

Certification Examination Regulations and Course Description

This Certification Examination Regulations of the Steinbeis+Academy applies to the following course on the basis of the valid Framework for the Implementation of Certificate Courses (RZLG) in the current version.

Course title	Python				
Fields of competences	Management	Personality Development	Education Management	Healthcare	Technology
	X				X
Place(s) of implementation	Bengaluru (India)				
Graduation	Diploma of Advanced Studies (DAS)	Certificate of Advanced Studies (CAS)	Diploma of Basic Studies (DBS)	Certificate of Basic Studies (CBS)	
				X	
Qualification aim	The course is for professionals working with engineering background software development Engineering freshers with the analytical abilities and entry level: application support engineer.				
RZLG-Supplementary admission requirement					
Teaching method	Classroom	Classroom/ Online	Online		
		X			
Language	English				
Workload in hours	Total	Seminar time	Self-study time	Transfer time	
	40	25	10	5	

Type of performance records (LNW)	Examination (K)	Presentation/oral examination (P)	Case (C)	Transfer paper (TA)	Project study paper (PSA)
	X				

Contents

Modules	Key topics	Seminar time/h
Why Python?	Language Popularity; Job Trends; Areas where Python is used; Companies using Python and Examples; History of Python; Compiled and Interpreted Languages; Why Python as hybrid language	1
Installation – Python	Versions (2.7+ vs 3.0+); Available IDEs, Comparison; Installation of Python and PyCharm; IDLE and the interactive shell; Basic operations on the shell; Running the script file	2
Python Data Types	Variables; String; List; Tuple; Dictionaries; Boolean; Numbers; Range	2
Operations	Arithmetic Operators; Relational Operators; Logical Operators	2
Conditional Statements	If Statement (elif, else); for Statement; while Statement; break and continue Statement; pass keyword	2
Functions	Definition and calling a function; Pass by Reference vs Value; Functions Arguments (Required, Keyword, Default, Variable Length); Return statement; Scope of Variables (Global vs Local)	2
Functional Programming	Anonymous (lambda) Functions; Maps, filter, reduce; Dictionaries in lambda; File I/O, Reading Keyboard Inputs, Input function, Opening and Closing Files, Reading and Writing Files	2

Modules	Basics; Search Path; Globals() and locals(); Dir() function; Packages (Basics, Importing from packages, examples)	2
Classes	Classes and objects; Init function; Class vs Instance Variables vs Static Variables; Inheritance; Multiple Inheritance; __str().__	2
Exception Handling	Standard Exceptions; Assertions; Handling; Try-finally, except; Raising an Exception	2
Regular Expressions	What are Regular Expressions; Matching Characters, Searching; Compiling Regular Expressions; Find all; Search; Ignore case vs normal search; Repetition; Emails Example; Group Extraction	2
Database Programming	Connecting to Database Server; Connecting to different databases like SQLite; CRUD Operations; Transactions Management; Introduction to Django; Introduction to framework; Introduction to virtual Environment; Installing Django; Creating a project, Apps and database setup; Introduction to models, creation and activation; Admin Interface	2
Working With CSV Files And JSON Data	Introduction to CSV Module; Reader Objects; Reading Data from Reader Objects in for loop; Writer Objects; The delimiter and line terminator keyword arguments; JSON; The JSON Module; Reading JSON with loads() function; Writing JSON with dumps() function	2