NEW RIVER COMMUNITY COLLEGE

DUBLIN, VIRGINIA

COURSE PLAN

Course Number and Title: MTH 111 - Basic of Technical Mathematics I

Prepared by: Math Department (Instructor) — Fall, 2021 (Date)

Approved by: S. Tolbert-Hungate (Dean) — Fall, 2021 (Date)

I. Course Description

Provides a foundation in mathematics with emphasis in arithmetic, basic algebra, geometry and trigonometry. Presents applications directed to specialty options. Lecture 2-5 hours per week.

II. Introduction

This is a basic mathematics course that is required for selected certificates and diplomas. It is also intended to prepare students to enter a basic algebra course. Emphasis will be placed on practical applications.

III. Student Learning Outcomes

The student will be able to:

Communication

- Interpret and communicate quantitative information and mathematical and statistical concepts using language appropriate to the context and intended audience.

Problem Solving

- Make sense of problems, develop strategies to find solutions, and persevere in solving them

Reasoning

- Reason and draw conclusions or make decisions with quantitative information.

Evaluation

- Critique and evaluate quantitative arguments that utilize mathematical, statistical, and quantitative information.

Technology

- Use appropriate technology in a given context.

Students will engage in all course content described below in context to the technical fields being supported.

Basic Skills

1. Use a scientific calculator.
2. Round-off numbers correctly.
3. Identify significant digits.
4. Use scientific notation
5. Convert between units in both standard and metric
6. Perform operations with signed numbers

Basic Algebra

7. Apply and interpret ratios and proportions
8. Compute values in direct, indirect and inverse variation
9. Solve single variable equations
10. Locate and plot points on the xy plane
11. Interpret the concept of slope using real world examples (including vertical and horizontal lines)
12. Graph lines using a table of values with and without the domain provided
13. Graph lines using the slope-intercept method when lines are in y=mx+b form and Ax+By=C form
14. Write the equation of a line in slope-intercept form that models a real world situation when given the rate of change and initial value
15. Make predictions using the equation of a line

Geometry

16. Classify triangles by their sides/angles.
17. Calculate the perimeter and circumference
18. Calculate the area of a polygon and circle
19. Apply concepts of sector and arc length of a circle
20. Recognize various geometric solids such as cylinder, cone, pyramid, prism and sphere.
21. Calculate surface area and volume of various geometric solids
22. Use the properties of inscribed and circumscribed polygons and circles to find unknown amounts
23. Apply the concept of similar triangles
24. Apply the Pythagorean theorem
25. Convert between decimal degrees and DMS notation.
26. Interpret and apply line and angle relationships.

Trigonometry

27. Properly use terms related to an angle(s).
28. Define the trigonometric functions and their values
29. Solve right triangles and their applications
30. Identify the signs of the trigonometric function of angles greater than 90?
31. Determine trigonometric functions of any angle.

IV. General Education Student Learning Outcomes Included in Course

General education at NRCC provides the educational foundation necessary to promote intellectual and personal development. Upon completing the associate degree, graduates will demonstrate competency in student learning outcomes in 1) civic engagement, 2) critical thinking, 3) professional readiness, 4) quantitative literacy, 5) scientific literacy, and 6) written communication.

This course includes the following general education student learning outcomes:

- Explain numerical information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words)
- Convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words)
- Accurately solve mathematical problems

V. Instructional Procedures

The instructional procedures will include lectures, discussions, problem sessions, clinical experiences, reviews and test.

VI. Instructional Materials

A. Textbook:

Title:	Elementary Technical Mathematics 12th edition
Author:	Dale Ewen, C. Robert Nelson
Publisher:	Brooks/Cole
Date:	2019
Software:	Webassign (bundled with text from bookstore)

Additional resource materials for some New River Community College classes can be found on the NRCC Web-based learning site at nr.edu/learning links.

VII. Course Content

- Basic Skills
- Basic Algebra
- Geometry
- Trigonometry

VIII. Evaluation

The grade for the course will be calculated from Tests, homework, a final exam and other work as deemed appropriate by the instructor. See individual syllabus for details on percentages/points.

Grading Scale:

A = 91 - 100
B = 81 - 90
C = 71 - 80
D = 61 - 70
F = 0 - 60
W = Withdrawal

IX. Attendance

Regular attendance at classes is required. When absence from a class becomes necessary, it is the responsibility of the student to inform the instructor prior to the absence whenever possible. The student is responsible for the subsequent completion of all study missed during an absence. Any instruction missed and not subsequently completed will necessarily affect the grade of the student regardless of the reason for the absence.

IX. Cheating Policy

Cheating will not be tolerated. Any student found cheating on a test or exam will receive a zero and be subject to additional disciplinary action.

X. Withdrawal Policy

Student Initiated Withdrawal Policy

A student may drop or withdraw from a class without academic penalty during the first 60 percent of a session. For purposes of enrollment reporting, the following procedures apply:

a. If a student withdraws from a class prior to the termination of the add/drop period for the session, the student will be removed from the class roll and no grade will be awarded.
b. After the add/drop period, but prior to completion of 60 percent of a session, a student who withdraws from a class will be assigned a grade of "W." A grade of "W" implies that the student was making satisfactory progress in the class at the time of withdrawal, that the withdrawal was officially made before the deadline published in the college calendar, or that the student was administratively transferred to a different program.
c. After that time, if a student withdraws from a class, a grade of "F" or "U" will be assigned. Exceptions to this policy may be made under documented mitigating circumstances if the student was passing the course at the last date of attendance.

A retroactive grade of "W" may be awarded only if the student would have been eligible under the previously stated policy to receive a "W" on the last date of class attendance. The last date of attendance for a distance education course will be the last date that work was submitted.

Late withdrawal appeals will be reviewed and a decision made by the Coordinator of Admissions and Records.

No-Show Policy

A student must either attend face-to-face courses or demonstrate participation in online courses by the last date to drop for a refund. A student who does not meet this deadline will be reported to the Admissions and Records Office and will be withdrawn as a no-show student. No refund will be applicable, and the student will not be allowed to

attend/participate in the class or submit assignments. Failure to attend or participate in a course will adversely impact a student's financial aid award.

Instructor Initiated Withdrawal

A student who adds a class or registers after the first day of class is counted absent from all class meetings missed. Each instructor is responsible for keeping a record of student attendance (face-to-face classes) or performance/participation (online classes) in each class throughout the semester.

When a student's absences equal twice the number of weekly meetings of a class (equivalent amount of time for summer session), the student may be dropped for unsatisfactory attendance in the class by the instructor.

Since attendance is not a valid measurement for Online courses, a student may be withdrawn due to non-performance. A student should refer to his/her online course plan for the instructor's policy.

When an instructor withdraws a student for unsatisfactory attendance (face-to-face class) or non-performance (online class), the last date of attendance/participation will be documented. Withdrawal must be completed within five days of a student's meeting the withdrawal criteria. A grade of "W" will be recorded during the first sixty percent (60%) period of a course. A student withdrawn after the sixty percent (60%) period will receive a grade of "F" or "U" except under documented mitigating circumstances when a letter of appeal has been submitted by the student. A copy of this documentation must be placed in the student's academic file.

The student will be notified of the withdrawal by the Admissions and Records Office. An appeal of reinstatement into the class may be approved only by the instructor.

XI. Disability and Diversity Statements

If you are a student with a documented disability who will require accommodation in this course, please register with the Disability Services Office located in the Advising Center for assistance in developing a plan to address your academic needs.

The NRCC community values the pluralistic nature of our society. We recognize diversity including, but not limited to, race ethnicity, religion, culture, social class, age, gender, sexual orientation and physical or mental capability. We respect the variety of ideas, experiences and practices that such diversity entails. It is our commitment to ensure equal opportunity and to sustain a climate of civility for all who work or study at NRCC or who otherwise participate in the life of the college.

XII. Evacuation Procedure

Evacuation Procedure: Please note the evacuation route posted at the classroom doorway. Two routes are marked in case one route might be blocked.