Course Objectives/Course Outline
Spokane Community College

Course Title: Computer Math
Prefix and Course Number: MATH 104

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Understand and apply basic computer math principles for networking and software development.
- Perform order of operations on integers, decimals, and fractions.
- Apply properties of exponents to simplify expressions involving integer and rational exponents.
- Simplify radicals.
- Convert to and from scientific notation.
- Perform operations using scientific notation.
- Translate English phrases into mathematical symbols and statements.
- Understand and solve application problems.
- Understand, interpret, and evaluate Boolean logic operators and statements.
- Perform number system conversions between decimal, binary, octal, and hexadecimal.
- Perform arithmetic operations with binary numbers.
- Define a bit, a nibble, and a byte.
- Graphically display data.
- Understand and use coordinate systems.
- Use formal methods to problem solve.

Course Outline:

I. Algebra Fundamentals
   A. Roots, Powers and Exponents
   B. Fractions and Literal Numbers
   C. Equations and Formulas
   D. Zero and Order of Operations
   E. Scientific Notation Linear Equations
   F. Factoring Algebraic Expressions
   G. Fractional Equations
   H. Transposition
   I. Understand, convert and solve story problems

II. Boolean Logic
   A. Premise and necessity of Logic
   B. Arguments
   C. Understand and apply the Boolean operator AND
   D. Understand and apply the Boolean operator OR

III. Numbering Systems
   A. Understanding Base 10, Base 2, Base 8 and Base 16 numbering system
   B. Convert hexadecimal and binary to decimal
   C. Convert decimal to hexadecimal and binary
   D. Convert hexadecimal to binary using nibbles
   E. Bit shifting

F. Understand a bit, a nibble, and a byte
G. Decimal and binary prefixes and powers of 10

IV. Data
- A. Data Types
  - i. Bit, bite, word, double word, integer, string
- B. How to show data through graphing 6-3
- C. Coordinate systems and graphing
- D. Substitution of Data into Formulas

V. Troubleshooting/Problem Solving
- A. Use formal methods to troubleshoot/problem solve
- B. Break down complex problems into several easier problems
- C. Verify the solution to a problem
- D. Diagrams
  - i. Use graphic, charts, graphs, flowcharts, etc. in problem solving
  - ii. Create a useful diagram
  - iii. Follow a diagram for troubleshooting
- E. Apply Mathematical logic in troubleshooting/problem solving