

**STATE UNIVERSITY OF NEW YORK  
COLLEGE OF TECHNOLOGY  
CANTON, NEW YORK**



**MASTER SYLLABUS**

**CYBR/CITA 180 – INTRODUCTION TO PROGRAMMING**

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**SCHOOL OF SCIENCE, HEALTH AND CRIMINAL JUSTICE  
CENTER FOR CRIMINAL JUSTICE, INTELLIGENCE AND CYBERSECURITY  
FALL 2022**

- A. **TITLE:** Introduction to Programming
- B. **COURSE NUMBER:** CYBR/CITA 180
- C. **CREDIT HOURS:** 4
- 4 hours of lecture per week
- D. **WRITING INTENSIVE COURSE:** No
- E. **GER CATEGORY:** None
- F. **SEMESTER(S) OFFERED:** Fall/Spring
- G. **COURSE DESCRIPTION:** This course develops methodologies and techniques for program creation and implementation. Writing high quality, internally documented, well structured programs utilizing appropriate data structures is emphasized. Although the primary language for demonstrating programming theory is C, the various techniques will also be presented using several different languages to show the commonality of the theories.
- H. **PRE-REQUISITES/CO-REQUISITES:**
- a. Pre-requisite(s): CITA152 Computer Logic
  - b. Co-requisite(s): none
  - c. Pre- or co-requisite(s): none
- I. **STUDENT LEARNING OUTCOMES:**

By the end of this course, the student will be able to:

| <b><u>Course Student Learning Outcome [SLO]</u></b>   | <b><u>PSLO</u></b>   | <b><u>ISLO</u></b>     |
|---|--|------------------------|
| a. Design algorithms to solve application problems  | 3. Demonstrate a solid understanding of the methodologies and foundations of IT  | 5                      |
| b. Use appropriate data structures to represent problem solutions                           | 3. Demonstrate a solid understanding of the methodologies and foundations of IT  | 5                      |
| c. Differentiate between local and global constants and variables                           | 3. Demonstrate a solid understanding of the methodologies and foundations of IT  | 5                      |
| d. Create functions / methods which require either address or reference arguments           | 3. Demonstrate a solid understanding of the methodologies and foundations of IT  | 5                      |
| e. Apply decision constructs, such as IF-statements, to problem-solving                     | 3. Demonstrate a solid understanding of the methodologies and foundations of IT  | 5                      |
| f. Use iterative constructs, such as WHILE and FOR, to solve problems                       | 3. Demonstrate a solid understanding of the methodologies and foundations of IT  | 5                      |
| g. Work individually and in teams to design and implement solutions to programming problems | 2. Identify issues and collaborate on solutions concerning IT in an effective and professional manner<br>4. Apply problem solving and troubleshooting skills | 2[CA, PS]<br>4[T]<br>5 |

**J. APPLIED LEARNING COMPONENT:**

Yes X

No \_\_\_\_\_

- Classroom/Lab

K. **TEXTS:** None

L. **REFERENCES:** Various online resource such as SUNY Canton Library Books24x7  
ITPro Book Database

M. **EQUIPMENT:** Computer lab classroom

N. **GRADING METHOD:** A-F

O. **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

- Exams
- Assignments

P. **DETAILED COURSE OUTLINE:**

I. Problem Solving Techniques and Algorithm Development

- A. Steps in problem solving
- B. On the use of algorithmic notation
- C. Pseudo-code notation

II. Functions

- A. Declarations and definitions
- B. Parameters and arguments
- C. Various argument passing methodologies

III. Selection constructs

- A. Boolean expressions
- B. Format of selectors

IV. Iterative constructs

- A. While constructs
- B. For constructs
- C. Sentinel considerations

V. File I/O

- A. Types of file
- B. Declarations
- C. Using multiple input/output files

VI. Structures and Classes

- A. Definition
- B. Common uses
- C. Public/private components in structures
- D. Accessory functions

Q. **LABORATORY OUTLINE:** N/A