I. GENERAL DESCRIPTION
   A. Approval Date
      March 2010
   B. Department
      Mathematics
   C. Course Number
      MATH E1
   D. Course Title
      Basic Mathematics (Individualized)
   E. Course Outline Preparer(s)
      Kerin Keys, Sara Peterson
   F. Department Chair
      Dennis Piontkowski
   G. Dean
      Tom Boegel

II. COURSE SPECIFICS
   A. Hours
      Conference: 2 weekly (35 total)
   B. Units
      2
   C. Prerequisites
      None
   D. Course Justification
      Students placing into the basic mathematics level have the option of taking either MATH E1 or MATH E3. MATH E1 covers the same content as MATH E3, and thus, students who have successfully completed MATH E3 cannot take MATH E1 for credit. The instructional methodology of MATH E1 is based on self-paced mastery-learning with support from an instructor and tutors. Students who complete this course move on to either MATH 835 Prealgebra or MATH 840 Elementary Algebra.
   E. Field Trips
      No
   F. Method of Grading
      Pass/No pass
   G. Repeatability
      0

III. CATALOG DESCRIPTION
   Arithmetic with an emphasis on applications. Includes operations with whole numbers, fractions, and decimals; representation of numbers on the number line; solving simple equations; applications involving geometry (length, area, perimeter), unit analysis, rates, ratios, average, percent, increase and decrease, and fractional parts of quantities.

IV. MAJOR LEARNING OUTCOMES
   Upon completion of this course a student will be able to:
   A. Perform addition, subtraction, multiplication, and division with whole numbers, fractions, and decimals using standard algorithms.
   B. Convert numbers between fraction, decimal, and percent representations.

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C. Compare numbers in fraction and decimal forms.
D. Locate whole numbers, fractions, and decimals on a number line.
E. Solve for missing numbers in addition and multiplication statements.
F. Translate between verbal and mathematical statements, representing unknown quantities symbolically.
G. Solve single- and multi-step applied problems that use the numerical concepts underlying outcomes A through F above.
H. Demonstrate problem-solving reasoning using clear, organized steps.
I. Demonstrate effective learning skills

V. CONTENTS
A. Number representations
   1. Place value and rounding for whole numbers and decimals
   2. Interpretation of fractions as parts of a whole, as division, and as ratios
   3. Equivalent fractions
      a. Conversion between improper fraction and mixed number forms
      b. Reduction of fractions to lowest terms or raising to higher terms
   4. Conversion of numbers between fraction, decimal, and percent forms
   5. Comparison of numbers in multiple forms (fraction, decimal, percent)
B. Computation
   1. Addition, subtraction, multiplication, and division with whole numbers
   2. Addition, subtraction, multiplication, and division with fractions
   3. Addition, subtraction, multiplication, and division with decimal numbers
   4. Prime factorization
   5. Least common multiple
C. The number line
   1. Location of whole numbers, fractions, and decimal numbers on the number line
   2. Calculation of distances on the number line
D. Verbal, numerical, and symbolic representation of mathematical ideas
   1. Translation of verbal statements into arithmetic statements and vice versa
   2. Representation of unknown quantities symbolically in arithmetic statements
   3. Use of appropriate arithmetic operations to model real-world situations
E. Problem solving
   1. Use of a generalized problem solving process to solve application problems
   2. Application of math concepts to solve problems from the following areas:
      a. Unit analysis
      b. Geometry (including length, perimeter, and area)
      c. Separating a quantity into equal parts
      d. Rate problems
      e. Ratios
      f. Fractional part of a quantity
      g. Total as the sum of parts
      h. Increase and decrease
      i. Average
      j. Percent problems
   3. Problems involving two or more operations
F. Reading, writing, and speaking mathematics
1. Use of the textbook as a resource for concept and procedural understanding
2. Correct use of mathematical terminology and notation
3. Problem solutions that are clear, organized, and show logical steps
4. Statement of answers in the context of the problem

G. Learning skills
1. Following instructions
2. Completion of assignments in a timely manner
3. Regular class attendance
4. Application of study strategies and test-preparation strategies that are reinforced in the classroom
5. Using academic support services such as the Math Lab
6. Development of self-assessment skills

VI. INSTRUCTIONAL METHODOLOGY
A. Assignments
1. Homework assignments designed by the Math Lab faculty coordinator that require reading the textbook, doing calculations, and solving problems are to be completed at each student's own pace
2. Supplemental worksheet assignments are given for both in-class and out-of-class use when focus on particular skill development is needed

B. Evaluation
1. Diagnostic tests that measure each student's entry skill level
2. Repeatable chapter tests designed by the Math Lab faculty coordinator, and graded uniformly across all sections that measure both conceptual understanding and computational competency, taken by students after satisfactory completion of the corresponding homework assignments, and must be passed at 80% before proceeding to the next chapter assignment
3. Repeatable final exam designed by the Math Lab faculty coordinator including computational and problem-solving questions from all chapters taken by students after satisfactory completion of all chapter testing and the final exam preparation assignment must be passed at 80%

C. Textbooks and other instructional materials
2. The Mathematics Department's textbook list indicates the current textbook
3. No calculators are allowed
4. Math Lab

VII. TITLE 5 CLASSIFICATION
CREDIT/NON-DEGREE APPLICABLE (meets all standards of Title 5, Section 55002(b)).