle trigonometry in real-world application.

Student will be able to demonstrate mastery of the above objectives in the form of tests and assigned projects.

**Topical Outline:**

I. <u>Arithmetic</u>

A. Basic Operations Involving Fractions
B. Basic Operations Involving Decimals
C. Ratio, Proportion, and Percent
D. Powers and Roots

II. <u>English and Metric Systems of Measurement</u>

A. Accuracy in measurement and significant digits
B. Use of conversion factors to change from one unit of measure to a different unit of measure
C. Applied Problems using The English and Metric Systems

III. <u>Basic Algebraic Operations</u>

A. Basic Operations of Real Numbers
B. Basic Operations Involving Polynomials
C. Evaluation of Algebraic Expressions

IV. <u>Equations</u>

A. Solving Linear Equations
B. Solving Literal Equations
C. Coordinate Planes

V. Applied Geometry

A. Points and Lines
B. Angles and Triangles
C. Polygons and Circles
D. Solids

VI. Trigonometry

A. Solving Similar and Right Triangles
B. Evaluating Trigonometric Functions
C. Elementary Right Triangle Applications

**Course Conduct:**

**Methods of Instruction**: The lecture approach, question and answer techniques, cooperative learning environments, calculator and computer usage, the overhead projector, and the smartboard are primarily the methods of instruction employed in this course.

**Oral Reports**: Occasionally a student may be asked to work a problem at the whiteboard and present an explanation to the class.

**UA Rich Mountain Credit Hour Calculator:** For every course credit hour, you should expect to spend at least three clock hours per week of concentrated attention on course-related work, including but not limited to time attending class, as well as out-of-class time spent reading, reviewing, organizing notes, preparing for upcoming quizzes/exams, problem solving, developing and completing homework, and other activities that enhance learning. For a three hour course, a typical student should expect to spend at least nine hours per week dedicated to the course. This includes the time spent in class.

**Course Requirements / Evaluation (Grading):**

**Tests** are 40% of your final grade. Five chapter tests are scheduled.

**Homework** is 40% of your final grade.

**Final Exam** is 20% of your final grade. The final exam is comprehensive. Problems are similar to chapter test problems.

**Grades** are assigned on the basis of the following percentage scale:

| | | | | |
|---|---|---|---|---|
| 90 – 100 A | 80 – 89 B | 70 - 79 C | 60 - 69 D | 0 - 59 F |

**Supplies Needed for daily work:** TI-83/84 Calculator supplied by UA Rich Mountain as needed, 3-ring notebook, college rule 3 hole paper, graph paper, cardboard folder, protractor, mechanical pencils with extra erasers, yellow highlighter, small pack colored pencils, small ruler or straight edge.
**Criteria for Credit:** Homework must be neat and complete. Each problem assigned has three parts: 1) Q: the original problem complete with figures drawn, 2) W: all steps or an explanation of how to arrive at the correct answer, and 3) A: the final answer. ***Answers alone are not acceptable***. Use pencils and straight edge paper; ***no ink or ruffles please***. Write the lesson topic at the top of the first page. Label each page with your name and lesson number in the top right hand corner. Work in two columns if possible. Box final answers with a yellow highlighter. Leave at least one blank line between problems. All graphs are to be accurately sketched on graph paper with all parts properly labeled and all work for the problem shown on the **same page** as the graph. For immediate feedback, you may check your answers for most assigned problems in the back of the book. *You will not receive credit for any problems not meeting the criteria for credit described above.*

All assignments are due by the **next class** or **midnight** on their due date as assigned.

All homework can be emailed or texted To Mr. Webb at any of the three email addresses or phone number given above. I welcome any questions at any time via the same email or texts.

**Class Procedures/Student Requirements:**

Attendance Policy: Regular attendance and punctuality are expected. It is the responsibility of the student to initiate arrangements for all missed activities. If an absence is a planned absence the student is expected to make arrangements for making up work prior to the absence. More than three absences will be considered excessive and, along with work not made up, may adversely affect the grade for the course. Under no circumstances will the student receive credit for the course if more than a fourth of the classes are missed (13 classes). In case of extended illness, or other circumstances, the student must contact the instructor if a WP is desired. If the instructor is not notified a failing grade will be assigned for the course. Laboratory work is scheduled for a specific time and day. However, if it can be done safely (guidelines provided in class), students may do the missed laboratory works at another time if course schedule conflicts dictate. Each student is expected to participate in the required laboratory time in order to receive credit for the laboratory activity. There will be no designation of excused or unexcused absences in the lab. If a student is not in lab they will be counted as absent no matter what the reason may be. Also, if the student is present in lab but fails to submit the lab report, it is counted as absent and no point will be awarded for that lab.

Assignment Due Dates: Students are expected to submit the assignments and other works on or before the assigned due dates. You will be penalized for the late works depending on the number of days and full point and importance of the works assigned.

Make-up Work Policy**:** Make up work should be competed promptly after the absence. A maximum of one week will be the guideline. Make-up exams are given only in instances of the most unavoidable, serious circumstances. Prior notice of absence from an exam is required.

Upon return after an absence the student is expected to be prepared for the days' class activities. It will be the student's responsibility to obtain the assignment for that day. Missed labs can present a make-up problem. However, one make up period is available at the end of the semester.

Cell Phone Policy**:** Turn off your cell phone prior to class. If you work for an emergency service such as a fire department, put it on vibrate. It is a sign of disrespect as well as a disruption if non-emergency calls are taken during class. If you chose to take a call anyway, leave the room and take your supplies with you. You are expected not to return that session.

**Academic Dishonesty**: It is expected that each student shall do his/her own work on class works, quizzes, exams, and lab reports. Cheating, copying other's answers, writing other's statement without citing their reference are all considered plagiarism and are penalized from allowing no point in that particular unit up to dismissal from the whole course, depending on the severity of the offense.

**Disability Policy:** It is the policy of UA Rich Mountain to accommodate students with disabilities, pursuant to state and federal law. Any student with a disability who needs accommodations should contact the Associate Vice President for Student Affairs Office, 394-7622, ext. 1460.

**Arkansas Clean Air Act**: In compliance with the Arkansas Clean Air Act, UA Rich Mountain is a smoke and tobacco free facility. Students and guests are to refrain from the use of all tobacco products while on campus.

**Student Misconduct**: Students committing misconduct are subject to disciplinary sanction(s) and/or restrictions. Misconduct or prohibited behavior includes, but is not limited to endangerment, harassment, disruption, sexual misconduct, illegal drugs and/or alcohol, fire or safety issues, gambling, property violations, computer violations or other violations as listed in the UA Rich Mountain catalog.

**UA Rich Mountain Mission:** The University of Arkansas Rich Mountain exists to provide exemplary educational and enrichment opportunities to improve the quality of life and standard of living.

**Campus Security:** UA Rich Mountain strives to provide a safe learning environment; therefore, students who know of any security risk are asked to contact a college official. For more information follow this link and look under the title Health and Safety: http://www.uarichmountain.edu/at-a-glance/disclosures.

# Credit Hour Requirement Calculator

| **Course Information** | | |
|---|---|---|
| Department, Course Number | | Industrial Math |
| Course Title | Industrial Math | MTH 1003 |
| Credit Hours | 3 | |
| Mode of Delivery | Traditional | |
| Weeks in Part of Term | 15 | |
| Level of Reading Material | General/Easy/Non-Technical (1) | 1 |
| Reading Level of Students | Remedial Student or Slow Reader (3) | 3 |
| Average Pages per Hour | 11 | |

*Enter either week or term, not both*

| **Contact Hours** | **Hours/Week** | **Hours/Term** | **Total Hours** |
|---|---|---|---|
| CLASS CONTACT HOURS | 3 | | 45 |

| | **Pages Asg'd** | **Hours/Week** | **Hours/Term** | |
|---|---|---|---|---|
| **Syllabus Items** | | | | |
| Assigned Homework | | 4 | | 60 |
| GROUP ACTIVITIES | | 1 | | 15 |
| Lecture | | 2 | | 30 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |
| | | | | 0 |

| | |
|---|---|
| **Total Hours** | 150 |
| **Required Hours** | 112.5 |
| **Difference** | Ok + 37.5 |

**Proposed Schedule**: **Technical Math Fall 2020**

| Wk | Begin Date | Assignment | # Problems | Due Date |
|---|---|---|---|---|
| 1 | 8/25 | Pages #24, 28, & 34 | 44 | 9/1 |
| | | | | |
| 2 | 9/1 | Pages #42, 46, 50, & 54 | 49 | 9/8 |
| | | | | |
| 3 | 9/8 | Pages #58, 64, 68, & 70 | 54 | 9/15 |
| | | | | |
| 4 | 9/15 | Pages #72, 78, 82 & 84 | 46 | 9/22 |
| | | | | |
| 5 | 9/22 | Pages #86, 88, 90, & 92 | 37 | 9/29 |
| | | | | |
| 6 | 9/29 | Pages #98, 102, 106, & 110 | 58 | 10/6 |
| | | | | |
| 7 | 10/6 | Pages #114, 118, 122, 126, & 130 | 53 | 10/13 |
| | | | | |
| 8 | 10/13 | **UNIT ONE EXAM** | | |
| | | | | |
| 9 | 10/20 | Pages #140, 141, 142, 143, & 146 | 85 | 10/27 |
| | | | | |
| 10 | 10/27 | Pages #152, 153, 154, 160, & 161 | 68 | 11/3 |
| | | | | |
| 11 | 11/3 | Pages #166, 168, 188, 189, & 190 | 48 | 11/10 |
| | | | | |
| 12 | 11/10 | Pages #198, 199, 200, 201, 204, 208, 209, 212, 213 | 50 | 11/17 |
| | | | | |
| 13 | 11/17 | Pages #222, 228, & 229 | 25 | 11/19 |
| | | | | |
| | 11/19 | Pages #234, 238, & 242 | 35 | 11/24 |
| | | | | |
| 14 | 11/24 | **UNIT TWO/THREE EXAM** | | |
| | | | | |
| 16 | 12/8 | **FINAL PROJECT DUE** | | 12/8 |

**Important Dates:**

| | |
|---|---|
| August 24 (M) | Classes start |
| September 7 (M) | Labor Day Holiday (No classes, campus closed) |
| October 12 (M) | Mid-semester grades due |
| December 8 (T) | Final Project |