I.	Course ID (department & number): **CSC 118**
II.	Course Name: **Python Programming**
III.	Number of Credits Awarded for Course: **3 credits**
IV.	Prerequisite or Co-requisite courses or academic standing (if applicable): Pre-requisite: MAT 100 or higher
V.	Indicate if New or Modified Course: New
VI.	Semester and Year Course will First be Offered: Spring 2016
VII.	Name and Telephone Number and/or e-mail address of department chair or other appropriate contact person: Heather DeVries, Academic Representative to NJ Transfer hdevries@hccc.edu 201-360-3660 M. Siddiqui, Instructor and Coordinator of Computer Science msiddiqui@hccc.edu Dr. John Marlin, Dean of Instruction jmarlin@hccc.edu
VIII.	Detailed Course Description: This course introduces students to Python Programming. Python is an open-source scripting language that allows rapid application development of both large and small software systems. It is object-oriented by design and provides an excellent platform for learning the basics of programming language. Students will learn how to design the logic of programs using flowchart and pseudocode and then code then using Python. Topics include but are not limited to variables, data types, flow of control (if-else), iteration (loops), input/output, list slicing, functions, file I/O, dictionary, sets and objects. The course is supplemented with many hands-on Weekly labs that will provide guided practice on the computer. The student assignments will use graphics and GUIs (Graphical User Interface) to help develop fluency and understanding.
IX	Outline of Course Objectives: 1. Analyze design tools such as flowcharts or pseudo codes to create models of a program. 2. Describe the basic elements of the Python language (data types, variables, I/O) and the Python interpreter.

	3. Define, analyze and code the Python conditional (if-else if-else) and iterative control structures (while and for loop). 4. Design, implement, test, and debug functions that can be used in programs. 5. Create data files, read data from files, and write formatted data in files. 6. Analyze and demonstrate the use of lists and tuples in Python. 7. Describe and demonstrate the use of Python dictionaries and sets correctly. 8. Write objects (classes) to demonstrate the ideas of encapsulation, inheritance, interfaces and object-oriented program design. 9. Use an existing programming library to implement a graphical user interface. 10. Solve problems that have origins in a variety of disciplines including math, science, the Internet and business.
X.	Texts, Journals and Other Materials used in Course 1. Proposed student texts. Gaddis, T. (2015). *Starting out with Python* (3rd ed). Upper Saddle River, NJ, USA: Prentice Hall. 2. Supplementary readings for students. *Berry, P.(2009). *Head first programming : [a learner's guide to programming using the Python language]*. Beijing:O'Reilley Media. Budd, T. (2010). *Exploring Python.* New York: McGraw-Hill Higher Education. Guzdial, M. J., & Ericson, B. (2016). *Introduction to Computing and Programming in PythonTM A Multimedia Approach.* New York: Prentice Hall. Liang, Y. D. (2013). *Introduction to Programming Using Python* (1st ed.). Upper Saddle River, NJ, USA: Prentice Hall. Lutz, M. (2011). *Programming Python.* Cambridge: O'Reilley Media. Schneider, D. I. (2016). *An Introduction to Programming Using Python.* Upper Saddle River, NJ, USA: Prentice Hall. Summerfield, M. (2014). *Python in Practice: Create Better Programs Using Concurrency, Libraries, and Patterns.* New YorK: Addison-Wesley Professional.
XI.	Grade Determinants 1. Two Practical Exams 40% 2. Final Exam 30% 3. Lab Assignments 30%
XII.	Number of Papers & Examinations See below.
XIII.	Schedule of Topics to be Covered See below.

Session	Topic	Weekly Lab Assignments Topics
1	Input, Processing, and Output (Objective 1 and Objective 2) • Designing a Program using Flowchart or Pseudo code • Displaying Output with the *print* Function • Inserting Comments and Declaring variables	Familiarization with the beginning-level lab environment in Python.
2	Input, Processing, and Output (Continued – Objective 1 and Objective 2) • Reading input from the Keyboard • Performing Calculations	Lab Assignment: Converting a Math Formula to a Programming Statement
3	Decision Structures and Boolean Logic (Objective 3) • The if-else Statement • Comparing Strings	Lab Assignment: Writing a Program Using the if and if-else statement
4	Decision Structures and Boolean Logic (Objective 3) • Nested Decision structures and the if-else if-else statement • Logical Operators	Lab assignment: Multiple Nested Decision Structure
5	Exam 1	
6	Repetition Structures (Objective 3) • Introduction to Repetition Structures • The while Loop: A Condition Controlled Loop • The for Loop: A Count-Controlled Loop	Lab Assignment 1: Designing a Program with while Loop Lab Assignment 2: Designing a Count-Controlled Loop with for Statement
7	Repetition Structures (Continued – Objective 3) • Sentinels • Input Validation Loops • Nested Loops	Lab Assignment: Writing an Input Validation Loop
8	Functions (Objective 4) • Introduction to Functions • Defining and Calling a Void Functions • Local Variables • Passing Arguments to Functions	Lab Assignment: Write a Program that Defines and Calls Functions
9	Functions (Continued – Objective 4) • Global Variables and Global Constant • Introduction to Value Returning Functions • Predefined and User-Defined Functions	Lab Assignment: Modularizing with Functions
10	Exam 2	
11	File and Exceptions (Objective 5) • Introduction to File Input and Output • Using Loops to process Files • Processing Records • Exceptions	Lab Assignment: Working with Files, Adding, Displaying, and Modifying Records
12	List and Tuples (Objective 6 and Objective 10) • Introduction to Lists • Sequences and List Slicing • Copying and Processing List • Introduction to Tuples	Lab Assignment: Using List Elements in a Math Expression

13	Dictionary and Sets (Objective 7 and Objective 10) • Introduction to Dictionary • Introduction to Sets	Lab Assignment: Using a Dictionary to Simulate a Deck of Cards
14	Classes and Object-Oriented Programming (Objective 8, Objective 9) • Procedural and Object Oriented Programming • Introduction to Classes • Working with Instances	Lab Assignment: Storing Object in a List
15	Exam 3	