RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

CISY 298 Advanced Topics in Computer Programming

I. Basic Course Information

A. Course Number and Title:	CISY 298 Advanced Topics in Computer Programming
B. New or Modified Course:	New
C. Date of Proposal:	Semester: Fall Year: 2016
D. Effective Term:	**Fall 2017**
E. Sponsoring Department:	Computer Science
F. Semester Credit Hours:	3
G. Weekly Contact Hours:	Lecture: 2 Laboratory: 2 Out of class student work per week: 6
H. Prerequisite:	A grade of C or better in CISY 103 Computer Concepts & Programming OR a grade of C or better in CISY 105 Foundations of Computer Science
I. Laboratory Fees:	yes
J. Name and Telephone Number or E-Mail Address of Department Chair at time of approval:	Steven Schwarz, Steven.Schwarz@raritanval.edu

II. Catalog Description

Prerequisite: A grade of C or better in CISY 103 Computer Concepts & Programming OR a grade of C or better in CISY 105 Foundations of Computer Science. This course provides the opportunity for students to study selected programming language(s) that are not covered in depth in any other Computer Science course at RVCC. The course will address problem solving using a language or languages. The language(s) covered are selected by the Instructor and vary from semester to semester. Therefore, students must obtain the course description of the special topic coverage from the course schedule in any given semester.

III. Statement of Course Need

A. As new languages quickly gain popularity there is a demand for programmers proficient in the languages. This course would allow the Computer Science department to meet the need for a training in a new language. For new programmers this would give them exposure to the latest languages.

B. This course has a weekly lab component. The lab is essential for providing students hands on experience to write programs to solve problems using the language(s)

C. The course has not been evaluated but it could transfer as a Programming Elective or a Computer Elective.

a. Students are advised to retain their professor-developed course syllabus to assist in the transfer equivalence process

IV. Place of Course in College Curriculum

A. Free Elective
B. CIS Elective on the Computer Science CISY Electives List
C. Programming Elective on the Computer Science CISY Electives List
D. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, www.njtransfer.org; b) for all other colleges and universities, go to the individual websites.

V. Outline of Course Content

For each selected language:

A. Introduction to the basic syntax of the language and the compiler/interpreter for the language as well as IDE options
B. Variables Declaration and use with commonly used data types as well as any data types unique to the language
C. Input and Output Statements either through the console, GUI, or web browser
   a. Command line arguments if available
D. If the language is an Object Oriented Programming (OOP) language, development of classes/objects and methods and use of inheritance and polymorphism
E. If the language is a procedural language, development or use of libraries for importing methods/procedures/functions
F. Decision Structures
G. Loop Structures and File I/O and/or integration with a Database
H. Arrays and collections available in the language
I. Exception Handling, if available in the language or error avoidance techniques
J. Interfaces with operating systems or other APIs if available in the language

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes:

At the completion of the course, students will be able to:

1. Solve information processing problems by using the selected programming language(s) to produced well designed computer programs to (GE-NJ 4)

B. Course Learning Outcomes:

At the completion of the course, students will be able to:

1. Construct programs using the selected language(s) to solve problems
2. Employ the various Decision Structures of the selected language(s)
3. Appropriately use and manipulate the available variables, data structures, classes/objects, collections in the selected language(s)
4. Employ various methods for input and output that each selected language can use such as through the console, a GUI, a web browser, files, databases, or managing transmission of data over a network
5. Demonstrate the ability to avoid and handle exceptions in the selected language(s)

C. Assessment Instruments

1. Computer Programs

VII. Grade Determinants

A. Weekly homework assignments
B. In-class Programming Laboratories
C. Programming Projects
D. Quizzes
E. Exams

Modes of teaching and learning

A. Lecture/Discussion
B. Laboratory--Students will spend half of each class working on hands-on lab assignments

VIII. Texts and Materials

Since the programming language will vary from semester to semester, a specific text is not listed here.

(Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.)

IX. Resources

A. Computer Lab for classroom instruction and exercises
B. Technology Support (An Integrated Development for the editing, compiling, and running of programs in the language(s) selected, such as Visual Studio, NetBeans, or Eclipse; or a text editor such as NotePad++ or TextPad