BRONX COMMUNITY COLLEGE
of the City University of New York
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

SYLLABUS: CSI 32 Introduction to Computer Programming II.   3 credits/4 hours.

PREREQUISITE: CSI31 or department permission, ENG02 and RDL02 if required.

TEXT: *C++ How to Program, Tenth Edition*, by P. Deitel and H. Deitel, 2017.

Content: Continuation of CSI 31, Introduction to object-oriented programming including encapsulation, polymorphism and inheritance; class templates; recursion and recursive analysis; analysis of algorithms; program style; documentation of programs; debugging; development of major projects.

Objectives: By the end of this course the successful student will be able to work in the language C++ to:

(1) Program with the object-oriented concepts classes, objects, data members, member functions and create classes;
(2) Use pointers and built-in arrays;
(3) Access class members and learn the order of constructor and destructor calls;
(4) Use operator overloading;
(5) Understand polymorphism, inheritance, use constructors and destructors in inheritance hierarchies;
(6) Use C++ object-oriented stream input/output operations;
(7) Build C++ programs that create, update and process data files;
(8) Understand Exception Handling, use try, catch and throw;
(9) Program with Linked lists;
(10) Implement various sorting algorithms;
(11) Be familiar with C Legacy topics.

Day	Section	Topic	Suggested Homework
1	1.6-1.15, 2.1-2.8	Introduction to C++ Programming, Input/Output and Operators	2.20, 2.24, 2.25, 2.26, 2.28
2	4.1-4.9, 5.1-5.8	Algorithm Development, Control Statements	4.11, 4.17, 4.28, 5.14, 5.17, 5.30
3	6.1-6.15	Functions	6.17, 6.18, 6.23, 6.28, 6.29
4	6.16-6.21, 7.1-7.11	Recursion, Array and Vector, Catching Exceptions	6.34, 6.41, 7.21, 7.24, 7.32
5	8.1-8.12	Pointers	8.8, 8.12
6	3.1-3.7	Introduction to Classes, Objects, Member Functions and Strings	3.10, 3.11, 3.12
7		**Exam 1**	
8	9.1-9.7	Classes: A Deeper Look 1	9.6, 9.11, 9.12, 9.13
9	9.8-9.16	Classes: A Deeper Look 2	9.19, 9.24, 9.25
10	10.1-10.4	Operator Overloading 1	10.8, 10.9
11	10.5-10.8	Operator Overloading 2	10.10, 10.12
12	11.1-11.3	Object-Oriented Programming: Inheritance 1	11.6
13	11.4-11.6, 23.7	Object-Oriented Programming: Inheritance 2, Multiple Inheritance	11.7, 11.8
14		**Exam 2**	
15	12.1-12.4	Object-Oriented Programming: Polymorphism	12.12
16	13.1-13.5	Stream Input/Output: A Deeper Look 1	13.6, 13.8, 13.12
17	13.6-13.10	Stream Input/Output: A Deeper Look 2	13.15, 13.16, 13.17
18	14.1-14.5	File Processing 1	14.3, 14.5, 14.6
19	14.6-14.15	File Processing 2	14.10

Day	Section	Topic	Suggested Homework
20	17.1-17.5	Exception Handling: A Deeper Look 1	17.22, 17.23
21	17.6-17.11	Exception Handling: A Deeper Look 2	17.24, 17.28, 17.29
22		**Exam 3**	
23	19.1-19.3	Linked Lists	19.6, 19.7, 19.8, 19.9
24	20.1-20.2	Linear Search, Binary Search	20.8, 20.9
25	20.3	Sorting Algorithms	20.5
26	23.4, Appendix F	Namespaces, C Legacy Code Topics	23.4, 23.5, F.2, F.3, F.7
27		Review	
28		Review	

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