



IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE
COURSE OUTLINE-OF-RECORD

DIVISION: Math and Engineering **DATE:** May 13, 2020
COURSE: MATH 010 Math 110 Support Course **UNITS:** 1.00
LEC HRS: 0.00 **ACTIVITY LAB HRS:** 36.00 **LAB HRS:** 0.00
OUT OF CLASS HRS: 18.00 **TOTAL STUDENT LEARNING HRS:** 54.00
CLASS SIZE: 35 **ONLINE CLASS SIZE:** 35 **LARGE QUOTA:** No

CROSS-REFERENCED COURSE:

I. COURSE/CATALOG DESCRIPTION

This course is intended for students to take concurrently with Math 110. Included will be computations with rational numbers, mental computation and estimation, ratio and percent and the use of manipulatives to solve computations. (Nontransferable, nondegree applicable)

II. A. PREREQUISITES, if any:

B. COREQUISITES, if any:
MATH 110

C. RECOMMENDED PREPARATION, if any:

D. RECOMMENDED COMPANION COURSE, if any:

III. GRADING CRITERIA

Pass/No Pass Only

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF "C":

Upon satisfactory completion of the course, students will be able to:

1. Perform operations on whole numbers including using order of operations, mental computation and estimation.
2. Perform operations on integers including using order of operations, mental computation and estimation.
3. Perform operations on rational numbers, including using order of operations, mental computation and estimation.
4. Model word problems algebraically, including problems involving percent and ratios.
5. Computations involving fractions, decimals and percents

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

Lab Outline

1. Whole Numbers
 - a. Place Value
 - b. Computations
 - c. Properties of Whole Numbers
 - d. Mental Computation
 - e. Estimation
 - f. Scientific Notation
 - g. Prime Factorization

2. Integers
 - a. Order of operations
 - b. Mental Computation
 - c. Estimation
 - d. Scientific Notation
3. Rational Numbers
 - a. Computations including addition, subtraction, multiplication and division
 - b. Order of operations
4. Percent, decimals and Fractions
 - a. Convert between percent, decimals and fractions
5. Application Problems
 - a. Translate the English language into Mathematical expressions or equations to be solved.
 - b. Set up a mathematical model of word problems algebraically, including problems involving
Distance - rate - time, proportion, ratio and percent

VI. METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS:

Skill Demonstration

Quizzes

Problem Solving Exercise

Oral Assignments

Class Activity

Mid-Term/Final Exam(s)

VII. INSTRUCTIONAL METHODOLOGY:

Group Activity

Lab Activity

Distance Learning

VIII. ASSIGNMENTS:

Reading and Writing

Students will be assigned reading and writing material associated with the necessary pre-requisite knowledge for Math 110.

IX. TEXTBOOK(S) AND SUPPLEMENT(S):

No textbook is required. There will be supplementary material offered for the students to download from Canvas to complement the course.

X. STUDENT LEARNING OUTCOMES:

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Demonstrate problem solving strategies by identifying an appropriate method to solve a given problem, correctly set up the problem, perform the appropriate analysis and computation, and share their interpretation

of the conclusion or the outcome, using correct grammar or in an oral presentation. This outcome will be assessed through selected exercises on exams throughout the semester.

XI. ADDENDUM

Distance Education Addendum

Delivery Method:

Online/Web-based

Contact Types and Frequency:

This course complies with the [IVC Regular Effective and Substantive Contact Guidelines](#) by providing the following contact types:

- Orientation at start of course - Once
- Announcements/Bulletin Boards - Weekly
- Chat Rooms - Weekly or as needed
- Discussion Boards - Weekly or as needed
- Email Communication - As needed
- Online Group Collaboration - As needed
- Scheduled Face-to-Face Meetings - As needed
- Podcasts - As needed
- Virtual Office Hours - Weekly
- Other (describe) - As needed to meet course objectives

This course complies with the American's with Disabilities Act Section 508 as described in the [IVC Distance Education Handbook](#)

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IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE
COURSE OUTLINE-OF-RECORD

DIVISION: Math and Engineering **DATE:** May 13, 2020
COURSE: MATH 012 Math 112 Support Course **UNITS:** 1.00
LEC HRS: 0.00 **ACTIVITY LAB HRS:** 36.00 **LAB HRS:** 0.00
OUT OF CLASS HRS: 18.00 **TOTAL STUDENT LEARNING HRS:** 54.00
CLASS SIZE: 35 **ONLINE CLASS SIZE:** 35 **LARGE QUOTA:** Yes

CROSS-REFERENCED COURSE:

I. COURSE/CATALOG DESCRIPTION

This course is intended for students to take concurrently with Math 112. Included will be computations of area and volume, measurement systems, unit conversions, transformational geometry, and patterning problems. (Nontransferable, nondegree applicable)

II. A. PREREQUISITES, if any:

B. COREQUISITES, if any:
MATH 112

C. RECOMMENDED PREPARATION, if any:

D. RECOMMENDED COMPANION COURSE, if any:

III. GRADING CRITERIA

Pass/No Pass Only

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF "C":

Upon satisfactory completion of the course, students will be able to:

1. Model Algebraic Word Problems
2. Perform computations with the English and Metric Systems of measurement
3. Recognize similar figures and perform operations using proportions and scale factors
4. Find the measure of angles, area and volume of rectangular prisms, cones, cylinders and pyramids
5. Solve problems which use the Pythagorean Theorem
6. Use the number pi in the context of area and volume of circles and cylinders

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

Lab Outline

1. Patterning Problems
 - a. Develop an algebraic model to solve problems that align with a pattern.
2. Measurement
 - a. U.S. Standard Measurement
 - b. Metric System
 - c. Unit Conversions
3. Geometry
 - a. Similar figures and scale factors
 - b. Angle measurement
4. Computations of triangles, rectangles, cylinders, prisms, pyramids, cones:

- a. Angle measurement
 - b. Area
 - c. Volume
5. Pythagorean theorem
- a. Develop Pythagorean theorem
 - b. Solve problems involving the Pythagorean Theorem
6. the number Pi
- a. Find the area and Circumference of a circle
 - b. Find the volume of a cylinder.

VI. METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS:

Class Activity

Oral Assignments

Problem Solving Exercise

Quizzes

Skill Demonstration

Written Assignments

VII. INSTRUCTIONAL METHODOLOGY:

Audio Visual

Demonstration

Discussion

Group Activity

Lab Activity

Lecture

Distance Learning

VIII. ASSIGNMENTS:

IX. TEXTBOOK(S) AND SUPPLEMENT(S):

X. STUDENT LEARNING OUTCOMES:

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Demonstrate problem solving strategies by identifying an appropriate method to solve a given problem, correctly set up the problem, perform the appropriate analysis and computation, and share the interpretation of the conclusion of the outcome, using correct grammar or in an oral presentation. This outcome will be assessed through selected exercises on exams throughout the semester.

XI. ADDENDUM

Distance Education Addendum

Delivery Method:

Online/Web-based

Contact Types and Frequency:

This course complies with the [VC Regular Effective and Substantive Contact Guidelines](#) by providing the following contact types:

Orientation at start of course - Once
Announcements/Bulletin Boards - Weekly
Chat Rooms - Weekly or as needed
Discussion Boards - Weekly or as needed
Email Communication - As needed
Online Group Collaboration - As needed
Scheduled Face-to-Face Meetings - As needed
Podcasts - As needed
Virtual Office Hours - Weekly
Other (describe) - As needed to meet course objectives

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IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE
COURSE OUTLINE-OF-RECORD

DIVISION: Math and Engineering **DATE:** May 13, 2020
COURSE: MATH 019 Math 119 Support Course **UNITS:** 1.00
LEC HRS: 0.00 **ACTIVITY LAB HRS:** 36.00 **LAB HRS:** 0.00
OUT OF CLASS HRS: 18.00 **TOTAL STUDENT LEARNING HRS:** 54.00
CLASS SIZE: 35 **ONLINE CLASS SIZE:** 35 **LARGE QUOTA:** Yes

CROSS-REFERENCED COURSE:

I. COURSE/CATALOG DESCRIPTION

This course is intended for students to take concurrently with Math 119. Included will be the review of union and intersection of sets, interval notation, solving linear equations for a specified variable, review linear equations, application problems utilizing inequalities, review of properties of exponents, introduction to functions, overview of non-linear functions, review of sigma notation, factoring and binomial theorem. (Nontransferable, nondegree applicable)

II. A. PREREQUISITES, if any:

B. COREQUISITES, if any:

MATH 119

C. RECOMMENDED PREPARATION, if any:

D. RECOMMENDED COMPANION COURSE, if any:

III. GRADING CRITERIA

Pass/No Pass Only

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF "C":

Upon satisfactory completion of the course, students will be able to:

1. Find the union and intersection of sets.
2. Express a solution in interval notation.
3. Use properties of exponents
4. Solve linear equations for a specified variable.
5. Understand and graph linear equations
6. Solve application problems utilizing linear inequalities.
7. Understand functions and their relations.
8. Identity non-linear equations.
9. Use sigma notation.
10. Factor quadratic equations.
11. Understand the binomial theorem.

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

Lab Outline

1. Sets
 - a. Language and notation
 - b. Interval Notation
 - c. Union and Intersection
2. Functions and Relations
 - a. Definition of a function

- b. Function Notation
 - c. Domain and Range of a function
 - d. Find function values from a graph
3. Exponents
- a. Use properties of exponents
4. Linear Equations
- a. Review rectangular coordinate system
 - b. Slope-intercept form of an equation
 - c. Identify x-and y- intercepts
 - d. Find a linear equation from a graph
 - e. Find a linear equation given two points
 - f. Graph linear equations
 - g. Solve linear equations for a specified variable
 - h. Solve application problems utilizing linear inequalities
5. Identify Non-Linear functions, including:
- a. Quadratic
 - b. Logarithmic
 - c. Square Root
 - d. Exponential
6. Radical Expressions
- a. Simplify radical expressions
 - b. Operations on radical expressions
 - c. Rationalize denominator of radical expressions
7. Solve equations
- a. Linear Equations
 - b. Quadratic equations, involving solve by factoring, square root property, complete the square and quadratic formula
 - c. Rational Equations
 - d. Radical Equations
 - e. Exponential Equations
 - f. Logarithmic Equations
8. Non-Linear Inequalities
- a. Simplify radical expressions
 - b. Operations on radical expressions
 - c. Rationalize denominator of radical expressions
9. Sigma Notation
- a. Recognize sigma notation
 - b. Perform operations using Sigma Notation
10. Binomial Theorem

- a. Factor Quadratic Equations
- b. Apply the Binomial Theorem

VI. METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS:

Class Activity

Oral Assignments

Problem Solving Exercise

Quizzes

Skill Demonstration

Written Assignments

VII. INSTRUCTIONAL METHODOLOGY:

Audio Visual

Demonstration

Discussion

Group Activity

Lecture

Distance Learning

VIII. ASSIGNMENTS:

Reading and Writing

Students will be assigned exercises that supplement pre-requisite knowledge for Math 119.

IX. TEXTBOOK(S) AND SUPPLEMENT(S):

No textbooks will be required for the course. Supplemental material will be available for download on canvas.

X. STUDENT LEARNING OUTCOMES:

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Demonstrate problem solving strategies by identifying an appropriate method to solve a given problem, correctly set up the problem, perform the appropriate analysis and computation, and share their interpretation of the conclusion or the outcome, using correct grammar or in an oral presentation. This outcome will be assessed through selected exercises on exams throughout the semester.

XI. ADDENDUM

Distance Education Addendum

Delivery Method:

Online/Web-based

Contact Types and Frequency:

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- Orientation at start of course - Once
- Announcements/Bulletin Boards - Weekly
- Chat Rooms - Weekly or as needed
- Discussion Boards - Weekly or as needed
- Email Communication - As needed
- Online Group Collaboration - As needed
- Scheduled Face-to-Face Meetings - As needed
- Podcasts - As needed
- Virtual Office Hours - Weekly
- Other (describe) - As needed to meet course objectives

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IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE
COURSE OUTLINE-OF-RECORD

DIVISION: Math and Engineering **DATE:** May 13, 2020
COURSE: MATH 042 Math 140 Support Course **UNITS:** 1.00
LEC HRS: 0.00 **ACTIVITY LAB HRS:** 36.00 **LAB HRS:** 0.00
OUT OF CLASS HRS: 18.00 **TOTAL STUDENT LEARNING HRS:** 54.00
CLASS SIZE: 35 **ONLINE CLASS SIZE:** 35 **LARGE QUOTA:** Yes

CROSS-REFERENCED COURSE:

I. COURSE/CATALOG DESCRIPTION

This course is intended for students to take concurrently with Math 140. Included will be the review of rectangular coordinate system; introduction to functions and graphs; factoring polynomials; solving linear and quadratic equations; operations on polynomial, rational and radical expressions. (Nontransferable, nondegree applicable)

II. A. PREREQUISITES, if any:

B. COREQUISITES, if any:
MATH 140

C. RECOMMENDED PREPARATION, if any:

D. RECOMMENDED COMPANION COURSE, if any:

III. GRADING CRITERIA

Pass/No Pass Only

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF "C":

Upon satisfactory completion of the course, students will be able to:

1. Understand functions and relations
2. Factor polynomials
3. Perform operations on rational expressions.
4. Perform operations on radical expressions
5. Graph linear equations and identify x- and y - intercepts
6. Solve linear and quadratic equations

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

Lab Outline

1. Sets
 - a. Language and Notation
 - b. Interval Notation
 - c. Union and Intersection
2. Graph linear equations and the rectangular coordinate system
 - a. Plot points
 - b. Graph linear equations
 - c. Find x-and y-intercepts
 - d. Interpret graphs
 - e. Find domain and range of a graph

3. Functions

- a. Definition of a function
- b. Function Notation
- c. Domain and Range of a function
- d. Find function values from a graph
- e. One-to-one and inverse functions

4. Polynomials

- a. Factor polynomial expressions
- b. Operations on polynomial expressions
- c. Exponents

5. Rational expressions

- a. Simplify rational expressions
- b. Operations with rational expressions
- c. Simplify complex fractions

6. Radical Expressions

- a. Simplify radical expressions
- b. Rationalize denominator of radical expressions

7. Solve Equations

- a. First Degree equations
- b. Quadratic equations, involving factoring, square root property, and the quadratic formula

VI. METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS:

Class Activity

Objective

Oral Assignments

Problem Solving Exercise

Quizzes

Skill Demonstration

Written Assignments

VII. INSTRUCTIONAL METHODOLOGY:

Audio Visual

Demonstration

Discussion

Group Activity

Individual Assistance

Lab Activity

Lecture

**VIII. ASSIGNMENTS:
Reading and Writing**

Students will be assigned exercises to complement the pre-requisite material for Math 140.

IX. TEXTBOOK(S) AND SUPPLEMENT(S):

There are no assigned textbooks for this course. Students will be able to download necessary resources from Canvas.

X. STUDENT LEARNING OUTCOMES:

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Demonstrate problem solving strategies by identifying an appropriate method to solve a given problem, correctly set up the problem, perform the appropriate analysis and computation, and share their interpretation of the conclusion or the outcome, using correct grammar or in an oral presentation. This outcome will be assessed through selected exercises on exams throughout the semester.

**XI. ADDENDUM
Distance Education Addendum**

Delivery Method:

Online/Web-based

Contact Types and Frequency:

This course complies with the [IVC Regular Effective and Substantive Contact Guidelines](#) by providing the following contact types:

- Orientation at start of course - Once
- Announcements/Bulletin Boards - Weekly
- Chat Rooms - Weekly or as needed
- Discussion Boards - Weekly or as needed
- Email Communication - As needed
- Online Group Collaboration - As needed
- Scheduled Face-to-Face Meetings - As needed
- Podcasts - As needed
- Virtual Office Hours - Weekly
- Other (describe) - As needed to meet course objectives

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IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE
COURSE OUTLINE-OF-RECORD

DIVISION: Math and Engineering **DATE:** May 13, 2020
COURSE: MATH 050 Math 150 Support Course **UNITS:** 1.00
LEC HRS: 0.00 **ACTIVITY LAB HRS:** 36.00 **LAB HRS:** 0.00
OUT OF CLASS HRS: 18.00 **TOTAL STUDENT LEARNING HRS:** 54.00
CLASS SIZE: 35 **ONLINE CLASS SIZE:** 35 **LARGE QUOTA:** Yes

CROSS-REFERENCED COURSE:

I. COURSE/CATALOG DESCRIPTION

This course is intended for students to take concurrently with Math 150. Included will be the review of functions, properties of exponents, properties of logarithms, operations on polynomials, rational and radical functions; review and solve linear, quadratic, rational, radical, exponential and logarithmic equations, solve non-linear inequalities, review complex numbers. (Nontransferable, nondegree applicable)

II. A. PREREQUISITES, if any:

B. COREQUISITES, if any:
MATH 150

C. RECOMMENDED PREPARATION, if any:

D. RECOMMENDED COMPANION COURSE, if any:

III. GRADING CRITERIA

Pass/No Pass Only

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF "C":

Upon satisfactory completion of the course, students will be able to:

1. Demonstrate an understanding of functions and relations
2. Understand the laws of exponents and perform operations on exponents
3. Perform operations on polynomial, logarithmic, rational and radical expressions.
4. Solve linear, quadratic, rational, radical, exponential and logarithmic equations
5. Perform operations on rational expressions
6. Solve non-linear inequalities
7. Perform operations on complex numbers

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

Lab Outline

1. Sets
 - a. Language and Notation
 - b. Union and Intersection
 - c. Interval Notation
2. Functions and relations
 - a. Definition of a function
 - b. Function notation
 - c. Domain and Range of a function
 - d. Find function values from a graph

- e. One-to-One and inverse functions
- f. Operations with functions
- 3. Polynomials
 - a. Factor polynomial expressions
 - b. Operations of polynomial expressions
 - c. Exponents
- 4. Exponential and Logarithmic Expressions
 - a. Definitions of exponential and logarithmic functions
 - b. Properties of logarithms
 - c. convert between exponential and logarithmic expressions
- 5. Rational Expressions
 - a. Simplify rational expressions
 - b. Operations with rational expressions
 - c. Simplify complex fractions
- 5. Radical Expressions
 - a. Simplify radical expressions
 - b. Operations on radical expressions
 - c. Rationalize denominator of radical expressions
- 6. Solve Equations
 - a. First Degree equations
 - b. Quadratic Equations, including solve by factoring, square root property, complete the square and the quadratic formula
 - c. Rational equations
 - d. Radical Equations
 - e. Exponential Equations
 - f. Logarithmic Equations
- 7. Non-linear Inequalities
 - a. Simplify radical expressions
 - b. Operations on radical expressions
 - c. Rationalize denominator of radical expressions
- 8. Graph
 - a. Linear Equations
 - b. Quadratic Equations
 - c. Radical Equations
 - d. Exponential Equations
 - e. Logarithmic Equations

VI. METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS:

Written Assignments

Skill Demonstration

Quizzes

Problem Solving Exercise

Oral Assignments

Objective

Class Activity

VII. INSTRUCTIONAL METHODOLOGY:

Lecture

Group Activity

Discussion

Demonstration

Audio Visual

Distance Learning

**VIII. ASSIGNMENTS:
Reading and Writing**

Students will be assigned exercises that focus on mathematical content that is a pre-requisite for Math 150.

IX. TEXTBOOK(S) AND SUPPLEMENT(S):

There are no textbooks required for this course. Students will be able to download supplementary material from a Canvas site.

X. STUDENT LEARNING OUTCOMES:

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Demonstrate problem solving strategies by identifying an appropriate method to solve a given problem, correctly set up the problem, perform the appropriate analysis and computation, and share their interpretation of the conclusion or the outcome, using correct grammar or in an oral presentation. This outcome will be assessed through selected exercises on exams throughout the semester.

**XI. ADDENDUM
Distance Education Addendum
Delivery Method:**

Online/Web-based

Contact Types and Frequency:

This course complies with the [IVC Regular Effective and Substantive Contact Guidelines](#) by providing the following contact types:

- Orientation at start of course - Once
- Announcements/Bulletin Boards - Weekly
- Chat Rooms - Weekly or as needed
- Discussion Boards - Weekly or as needed
- Email Communication - As needed
- Online Group Collaboration - As needed
- Scheduled Face-to-Face Meetings - As needed
- Podcasts - As needed
- Virtual Office Hours - Weekly
- Other (describe) - As needed to meet course objectives

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IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE
COURSE OUTLINE-OF-RECORD

DIVISION: Math and Engineering **DATE:** May 13, 2020
COURSE: MATH 072 Math 170 Support Course **UNITS:** 1.00
LEC HRS: 0.00 **ACTIVITY LAB HRS:** 36.00 **LAB HRS:** 0.00
OUT OF CLASS HRS: 18.00 **TOTAL STUDENT LEARNING HRS:** 54.00
CLASS SIZE: 35 **ONLINE CLASS SIZE:** 35 **LARGE QUOTA:** No

CROSS-REFERENCED COURSE:

I. COURSE/CATALOG DESCRIPTION

This course is intended for students to take concurrently with Math 170. Included will be the solving linear, quadratic, rational, radical, logarithmic and exponential equations; operations on matrices, introduction to functions, operations on polynomials. (Nontransferable, nondegree applicable)

II. A. PREREQUISITES, if any:

B. COREQUISITES, if any:
MATH 170

C. RECOMMENDED PREPARATION, if any:

D. RECOMMENDED COMPANION COURSE, if any:

III. GRADING CRITERIA

Pass/No Pass Only

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF "C":

Upon satisfactory completion of the course, students will be able to:

1. Demonstrate an understanding of functions and relations
2. Demonstrate skills in solving linear, quadratic, rational, radical, logarithmic and exponential equations
3. Demonstrate skills in solving 2 x 2 systems of equations
4. Demonstrate skills in operations on radical expressions

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

Lab Outline

1. Functions
 - a. Definition of a function
 - b. Function Notation
 - c. Domain and Range of a function
 - d. Find function values from a graph
 - e. One-to-one and inverse functions
 - f. Operations with functions
2. Polynomials
 - a. Factor polynomial expressions
 - b. Operations of polynomial expressions
 - c. Exponents

3. Rational Expressions

- a. Simplify rational expressions
- b. Operations with rational expressions
- c. Simplify complex fractions

4. Radical Expressions

- a. Properties of radical expressions
- b. Simplify radical expressions
- c. Properties of radical expressions and operations

5. Exponential and Logarithmic Expressions

- a. Definitions of exponential and logarithmic functions
- b. Properties of logarithms
- c. Evaluate logarithmic functions
- d. Convert between exponential and logarithmic expressions

6. Solve 2 x 2 systems of linear equations by the following methods:

- a. Graphing
- b. Elimination
- c. Substitution

7. Solve Equations

- a. Linear Equations
- b. Quadratic Equations, including solving by factoring, square root property, complete the square, and the quadratic formula
- c. Exponential Equations
- d. Logarithmic Equations
- e. Radical Equations
- f. Rational Equations

VI. METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS:

Class Activity

Mid-Term/Final Exam(s)

Objective

Oral Assignments

Problem Solving Exercise

Quizzes

Written Assignments

Skill Demonstration

VII. INSTRUCTIONAL METHODOLOGY:

Lecture

Audio Visual

Computer Assisted Instruction

Demonstration

Group Activity

Distance Learning

Field Trips

**VIII. ASSIGNMENTS:
Reading and Writing**

Students will be signed appropriate reading and writing exercises to ensure they are able to successfully complete the pre-requisite material necessary for success in Math 170.

IX. TEXTBOOK(S) AND SUPPLEMENT(S):

There are no textbooks required for the course. Course materials will be posted in Canvas.

X. STUDENT LEARNING OUTCOMES:

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Demonstrate problem solving strategies by identifying an appropriate method to solve a given problem, correctly set up the problem, perform the appropriate analysis and computation, and share their interpretation of the conclusion or the outcome, using correct grammar or in an oral presentation. This outcome will be assessed through selected exercises on exams throughout the semester.

**XI. ADDENDUM
Distance Education Addendum
Delivery Method:**

Online/Web-based

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- Announcements/Bulletin Boards - Weekly
- Chat Rooms - Weekly or as needed
- Discussion Boards - Weekly or as needed
- Email Communication - As needed
- Online Group Collaboration - As needed
- Scheduled Face-to-Face Meetings - As needed
- Podcasts - As needed
- Virtual Office Hours - Weekly
- Other (describe) - As needed to meet course objectives

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IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE
COURSE OUTLINE-OF-RECORD

DIVISION: Math and Engineering **DATE:** May 13, 2020
COURSE: MATH 094 Math 190 Support Course **UNITS:** 1.00
LEC HRS: 0.00 **ACTIVITY LAB HRS:** 36.00 **LAB HRS:** 0.00
OUT OF CLASS HRS: 18.00 **TOTAL STUDENT LEARNING HRS:** 54.00
CLASS SIZE: 35 **ONLINE CLASS SIZE:** 35 **LARGE QUOTA:** No

CROSS-REFERENCED COURSE:

I. COURSE/CATALOG DESCRIPTION

This course is intended for students to take concurrently with Math 190. Included will be the review of exponents, operations on polynomial, rational and radical expressions, solving polynomial, rational and radical equations, fundamentals of trigonometric functions. (Nontransferable, nondegree applicable)

II. A. PREREQUISITES, if any:

B. COREQUISITES, if any:
MATH 190

C. RECOMMENDED PREPARATION, if any:

D. RECOMMENDED COMPANION COURSE, if any:

III. GRADING CRITERIA

Pass/No Pass Only

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF "C":

Upon satisfactory completion of the course, students will be able to:

1. Perform operations on polynomial expressions.
2. Perform operations on rational expressions.
3. Perform operations on radical expressions.
4. Graph linear, quadratic and radical functions.
5. Solve linear, quadratic, radical and rational equations.
6. Demonstrate skills in the basic trigonometric concepts, including evaluating trigonometric functions, graphing and fundamental identities.

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

Lab Outline

1. Sets
 - a. Language and Notation
 - b. Union and Intersection
 - c. Interval Notation
2. Polynomials
 - a. Factor Polynomial Expressions
 - b. Operations of polynomial expressions
3. Rational Expressions

- a. Simplify rational expressions
- b. Operations with rational expressions
- c. Simplify complex fractions
- 4. Radical Expressions
 - a. Simplify radical expressions
 - b. Operations on radical expressions
 - c. Rationalize denominator of radical expressions
- 5. Solve equations
 - a. First Degree Equations
 - b. Quadratic Equations, involving solve by factoring, square root property, complete the square, and the quadratic formula
 - c. Rational Equations
 - d. Radical Equations
- 6. Trigonometric Topics
 - a. Angles
 - b. Definition of Trigonometric Functions
 - c. Special Angles
 - d. Fundamental Identities
 - e. Graphs of the basic trigonometric functions

VI. METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS:

Class Activity

Oral Assignments

Problem Solving Exercise

Quizzes

Skill Demonstration

Students will be required to present their ability to communicate mathematically.

Written Assignments

VII. INSTRUCTIONAL METHODOLOGY:

Audio Visual

Computer Assisted Instruction

Demonstration

Discussion

Group Activity

Individual Assistance

Lab Activity

Students will be collaborating and working together to present their problems.

Lecture

Distance Learning

VIII. ASSIGNMENTS:
Reading and Writing

Students will be signed appropriate reading and writing exercises to ensure they are able to successfully complete the pre-requisite material necessary for success in Math 190.

IX. TEXTBOOK(S) AND SUPPLEMENT(S):

There is no text required for this course. Supplemental handouts will be available for download on Canvas.

X. STUDENT LEARNING OUTCOMES:

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Demonstrate problem solving strategies by identifying an appropriate method to solve a given problem, correctly set up the problem, perform the appropriate analysis and computation, and share their interpretation of the conclusion or the outcome, using correct grammar or in an oral presentation. This outcome will be assessed through selected exercises on exams throughout the semester.

XI. ADDENDUM
Distance Education Addendum
Delivery Method:

Online/Web-based

Contact Types and Frequency:

This course complies with the [IVC Regular Effective and Substantive Contact Guidelines](#) by providing the following contact types:

- Orientation at start of course - Once
- Announcements/Bulletin Boards - Weekly
- Chat Rooms - Weekly or as needed
- Discussion Boards - Weekly or as needed
- Email Communication - As needed
- Online Group Collaboration - As needed
- Scheduled Face-to-Face Meetings - As needed
- Podcasts - As needed
- Virtual Office Hours - Weekly
- Other (describe) - As needed to meet course objectives

This course complies with the American's with Disabilities Act Section 508 as described in the [IVC Distance Education Handbook](#)



IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE
COURSE OUTLINE-OF-RECORD

DIVISION: Math and Engineering **DATE:** May 13, 2020
COURSE: MATH 096 Math 192 Support Course **UNITS:** 1.00
LEC HRS: 0.00 **ACTIVITY LAB HRS:** 36.00 **LAB HRS:** 0.00
OUT OF CLASS HRS: 18.00 **TOTAL STUDENT LEARNING HRS:** 54.00
CLASS SIZE: 35 **ONLINE CLASS SIZE:** 35 **LARGE QUOTA:** No

CROSS-REFERENCED COURSE:

I. COURSE/CATALOG DESCRIPTION

This course is intended for students to take concurrently with Math 192. Included will be a review of how to solve polynomial equations; review fundamental trigonometric identities, graph trigonometric, polynomial, rational, logarithmic and exponential functions; simplify algebraic expressions, properties of logarithmic and exponential functions. (Nontransferable, nondegree applicable)

II. A. PREREQUISITES, if any:

B. COREQUISITES, if any:
MATH 192

C. RECOMMENDED PREPARATION, if any:

D. RECOMMENDED COMPANION COURSE, if any:

III. GRADING CRITERIA

Pass/No Pass Only

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF "C":

Upon satisfactory completion of the course, students will be able to:

1. Solve polynomial, rational and radical equations
2. Rewrite trigonometric expressions and verifying trigonometric identities
3. Graph linear, trigonometric, polynomial, rational, logarithmic functions
4. Simplify algebraic expressions
5. Understand properties of logarithms and exponential functions

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

Lab Outline

1. Solve equations
 - a. Polynomial equations
 - b. Trigonometric equations
 - c. Rational equations
 - d. Radical equations
 - e. Exponential equations
 - f. Logarithmic equations
2. Trigonometric functions
 - a. Rewrite trigonometric expressions
 - b. Verify trigonometric identities

3. Graph functions (including the roots of the function)
 - a. Polynomial
 - b. Rational
 - c. Radical
 - e. Logarithmic
 - f. Absolute Value
 - g. Exponential
 - h. Trigonometric
4. Simplify or rewrite expressions
 - a. Algebraic (use the order of operations)
 - b. Trigonometric (use identities to simplify)
 - c. Use logarithmic properties to rewrite logarithmic expression
 - d. Use properties of exponents to rewrite exponential expressions

VI. METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS:

Class Activity

Oral Assignments

Problem Solving Exercise

Quizzes

Skill Demonstration

VII. INSTRUCTIONAL METHODOLOGY:

Audio Visual

Demonstration

Discussion

Group Activity

Lab Activity

Lecture

Distance Learning

VIII. ASSIGNMENTS:

IX. TEXTBOOK(S) AND SUPPLEMENT(S):

No textbooks are required. Materials will be available on Canvas.

X. STUDENT LEARNING OUTCOMES:

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Demonstrate problem solving strategies by identifying an appropriate method to solve a given problem, correctly set up the problem, perform the appropriate analysis and computation, and share their interpretation of the conclusion or the outcome, using correct grammar or in an oral presentation. This outcome will be assessed through selected exercises on exams throughout the semester.

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