

PCEP™ – Certified Entry-Level Python Programmer (Exam PCEP-30-02) – EXAM SYLLABUS

PCEP-30-02 Exam

Status: Live & Active



The exam consists of four sections:

Section 1 → 7 items	Max Raw Score: 180 (18%)
Section 2 → 8 items	Max Raw Score: 290 (29%)
Section 3 → 7 items	Max Raw Score: 250 (25%)
Section 4 → 8 items	Max Raw Score: 280 (28%)

Last updated: February 23, 2022
Aligned with Exam PCEP-30-02

Section 1: Computer Programming and Python Fundamentals (18%)

Objectives covered by the block (7 exam items)

PCEP-30-02 1.1 – Understand fundamental terms and definitions

- interpreting and the interpreter, compilation and the compiler
- lexis, syntax, and semantics

PCEP-30-02 1.2 – Understand Python's logic and structure

- keywords
- instructions
- indentation
- comments

PCEP-30-02 1.3 – Introduce literals and variables into code and use different numeral systems

- Boolean, integers, floating-point numbers
- scientific notation
- strings
- binary, octal, decimal, and hexadecimal numeral systems
- variables
- naming conventions
- implementing PEP-8 recommendations

PCEP-30-02 1.4 – Choose operators and data types adequate to the problem

- numeric operators: `**` `*` `/` `%` `//` `+` `-`
- string operators: `*` `+`
- assignment and shortcut operators
- unary and binary operators
- priorities and binding
- bitwise operators: `~` `&` `^` `|` `<<` `>>`
- Boolean operators: *not*, *and*, *or*
- Boolean expressions
- relational operators (`==` `!=` `>` `>=` `<` `<=`)
- the accuracy of floating-point numbers
- type casting

PCEP-30-02 1.5 – Perform Input/Output console operations

- the *print()* and *input()* functions
- the *sep=* and *end=* keyword parameters
- the *int()* and *float()* functions

Section 2: Control Flow – Conditional Blocks and Loops (29%)

Objectives covered by the block (8 exam items)

PCEP-30-02 2.1 – Make decisions and branch the flow with the *if* instruction

- conditional statements: *if*, *if-else*, *if-elif*, *if-elif-else*
- multiple conditional statements
- nesting conditional statements

PCEP-30-02 2.2 – Perform different types of iterations

- the *pass* instruction
- building loops with *while*, *for*, *range()*, and *in*
- iterating through sequences
- expanding loops with *while-else* and *for-else*
- nesting loops and conditional statements
- controlling loop execution with *break* and *continue*

Section 3: Data Collections – Tuples, Dictionaries, Lists, and Strings (25%)

Objectives covered by the block (7 exam items)

PCEP-30-02 3.1 – Collect and process data using lists

- constructing vectors
- indexing and slicing
- the *len()* function
- list methods: *append()*, *insert()*, *index()*, etc.
- functions: *len()*, *sorted()*
- the *del* instruction
- iterating through lists with the *for* loop
- initializing loops

- the *in* and *not in* operators
- list comprehensions
- copying and cloning
- lists in lists: matrices and cubes

PCEP-30-02 3.2 – Collect and process data using tuples

- tuples: indexing, slicing, building, immutability
- tuples vs. lists: similarities and differences
- lists inside tuples and tuples inside lists

PCEP-30-02 3.3 Collect and process data using dictionaries

- dictionaries: building, indexing, adding and removing keys
- iterating through dictionaries and their keys and values
- checking the existence of keys
- methods: *keys()*, *items()*, and *values()*

PCEP-30-02 3.4 Operate with strings

- constructing strings
- indexing, slicing, immutability
- escaping using the `\` character
- quotes and apostrophes inside strings
- multi-line strings
- basic string functions and methods

Section 4: Functions and Exceptions (28%)

Objectives covered by the block (8 exam items)

PCEP-30-02 4.1 – Decompose the code using functions

- defining and invoking user-defined functions and generators
- the *return* keyword, returning results
- the *None* keyword
- recursion

PCEP-30-02 4.2 – Organize interaction between the function and its environment

- parameters vs. arguments
- positional, keyword, and mixed argument passing

- default parameter values
- name scopes, name hiding (shadowing), and the *global* keyword

PCEP-30-02 4.3 – Python Built-In Exceptions Hierarchy

- BaseException
- Exception
- SystemExit
- KeyboardInterrupt
- abstract exceptions
- ArithmeticError
- LookupError
- IndexError
- KeyError
- TypeError
- ValueError

PCEP-30-02 4.4 – Basics of Python Exception Handling

- try-except / the try-except Exception
- ordering the except branches
- propagating exceptions through function boundaries
- delegating responsibility for handling exceptions

