

# CIS 328 – C++ Programming II

## Course Description

This course covers advanced topics in the C++ object-oriented programming language. Students will test, document and design business-oriented programs and solve advanced programming problems. Topics include data structures, recursion, design patterns, memory management and exception handling.

## Instructional Materials

Horstmann, Cay S., Budd, Timothy A. (2009). *Big C++* (Chapters 10-24), (2nd ed.). Chichester, U.K.: Wiley.

## Course Learning Outcomes

1. Review, discuss and apply the method of recursion.
2. Compare and contrast recursive with iterative programming problem solving approaches.
3. Compare selection sort and merge sort algorithms.
4. Discuss the use and significance of linked lists.
5. Differentiate among list, queues and stack data types.
6. Understand the different types of operators.
7. Demonstrate the ability to implement overloaded operators in classes.
8. Design and use constructors and destructors.
9. Discuss how the memory management system operates.
10. Design and define template classes and functions.
11. Design approaches that manage exception handling conditions.
12. Discuss the use of name management techniques and mechanisms in C++.
13. Demonstrate the ability to group classes into a class hierarchy.
14. Demonstrate the ability to use the Standard Template Library (STL).
15. Demonstrate an understanding of object-oriented design as part of the software lifecycle.
16. Demonstrate the ability to use graphic notations to address solve a business problem using the Unified Modeling Language.
17. Compare and contrast common design patterns.
18. Research issues in forthcoming revisions of the C++ programming language.
19. Use technology and information resources to research issues in advanced C++ Programming.
20. Write clearly and concisely about advanced C++ Programming topics using proper writing mechanics and technical style conventions.