



Programming with Python for Data Sciences

Python today is one of the most flexible, powerful and preferred multi-paradigm programming language. Its clean Object Oriented design, strong text processing, process control, user friendly data structures, extensive library make it most suitable to develop web frameworks and applications for enterprises and businesses. Owing to its OSI-approved license, Python is free to use for personal as well as commercial use.

Python reduces the cost of program maintenance and development time since it can skip many tasks as compared to other languages and also provides faster feedback. It is well known for program reusability by implementing modules and packages. The standard python library is well built and covers large set of modules. It can easily share functionality between programs by breaking programs into modules and reusing the modules as components for other program development.

Data Science is the vast field of opportunities for the technology professionals who aspire for lucrative career as Data Scientist, Data Analyst, Data Visualiser and Data Engineer. Data Scientists contribute to the enterprises in huge number crunching, bulk of operational and business data, consumer research and sales predictions. Data Scientists add value to the business by empowering managers to make better decisions, accurate forecasts turning plans and goals into desired real gains and growth.

Course Objectives

- Hone up the skills to develop your own Python scripts
- Master Python's clean Object-oriented Features to develop Web applications
- Execute JSON parsing and Web Scrapping
- Help businesses make better decisions and accurate forecasts with insights to Data Analysis & Visualization

Curriculum

Module 1: Introduction to Python

- Introduction to Scripting Language, Interactive Mode, Scripting Mode, Print, Input, Basic data types, Numbers, Strings, Using the IDE of Idle etc.
- Paid vs Organic
- Constructs, Conditional, Iterative (for/while) , Break, Continue, Else, Range
- Practical Hands on exercises

Module 2 : Python types

- Tuples, Sets, Lists, Boolean, None



- Comprehension, Dictionaries
- Practical Hands on exercises

Module 3 : Modular Programming

- Functions, Return values, Predefined Functions
- Python Modules - Existing and Creating New Modules
- Practical Hands on exercises

Module 4: Files & Lambda Files

- Named/Unnamed Parameters, Lambda
- Practical Hands on exercises

Module 5 : Project Overview and Guideline

- Project Overview, Project specifications and Project timeliness
- Project Guidelines

Module 6 : OOPs

- Classes, Operator Overloading
- Inheritance, Data Hiding
- Practical Hands on exercises

Module 7: OOPs and Exception Handling

- Practical Hands on exercises
- Advanced features of Classes, Iterable / Indexable Classes
- Exception Handling, Creating exceptions
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Module 8: Regular Expressions

- Regular expressions
- Advanced Regular Expressions and applications
- Practical Hands on exercises

Module 9: Introduction to Using Databases

- Using MySQL
- Using SQLITE3 database with Python
- Practical Hands-On Exercises



Module 10: JSON Parsing & Web Scraping

- Installing modules, pip, JSON parsing
- Web Scraping Techniques
- Practical Hands-On Exercises

Module 11: Data Analysis & Visualization

- Introduction to Data Analysis & Visualization
- Using Spreadsheets and Creating Graphs
- Practical Hands-On Exercises

Module 12: Project Submission

- Practical Hands-On Exercises

Instructor

Instructors are handpicked from a selected group of industry experts and mentors and trained to deliver the best online learning experience. All training instructors have at least ten years of industry experience and extensive functional expertise in the field they train.

Certification

- The assessment will be done on the basis of an online test and Project Evaluation at the end of the course.
- On completion of the Assessment (Project + Test) with a minimum of 70% marks, a certificate of successful completion will be issued from NIIT.

Pre-requisites

Learners should have complete programming knowledge in any one software programming language like C, C++, Java, etc. and this is a mandatory requirement for taking this course.

FAQs

Who should join this course?

The learners for the course can be school students, college students, graduates, post-graduates, working professionals or senior working professionals. Knowing a programming language like C, C++, Java, etc. is a pre-requisite for this program.

What is the Case Study based Project which I need to develop as part of this program?

Develop a SEO tool to analyze live web pages



Search Engine Optimization (SEO) is an important aspect of a web page to gain importance for a search engine to be able to display it earlier in the search list. The optimization is based on a lot of factors such as title, description, header tags and keyword density. Different search engines will have their own mechanisms that calculate the score of a keyword on the page and thus work out its ranking in the search order.

The course project is to develop a generic SEO toolset which will help a web developer analyze live web pages for keywords and other components of the page which contribute to SEO. We should be able to provide the keywords of interest and understand its density pattern across the various components of the HTML page. The web page analysis should be developed to be done in a batch mode where we can analyze hundreds of web pages and the results should be saved as reports in spread sheets with graph presentations where necessary. The project would not only give exposure to a real life problem solving using Python, but would also make learners understand about Internet and Search Engines and how they relate to each other.