Course Discipline and Number: CSCI 160	**Year: 2018-2019**
Course Title: Computer Science I	**Credit Hours: 3**

Attendance Policy: *To maintain good grades, regular attendance in class is necessary. Absence from class is considered a serious matter and absence never excuses a student from class work. It is the responsibility of all instructors to distribute reasonable attendance policies in writing during the first week of class. Students are required to comply with the attendance policy set by each of their instructors. Students are not penalized if they are unable to attend classes or participate in exams on particular days because of religious beliefs, in accordance with Chapter 161, Section 224-a of the Education Law of the State of New York. Students who plan to be absent from classroom activity for religious reasons should discuss the absence in advance with their instructors. See college catalog for more information.*

Services for Students with Disabilities: *It is the College's policy to provide, on an individual basis, appropriate academic adjustments for students with disabilities, which may affect their ability to fully participate in program or course activities or to meet course requirements. Students with disabilities should contact the Coordinator of Access and Equity Services, to discuss their particular need for accommodations. All course materials are available in alternate formats upon request.*

Course Description
This course introduces students to computer programming in order to solve problems and process information. Topics include variables, data types, algorithms, decisions, repetition, files, arrays and modules using a common programming language. Students may not apply credit for both CIS 108 and CSCI 160 toward degree requirements. Prerequisites: Prior completion or concurrent enrollment in MATH 120 or MATH 122, or three years of high school math including trigonometry; RDNG 099 if required by placement testing; ENGL 099 or prior completion or concurrent enrollment in ESL 120, 121, and 122 (or prior completion of ESL 103) if required by placement testing. 3 Cr. (2 Lec., 2 Lab.) Fall semester.

Course Context/Audience
This is a required first course in the Computer Science A.S. degree program and a prerequisite course for CSCI 165, Computing Fundamentals. It is also the required programming course in the Engineering Science A.S. degree program. Students in the Liberal Arts Math/Science degree program may use it to fulfill a math/science or an unrestricted elective requirement. Other students with interest in the subject may choose to take it as a liberal arts and sciences or unrestricted elective requirement. Students taking the course will become familiar with computer concepts and learn to program in a simple language. No previous programming experience is required.

Basic Skills/Entry Level Expectations

Writing: W2 Student should have completed ENGL 099 (if needed). The course requires short written responses and/or short papers without documentation, particularly personal reflection or narrative.

Math: MC College level math skills – Course requires college level math skills. See course description for co-requisite and/or prerequisite requirement(s).

Reading: R2 Before taking this course, students must have a C or better in RDNG 099 or assessment indicating that RDNG 099 was not required.

Course Goals
By successfully completing this course, the student will
1. Become proficient in designing, coding, testing, and debugging computer programs.
2. Learn basic concepts and principles of the discipline of computer science to build a foundation for further study.
3. Become aware of the historical and ethical issues in the field of computer science.
4. Develop problem solving techniques and algorithmic development used in programming.
5. Develop good programming style and basic control structures of a programming language.
6. Understand event-driven programming and visual objects.
7. Develop computer lab skills.

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Course Objectives/Topics

Objective/Topic	# Hours
Introduction to computer programming - History, Social, and Ethical Considerations of Computing	5 Hours
Writing and Running Simple ~~VB~~ Programs, ~~Visual~~ Objects and ~~VB~~ Events	5 Hours
The fundamentals of a program - data types, arithmetic operations, i/o, string and numeric functions, formatting output	9 Hours
Making Decisions -The IF and Case Statements	9 Hours
Repetitions - Do While and For Loops	9 Hours
Procedures and Top-Down Design - Functions and Sub procedures	9 Hours
Arrays - One and Two-Dimensions, files	14 Hours

General Education Goals - Critical Thinking & Social/Global Awareness

CRITICAL THINKING OUTCOMES	HOW DOES THE COURSE ADDRESS THE OUTCOMES (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
Students will be able to ➤ develop meaningful questions to address problems or issues. ➤ gather, interpret, and evaluate relevant sources of information. ➤ reach informed conclusions and solutions. ➤ consider analytically the viewpoints of self and others.	Students will be introduced to common problem solving methodologies. Demonstration of problem solving approaches and preparation prior to developing a solution should be included. Through the lab exercises students will practice and develop problem solving skills. Students will be introduced to online knowledge bases and shown techniques for implementing previously written modules. Students will be walked through demonstrations from start to finish that encompass all areas of the software development life cycle. Various solutions to problems will be presented and discussed in class. Students are encouraged to share viewpoints and approaches to problem solving. In class lab collaborations as well as encouraging students to share approaches during lectures should be incorporated into the course.
SOCIAL/GLOBAL AWARENESS OUTCOMES	HOW DOES THE COURSE ADDRESS THE OUTCOMES (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)

➤ Students will begin to understand how their lives are shaped by the complex world in which they live.	Topics, including software internationalization will be presented and discussed. Current language encoding schemes employed in modern software engineering will be presented. There will be discussions of necessary software and hardware requirements for a language portable system.
➤ Students will understand that their actions have social, economic and environmental consequences.	Students will be encouraged to collaborate during lab exercises. The concept of creating solutions to maximize efficiency of various common business tasks will be presented. There will be discussions of common business tasks and how software can contribute to streamlined functionality. Handouts and other class materials will be distributed electronically rather than on paper.

Instructional Methods

There is a weekly lab for which the instructor should require students to submit a report that is graded. Class sections should include lectures, questions and some group work.

Methods of Assessment/Evaluation

Method	% Course Grade
Testing - 3 or 4 exams or a Midterm, final and quizzes	50%
Other (short paper, homework, etc.)	5%
Weekly Lab reports	25%
Outside programming assignments	20%

Text(s)

Absolute Java 5th Edition by Walter Savitch, Pearson Prentice Hall, 2010, ISBN **978-0132834230**
Java Programming: Wiki Books Edition: http://en.wikibooks.org/wiki/Java_Programming

Bibliography

1. Python Programming: An Introduction to Computer Science: John Zelle 2010 Franklin, Beedle and Associates

2. C++ Programming: From Problem Analysis to Program Design, Sixth Edition by D.S. Malik, Course Technology, 2013

3. An Introduction to Programming Using Visual BASIC 2012 (Ninth Edition) *by David Schneider;* Prentice Hall: 2013

Other Learning Resources

Audiovisual: No resources specified
Electronic: No resources specified
Other: When requested, a student compiler comes with the text. TC3 is a member of the Microsoft Alliance.