I. **Course Title:** Programming for Mathematics, Science, and Engineering

II. **Course Prefix/Number:** CSCI 210

III. **Credit Hours:** 3.0

IV. **Prerequisite(s):** MATH 106 with a minimum grade of C- OR MATH 107 with a minimum grade of C-.

V. **Catalog Description:**

Covers the fundamentals of programming in a language widely used in mathematical, scientific, and engineering disciplines. The programming language may vary each time the course is offered. Examples of languages that may be used in the course include C++, Python, and MatLab.

VI. **Curricular Relationships:**

This course is designed for anyone interested in scientific, mathematical or engineering programming. It is a recommended course in the pre-engineering program.

VII. **Student Learning Outcomes:**

- Students will demonstrate proficiency in writing, debugging, and executing programs.
- Students will be to define and implement the finer points of structured program design and development.
- Students will understand the concepts of variables, data types, expressions, and assignment.
• Students will demonstrate problem solving proficiency at the appropriate level as it applies to basic software development.

• Students will be aware of programming language constructs that can lead to security problems and how to avoid them.

VIII. Content Outline:

• Orientation to tools such as editors and compilers
• Data Types
• Assignment
• Mathematical and Logic Operators
• Control Structures
• Branching
• Functions
• Data Structures
• Objects and Object-Oriented Programming
• GUI Applications
• Functional Programming Paradigms (if appropriate to the language)
• File Handling
• Exceptions
• Secure Programming

IX. Course Procedures/Policies/Grading Scale:

• Homework is assigned on a regular basis
• Programming assignments will comprise a significant percentage of the student’s grade.
• At least two regular examinations are given along with a comprehensive final

X. Required/Recommended Readings:

Textbooks will vary depending on the language used for the course. Example texts include:


**XI. Issues Unique to Course:** The course requires significant programming time outside of class.

**XII. Additional Departmental Issues:** None.