COURSE OUTLINE: MTH 96 - ACE TECHNICAL MATH

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Course Code: Title	MTH 96: ACE TECHNICAL MATHEMATICS
Program Number: Name	8220: ACAD CAREER ENTRANCE
Department:	ACAD. UPGRADING SPONSORSHIP
Semesters/Terms:	18F, 19W, 19S
Course Description:	This ACE-credit course is designed to equip the student with the mathematical knowledge and skills needed for college technical programs. Students investigate and apply properties of polynomial, exponential, and logarithmic functions, solve problems involving inverse proportionality and explore the properties of reciprocal functions. The student will analyze models of a variety of functions, solve problems involving piecewise-defined functions and linear-quadratic systems. It is possible, but not assumed, that the outcomes of this course can be attained in one semester.
Total Credits:	5
Hours/Week:	5
Total Hours:	50
Prerequisites:	ACE035, MTH 94
Corequisites:	There are no co-requisites for this course.
Substitutes:	ACE050
Essential Employability Skills (EES) addressed in this course:	EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.
Course Evaluation:	Passing Grade: 70%, B
Books and Required Resources:	Mathematics for College Technology MCT4C-B Units 1-4 by Independent Learning Centre

Course Outcomes and Learning Objectives:

Course Outcome 1	**Learning Objectives for Course Outcome 1**
1. Upon successful completion of this course, the student will demonstrate the ability to solve problems involving trigonometric principles.	1.1 Solve problems using ratios and rates 1.2 Solve problems using trigonometric ratios in right-angled triangles 1.3 Solve problems using sine and cosine law 1.4 Recognize whether to use sine or cosine law in order to solve a problem
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Upon successful	2.1 Recognize linear relations

completion of this course, the student will demonstrate the ability to solve and graph linear and quadratic equations.	2.2 Solve linear functions 2.3 Graph data 2.4 Graph quadratic functions 2.5 Solve quadratic functions by factoring and by using the quadratic formula 2.6 Simplify complex numbers 2.7 Solve linear and linear-quadratic systems of equations graphically and algebraically
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Upon successful completion of this course, the student will demonstrate the ability to manipulate polynomials graphically and algebraically.	3.1 Draw general shapes of polynomial functions for equations of different degrees 3.2 Graph polynomial functions with multiple roots 3.3 Determine the degree of a polynomial function by examining its finite differences 3.4 Factor a polynomial 3.5 Divide a polynomial by a binomial 3.6 Write polynomial functions that have given numbers as zero 3.7 Sketch the graph of a polynomial function whose equation is given in factored form
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Upon successful completion of this course, the student will demonstrate the ability to solve mathematical problems expressed as inequalities.	4.1 Graph inequalities on a real number line 4.2 Solve linear inequalities 4.3 Solve factorable polynomial inequalities
Course Outcome 5	**Learning Objectives for Course Outcome 5**
5. Upon successful completion of this course, the student will demonstrate the ability to solve problems involving direct and inverse proportionality.	5.1 Determine the difference between direct and inverse proportionality 5.2 Investigate direct and inverse proportionality occurring in everyday situations 5.3 Construct tables of values, graphs, and formulas to represent functions of direct and inverse proportionality
Course Outcome 6	**Learning Objectives for Course Outcome 6**
6. Upon successful completion of this course, the student will demonstrate the ability to manipulate rational, reciprocal and piecewise functions.	6.1 Perform mathematical operations on rational expressions 6.2 Sketch graphs of the reciprocal of a linear or quadratic function 6.3 Write, graph, and answer questions related to piecewise functions
Course Outcome 7	**Learning Objectives for Course Outcome 7**
7. Upon successful completion of this course, the student will demonstrate the ability to investigate and apply problem-solving skills to exponential and logarithmic functions.	7.1 Identify properties of exponential functions 7.2 Identify whether a given graph is that of a polynomial or exponential function 7.3 Identify whether a situation displays exponential growth or decay 7.4 Apply exponential growth or decay to real-life problems 7.5 Identify the properties of logarithmic functions 7.6 Evaluate and simplify logarithmic functions 7.7 Apply logarithms to solve real-life problems

Evaluation Process and Grading System:	

Evaluation Type	Evaluation Weight	Course Outcome Assessed
Learning Activities	20%	
Unit Tests	80%	

Date:	August 30, 2018
	Please refer to the course outline addendum on the Learning Management System for further information.