

**QUEENSBOROUGH COMMUNITY COLLEGE
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE**

COURSE OUTLINE

MA-114 TECHNICAL MATHEMATICS I for VERIZON STUDENTS

Pre-requisite: MA-010, MA-013, or Satisfactory Score on the Mathematics Placement Exam

Hours: 4 Class Hours

4 Credits

Course Description: This is the first course of a two-course sequence in technical mathematics for Verizon Next Step students. The course emphasizes concepts of intermediate algebra and trigonometry that are needed in the students' telecommunications courses, including linear functions and equations, systems of equations, determinants, geometry, trigonometry, variation, factoring, quadratic functions and inequalities. Extensive use is made of a graphing calculator and mathematical software.

Curricula for which the course is required/recommended:

A.A.S. Degree Program in Telecommunications Technology: Verizon

General Education Objectives: Use analytical reasoning skills to identify issues or problems and evaluate evidence in order to make informed decisions; reason quantitatively and mathematically as required in their fields of interest and in everyday life; integrate knowledge and skills in their program of study; communicate quantitative information effectively; use information technology skills effectively for academic research and lifelong learning.

Course Objectives/ Expected Student Learning Outcomes: Understand the important concepts and theories of algebraic, geometric, trigonometric, exponential and logarithmic functions, and statistics; apply them to solve problems in mathematics, engineering and other disciplines and communicate results to others orally and in writing; use graphing calculators and computer technologies in mathematical investigations.

Text: **BASIC TECHNICAL MATHEMATICS**, Ninth Edition

By: Allyn J. Washington

Pearson - Prentice Hall, 2009

Laptop Computer

TI-83 Plus Calculator

Methods by which student learning will be evaluated:

The general guidelines for assessing grades are as follows:

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| ○ Examinations, Assignments and Classroom Performance | 50% |
| ○ Group Projects | 25% |
| ○ Final Examination | 25% |

The distribution may be changed at the discretion of the individual instructor.

Academic Integrity: Academic honesty is taken extremely seriously and is expected of all students. All assignments must be the original work of the student (and partners or group, if applicable). All questions or concerns regarding ethical conduct should be brought to the course instructor. "It is the official policy of the College that all acts or attempted acts that are violations of academic integrity be reported to the Office of Student Affairs (OSA). At the faculty member's discretion and with the concurrence of the student or students involved, some cases, though reported to the OSA, may be resolved within the confines of the course and department. The instructor has the authority to adjust the offender's grades as deemed appropriate, including assigning an F to the assignment or exercise or, in more serious cases, an F to the student for the entire course." (Taken from the QCC Academic Integrity Policy, 2/14/2005.)

NOTE: *Any student who feels that he/she may need an accommodation based upon the impact of a disability should contact the instructor privately to discuss his/her specific needs. Please contact the office of Services for Students with Disabilities in Science Building, room 132 (718 631 6257) to coordinate reasonable accommodations for students with documented disabilities.*

	<u>TOPICS</u>	<u>SECTIONS</u>	<u>HOURS</u>
I.	BASIC ALGEBRA REVIEW Exponents and Roots (on calculator), Scientific Notation, and Algebraic Expressions	1.2 – 1.9	8
II.	FUNCTIONS AND EQUATIONS a) Solving Equations b) Literal Equations c) Functions, Functional Notation, Rectangular Coordinates d) Graphing Functions, Linear Functions Lab: Graphing Linear Equations e) Solving Systems of Equations Lab: Solving Systems of Equations Graphically f) Determinants and Cramer's Rule Lab: Solving Systems of Equations Using Cramer's rule	1.10 1.11 3.1 – 3.3 3.4 - 3.6 5.1, 5.2 5.3, 5.4 5.5-5.6	10
III.	GEOMETRY	2.1 – 2.6	6
IV.	TRIGONOMETRY Angles, Trigonometric Functions, Right Triangles, Applications	4.1 – 4.5	8
V.	RATIO, PROPORTION, AND VARIATION	18.1-18.2	4
VI.	FACTORING AND FRACTIONS a) Factoring, Equivalent Fractions, Complex Fractions b) Quadratic Equations Lab: Graphs of Quadratic Functions	6.1 – 6.8 7.1, 7.3, 7.4	10
VII.	INEQUALITIES	17.1-17.3	4
	EXAMS		6
		TOTAL	56

The approximate hours per chapter are guidelines and are at the discretion of the instructor. The instructor is responsible for making assignments and scheduling examinations. The Final Exam date is scheduled by the Registrar.