SECTION I

SUBJECT AREA AND COURSE NUMBER

HSEP 400

COURSE TITLE

HSEP FOR MATHEMATICS 1

TYPE COURSE

NON-FEE   BASIC SKILLS

CATALOG COURSE DESCRIPTION

This course introduces and reviews basic math skills including computation of whole and rational numbers, data analysis, mathematical reasoning and problem solving skills. Upon completion and demonstration of competence, students will be prepared to continue instruction in HSEP for Mathematics 2. (FT)

LECTURE/LABORATORY HOURS

90

ADVISORY

NONE

RECOMMENDED SKILL LEVEL

Grade level equivalent in math of 4.0-7.9

INSTITUTIONAL STUDENT LEARNING OUTCOMES

1. Social Responsibility
    SDCE students demonstrate interpersonal skills by learning and working cooperatively in a diverse environment.
2. Effective Communication
    SDCE students demonstrate effective communication skills.

INSTITUTIONAL STUDENT LEARNING OUTCOMES (CONTINUED)

3. Critical Thinking
   SDCE students critically process information, make decisions, and solve problems independently or cooperatively.
4. Personal and Professional Development
   SDCE students pursue short term and life-long learning goals, mastering necessary skills and using resource management and self-advocacy skills to cope with changing situations in their lives.

COURSE GOALS

1. Learn to compute with whole numbers, fractions, and decimals expressed in a variety of forms
2. Learn to use algebra to express quantitative relationships
3. Learn to use units of measure and ratios to convert within and among measurement systems to solve problems
4. Learn to interpret statistics and data, including mean, median, and mode
5. Gain mathematical reasoning skills for problem solving
6. Learn to apply computation and problem-solving skills in life situations
7. Learn to use exponents, powers and roots
8. Learn to solve for perimeter, area, and volume
9. Gain the knowledge and skills needed to pass pre-HSE Math test materials

COURSE OBJECTIVES

1. Compute with whole numbers, fractions, and decimals expressed in a variety of forms
2. Demonstrate ability to use algebra to express quantitative relationships
3. Demonstrate ability to use units of measure and ratios to convert within and among measurement systems to solve problems
4. Interpret statistics and data, including mean, median, and mode
5. Demonstrate ability to use mathematical reasoning to solve problems
6. Apply computation and problem-solving skills in life situations
7. Demonstrate ability to use exponents, powers and roots to solve for perimeter, area, and volume
8. Demonstrate competency on Pre-HSE Math test materials

SECTION II

COURSE CONTENT AND SCOPE

1. Whole numbers, fractions, decimals expressed in a variety of forms
   1.1. Read, write and compare
       1.1.1. Use of place value and scientific notation
   1.2. Add

COURSE CONTENT AND SCOPE

- 1.3. Subtract
- 1.4. Multiply
- 1.5. Divide
- 1.6. Convert
    - 1.6.1. Estimations, computations, and applications
- 1.7. Compute averages
- 1.8. Round whole numbers to tens, hundreds, thousands, and ten thousands
- 1.9. Round off dollars and cents
- 1.10. Calculator
    - 1.10.1. Functions
    - 1.10.2. Usage
    - 1.10.3. Checking computations
- 1.11. Two-step word problems
2. Algebra and functions to express quantitative relationships
    - 2.1. Word expressions and mathematical/algebraic expressions
    - 2.2. One-step and two-step equations
    - 2.3. Two-step linear equations with one variable
    - 2.4. Number line
    - 2.5. Positive and negative integers
        - 2.5.1. Signs
            - 2.5.1.1. Addition, subtraction, multiplication, and division of integers with the same and different signs
    - 2.6. Express and use the order of operations
    - 2.7. Word problems and algebraic equations
    - 2.8. Formulas to calculate
        - 2.8.1. Simple interest
        - 2.8.2. Time
        - 2.8.3. Rate
        - 2.8.4. Distance
        - 2.8.5. Simple geometry
3. Units of measure and ratios to convert within and among measurement systems to solve problems
    - 3.1.1. Use, convert and compute different units of measurement
    - 3.2. Appropriate units of measure
        - 3.2.1. Use ratios to convert within and among measure systems to solve problems
    - 3.3. Formulas for finding the surface area and volume of basic three dimensional figures
    - 3.4. Perimeter, area, and volume
        - 3.4.1. Real life application
4. Simple statistics and data
    - 4.1. Interpretation
    - 4.2. Line graphs, bar graphs, circle graphs and charts to display data

COURSE CONTENT AND SCOPE

    4.3. Mean, median, and mode
    4.4. Data
        4.4.1. Trends and predictions
        4.4.2. Estimate probability
        4.4.3. Bias in surveys and statistics
        4.4.4. Correlations
5. Mathematical reasoning to solve problems
    5.1. How to approach problems
    5.2. Analyze problems
        5.2.1. Identifying relationships
        5.2.2. Distinguishing between relevant and irrelevant information
    5.3. Estimates and justification
        5.3.1. Strategies, skills and concepts in finding solutions
        5.3.2. Estimation to verify the reasonableness of calculated results
6. Computation and problem-solving skills in life situations
    6.1. Consumer economics
    6.2. Convert units of measurement (time, distance, length, volume and weight)
    6.3. Smaller to larger; vice-verse
    6.4. Interpret maps and graphs
    6.5. Estimate costs

APPROPRIATE READINGS

Reading assignments may include, but are not limited to, assigned textbooks, and online resources regarding high school equivalencies related to mathematics for example reading and writing whole numbers, fractions, and decimals.

WRITING ASSIGNMENTS

Writing assignments may include, but are not limited to, solving word problems.

OUTSIDE ASSIGNMENTS

Outside assignment may include, but are not limited to, assigned textbooks pages and online skills practice (i.e. Khan Academy).

APPROPRIATE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING

Assignments which demonstrate critical thinking may include, but are not limited to, practicing critical thinking skills (analysis, synthesis, evaluation) to succeed on tests. An example of an appropriate assignment which demonstrates critical thinking would be solving Math problems in multiple ways and providing explanations of the process.

EVALUATION

1. Formative assessments
2. Student participation
3. Pre-HSE testing materials

Upon successful completion of the course a Certificate of Course Completion will be issued. Upon successful completion of all courses included in the program a Certificate of Program Completion will be issued.

METHOD OF INSTRUCTION

Lectures are supplemented with individualized instruction, class discussion, small group work and a variety of practice, including online materials, and field trips.

This course, or sections of the course, may be offered through distance education.

TEXTS AND SUPPLIES

Number Power 1, Jerry Howett, McGraw-Hill/Contemporary, current version
Contemporary's Pre-GED Math, Contemporary, McGraw-Hill/ Contemporary, current version
Complete Pre-GED Preparation, Steck-Vaughn, current version

PREPARED BY ___Natalie Lindenberg_____   DATE _____

Instructors must meet all requirements stated in Policy 3100 (Student Rights, Responsibilities and Administrative Due Process), and the Attendance Policy set forth in the Continuing Education Catalog.

REFERENCES:

San Diego Community College District Policy 3100
California Community Colleges, Title 5, Section 55002
Continuing Education Catalog