

# CSIT 165: PROGRAMMING I

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## 1. Course Information

**Subject**

CSIT - Computer Science/ Information Technology

**Course Number**

165

**School**

Science, Technology, Engineering, Mathematics

**Course Title**

Programming I

## 2. Hours

**Semester Hours**

4.00000

**Lecture**

4

**Lab**

0

**Practicum**

0

## 3. Catalog Description

**For display in the online catalog**

This course introduces the student to the fundamental techniques used in the development of software applications. The course teaches object-oriented programming concepts and principles using Java employing an interactive visual system interface. Students will learn good object-oriented practices through the development of graphic programs and simulations using sound object-oriented practices in an integrated and interactive software development environment. The topics covered include classes, objects, object interaction, algorithms, data types, control structures, one-dimensional arrays, attributes, methods, and messages. Working knowledge of windows required. Open lab time required.

## 4. Requisites

**Prerequisites**

MATH-012 or MATH 023 with grade of C or higher, or Mathematics placement requiring no remediation. ENGL 095 with grade of C or higher, or English placement requiring no remediation.

**Corequisites**

NONE

## 5. Course Type

**Course Fee Code**

3

**Course Type for Perkins Reporting**

non-vocational (not approved for Perkins funding)

## 6. Justification

**Describe the need for this course**

This is a required course in all Computer Science degree programs.

This course addresses two key topics addressed by the Association for Computing Machinery (ACM).

i. Finding new and better ways of teaching programming

ii. Trying to place computing in a context that would serve to motivate and inspire students

## 7. General Education

**Will the college submit this course to the statewide General Education Coordinating Committee for approval as a course, which satisfies a general education requirement?**

Yes

### General Education Category

Technology

### General Education Status

Approved

## 8. Consistency with the Vision and Mission Statements, the Academic Master Plan, and the strategic initiatives of the College

**Please describe how this course is consistent with Ocean County College's current Vision Statement, Mission Statement, Academic Master Plan, and the strategic initiatives of the College:**

Add item	
1	Demonstrating the college's commitment to offer comprehensive educational programs that develop intentional learners of all ages. (Mission Statement)
2	Seeking to ensure that students will thrive in an increasingly diverse and complex world. (Vision Statement)
3	Preparing students for successful transfer to other educational institutions and/or for entrance into the workforce. (Academic Master Plan)
4	Seeking to empower students through the mastery of intellectual and Practical Skills. (Academic Master Plan)
5	Challenging students to transfer information into knowledge and knowledge into action. (Academic Master Plan)

## 9. Related Courses at Other Institutions

### Comparable Courses at NJ Community Colleges

#### Institution

Brookdale CC

#### Course Title

Programming I

#### Course Number

CISM154

#### Number of Credits

3

#### Comments

Require 3 credit COMP-126 Computer Logic and Design

#### Institution

Middlesex County College

#### Course Title

Introduction to Computer Science Using Java

#### Course Number

CSC161

#### Number of Credits

4

## Transferability of Course

### Georgian Court University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
Elective Credit, 4 credits	Elective	

### Kean University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CPS1231, Fundamentals of Computer Prog. Major Science, 3 Credits		

### Monmouth University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CS175 Introduction to Computer Science 1, Major 4 credits		

### Rowan University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CS 04.113 Intro to Object Oriented Prog. 4 credits	Major	

### Rutgers - New Brunswick, Mason Gross School of the Arts

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
		Will not transfer

### Stockton University

Course Code, Title, and Credits	Transfer Catagory	If non-transferable; select status
CSIS2101 Programming and Problem Solving I 4 credits	Major	

### If not transferable to any institution, explain:

There is no known course on the Rutgers New Brunswick campus to which transfer credit will be given.

## 10. Course Learning Outcomes

### Learning Outcomes

Students who successfully complete this course will be able to:	
CL01	Identify the steps required in problem solving.
CL02	Discuss object-oriented principles.
CL03	Identify the properties of an algorithm.
CL04	Differentiate between an algorithm and a computer program.
CL05	Identify the basic data types available in Java.
CL06	Design, code, test and debug simple programs written in an object-oriented language.
CL07	Write programs in Java utilizing the concepts of classes and objects.
CL08	Write programs that use conditional control structures and methods.
CL09	Write programs in Java utilizing repetition structures and methods.
CL010	Apply the technique of decomposition in program construction.
CL011	Differentiate between a void method and one that returns a value.
CL012	Construct and manipulate one-dimensional arrays.

## 11. Topical Outline

(include as many themes/skills as needed)

	Major Themes/ Skills	Assignments (Recommended but not limited to)	Assessments (Recommended but not limited to)	Course Learning Outcome(s)
T01	Introduction to Computers and Programming 1) History of Computers and Programming Languages 2) How to set up the Java Programming Environment 3) Using an Integrated Development Environment (IDE)	Hands-on	Exam	CLO1
T02	Problem Solving and Algorithms 1) Problem Solving Techniques 2) Algorithms 3) Decomposition	In-class exercise	Programming Exercises Exam	CLO1,CLO3,CLO4
T03	Data Representation 1) Data Types 2) Identifiers 3) Arithmetic Operations 4) Variable and Declaration Statements 5) Data Type Conversions 6) Assignment Statements	In-class exercise	Lab assignment	CLO5
T04	Programming by Example 1) Distinguish between Classes and Objects 2) Simple keyboard input using the Scanner class 3) Simple console output 4) Formatting output	Hands-on, Lab exercises	Programming Exercises	CLO6
T05	Using common Java Library Classes 1) Math Class 2) String Class 3) Reading and using the Java API	Hands-on	Programming Exercises	CLO6
T06	Selection Structures 1) Selection Criteria - Relational and Logical Operators 2) One and Two-way Selection 3) Multi-way Selection 4) Compound Conditions 5) Problem Solving - Data Validation	Hands-on & Lab Exercises	Programming Exercises Exam	CLO8
T07	Repetition Structures 1) Pre-test Loops 2) Post-test Loops 3) Counter Loops 4) Interactive Loops 5) Nested loops	Hands-on & Lab Exercises	Programming Exercises Exam	CLO9
T08	Methods 1) Creating methods 2) Invoking methods 3) Methods and the object-oriented paradigm 4) Passing parameters 5) Returning Values	Hands-on & Lab Exercises	Programming Exercises Exam	CLO10,CLO11

T09	Introduction to Object Oriented Design 1) The object-oriented paradigm a. Objects in the world b. State of an object – attributes c. The behavior of an object d. Sending messages, Signatures e. The difference between an object and a class f. Return Types g. Parameters 2) Mechanics of the method-calling process with respect to object-oriented programming 3) Introduction to UML 4) Object Interaction 5) Encapsulation	Hands-on & Lab Exercises	Programming Exercises	CLO2,CLO7
T010	Arrays 1) Creating arrays 2) Examples 3) Enhanced for loop	Hands-on & Lab Exercises	Programming Exercises Exam	CLO12

## 12. Methods of Instruction

In the structuring of this course, what major methods of instruction will be utilized?

- o Class lecture
- o Discussion
- o Demonstrations
- o Lab assignments
- o Programs and online presentations

## 13. General Education Goals Addressed by this Course (this section is to fulfill state requirements)

Information

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### Technological Competency

Yes

### Related Course Learning Outcome

CLO3,CLO5-CLO12

### Related Outline Component

T02-T010

### Assessment of General Education Goal (Recommended but not limited to)

Programming Exercises  
Exam

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### Information Literacy

Yes

### Related Course Learning Outcome

CLO2,CLO3,CLO4

### Related Outline Component

T02,T09

**Assessment of General Education Goal (Recommended but not limited to)**

Programming Exercises  
Exam

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**Independent/Critical Thinking**

Yes

**Related Course Learning Outcome**

CLO1,CLO3

**Related Outline Component**

TO1,TO2

**Assessment of General Education Goal (Recommended but not limited to)**

Programming Exercises  
Exam

## 14. Needs

**Instructional Materials (text etc.):**

Appropriate textbooks will be selected. Contact the department for current adoptions. Class notes, presentations, software and online materials.

**Technology Needs:**

College Portal and/or College Distance Learning Platform and/or Textbook or Instructor Website.

**Human Resource Needs (Presently Employed vs. New Faculty):**

Four (4) presently employed full-time faculty plus additional Adjunct Professors as needed.

**Facility Needs:**

Laboratory classrooms equipped with computer workstations, each configured to support program development using Java. Podium computer similarly equipped plus the ability to present audio-video presentations to the class.

## 15. Grade Determinants

The final grade in the course will be the cumulative grade based on the following letter grades or their numerical equivalents for the course assignments and examinations

**A: Excellent**

**B+: Very Good**

**B: Good**

**C+: Above Average**

**C: Average**

**D: Below Average**

**F: Failure**

**I: Incomplete**

**R: Audit**

For more detailed information on the Ocean County College grading system, please see Policy #5154.

**16. Board Approval****History of Board approval dates**

Board of Trustees Approval Date: February 28, 2011

Board of Trustees Approval Date: March 26, 2012

Board of Trustees Approval Date: November 3, 2014

Board of Trustees Approval Date: November 03, 2016