Course Name : **PCEP - CERTIFIED ENTRY LEVEL PYTHON PROGRAMMER**
Duration : **2 days**
Level : **Beginner**
Mode : **Physical Classroom or Online Live Instructor**

COURSE DESCRIPTION:
PCEP – Certified Entry Level Python Programmer certification is a professional credential that measures your ability to accomplish coding tasks related to the essentials of programming in the Python language. A test candidate should demonstrate sufficient knowledge of the universal concepts of computer programming, the syntax, and semantics of the Python language as well as the skills in resolving typical implementation challenges with the help of the Python Standard Library. The certified trainer covers an in-depth review of all the major topics within the five certification areas. At the end of the course the candidates will be ready to write the PCEP online exam.

WHAT WILL YOU LEARN?
PCEP – Certified Entry Level Python Programmer certification shows that the individual is familiar with universal computer programming concepts like data types, containers, functions, conditions, loops, as well as Python programming language syntax, semantics, and the runtime environment.

Becoming PCEP certified ensures that the individual is acquainted with the most essential means provided by Python 3 to enable her/him to start their own studies at an intermediate level and to continue their professional development. Becoming PCEP certified will help you stand out from other candidates and get your foot in the door.

PREREQUISITE:
Beginners. No prior programming knowledge required.

METHODOLGY:
This program will be conducted with interactive lectures, PowerPoint presentation, discussions, and practical exercise. This course can be conducted as instructor-led (ILT) or virtual instructor-led training (VILT).

JOB SCOPE:
After completing this course, the candidates can join for the following job roles,

- Software Developer (Python)
- Data Analyst (Python)
- AI Engineer
- Data Engineer
- Python Web Developer
- DevOps Engineer
- Machine Learning Engineer

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EXAM BLOCK #1: BASIC CONCEPTS (17%)

- Fundamental concepts: interpreting and the interpreter, compilation and the compiler, language elements, lexis, syntax and semantics, Python keywords, instructions, indenting
- Literals: Boolean, integer, floating-point numbers, scientific notation, strings
- Comments
- The print() function
- The input() function
- Numeral systems (binary, octal, decimal, hexadecimal)
- Numeric operators: ** * / % // + –
- String operators: * +
- Assignments and shortcut operators

EXAM BLOCK #2: DATA TYPES, EVALUATIONS, AND BASIC I/O OPERATIONS (20%)

- Arguments
- Operators: unary and binary, priorities, and binding
- Bitwise operators: ~ & ^ | << >>
- Boolean operators: not and or
- Boolean expressions
- Relational operators (== != > >= < <=), building complex Boolean expressions
- Accuracy of floating-point numbers
- Basic input and output operations using the input(), print(), int(), float(), str(), len() functions
- Formatting print() output with end= and sep= arguments
- Type casting
- Basic calculations
- Simple strings: constructing, assigning, indexing, immutability

EXAM BLOCK #3: FLOW CONTROL – LOOPS AND CONDITIONAL BLOCKS (20%)

- Conditional statements: if, if-else, if-elif, if-elif-else
- Multiple conditional statements
- The pass instruction
- Building loops: while, for, range(), in
- Iterating through sequences
- Expanding loops: while-else, for-else
- Nesting loops and conditional statements
- Controlling loop execution: break, continue

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EXAM BLOCK #4: DATA COLLECTIONS – LISTS, TUPLES, AND DICTIONARIES (23%)

- Simple lists: constructing vectors, indexing and slicing, the len() function
- Lists in detail: indexing, slicing, basic methods (append(), insert(), index()) and functions (len(), sorted(), etc.), del instruction, iterating lists with the for loop, initializing, in and not in operators, list comprehension, copying and cloning
- Lists in lists: matrices and cubes
- Tuples: indexing, slicing, building, immutability
- Tuples vs. lists: similarities and differences, lists inside tuples and tuples inside lists
- Dictionaries: building, indexing, adding and removing keys, iterating through dictionaries as well as their keys and values, checking key existence, keys(), items() and values() methods
- Strings in detail: escaping using the \ character, quotes and apostrophes inside strings, multiline strings, basic string functions.

EXAM BLOCK #5: FUNCTIONS (20%)

- Defining and invoking your own functions and generators
- Return and yield keywords, returning results,
- The None keyword
- Recursion
- Parameters vs. arguments,
- Positional keyword and mixed argument passing,
- Default parameter values
- Converting generator objects into lists using the list() function
- Name scopes, name hiding (shadowing), the global keyword

CONCLUSION

- QA
- Useful References and Books
- Feedback

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