NORTH CAROLINA CAREER AND TECHNICAL EDUCATION STANDARDS

Computer Science and Information Technology Education

Grade: Grade 9 - 12
Course: Python Programming II New

NCCTE.2020.BP16 - Python Programming II

NCCTE.2020.BP16.01.00 - Understand the basic methods of formatting and outputting data.

NCCTE.2020.BP16.01.01 - Introduce the concept of variables and variable naming conventions.

NCCTE.2020.BP16.01.02 - Present the assignment operator, along with the rules governing the building of expressions.

NCCTE.2020.BP16.01.03 - Introduce the inputting and converting of data.

NCCTE.2020.BP16.02.00 - Understand Boolean values to compare difference values and control the execution paths.

NCCTE.2020.BP16.02.01 - Introduce the utilization of loops (while and for) and how to control their behavior using the break and continue instructions.

NCCTE.2020.BP16.02.02 - Present the difference between logical and bitwise operations.

NCCTE.2020.BP16.02.03 - Acquaint the student with the concept of lists and list processing, including the iteration provided by the for loop, and slicing.

NCCTE.2020.BP16.02.04 - Explain the idea of multi-dimensional arrays.

NCCTE.2020.BP16.03.00 - Apply the definition and use of functions.

NCCTE.2020.BP16.03.01 - Present the concept of passing arguments in different ways and setting their default values along with the mechanisms of returning the function's results.

NCCTE.2020.BP16.03.02 - Explain name scope issues.

NCCTE.2020.BP16.03.03 - Introduce new data aggregates - tuples and dictionaries - and show their role in data processing.

NCCTE.2020.BP16.04.00 - Utilize python modules.

NCCTE.2020.BP16.04.01 - Present the way in which modules are coupled together to make packages.

NCCTE.2020.BP16.04.02 - Acquaint the student with the concept of an exception and Python's implementation of it, including the try-except instruction, with its applications, and the raise instruction.

NCCTE.2020.BP16.04.03 - Introduce strings and their specific methods, together with their similarities and differences compared to lists.

NCCTE.2020.BP16.05.00 - Apply the fundamentals of OOP (Object Oriented Programming).

NCCTE.2020.BP16.05.01 - Present the standard objective features: inheritance, abstraction, encapsulation, and polymorphism, along with Python-specific issues like instance vs. classvariables, and Python's implementation of inheritance.

NCCTE.2020.BP16.05.02 - Familiarize the student with Python's generators (the yield instruction) and closures (the lambda keyword).

NCCTE.2020.BP16.05.03 - Demonstrate the means Python developers can use to process (create,

read, and write) files.

NCCTE.2020.BP16.06.00 - Understand the meaning and impact of Digital Transformation.

NCCTE.2020.BP16.06.01 - Explain how digital transformation affects business, industry, and our daily lives.

NCCTE.2020.BP16.06.02 - Configure an IoT device to connect to the network.

NCCTE.2020.BP16.07.00 - Apply basic programming to support IoT devices.

NCCTE.2020.BP16.07.01 - Use Python to create programs that accept user input and read and write to external files.

NCCTE.2020.BP16.07.02 - Explain prototyping and its purpose.

NCCTE.2020.BP16.08.00 - Understand how data provides value to digital business and society and the benefits of automation in the digitized world.

NCCTE.2020.BP16.08.01 - Explain the concept of Big Data.

NCCTE.2020.BP16.08.02 - Explain how digitization allows business processes to embrace automation.

NCCTE.2020.BP16.09.00 - Understand the need for enhanced security in the digitized world and opportunities provided by digital transformation.

NCCTE.2020.BP16.09.01 - Explain why security is important in the digitized world..

NCCTE.2020.BP16.09.02 - Explain the challenges and opportunities that exist in the digitized world.