

ECE 118 Introduction to Programming
3 credits
Required for EE and CE

Contact hours: Three 50 minute lectures per week OR two 75 minute lectures per week

Course Instructor or Coordinator: Stephen Murrell

21st September 2017

Textbook: C++ programming: Program design including data structures, D. S. Malik, Course Technology inc., ISBN 1337102083, 2017

Other supplementary material:

- a. Class web site, <http://rabbit.eng.miami.edu/class/een118>

Special for fall 2017:

Last class day: 19th December (sections R and RC)

Final examination: 12th December (sections R and RC)

2017-2018 University of Miami Academic Bulletin Description: Introduction to computing, problem solving, program design, C++ language fundamentals, and software engineering principles. Software design projects are included.

Prerequisites or co-requisites: None

Specific outcomes of instruction: The student will:

1. Understand the fundamental concepts of computer systems.
2. Know and understand the fundamentals of programming, algorithms, data, and software engineering.
3. Be able to program in C++.
4. Have hands-on experience in problem solving and software design.

Topics

1. Graphical programming in a windowing environment
2. Text-mode programming in a unix environment
3. C++: Functions, constants, local declarations, recursive design
4. C++: Strings, arrays, objects
5. C++: Variables and loops
6. C++: Input and output - graphical, iostreams, files
7. Structured design: blocks, locality, pure functions
8. Modular design: abstraction, independence
9. Data visualization, interactive graphics
10. Simulation and modelling
11. Searching and sorting, managing data collections
12. Algorithms and specifications
13. Timing: function and algorithm speed estimation and analysis
14. Data representation, types, declarations, scope

Student outcomes strongly addressed by the course:

