NITSÁHÁKEES NÁHAT'Á 'IINÁ SIIH HASIN

NAVAJO TECHNICAL UNIVERSITY

ESTABLISHED 1979

Course Title: Technical Mathematics

Course #: Math 113
Credit Hours: 3
Semester: Spring 2022

Faculty: Bruce Lewis **E-mail**: blewis@navajotech.edu

Office Hours: Monday and Wednesday 1pm-2pm, Tuesday and Thursday 9am-10am
Preferred Communication: Email

Modality: In-person
Class Location and Meeting Times: Building E, Room 102, Tuesday and Thursday at 1pm-2:30pm

Required Materials: textbook, notebook with paper, graph paper, ruler
Textbooks: Elementary Technical Mathematics (12th edition / Cengage) by Dale Ewen
Tools: DESMOS graphing calculator phone app

Mission, Vision, and Philosophy
Mission: Navajo Technical University honors Diné culture and language, while educating for the future.

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.

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
MTH-113 (3) Technical Mathematics This course will cover the application of arithmetic, measurement, introduction to algebra, equations and formulas, ratio and proportion, geometry, right triangle trigonometry, Law of Sines, and basic statistics. The Navajo cultural ways of learning and knowing are integrated as well. Satisfactory placement score 237 and under will require Corequisite of MTH-113L.

Course Objectives
At the end of the semester the students will:
1. apply basic computation rules;
2. define / describe technical math concepts;
3. solve problems involving technical mathematics; and
4. solve problems involving geometry and right triangle trigonometry.

Assessments:
Pre/post Survey. At the beginning and at the end of the semester, students will complete an attitudinal survey to ascertain growth in competence and confidence in mathematics. The survey will help identify opportunities to improve the course in the future.
Assignments. Every week students will have assignments due the following week.
Quizzes. At the end of each week students will have a quiz.
Exams. There will be a midterm and a final exam.

COURSE OUTCOMES	COURSE MEASUREMENTS
Students will apply techniques and strategies in solving technical mathematics computation skills	Formative assessment, Summative assessment, Applications, Projects / Presentations
Students will solve real-world application problems that measures basic mathematics skills	
Students will use algebraic formulas to demonstrate skills in solving real-world problems	
Students will solve problems involving missing dimension(s) of geometric figures. Students will solve problems using trigonometric ratios.	

Connections to Program Assessment (course-embedded measures)

Outcomes: Students should be able to…	Direct measures
1. Demonstrate knowledge of math foundations and context.	Pre and post tests
2. Perform computations in higher mathematics.	Pre and post tests
3. Formulate complete, concise, and correct mathematical proofs.	Pre and post tests
4. Solve real world math related problems.	Pre and post tests
5. Use technology to address mathematical ideas.	Pre and post tests

Course Activities

Week	Chapter	Assignments	Assessments
1	Chapter 1 –Basic Concepts (Unit1A)	Watch videos and practice problems	Quiz 1
2	Chapter 1–Basic Concepts (Unit1B)	same	Quiz 2
3	Chapter 1–Basic Concepts (Unit 1C)	same	Quiz 3
4	Chapter 2 – Signed numbersand Powers of 10	same	Quiz 4
5	Chapter 3 – The Metric System and Unit Conversions	same	Quiz 5
6	Chapter 7 – Ratio &Proportion	same	Quiz 6
7	Chapter 12 - Geometry	same	Quiz 7
8	Chapter 12 – Geometry (contd.)	same	Quiz 8 Midterm
9	Chapter 12 – Geometry (contd.)	same	Quiz 9
10	Chapter 5 – Intro to Algebra	same	Quiz 10
11	Chapter 5 – Intro toAlgebra	same	Quiz 11
12	Chapter 6 – Equations and Formulas	same	Quiz 12
13	Chapter 6 – Equations and Formulas	same	Quiz 13
14	Chapter 8 – Graphing Equations	same	Quiz 14
15	Review	same	
16	Final Exam		Final Exam

Schedule Disclaimer: The course schedule is subject to adjustment depending on the needs of the class to focus more on a specific chapter.

Grading Plan			
Quizzes	30%	90-100%	A
Midterm Exam	35%	80-89%	B
Final Exam	35%	70-79%	C
		60-69%	D
		Below 60%	F
		Below 60%	F

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.

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.**

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.

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.

Students with Disabilities
Navajo Technical University is committed to serving all students in a non-discriminatory and 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: Tuesday May 10 at 1pm

Important Dates:

Martin Luther King Holiday is January 17th
Last day to add/drop without a W is January 21
Presidents' Day is February 21
Spring graduation petition is due on February 25
Midterm exams are March 7 to March 11
Spring Break is March 14 to March 18
Last day to withdraw with a W is March 31
Final exams is May 9 to May 12
Spring graduation is on May 13