

## **14001 Basic Mathematical Concepts I (4)**

Learning Outcomes for Basic Math Concepts I (MATH 14001)

### Knowledge

Students should be able to define the number systems contained within the set of real numbers . They will also be able to define the various symbols used in logic and with different number bases.

### Comprehension

Students should be able to understand the concepts necessary to add, subtract, multiply and divide within the sets of numbers. They will also be able to understand the properties within the sets of numbers to appreciate the sophistication and development of the real numbers.

### Application

Students will apply their understanding of the four basic operations to solve problems. They will also use truth tables to determine whether logical arguments are valid or invalid. They will apply their understanding of the number properties to solve problems efficiently.

### Analysis

Students will use Venn diagrams to determine the validity of DeMorgan's laws. They will appraise their current understanding of the subsets of the real number system and identify prior misconceptions. They will listen to each other's explanations and try to make sense of them.

### Synthesis

Students will integrate skills that were developed in Basic Algebra courses to solve word problems. They will also use these problem solving skills to develop appropriate strategies for finding solutions to more involved problems.

## Evaluation

Students will find algebraic solutions to problems and evaluate various solution methods to find an efficient approach. Students will also use truth tables to determine when statements are logically equivalent.

## Class Activities

Students will work in cooperative groups to discuss the validity of statements and other topics so that a consensus of class understanding can be determined. They will discuss topics beginning with concrete objects then move to a pictorial and then an abstract discussion of topics. At each level they will endeavor to make sense of the concept.

## Out of Class Activities

Students will have homework assignments that allow them to show their understanding of the concepts discussed in class and in the book. These assignments will be collected periodically and the instructor will randomly check problems to determine if sufficient understanding is demonstrated.