PCAP: Programming Essentials in Python (2.0)
(aka *Python Essentials*)

Frequently Asked Questions

Last updated: February 11, 2021

Please read this FAQ and review the courseware before contacting the Python Institute staff. Thank you.

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1. Who is sponsoring the course?

OpenEDG Python Institute has developed the course *PCAP: Programming Essentials in Python (2.0)* (short form: *Python Essentials*) to enhance, develop and support professional careers in Python programming and related network technologies. The Python Institute is offering this course to all institutions participating in the Cisco Networking Academy® program for Instructor-Led Training and Self-Paced Training. The course is offered free of charge. To learn more about the Python Institute, please visit www.pythoninstitute.org.

2. What are the main features of the course curriculum?

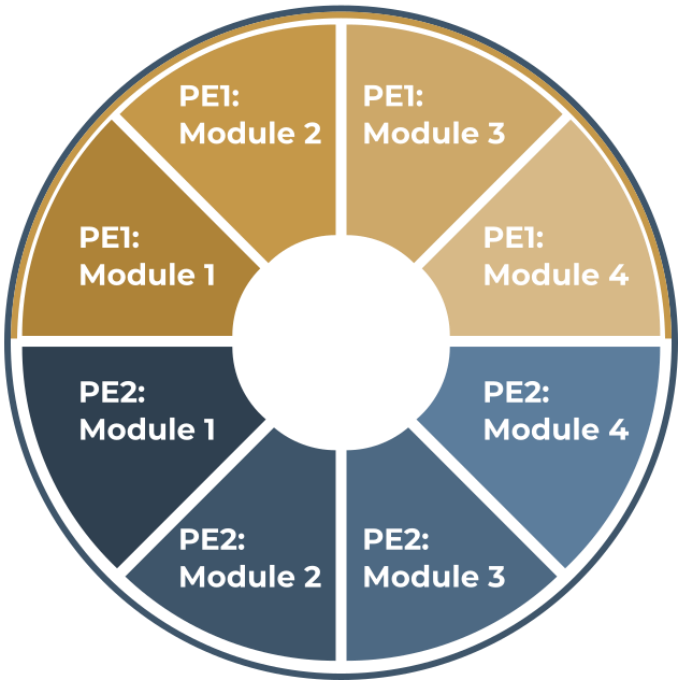
The *PCAP: Programming Essentials in Python (2.0)* course covers all the basics of programming in Python, as well as general computer programming concepts and techniques. The course also familiarizes the student with the object-oriented approach to programming. The course is split into two independent parts (*PE1* and *PE2*), each divided into four modules.

Students have access to hands-on practice materials, quizzes, and assessments to learn how to utilize the skills and knowledge gained on the course and interact with real-life programming tasks and situations.

Students who complete the course will be able to accomplish coding tasks related to the basics of programming in the Python language, and to understand the fundamental notions and techniques used in object-oriented programming. Furthermore, they will be ready to attempt the qualifications PCEP – Certified Entry-Level Python Programmer (aligned with PE1, Modules 1-4) and PCAP – Certified Associate in Python Programming (aligned with PE2, Modules 1-4) certifications from the Python Institute.

Python Essentials 1, modules 1, 2, 3 and 4 will prepare you for:
PCEP – Certified Entry-Level Python Programmer certification exam

Python Essentials 2, modules 1, 2, 3 and 4 will prepare you for:
PCAP – Certified Associate in Python Programming certification exam



3. Why should I learn Python?

Python is omnipresent. People use numerous Python-powered devices on a daily basis, whether they realize it or not.

There have been millions (well, actually billions) of lines of code written in Python, which means almost unlimited opportunities for code reuse and learning from well-crafted examples. What's more, there is a large and very active Python community, always happy to help.

There are also a couple of factors that make Python great for learning:

- It is easy to learn – the time needed to learn Python is shorter than for many other languages; this means that it's possible to start the actual programming faster;
- It is easy to use for writing new software – it's often possible to write code faster when using Python;
- It is easy to obtain, install and deploy – Python is free, open and multiplatform; not all languages can boast that.

If you're not familiar with any other languages, Python is great to begin with, because it will give you a solid foundation and allow you to learn other programming languages (e.g., C++, Java, or C) much easier and much faster.

Doing the course will teach you how to design, write, debug, and run programs encoded in Python, the programming language used by start-ups and tech giants alike.

4. What is Python actually used for?

Let's start with some non-obvious thing – video games. Do you remember the *Battlefield* series – the strategy and first-person shooter games from EA DICE? Or maybe you have heard of *Civilization IV*, *The Sims 4*, or the *World of Tanks*? All these games use Python for tasks, logic, and functionalities.

Python is also frequently used for creating open-source, free games, e.g., OpenRTS, PySol, Metin 2, or Frets On Fire – famous Guitar Hero-like games written in pygame.

Websites and services? Yes. Dropbox, UBER, Spotify, Pinterest, BuzzFeed, and many more. They were all written, to a greater or lesser extent, in Python. Other examples include:

- Internet Applications (BitTorrent, Jogger Publishing Assistant, TheCircle, TwistedMatrix)
- 3D CAD/CAM (FreeCAD, Fandango, Blender, Vintech RCAM)
- Enterprise Applications (Odoo, Tryton, Picalo, LinOTP 2, RESTx)
- Image Applications (Gnofract 4D, Gogh, imgSeek, MayaVi, VPython)
- Mobile Applications (Aarlogic C05/3, AppBackup, Pyroute)
- Office Applications (calibre, faces, Notalon, pyspread)
- Personal Information Managers (BitPim, Narval, Prioritise, Task Coach, WikidPad) [Source: https://wiki.python.org/moin/PythonProjects]

Generally, Python is a great choice for:

- Testing (e.g., unittest, pytest, Autotest, Doctest, or Nose) and test automation;
- Security (e.g., requests, Scapy, Nmap, Yara, or Beautiful Soap), malware analysis, host discovery, sending/decoding packets, scanning ports, scanning network, accessing servers;
- Web and Internet development (e.g., Django and Pyramid frameworks, Flask and Bottle micro-frameworks)
- Scientific and numeric computing (e.g., SciPy – a collection of packages for the purposes of mathematics, science, and engineering; Ipython – an interactive shell that features editing and recording of work sessions)
- Machine Learning and AI projects (e.g., Keras, TensorFlow, Pytorch)
- Desktop GUIs (e.g., wxWidgets, Kivy, Qt)
- Software Development (build control, management, and testing – Scons, Buildbot, Apache Gump, Roundup, Trac)
- Business applications (ERP and e-commerce systems – Odoo, Tryton) [Source: https://www.python.org/about/aps]
- and… **Education!** (Yes, it's a brilliant language for teaching programming. That's why we're offering this course to you!)

The largest organizations that use Python include Cisco, Google, CERN, NASA, Yahoo, Facebook, Instagram, Amazon, Spotify, and Wikipedia!

5. How long will it take to complete the course?

The entire course (PE1 and PE2) is designed to be taught over two semesters, but academies and instructors are encouraged to use the courseware and teaching resources based on the actual needs of the academic institution and students (e.g., offer each part as an independent mini-course taught over a semester).

6. Is there a Statement of Achievement?

A Statement of Achievement will be issued to participants who successfully complete the *PCAP: Programming Essentials in Python* course. The Statement of Achievement will acknowledge that the individual has completed the course and is now ready to attempt the qualifications *PCEP – Certified Entry-Level Python Programmer Certification* (taken via OpenEDG Testing Service) and *PCAP – Certified Associate in Python Programming* certification (taken through Pearson VUE computer-based testing, at a 50% discount).

To receive the Statement of Achievement, instructors must mark the student as having successfully passed the course.

7. What jobs align with this course?

The course will prepare the student for jobs/careers connected with widely understood software development, which includes not only creating the code itself as a junior developer, but also computer system design and software testing.

It could be a stepping-stone to learning any other programming language, and to exploring technologies that use Python as a foundation (e.g., Django).

Moreover, Python is the preferred programming language for developers pursuing a career in Security, Networking, and the Internet-of-Things (IoT).

This course is distinguished by its affordability, friendliness, and openness to the student. It starts from the absolute basics, guiding the student step by step to complex problems, making her/him a responsible software creator able to take on different challenges in many positions in the IT industry.

A knowledge of programming is one of the crucial skills for network administrators. It helps them to better understand the functionality as well as the potential of network devices. Network engineers and network administrators with knowledge of programming in at least one powerful language are highly sought-after in the job market today for the unique combination of their skills and their ability to successfully deal with non-standard network issues.

8. Does the course align with any industry-recognized certification?

Yes, this course aligns with the PCEP – Certified Entry-Level Python Programmer (aligned with PE1, Modules 1-4) and PCAP – Certified Associate in Python Programming (aligned with PE2, Modules 1-4) certifications from the Python Institute.

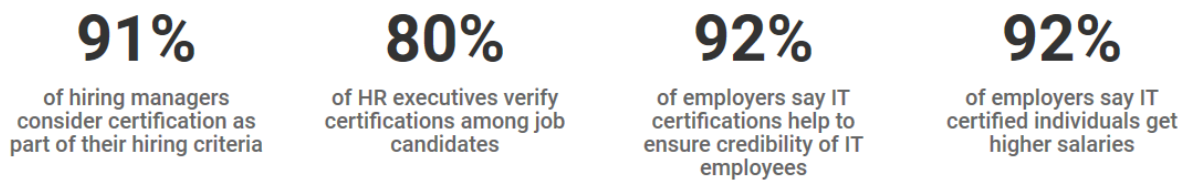
PCEP – Certified Entry-Level Python Programmer certification is an interim step to the *PCAP – Certified Associate in Python Programming* certification, and the starting point to launch a career in software development, Python programming, and related technologies. The PCEP exam is available online via the OpenEDG Testing Service (see PCEP Testing Policies).

Becoming PCEP certified will help you stand out from other candidates and get your foot in the door, while becoming PCAP certified ensures that you are fully acquainted with all the primary means provided by Python 3 to enable you to start your own studies, and to open a path to a career as a developer. The PCAP exam is available through the network of Pearson VUE Testing Centers and OnVUE Online Proctoring from Pearson VUE (see PCAP Testing Policies).

9. What is the value of the Python Institute certification?

With the growing need for Python programmers, it is important to gain recognition for your programming expertise and be able to prove your skills. An employer does

not only look at your portfolio, but also searches for different ways to validate your knowledge.



Source: The College and Career Readiness report by Microsoft and the Get Your Foot in the Door report by CompTIA.

A certificate is frequently the first screening tool used by a recruiter to help select those candidates who will then have a chance to show off their skills in an interview. Failing to get through the first round of the selection process makes it impossible for even a great programmer to be noticed, and this is a strong argument for getting certified and paying particular attention to your self-development.

Python Institute certification can be a powerful weapon in the race for better employment, first-rate expertise, and greater competitiveness.

The certification can open doors to a better job and a better salary. It is a great motivator for self-improvement and self-development. It is one of the key requirements set by an increasing number of IT managers and, frequently, a standard criterion for candidates among recruiters.

Python Institute certification is proof to the employer that you possess the expertise necessary to fulfil certain duties. At the same time, it is a sign for them that you are willing to expand your knowledge. And because certified individuals directly contribute to an increase in a company's efficiency, productivity, and profit-making capacity, Python Institute certification is an asset for every organization.

To read more about the value of Python Institute certification, please visit the *Why Get Certified* page at http://pythoninstitute.org/why-get-certified.

10. Is there any discount for the certification exams?

The Python Institute offers participants of the Cisco Networking Academy® program who successfully complete the *PCAP: Programming Essentials in Python (2.0)* course a 50% discount on the list price for the *PCAP – Certified Associate in Python Programming* (PCAP-31-03) certification exam taken at Pearson VUE Testing Centers or via OnVUE Online Proctoring from Pearson VUE.

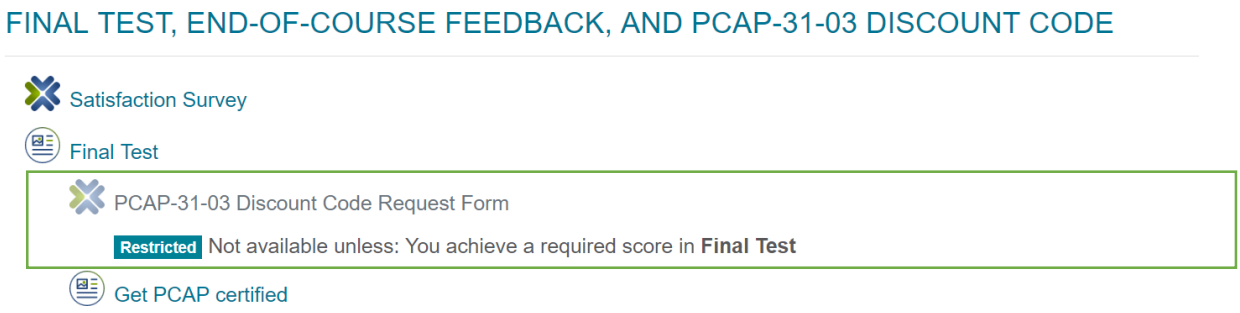
Students who successfully complete the entire course, i.e.:

- accept the course *T&C*,
- submit the *Welcome Survey*,
- pass *PE1: Summary Test 1*, and *PE2: Summary Test 2*,
- pass the *Final Test* (score at least 35/50 points),
- complete the *Satisfaction Survey*,

will be entitled to a discount code that reduces the PCAP exam fee by 50%.

Students who qualify for the discount will unlock the exam code section in the course interface on NetAcad. To request the discount code, the student must click the *PCAP-31-03 Discount Code Request Form* link, fill out the *Discount Code Request Form*, accept the *Discount Code Policy*, and submit the application.

The Python Institute will automatically process the application and immediately assign the voucher (the candidate will see the voucher and related information on the next screen).



No discount voucher is provided for the *PCEP – Certified Entry-Level Python Programmer* certification exam at this time.

Students can use the discount code to lower the price of the PCAP-31-03 exam voucher by 50%. Exam vouchers can be purchased at OpenEDG Voucher Store and redeemed during the Pearson VUE Exam Registration process.

11. What are the prerequisites for this course?

There are no prerequisites.

12. Is instructor training or any certification required to teach this course?

No special instructor training or qualification is required to teach this course. However, we recommend that instructors earn a PCEP – Certified Entry-Level Python Programmer certification prior to teaching the *Python Essentials – Part 1* (PE1) class, and PCAP – Certified Associate in Python Programming certification prior to teaching the *Python Essentials – Part 2* (PE2) class, so that they become familiar with the exam structure and know how to prepare their students for it.

13. Is there a downloadable option for PCAP: Programming Essentials in Python?

No, there is no downloadable version of the course.

14. Will the course be translated?

The course is currently available in English, Spanish, and Polish. At the moment we are localizing it into Russian (advanced stage), Turkish, Portuguese, Hungarian, French, Arabic, and Mandarin Chinese. We are considering translating the *PCAP: Programming Essentials in Python* (2.0) course into other languages; however,

there is no exact timeframe, nor have any specific languages been selected yet for this process.

15. What are the recommended browsers for the course?

We recommend using the most recent versions of Mozilla Firefox, Microsoft Edge, and Google Chrome (preferred).

16. Do I need any additional equipment for the course?

The course can be accessed online through any Internet browser, on computers with Linux, Windows, or Mac OS.

The minimum equipment required for this course is:

- a computer with an Internet browser and active Internet connection, equipped with an IDE, or
- a computer with an Internet browser and active Internet connection.

The first option requires having the Python 3 standard installation on your computer. A copy of Python 3 can be downloaded from https://www.python.org/downloads. The installation contains a software application called IDLE (Integrated Development and Learning Environment), which will enable you to execute simple Python commands and see the effects of executing your programs.

Full information about how to get Python, how to install it, and how to use it is available in Module 1 of the *PCAP: Programming Essentials in Python* course.

The second option does not require the installation of any software applications – it is possible to use a dedicated, interactive on-line programming environment (Edube Interactive) that allows Python code to be run in an Internet browser. Edube Interactive is a tool integrated within the course, which can be used as a browser-based Python sandbox that allows you to test the code discussed throughout the course, as well as an interpreter that enables you to launch, perform, and test lab exercises.

Recommended equipment and technical requirements to use Edube Interactive:

- a desktop computer or a laptop (recommended: a desktop computer with a mouse/pointing device and keyboard)
- minimum RAM: 1 GB or more;
- minimum processor: 1.0 GHz or more;
- the most recent version of Mozilla Firefox, Microsoft Edge, Google Chrome, Safari, Opera (preferred: Google Chrome)
- JavaScript enabled in your browser (mandatory requirement)
- a fast and stable Internet connection (recommended Internet download speed: 1.0 Mbps or higher; recommended Internet upload speed: 0.5 Mbps or higher)
- a color monitor, minimum screen resolution: 640 by 480 pixels (recommended: 1024 by 768 pixels)
- Windows 7/8/10 OS, MacOS X 10.0x or newer, Linux OS;

- whitelist the domains "*.edube.org" and "*.openedg.org"
- full access through ports 80 (http), 443 (https), and http redirects permitted.

17. Are there any instructor materials available?

Not at this time. In the future, instructors will have access to additional teacher resources, such as lesson plans, PowerPoint slides, the Lab Creator Tool, the Quiz Creator Tool, etc. through the OpenEDG Python Institute Education Partner Program.

18. Does the course include labs, quizzes, or assessments?

Yes, all of them. The course includes labs that help the student practice skills addressed in class or prepare for the next class. Instructors can choose from among 30+ labs to decide which particular skills they want their students to develop.

At the end of each module, the student is presented with a quiz (10 questions) that helps them organize their knowledge and check if they are ready for the module test (20 or 30 questions), which represents the final stage for verifying and testing their skills. All the module tests are ungraded, which means the student does not need to pass them to complete the course. There are also two summary tests (30 questions each) that cover Python Essentials 1 (PE1, Modules 1–4), and Python Essentials 2 (PE2, Modules 1–4) respectively. The summary tests must be submitted in order for the entire course to be completed.

For the final test (50 questions), covering both course parts (PE1 and PE2) and all eight modules, students must answer at least 35 questions correctly to be able to receive a 50% discount code for the PCAP – Certified Associate in Python Programming certification exam voucher. All questions are scored, and results are available in the course gradebook on NetAcad.

19. How does this course differ from other online courses?

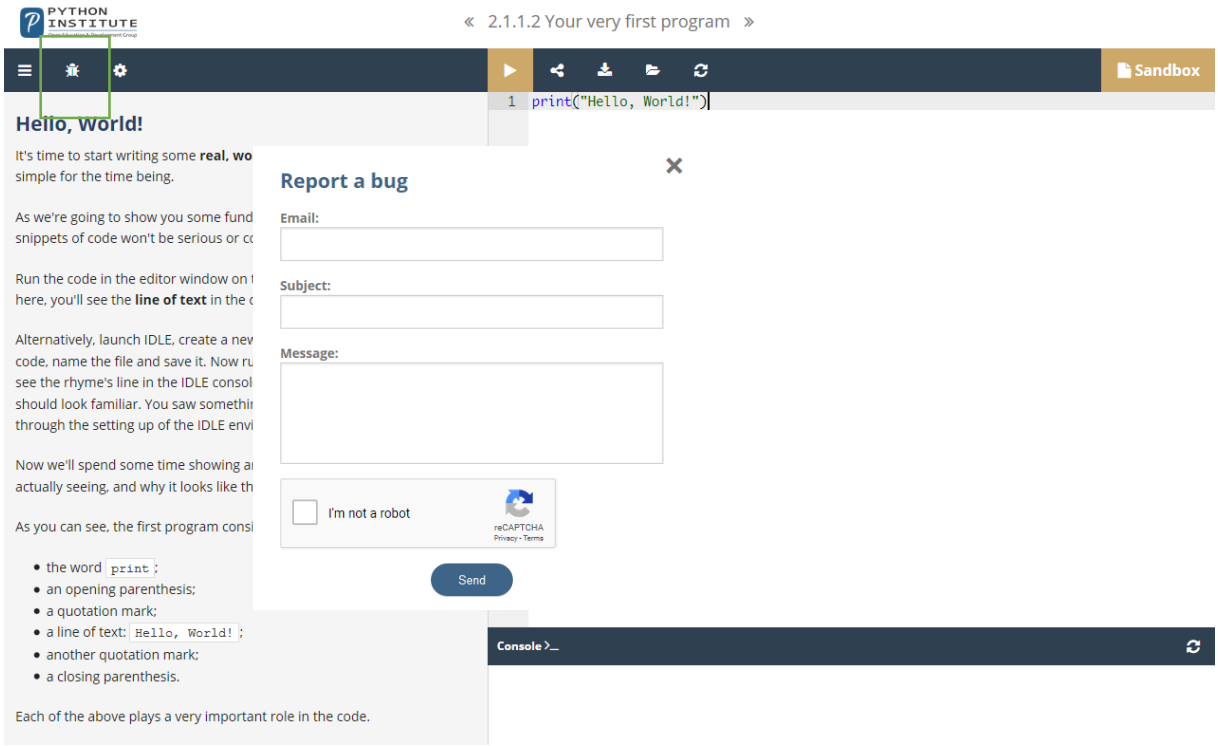
The *PCAP: Programming Essentials in Python (2.0)* course is a self-contained introductory course through which students with no prior background in coding can learn the fundamentals of Python and the general concepts of computer programming. The course offers a full-spectrum preparation for the PCEP – Certified Entry-Level Python Programmer (aligned with PE1, Modules 1-4) and PCAP – Certified Associate in Python Programming (aligned with PE2, Modules 1-4) certification exams from the Python Institute.

In addition, those candidates who successfully complete the whole course receive a Statement of Achievement, and are eligible for a 50% discount code on the exam voucher for the *PCAP – Certified Associate in Python Programming* exam.

The course contains quizzes, module tests, interactive assessments, and lab exercises that facilitate the understanding of programming concepts and the conversion of knowledge into practical skills. It has been designed and reviewed by experienced faculty and industry professionals, with the goal of meeting current market trends, and equipping the student with the fundamental knowledge necessary for a career in software development, software engineering, and application development.

20. Who should I contact if I have questions about the content of the course?

Students should direct all questions about the course content to their course instructor. Students and instructors can use the *Report a Bug* button, available in the course interface, to submit feedback to the Python Institute for bugs, suggested edits, content typos, etc.



For questions not covered in this document, please contact the Python Institute via the contact form. Thank you!