

**NEW RIVER COMMUNITY COLLEGE
DUBLIN, VIRGINIA**

COURSE PLAN

Course Number and Title: MTH 131 Technical Mathematics

Prepared by: Math Department Faculty Fall, 2021
(Date)

Approved by: *S. Tolbert-Hungz* Fall, 2021
(Dean) (Date)

I. Course Description

Presents algebra through unit conversion, trigonometry, vectors, analytic geometry, and complex numbers. Prerequisites: A placement recommendation for MTH 131 and developmental math units MTE 1-6. Lecture 3 hours per week.

Prerequisites: Competency in MTE 1-6 as demonstrated through placement or unit completion or equivalent or Corequisite: MCR 3.

II. Introduction

This is a technical mathematics course that includes topics needed in a variety of technical fields. Topics included are algebra, trigonometry, vectors, and complex numbers. A strong background in algebra is necessary for success in this course.

III. Student Learning Outcomes

Upon successful completion of this course, the student will be able to:

1. Use a scientific calculator.
2. Round-off numbers correctly.
3. Identify significant digits.
4. Use scientific and engineering notation
5. Convert between units in both standard and metric
6. Apply basic algebraic principles
7. Apply and interpret line and angle relationships.
8. Classify triangles by their sides/angles.
9. Calculate the perimeter of a polygon
10. Calculate the circumference and chord length on a circle
11. Calculate the area of a polygon
12. Calculate the area of a circle
13. Apply concepts of sector and arc length of a circle
14. Recognize various geometric solids such as cylinder, cone, pyramid, prism, sphere and conic sections.
15. Calculate surface area and volume of various geometric solids
16. Apply the concept of similar triangles
17. Properly use terms related to an angle(s).
18. Classify triangles by their sides/angles.
19. Know/apply the radian as a measure of an angle, convert between degrees and radians
20. Define the trigonometric functions and their values

21. Solve right triangles and their applications
22. Identify the signs of the trigonometric function of angles greater than 90°
23. Determine trigonometric functions of any angle
24. Describe vectors and their components.
25. Solve applications involving vectors.
26. Perform addition and scalar multiplication with vectors
27. Interpret complex numbers and perform basic operations
28. Convert between forms of rectangular, and polar complex numbers
29. Perform basic operations with polar complex numbers

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, tables, words).
- Accurately solve mathematical problems.

V. Instructional Methods

The instructional procedures will include lectures, discussion, reviews, homework and in-class tests. Students are encouraged to ask questions and respond to questions asked by either the instructor or another student.

VI. Instructional Materials

Textbook: Basic Technical Mathematics 1st Edition
Travis Coake
Software: MyOpenMath <https://www.myopenmath.com/>
Calculator: Students are allowed to use a TI 30XIIS or equivalent.
Other: Pencils and paper. Ink is not to be used for any graded work

VII. Course Content

- Basic Skills
- Geometry
- Trigonometry
- Vectors
- Complex Numbers

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.

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

X. Cheating Policy

The giving or receiving of any help from another student or unauthorized individual on any graded portion of the course is considered cheating and will not be tolerated. The use of books, notes, electronic devices or any other unauthorized material during tests is considered cheating, and will not be tolerated. Any student found cheating will receive a grade of "0" on that assignment and may receive an "F" for the course. This "0" cannot be replaced by any other score. Mobile phones are not permitted to be used as calculators.

XI. 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.

XII. 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.

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