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

MASTER SYLLABUS

CITA 180 – Introduction to Programming
CIP Code: 11.0201

Created by: Robert House
Updated by: Thomas Burl

Canino School of Engineering Technology
Decision Systems

A. **TITLE**: Introduction to Programming

B. **COURSE NUMBER: CITA 180**

C. **CREDIT HOURS (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity):**

    # Credit Hours: 4
    # Lecture Hours per Week:
    # Lab Hours per Week:
      Other per Week:

    Course Length (# of Weeks): 15

D. **WRITING INTENSIVE COURSE**:

E. **GER CATEGORY:**

F. **SEMESTER(S) OFFERED:** Fall/Spring

G. **COURSE DESCRIPTION:**
In this course, students will learn the fundamentals of programming problem-solving with algorithms. Students will learn how to work work with variables to store information for later use. Student will put the following coding structures into play – sequential, decision, and repetition to solve a problem. Students will then focus on the reuseability of code with methods and modules.

H. **PRE-REQUISITES/CO-REQUISITES:**

    a. Pre-requisite(s): CITA 152
    b. Co-requisite(s):
    c. Pre- or co-requisite(s):

I. **STUDENT LEARNING OUTCOMES:**

Course Student Learning Outcome [SLO]	*PSLO*	*GER*	*ISLO*
a. design an algorithm to solve a problem	5		[2], [5]
b. identify appropriate data structures to implement in the algorythm	7		[2], [5]
c. implement local and global variables	7		[2], [5]
d. develop methods and modules to support specific and generic solutions	7		[2], [5]
e. implement program constructs (If and Loop statement) to support the solution	7		[2], [5]
f. implement a class	7		[2], [5]

KEY	Institutional Student Learning Outcomes [ISLO 1 – 5]
ISLO #	ISLO & Subsets
1	**Communication Skills** Oral [O], Written [W]
2	**Critical Thinking** *Critical Analysis [CA] , Inquiry & Analysis [IA] , Problem Solving [PS]*
3	**Foundational Skills** *Information Management [IM], Quantitative Lit,/Reasoning [QTR]*
4	**Social Responsibility** *Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]*
5	**Industry, Professional, Discipline Specific Knowledge and Skills**

J.   APPLIED LEARNING COMPONENT: Yes_____   No_____

If Yes, select one or more of the following categories:

Classroom/Lab___   Civic Engagement___
Internship___   Creative Works/Senior Project___
Clinical Practicum___   Research___
Practicum___   Entrepreneurship___
Service Learning___   (program, class, project)
Community Service___

K.   TEXTS:
The C Programming Language, Brian W. Kernighan and Dennis M. Ritchie, http://citeseer.ist.psu.edu/viewdoc/download?doi=10.1.1.126.4437&rep=rep1&type=pdf&ei=Zc-oTuDCDOLj0QHI9vSWDg&usg=AFQjCNHhHGkz21dQ1FHDdmlqOrGGMrcKiA
The Practice of Programming, Kernighan and Pike, http://asaha.com/download/DNDg2Mw--

C Puzzle Book, Alan R. Feuer, http://www.4shared.com/document/5cBlBLhr/The_C_Puzzle_Book.html

L.   REFERENCES:
The Basics of C Programming, Marshall Brain, http://www.howstuffworks.com/c.htm#

C Programming Language, DI Management, http://www.di-mgt.com.au/cprog.html

Programming Tutorials: C++ Made Easy and C Made Easy, Cprogramming.com, http://www.cprogramming.com/tutorial.html#ctutorial

M.   EQUIPMENT:
Computer class room

N. <u>**GRADING METHOD**</u>**: A-F**

O. <u>**SUGGESTED MEASUREMENT CRITERIA/METHODS**</u>**:** **programming assignments, exams, and quizzes**

P. <u>**DETAILED COURSE OUTLINE**</u>**:**

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. Accessor functions

Q. <u>**LABORATORY OUTLINE**</u>**:**