Course Title: "Technical Mathematics"
Course #: 113-7
Credit Hours: 03
Semester: SPRING Semester 2022
Course Title: "Technical Mathematics"
Credit Hours: 03
Cap: 10

Faculty: Mr. Jim Tohtsonie, BS/MA in Education
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Office Phone: 928.656.3600
Office Hours (face-to-face or online): 9am-12pm
Preferred Communication (email and/or text; will respond within 24 hours):

Modality: Face-to-face INSTRUCTION
Class Location and Meeting Times at Bldg A
Meeting Class Hours: 9am – 12pm; Thursdays

Required Textbook:
Materials: **Elem Technical Mathematics**; 12th Edition
Tools: Notebooks; Binder; Grid/Graph paper; Calculators

Other: Laptop and Internet Access: Every student is required to own a laptop and have internet access.

Mission, Vision, and Philosophy
a) **Mission**: Navajo Technical University honors Diné culture and language, while educating for the future.
b) **Vision**: Navajo Technical University provides an excellent educational experience in a supportive, culturally diverse environment, enabling all community members to grow intellectually, culturally, and economically.
c) **Philosophy**: Through the teachings of Nitsáhákees (thinking), Nahátá (planning), Íína (implementing), and Siihasin (reflection), students acquire quality education in diverse fields, while preserving cultural values and gaining economic opportunities.

Course Description
This course will provide a solid foundation in the basics of college mathematics, including the topics of Order of Operations with whole numbers, formulas, fractions, decimals, ratio and proportion, percent, and measurement as well as introductions to geometry, basic statistics, and algebra topics. Specific care taken to make sure students have the most up-to-date relevant text preparation for their next mathematics course or for nonmathematical courses that require an understanding of basic mathematical concepts.

Course Outcomes	Course Assessments
Students will learn and apply the basic of Mathematics	Assess students by their Homework, Quizzes, chapter tests, Post Tests, and by Final Exam.
Students will be able to solve/compute any problems of Mathematics, using basic rules.	Assess students by their Homework, Quizzes, chapter tests, Post Tests, and by Final Exam.
Students will apply adding, subtracting, multiplying and dividing of various numbers/Order of Operations	Assess students by their Homework, Quizzes, chapter tests, Post Tests, and by Final Exam.
Students will be able to work out, or figure out, any given computation in their personal life, or any real-life World Problems.	Assess students by their Homework, Quizzes, chapter tests, Post Tests, and by Final Exam.

Course Activities

Week	Date	Class Topics/Reading Due	Lessons:	Assignments/Assessments
#01 Thursday	01/20	A) WELCOME; Go over Covet-19/Variant Omicron; Masks & Social Distance B) Get started with Introductions, Names, Clans, and other important topics	C) Go over Course & Syllabus D)Discuss Chapter 01: Pg 11: Order of Operations; Pgs13-16; Pgs18-20; & Pgs 20-22	**ALL the students' work will be kept in their Portfolio** E) Observe how the student(s) is/are solving the Assigned pages/items: "**Homework**" 01)Pg13/items 34-44 02)Pg16: 10 Items: #11-12; #17-18; #47-48; #51-52; #55-56; #59-60 & #63-64
#02 Thursday	01/27	Lesson: Review Order of Operations with whole numbers & with fractions, Pgs 24-29 top NOTE: Always rename all fractions to the lowest terms: EXAMPLE $\frac{12}{16} = \frac{12}{16} \div 4 = \frac{3}{4}$	Pg 24: 01)**Introduction to Fractions** 02) what arte Common fractions? 03)Equal or equivalent fractions 04) Pgs 24-29 Coverage	a) Check on understanding of Formulas and Fractions with Order of Operations. b) Copy & List Assignment pages below: Pg 28 bottom, items # 01-16 Pg 29 top, items items 17-30; Turn this in for grading Pg 29, Do items 31 to 40; 41-50 with students on the board for clarification & understanding.
#03 Thursday	02/03	Continued lesson (Page 29 bottom; "**Adding & Subtracting fractions**" from last Thursday. (Finish what was not completed with Pgs 24-29	Discuss $\frac{a}{b} + \frac{b}{c} = \frac{a+b}{c}$, is like, $\frac{1}{8} + \frac{3}{8} = \frac{1+3}{8} =$	Have students follow the Ex 1.7 Examples #01 thru #17, pg 29: Homework Pg37: Items #01-06w/class Pg37: Items #07-16 we'll do together.

			$\frac{4}{8} = \frac{1}{2}$ Learn how to find LCD	Pg 37: On your own, items #17- #38 HAND THIS IN FOR YOUR GRADE*
#04 Thursday *NOTE: Make sure Pg 37, with items #17-#38 is turned in, before we start our next lesson.	02/10	01)QUIZ; Do first! 02) Review Addition and subtraction of FRACTIONS on Page 37; with items #39-46 03)Lesson: pg 41: **Multiplication & Division of Fractions**	Go over Examples #01 through #10 thoroughly with the class	**GIVE Quiz**, using Page 37; with items 39-47 Discuss "inverting" in division of fractions (Have students update Portfolio to see if all Assignments, etc, are in) Work on items on page 45; Exercises 1.8 For items #01-10; Do with students, using the board. Items 11 through 34, let the class work on these on their own. HAND THIS IN FOR YOUR GRADE
#05 Thursday	02/17	**Chapter 02:** **"Signed Numbers and power of 10"** **01)Lesson: "**Addition of Signed Numbers", pg 101 **02)**Lesson: "Subtraction of Signed Numbers", 105 **03)**Lesson: "Multiplication and Division of signed Numbers", 107-110	DISCUSSIONS: Page 101 through pg 104 Page 106 Page 109 BIG DISCUSSION OF Pages 110-112	**ASSESSMENTS/assignments:** **a)** Assignment 01: Page 104 @ Ex 2.1: add the following signed numbers: Even Items 12 to 46 **b**) Assignment 02: Page 106; Exercises 2.2; 01 – 18; Subtract signed numbers **c)**Assignment 03: Page 109; Multiply and Divide signed numbers; Items 01-10 & 51 – d) Have students update Portfolio to see if all Assignments, etc, are in.

#06 Thursday	02/24	CHAPTER 02: Power of 10 Lessons, pg 114-116; Go over each example; Do Ex 2.5, odd numbers; items 01-29	Assign only even numbered items 02-30	OBSERVE how problems are solved. Students can tell how certain problems were solved. See Textbook Page 98, Page 128, Page 220, for the exam items.

#07
Thursday
	03/03
	
	Mar 07-11
		*C*HAPTER 05: INTRO to
		              Algebra
		Lesson: Fundamental
		      Operations,
		      pgs 200-202
		
		Lesson: Simplying Algebraic
		      Expressions, pgs 202-
		        205
		
		Lesson: Adding and subtracting
		      of polynomials, pgs
		      206-208
		
		STUDY FOR MID-TERM
			
			STUDY FOR MID-TERM
				a)Pg 202; do with students, odd items beginning with #01, have students choose odd items they want shown and discussed. **Assign** even numbered items from 02 to 04; 12, 14, 18, 20, 28, 30, 34, and 36
				b)Pg 205, Simplifying Algebraic Expressions, assign even items from 02 – 20
				c)Pg 208; **Exercise 5.3**: Do items 21 – 28, and items 37 – 46 of pg 209
				
				STUDY FOR MID-TERM

#08 Thursday	03/10	**MIDTERM EXAMS & YOUR GRADES ARE DUE**	**MIDTERM EVERY STUDENT WILL TAKE EXAM(S)**	**EXAM** Exam items will consist of items from Chapter One, Chapter Two, and Chapter 05; Chapter Test at the end of each chapter items will be selected, for EXAM test items.
#09 THURSDAY THE WEEK OF SPRING BREAK	03/17	**Chapter 05^2: Continue,** an Introduction to ALGEBRA LESSONS, at HOME: 04)Lesson: Multiplication of Monomials, pgs 209-211 05)Lesson: Multiplication of	SPRING BREAK/ No Math Class this Thursday	**ASSESS YOURSELVES ON Chapter 05: "MAKE sure you understanding the following"** **a)** Mult of Monomials, pg 211 @ **Exercises 5.4, do <u>even numbered</u> items from 02 through 20; items 26 through 36** **b) Mult of Polynomials; pg213; Exercise 5.5,**

		Polynomials, pgs 211-213 06)Lesson: Division of Polynomials, pgs 215-217		**ASSESSMENT/Assignments do ONLY <u>even numbered</u> items from items 02 – 20 c) Div of Polynomial, pg 217; Exercise 5.7; do ONLY <u>even numbered</u> items from 02-20**
#10 Thursday	**03/24**	**CHAPTER 06; EQUATIONS AND FORMULAS, PG 221** **01)EQUATIONS:** Go over pgs 222 - 226; Discuss each example; 4 Basic Rules Used to Solve Equations. Do with students in class, Teacher picked items and student picked items on Pg 226 at EXERCISES 6.1 **02)**Lesson: EQUATIONS with variables in Both Sides, pg 226 **03)**Lesson: Equations with Parentheses, pg 228 **04)**Lesson: Equations with Fractions, pg 230		**ASSESSMENTS/ASSIGNMENTS for Chapter 06:** a) Pg 228; EXERCISE 6.2; ITEMS 02 THROUGH 20 b) PG 230; Exercise 6.3; items 02 through 40 c) Pg 234 @ EXERCISES 6.4; 02 through 24 ** Have students update <mark>Portfolio</mark> to see if all Assignments, etc, are in.**
#11 Thursday		**CHAPTER 08; GRAPHING LINEAR EQUATIONS; PG 277** **AT HOME:** <u>Students would need</u> lined Graph Paper, or lined Grid paper. Then, read & discuss each of the 6 given Examples; Do examples on the board students have questions on. **01)**Lesson: **Linear Equations with Two Variables:**		**01)**Lesson: **Linear Equations with Two Variables**: Pg 278; <u>Students would need</u> lined Graph Paper, or lined Grid paper. Then, read & discuss each of the 6 given Examples; Do examples on the board students have questions on; The key is solving for y in the form ax + by = c. It will be easier to graph y = ax + b **01)**Lesson: **Linear Equations with Two Variables**: <u>Students would need</u> lined Graph

#12 Thursday		Continuation with Chapter 08		Paper, or lined Grid paper. Then, read & discuss each of the 6 given Examples; Do examples on the board students have questions on. 02) Lesson: **Solving Pairs of Linear Equations by Addition**; pg 310; There are 8 EXAMPLES shown and given for students to follow; Explain examples on the board, if need to; **03**)Lesson: **The Slope of a line;** Pg 289; <u>Students would need</u> lined Graph Paper, or lined Grid paper. Then, read & discuss each of the 9 given Examples; Do examples on the board students have questions on. **04**)Lesson: **The Equation of a Line**; Pg 295; <u>Students would need</u> lined Graph Paper, or lined Grid paper. Then, read & discuss each of the 6 given Examples; Do examples on the board students have questions on. **NOTE: See assignments and assessments below &** <mark>**Portfolio**</mark>
#13 Thursday	04/14	Lessons will be continued, on **CHAPTER 08** **A) Linear Equations with Two Variables**	Page 282 Pg 289	**ASSESSMENTS/HOMEWORK ASSIGNMENTS for Chapter 08:** <mark>a</mark>) **Linear Equations with Two Variables**; **Exercises 8.1**; pg 282; <u>Students would need</u> lined Graph Paper. Odd numbered items will be used to illustrate clarification, etc.; Students will be assigned <mark>EVEN</mark> numbered items from 02 to 20 <mark>b</mark>) **Graphing Linear Equations**; **EXERCISES 8.2**; pg 289; <u>Students would need</u> lined

#14 Thursday	04/21	**Graphing Linear Equations** **The Slope of a line**	Page 294	Graph Paper; Odd numbered items will be used to illustrate clarification, etc.; Students will be assigned <mark>EVEN</mark> numbered items from 02 to 18; 22 & 24 <mark>c</mark>)**The Slope of a line**, Find the slope of the line; pg 294; **ASSESSMENTS/HOMEWORK ASSIGNMENTS:** <u>Students would need</u> lined Graph Paper; Odd numbered items will be used to illustrate clarification, etc.; Students will be assigned 10 <mark>EVEN</mark> <u>numbered</u> items from 02 – 12, 20 – 26 d)**The Equation of a line**; pg 299; **EXERCISES 8.4**; <u>Students would need</u> lined Graph Paper. Odd numbered items will be used to illustrate clarification, etc.; Students will be assigned 10 <mark>EVEN</mark> numbered items from 02 to 20
#15 Thursday	04/28	**CHAPTER 09: SYSTEMS OF LINEAR EQUATIONS; PAGE 304** 01) Lesson: **Solving Pairs of Linear Equations by Graphing**; Pg 305; <u>Students would need</u> lined Graph Paper, or lined Grid paper. Then, read & discuss each of the 4 given Examples; Explain examples on the board students have questions on.**,** for simplification / c**lari**fication 02) Lesson: **Solving Pairs of Linear Equations by Addition**; pg 310; There	Pg 310 Pg 317	**ASSESSMENTS/HOMEWORK ASSIGNMENTS for Chapter 09:** **a**) <u>Students would need</u> lined Graph Paper to do the assigned items on pg 310 **EXERCISES 9.1**; Do even numbered items from 08 – 26 b) **Solving Pairs of Linear Equations by Addition**; pg 310; <u>Students would need</u> lined Graph Paper to do the assigned items on pg 315; **EXERCISES 9.2**; Students will be assigned 10 <mark>EVEN</mark> numbered items from 02 to 20

		are 8 EXAMPLES shown and given for students to follow; Explain examples on the board, if need to; 03)Lesson: **Solving Pairs of Linear Equations by Substitution**; Pg 316; Go over the given EXAMPLES, by using the Methods shown in the box at the top of pg 316, where the 5 steps are used.		c) **Solving Pairs of Linear Equations by Substitution**; PAGE 317; Do these **EXERCISES 9.3** items from 02 – 20; Only do the even numbered items; Show your work; d) ** Have students update <mark>Portfolio</mark> to see if all Assignments, etc, are in.**
#16 Thursday	05/05	Continued lesson on **Solving Pairs of Linear Students will read and prepare for the lessons on "Equations by Substitution"**; Pg 316		**Solving Pairs of Linear Equations by Addition**; pg 310 **Solving Pairs of Linear Equations by Substitution**; PAGE 317
		Catch Up Day: Complete what needs to be caught up on; Turn in assignments that aren't turned in, or completed. Study for Final Exam. Questions can be answered at this time.	Prepare for Finals **STUDY FOR Final Exam**	Study at Home. Be prepared to Turn in Missing assignments. Work on uncompleted work you need to work on, at this time.
#17 Thursday	05/12	a) FINAL EXAM WILL BE GIVEN TO THE STUDENTS		STUDENTS will be assessed on Chapters 06, 07, and 08
		b) Grades due to the Registrar	Finalized Grades	Turn Grades in the front desk
		c) Turn all necessary documents into the front desk		

Grading Plan

Homework:	20%
Class Participation:	03%
Project(s):	20%
Quizzes:	10%
Mid-term:	20%

Final Exam: 20%
Portfolio: 07%
                 …………
                  100%
A = 100-90%
B = 89-80%
C = 79-70%
D = 69-60%
F = 59% or less

Grading Policy
Students must do their own work. Cheating and plagiarism are strictly forbidden. Cheating includes (but is not limited to) plagiarism, submission of work that is not one's own, submission or use of falsified data, unauthorized access to exams or assignments, use of unauthorized material during an exam, or supplying or communicating unauthorized information for assignments or exams.
Participation
Students are expected to attend and participate in all class activities. Points will be given to students who actively participate in class activities including guest speakers, field trips, laboratories, and all other classroom events.
Cell phone and headphone use
Please turn cell phones off **before** coming to class. Cell phone courtesy is essential to quality classroom learning. Headphones must be removed before coming to class.
NOTE: Students will be allowed CALCULATORS on their CELL PHONES.
Attendance Policy
Students are expected to attend all class sessions. If more than ten minutes late, students will be counted as absent. A percentage of the student's grade will be based on class attendance and participation. Absence from class, regardless of the reason, does not relieve the student of responsibility to complete all course work by required deadlines. Furthermore, it is the student's responsibility to obtain notes, handouts, and any other information covered when absent from class and to arrange to make up any in-class assignments or tests if permitted by the instructor. Incomplete or missing assignments will necessarily affect the student's grades. Instructors will report excessive and/or unexplained absences to the Counseling Department for investigation and potential intervention. **Instructors may drop students from the class after three (3) absences unless prior arrangements are made with the instructor to make up work and the instructor deems any excuse acceptable.**
NOTE: Students will check in or sign in at the beginning of class, or when they arrived for class.
Study Time Outside of Class for Face-to-Face Courses
For every credit hour in class, a student is expected to spend two hours outside of class studying course materials.

Study Time for Hybrid or Blended Courses
For a hybrid or blended course of one credit hour, a student is expected to spend three hours per week studying course materials.

Study Time for Online Courses
For an online course of one credit hour, a student is expected to spend four hours per week studying course materials.

Academic Integrity

Integrity (honesty) is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own. Students who engage in academic dishonesty diminish their education and bring discredit to the University community. Avoid situations likely to compromise academic integrity such as: cheating, facilitating academic dishonesty, and plagiarism; modifying academic work to obtain additional credit in the same class unless approved in advance by the instructor, failure to observe rules of academic integrity established by the instructor**. The use of another person's ideas or work claimed as your own without acknowledging the original source is known as plagiarism and is prohibited**.

Diné Philosophy of Education

The Diné Philosophy of Education (DPE) is incorporated into every class for students to become aware of and to understand the significance of the four Diné philosophical elements, including its affiliation with the four directions, four sacred mountains, the four set of thought processes and so forth: Nitsáhákees, Nahát'á, Íína and Siih Hasin which are essential and relevant to self-identity, respect and wisdom to achieve career goals successfully.

At NTU's Zuni Campus, the A:shiwi Philosophy of Education offers essential elements for helping students develop Indigenous and Western understandings. Yam de bena: dap haydoshna: akkya hon detsemak a:wannikwa da: hon de:tsemak a:ts'umme. *Our language and ceremonies allow our people to maintain strength and knowledge.* A:shiwi core values of hon i:yyułashik'yanna:wa (respect), hon delank'oha:willa:wa (kindness and empathy), hon i:yyayumoła:wa (honesty and trustworthiness), and hon kohoł lewuna:wediyahnan, wan hon kela i:tsemanna (think critically) are central to attaining strength and knowledge. They help learners develop positive self-identity, respect, kindness, and critical thinking skills to achieve life goals successfully.

Students with Disabilities

Navajo Technical University is committed to serving all students in a non-discriminatory and IEP accommodating manner. Any student who feels that she or he may need special accommodations should contact the Accommodations Office (http://www.navajotech.edu/student-services#accomodations-services) in accordance with the university's Disability Accommodations Policy (see http://www.navajotech.edu/images/about/policiesDocs/Disability_Exhibit-A_6-26-2018.pdf).

Email Address

Students are required to use NTU's email address for all communications with faculty and staff.

Final Exam Date: MAY 12, 2022