

Course Title: IMP-1B (P)

Replacing an existing course? Updating IMP- Course 1B

To be submitted for A-G? Yes

Department Mathematics

Career Path – (if any)

Description of Target Group - IMP-1B is for students who have successfully completed IMP-1A.

Purpose

- a) Length of course: one term/one semester
- b) Units: 5

IMP is a fully integrated, four-year college preparatory sequence of courses in mathematics designed to replace the traditional Algebra I, Geometry, Algebra II sequence. The sequence of topics is herein being rearranged between IMP-1 and IMP-2 in order to allow students to meet state math requirements for graduation in a single course and to facilitate a more natural transition from 8th-grade algebra to IMP-2. All Algebra-1 standards are being moved down into IMP-1. The topics listed below are covered in IMP-1B in a unified fashion, in the context of meaningful larger mathematical problems.

- Relating graphs to their equations (with emphasis on linear and quadratic relationships)
- Solving systems of equations by graphing
- Fitting equations to data, both with and without graphing calculators
- Expressing problem situations in terms of equations and inequalities
- Solving linear equations in one variable
- Solving non-routine equations using graphing calculators
- Understanding and using exponential expressions, including zero, negative and fractional exponents
- Developing and using laws of exponents
- Developing graphical properties of functions of the form $y = a^x$
- Understanding scientific notation and its relationship to the metric system
- Using scientific notation in scientific situations and as an aid in estimation and computation
- Understanding and using significant digits in estimation
- Writing and graphing linear inequalities in two variables
- Discovering the relationship between parallel lines in the coordinate plane and their equations
- Developing and using principles of linear programming
- Developing and using several methods for solving systems of linear equations in two variables
- Developing and using several methods for solving quadratic equations

IMP 1B (P) – continued

Prerequisites – A grade of C or better in IMP-1A.

Standards of Expected Student Achievement

- Problem-solving
 - Working on long-term problems
 - Drawing on diverse knowledge and methods to solve problems
 - Applying appropriate technology to problem solving
 - Posing questions related to a problem
 - Generalizing problems
- Group work
 - Working cooperatively with others
 - Sharing ideas
 - Asking for assistance
 - Subdividing a task so that group members can work independently on different parts of it
- Writing and communication
 - Reading and understanding complex problems
 - Summarizing the essential ideas of a problem
 - Describing methods used to approach a problem
 - Explaining reasoning used in solving a problem
 - Evaluating and improving the quality of written work
 - Making oral presentations

Methods of Assessment of Student Learning

Students will be assessed using a combination of individual and cooperative group tests and quizzes, class work and homework assignments, Problems of the Week, oral presentations and portfolios.

Instructional Materials

Refer to: Secondary Adopted Texts and Approved Supplementary Books Used in the Santa Maria Joint Union High School District

Activities

This course will be presented as determined by the methods and techniques of the instructor and will utilize lecture, demonstration, group work, cooperative learning, investigations, manipulatives, graphing calculators, oral and written communication, study, drills, quizzes, and examinations.