Virginia Western Community College
EGR 126
Computer Programming for Engineers

Co-requisites
MTH 116 or equivalent

Course Description
Introduces computer, their architecture and software. Teaches program development using flowcharts. Solves engineering problems involving programming in languages such as FORTRAN, PASCAL, or C++.

Semester Credits: 3 Lecture Hours: 3 Lab/Recitation Hours: 0 Hours

Required Materials

Textbook:
C++ for Engineers and Scientists, 4th ed. , Author: Bronson, Cengage Learning, ISBN# 978133187844

The following supplementary materials are available:

1. Microsoft Visual Studio 2017 available online and in computer labs
2. Word software available in computer labs (.doc or .docx files)

VIRGINIA WESTERN COMMUNITY COLLEGE
School of Science, Technology, Engineering and Mathematics
(540)-857-7273

3097 Colonial Ave. SW
Roanoke, VA 24015

Course Outcomes

At the completion of this course, the student should be able to:

- Understand basic computer architecture
- Understand basic binary mathematics
- Examine the range of computer programming languages
- Understand the professional computer software design process
- Understand and use the tools available for computer software programming
- Understand and use computer software programming structures including class structures in C++
- Write C++ programs using its range of programming structures
- Debug C++ programs
- Understand how to translate engineering applications into C++ programs

Topical Description

(Chapter by Week in "C++ for Engineers and Scientists" Subject to Change)

Week #	Topic	Ch.
1	Introduction, Assignment, Formatting	1,2,3
2	Selection, Repetition	4,5
3	Functions	6
4	Arrays	7
5	Arrays Part 2	7
6	Mid Term (Ch. 2 - 7)	No Lecture
7	File Input, Output	8
8	Strings, Characters	9
9	Pointers	10
10	Classes, Part 1	11
11	Classes, Part 2	11, 12
12	Classes Part 3	12
13	Structures	13
14	Numerical Methods	14
15	Review	
16	Final, Comprehensive	

Notes to Instructors

1. This course includes a capstone software project (20%) for all students.
2. Weekly quizzes, a mid-term and a final exam (15%) are provided.
3. Software exercises are performed in class during the semester to emphasize major software topics.
4. Homework is submitted electronically to Blackboard on a weekly basis.