Trivera Technologies LLC

Collaborative IT Training, Mentoring & Courseware Solutions
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Advanced Python Programming

Web Development & Scripting Series | Python Programming Training

Course: **TTPS4850 Advanced Python Programming**
Duration: 4 days
Skill Level: Intermediate and Beyond
Audience: Experienced Python programmers, focused on Enterprise Development
Environment: This course can be taught for either Python 2.x or Python 3.x. Version-specific course materials and exercises will be provided.
Hands-On Format: This hands-on class is approximately 50/50 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.
Delivery Format: We're flexible! This course is available for onsite private classroom presentation, or live online virtual presentation, or can be presented in a combined delivery learning solution. Please also visit our Public Schedule for open-enrollment course dates.
Customizable: This course may be easily tailored to target your specific training skills objectives, tools of choice and learning goals.

Geared for experienced Python programmers, *Advanced Python Programming* is a practical, hands-on Python training course that thoroughly explores intermediate to advanced level topics and skills, teaching students how to Leverage OS services, Code graphical interfaces for applications, Create modules, Create and run unit tests, Define classes, Interact with network services, Query databases, Process XML data and much more. This comprehensive, practical course provides an in-depth exploration of working with advanced python, not an academic overview of syntax and grammar.

▶ Course Objectives: What You'll Learn

Throughout the course students will be led through a series of progressively advanced topics, where each topic consists of lecture, group discussion, comprehensive hands-on lab exercises, and lab review. This course is "skills-centric", designed to train attendees in essential, advanced Python and web development skills, coupling the most current, effective techniques with the soundest coding practices.

Working within in an engaging, hands-on learning environment, guided by our expert team, attendees will learn to:

- Leverage OS services
- Code graphical interfaces for applications
- Create modules
- Create and run unit tests
- Define classes
- Interact with network services
- Query databases
- Process XML data

Need different skills or topics? If your team requires different topics or tools, additional skills or custom approach, this course may be easily adjusted to accommodate. We offer additional Python programming courses which may be blended with this course for a track that best suits your development objectives.

Hands- on Learning: This course is about **50% hands-on lab and 50% lecture,** with extensive programming exercises designed to reinforce fundamental skills and concepts learned in the lessons. **Students will write numerous Python scripts** to reinforce the major concepts covered in this course. The courses will increase in complexity as more sophisticated techniques are introduced. Our courses include ample materials and labs to ensure all students are either appropriately challenged, or assisted, at all times – no matter their skill level.

▶ Audience: Who Should Attend

This course is appropriate for experienced Python programmers. Students should be able to write simple Python scripts, using basic data types, program structures and the standard Python library.

▶ Related Courses: Pre-Requisites & Learning Path

Take Before: Students should have practical skills equivalent to or should have received training in the following topic(s) as a pre-requisite:
- TTPH4800: Introduction to Python Programming (3 days) **OR**
- TTPS4810: Essential Python Programming (5 days)

Take Instead: We offer other courses that provide different levels of knowledge or focus:
- TTPS4820: Mastering Python Programming (5 days)

Please contact us for recommended next steps tailored to your longer term education, project, role or web development objectives. We will collaborate with you to design the best solution to ensure your needs are met, whether we customize the material, or devise a different educational path to help your team best prepare for this training.

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► Workshop Topics Covered

Session: Python Refresher
- Data types
- Sequences
- Mapping types
- Program structure
- Files and console I/O
- Conditionals
- Loops
- Builtins

Session: OS Services
- The os module
- Environment variables
- Launching external commands
- Walking directory trees
- Paths, directories, and filenames
- Working with file systems
- Dates and times

Session: Pythonic Programming
- The Zen of Python
- Common idioms
- Lambda functions
- List comprehensions
- Generator expressions
- String formatting

Session: Modules and packages
- Initialization code
- Namespaces
- Executing modules as scripts
- Documentation
- Packages and name resolution
- Naming conventions
- Using imports

Session: Classes
- Defining classes
- Instance methods and data
- Properties
- Initializers
- Class and static methods/data
- Inheritance

Session: Metaprogramming
- Implicit properties
- globals() and locals()
- Working with attributes

- The inspect module
- Decorators
- Monkey patching

Session: Programmer tools
- Analyzing programs
- Using pylint
- Testing code
- Using unittest
- Debugging
- Profiling and benchmarking

Session: Distributing modules
- Distribution concepts
- setuptools
- creating setup.py
- building installers
- running installers

Session: Database access
- The DB API
- Available Interfaces
- Connecting to a server
- Creating and executing a cursor
- Fetching data
- Parameterized statements
- Metadata
- Transaction control
- Other DBMS modules

Session: GUI Programming with PyQT4
- About QT4
- Getting started with the designer
- Widget properties
- Predefined dialogs
- Generating the UI
- Wiring up events
- Advanced Topics

Session: Network Programming
- Sockets
- Clients
- Servers
- Application protocols
- Forking servers
- Binary data
- The struct module

Session: Threads
- When to use threads?
- The Global Interpreter Lock
- The threading module
- Simple threading
- Sharing variables
- Threaded servers
- The queue module
- Debugging threaded programs
- Alternatives to threading

Session: XML and JSON
- Working with XML
- DOM and Sax
- Introducing ElementTree and lxml
- Parsing XML
- Navigating the document
- Creating a new XML document
- JSON
- Parsing JSON into Python
- Converting Python into JSON

Session: Extending Python
- About non-Python modules
- Overview of a C extension
- Writing C by hand
- Loading modules with **ctypes**

Session: Subprocesses
- Running external commands with subprocess
- Getting command status
- Managing STDOUT, STDERR, and STDIN
- The sh module (non-Windows systems only)
- Creating a simple command
- Keyword arguments
- Running commands in the background
- Piping and redirection
- Working with STDIO
- Exit codes
- Advanced features

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Trivera TECHNOLOGIES

▶ Student Materials: What You'll Receive

Our robust course materials include much more than a simple slideshow presentation handout. Student materials include a comprehensive hard-copy course manual, complete with detailed course notes, detailed lab manuals and workbooks, code samples, software tutorials, diagrams and current reference materials, all directly related to the course at hand, indexed for ease of use. Step-by-step lab instructions, software tutorials and project descriptions are clearly illustrated and commented for maximum learning.

▶ Setup Made Simple!

Our mission is to ensure a smooth start to your course with minimum set up burden for your team or firm. We offer several course set up options to help meet that goal. Please inquire for details on requirements and costs.

- **Manual Course Setup.** Our team provides a detailed setup guide with specific instructions, packaged software and links for all course tools and labs, as well as much live assistance as required to prepare your attendees or classroom for the course.
- **Remote Lab Environment**. Your team can access our hosted environment to access and use the software, labs and tools required for the hands-on portion of the training.
- **Provide Pre-Loaded Equipment**. If needed, we can ship in pre-loaded equipment to your site.

▶ Focused, Skills-Driven Training | Maximizing Your Training Time and Value, while Reducing Risk

Our training programs are designed to be skills-driven, focused events, targeted to deliver the true skills you need to succeed in your projects and role. We'll work with you to ensure that your valuable training time and dollar is truly maximized. If your team requires more or less advanced materials or additional or custom topics, this course may be easily adjusted to accommodate. We offer and can blend on a wide variety of surrounding and supporting tools and elements to build out a truly robust educational experience, for you, your team, or your entire organization.

Please contact us for details about our **Extended Education Programs** that support, surround, supplement or extend your learning initiatives such as

- **Collaborative mentoring** for your team
- **Pre-and post-training assessments** help place learners on the right path
- Mentored, comprehensive **case-studies** can be woven into your training programs, complete with guided work and instructor interaction
- **Guided or self-paced projects**, homework and exams
- **Interactive, self-paced programs** students
- **Virtual lab hours** and/or constant Mentor access
- Role-basic, Topic-based or Goal-based corporate **Training Roadmap and Learning Paths development**, rollout and support
- Skills-focused custom **New Hire Training Programs** and team **Reskilling initiatives**
- **Learning Management or Vendor Management Services** for your organization
- Plus many additional, flexible learning modules, initiatives and programs that can be delivered across a variety of subjects and modalities, completely tailored for your organization.

▶ Why Choose Trivera Technologies?

Whether you're a manager choosing a training provider or course to bring to your team, an instructor looking for reliable, solid course materials, or a student looking for an exciting, targeted training class to attend or to recommend to your colleagues - *Our single focus is to make YOUR training event or experience a success.* Here's why choosing Trivera Technologies as your **web development and design training, mentoring and courseware resource** takes the risk right out of your decision making process...

- **Our Instructors and Mentors bring years of leading-edge, hands-on web development & design experience into the classroom and content.** Our engaging, dynamic instructors and course authors are also highly-skilled Python programmers, web developers and designers who work on exciting projects in between training engagements, all of whom are immersed in the latest skills, tools and technologies available in this fast-changing industry. They bring experience and expertise well-beyond the course materials.
- **Our 'skills-driven' courses are efficient, focused, current and comprehensive**. Our experts target exactly the skills your team needs to succeed in their jobs, projects or roles, rather than taking a 'laundry-list' approach to training, which can often result in overtraining, course overload or overwhelmed students. We'll work with you to define what it is you need to accomplish, and create the right program, training to those goals. Students of all skill levels will be able to hit the ground running with their new skills right after class ends, since the program was correctly designed from the start.
- **Our 360° Turn-Key Training Services ensure your Important Event is Truly Targeted, Exceeds Your Expectations and is delivered 100% Worry-Free!** The Trivera team treats <u>every</u> delivery engagement like a first-run, important event, not simply a staffing assignment. For every class we deliver, our team works closely with yours to ensure that your course runs smoothly from start to finish, and that there are **no surprises** in the classroom for you, your students or the instructors. Our experts work with you to choose the right topics and courses that align with your true skills goals, tuning as needed. We align the best all-around trainer to fit your exact needs – not just whoever happens to be 'on the bench'. We offer pre-reading, quizzes and support resources to help assess and prepare your team for the training, so we can best tune the training and maximize their time in the classroom. We'll ensure that your classroom is set up and ready to go prior to course start. Throughout the course delivery, our instructors constantly evaluate the class delivery and students, tuning topics, activities,

discussions and labs as needed to ensure all student skill levels and needs are targeted. All activities, data and results are documented and shared with your firm so you have a complete picture of the course and its results, throughout the course delivery, and afterwards. Post training support is also included for your students to address any future related questions.

- **We wholly-own our course content, giving Trivera flexibility & quality above the rest.** Our course materials are **owned** by our company and *fully customizable at <u>little or no cost</u>*. Dozens of training firms and independent instructors purchase and use our course materials, and hire us for training support as well. As a result, our courseware is subject to very stringent quality requirements. Not only will your organization benefit from our own technical team's technical expertise, but also from the feedback of hundreds of students and trainers using these materials, worldwide, on a regular basis. This unique fact guarantees that our materials are not only robust and interesting, but also technically correct, current and of the highest quality and usability.

- **Our content is always updated and ready to go.** Our dedicated course development team keeps our training content, courses and student resources completely updated with the latest skills, industry trends and software editions to ensure your team is always getting the most current information, techniques and skills available.

- **We're here for Extended Support Service** for students, instructors, facilities or anyone using our content or working with our instructors, in any way. There is someone here to assist you with questions, technical calls, set up, content – or whatever you need - at all times. Your success is our singular goal. We also support all of our students long after the class ends by offering pertinent free technical resources, live mentoring and technical support to help you apply your newly learned skills, and steeply discounted additional training offerings.

- **We're published authors and industry speakers.** Our team was selected to write the online *JEE, EJB, EJB CMP-CMR a*nd *Web Services Tutorial Series for IBM developerWorks®.* These are the same instructors who train our classes and author the courseware. Most of our trainers/consultants have also authored additional articles on web services, EJB, Struts, JEE and advanced Java topics, and are recognized speakers and presenters on the industry technical seminar circuit. Our team is comprised on several successful published authors. Members of our team have written or contributed to: *Python Programming, Eclipse Kick Start, Mastering Eclipse; Professional Struts; Using Java Tools for Extreme Programming; Mastering Resin; Mastering TomCat and others.*

- **Need a small-business status with whom to team?** Trivera Technologies is a 100% Woman-Owned Small Business Concern. Please contact us to team with us for your small-business or woman-owned set aside opportunities.

- *Our prices and services are guaranteed.* We stand behind our courses and instructors 100%. We'll match or beat any pricing for similar services, any time. Whether you're a stakeholder organizing your firm's educational services, a student in our live or virtual classroom or a trainer using our materials to educate your own client or team – **Our core mission is to make YOU a success in the classroom**.

▶For More Information

Need dedicated training? All courses can be brought **onsite** or produced **online** / virtually for a private presentation, customized to suit your unique requirements or goals. Please contact us for course details and Special Discount Offers. Our pricing is always cost effective, and our services are guaranteed. Please also visit our **Public Training Schedule** for available open enrollment dates that may apply. Please contact **Training@triveratech.com** for more information, pricing and special offers.

Need courseware or courseware development services? Let us take the risk out of your next courseware purchase, curriculum development project or classroom delivery! All Trivera Technologies course materials are available for corporate license and customization, with complete instructor support and free corporate branding. Samples are available upon request. Please contact us at **Courseware@triveratech.com** for details, options and excellent pricing.

For more information about our training services, collaborative mentoring services, courseware licensing options, courseware development services, public course schedule, training management services, partner and reseller programs, or to see our complete list of course offerings please visit us at **www.triveratech.com**, email **Info@triveratech.com** or call **609.953.1515**.

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MENTORING | ASSESSMENTS | LEARNING PLAN DEVELOPMENT | PARTNER PROGRAMS | CORPORATE TRAINING MANAGEMENT SERVICES

Trivera Technologies is a Woman-Owned Small-Business Firm