Certification Examination Regulations and Course Discription

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	Data Analysis / Business Analysis

Fields of competences	Management	Personality Development	Education Management	Healthcare	Technology
	X				X

Place(s) of implementation	Bengaluru (India)	Mumbai (India)	Pune (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	Commerce, science and engineering any stream; working professional from any domain with logical, analytical skills. Entry level: BPO & KPO data analyst

RZLG-Supplementary admission requirement	Aspirant with good analytical abilities / background - Finance and accounting, management domain

Teaching method	Classroom	Classroom/ Online	Online
		X	

Language	English			

Workload in hours	Total	Seminar time	Self-study time	Transfer time
	164	94	10	60

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

Contents

Modules	Key topics	Seminar time/h
introduction/basics	Excel: Basics to Advanced; SQL; Tableau; Power BI; SAS; R Basics; Python Basics	1
Advanced Excel –Basic	Customizing the Ribbon; worksheets; Format Cells; Various selection techniques; Shortcuts Keys; Protecting and un-protecting worksheets	1
Advanced Excel -Data Validations & Scientific Work	Scientific work; methodical approach für data collection and analysis Specifying a valid range of values for a cell; Specifying a list of valid values for a cell; Specifying custom validations based on formula for a cell	5
Advanced Excel -Data Validations	Specifying a valid range of values for a cell; Specifying a list of valid values for a cell; Specifying custom validations based on formula for a cell	1
Advanced Excel -Text Function	Upper, Lower, Proper; Left, Mid, Right; Trim, Len, Exact; Concatenate	1
Advanced Excel -Function & Formula	Basic Function –Sum, Average, Max, Min, Count, Count A; Conditional Formatting; Logical functions (AND, OR, NOT); Lookup and reference functions (VLOOKUP, HLOOKUP, MATCH, INDEX); V-lookup with Exact Match, Approximate Match; Nested V-lookup with Exact Match; V-lookup with Tables, Dynamic Ranges; Nested V-V-lookup with Exact Match; Using V-lookup to consolidate Data from Multiple Sheet; Mathematical Functions; SumIf, CountIf, AverageIf etc; Date & Time Function	3
Advanced Excel -Pivot Tables	Creating Simple Pivot Tables; Basic and Advanced value field setting; Grouping Based on number and Dates; Calculated field and Calculated items	1

Advanced Excel –Charts & Slicers	Using Charts; Formatting Charts; Using 3D Graphs; Using Bar and Line Chart together; Using Secondary Axis in Graphs; Sharing Charts with PowerPoint / MS Word, Dynamically	1
Advanced Excel -Working with Templates	Designing the structure of a template; Using templates for standardization of worksheets	1
Advanced Excel -VBA-Macro	Introduction to VBA; What is VBA ?; What can you do with VBA ?; What can you do with VBA ?; Procedures and Function in VBA	1
Advanced Excel -Variable in VBA	What is Variables ?; Using Non-declared variables; Variable Data Types	1
Advanced Excel -Message-Box and Input-box functions	Customize Message-Box and Input-box; Reading cell values into messages; Various button groups in VBA	1
VBA Coding Advanced function	If and Select statement; Looping in VBA; Mail Function –send automated email; Automated report will be shown	1
SQL	Introduction to Databases; Databases; Introduction to DBMS; Popular DBMS Software; Concepts of RDBMS; Tables; Tuples; Attributes; Normalization; First Normal Form; Second Normal Form; Third Normal Form; NoSQL Databases; Types of NOSQL; Comparison	2
SQL Commands	Types of SQL Commands; Data Definition Language; Create, Drop, Truncate, Alter and Rename Objects; Data Query Language; Select Statements; Data Manipulation Language; DCL and TCL; Grant, Revoke and transaction statements; SQL Data Types; Numeric, Date and Time, LOB Types	3

DML Commands	Insert, Update and Delete Statements; DDL Commands; Create and Drop Databases	1
Database Constraints	Types of Constraints; Relational Integrity Constraints; Key Constraints; Domain Constraints; Referential Integrity; Types Of Constraints; **Primary and Foreign Keys**; Application of Indexes; Checking Constraints; Alter Tables	2
SQL Transactions	Examples; ACID Properties; TCL Statements; Start, Commit and Rollback Statements; Auto Commit; SavePoints; Identifier; Rollback and Release	2
Database Objects	Tables; Creating, Altering and dropping tables; Sequences; Auto Increments; Re-Sequencing; Views; Advantages; Creating and Dropping Views; Indexes; Types of Indexes; B-Tree and Hash Indexes; Creating and dropping Indexes	2
Stored Procedures and Functions	Stored Objects: Types of Stored Objects; Stored Procedures; Create, call and drop stored procedures; Using Variables; Handling Exceptions; Named Errors and Re signals; Programming; If-then-Else and Case Statements; Loops; Repeat and Leave Statements; Cursors; Operators and Functions; **Joining Tables:** Inner Join, Left Join, Right join; Advantages of Procedures	4

Database Triggers Accessing Database From R and Python	Triggers; Database Triggers; Data Definition Language (DDL) Triggers; Data Manipulation Language (DML) Triggers; CLR Triggers; Logon Triggers; **Triggers v/s Stored Procedures:** Accessing Database from R; Install R Packages; Configuration Information; Python Database Access; Databases Supported; Libraries; Read Operations; Insert, Update and Delete; Performing Transactions; Handling Errors	4
Tableau	What is Data Visualization; Advantages & Disadvantages of visualizations	1
Age of Big data	Why Data visualization Important; Understanding data; Examples of Data visualizations in Action; Different data visualizations	1
Principles of Visualizations	Design Principles; **Best Practices:** Data Viz Inspiration	1
Tableau –Data Visualization Tool	Introduction to Tableau; What is Tableau; Overview Of Tableau Tool(Servers , data , visualizations); Tableau Architecture; Advantages & Disadvantages	1
Different Products of Tableau	Tableau Desktop; Tableau Public; Tableau Prep; Tableau Online; Tableau Server; Tableau Analytics	2
Extensions in Tableau	Tableau Work book; Tableau Data Source; Tableau Data Extract; Tableau Packaged Workbook (TWBX); Tableau Packaged Data Source (TDSX); Tableau Book Mark; Tableau Map Source; Tableau Preferences	2
Features of Tableau Desktop	Connecting to Data from servers; Connecting Data from ODBC; Connecting data from local repositories	1

Tableau-Joins and Data Pane	What are Joins in Tableau; Types Of Joins in Tableau; Inner Join; Left Join; Right Join; Full Outer Join; Union; Creating Joins Using Data	1
Tableau Data Pane	Dimensions; Measures; Parameters; Sets	1
Pivot Table and Split Tables in Tableau	In built Charts in Tableau; Basic Charts; Text Tables; Highlight Tables; Bar charts; Stacked Bar; Line Graphs; Dual axis; Pie chart etc.	2
Maps in Tableau	Symbol Maps; Filled maps; Combined maps; Map layers; WMS; Polygon Maps; Custom coding etc.; How to Interpret Bullet Graphs; Actual Profit vs Budget Profit Analysis; Market wide Analysis etc	2
How to Interpret Scatter Plot	Correlation Analysis; Direction of Relationship; Strength of Relationship etc.	1
How to Interpret Histogram	Distributive Analysis, Bin Sizes, Custom bin sizing etc.	1
How to Interpret Box Plot chart	Distributive Analysis, Quartile Analysis, 5 Point Chart Analysis	1
Data Interpretation	Understanding of data types, discussing about dimensions and measures etc.; Creating Calculated Fields; Attribute functions; Quick table calculations	2
Creation of calculated fields	Aggregate and disaggregate functions etc.	1
Logical Functions	Understanding If-else statements, applications of if-else statements (eg: high profit , low profit etc.)	2
Case-If Function	Understanding Case Statements with examples; Applications of case statements	1

ZN Function	Creation of ZN functions; Application of ZN functions; Dealing with calculated fields etc.	1
Ad-Hoc Calculations	Calculations using parameters; Sets; Filters etc and applications	1
Manipulating Text-Left & Right Functions	Understanding different string functions etc.	1
Pre-Defined Analytics	Forecasting ,LOD Expressions , Functions, Groups, Filters, etc	1
Dashboards Hands-On in Tableau	Understanding concept of Dashboards; Building Interactive dashboards; Dashboard actions, etc.	1
Story Hands-On in Tableau	Relevance of stories in Dashboards, Working with examples on stories etc.	1
Animated Visualization Hands-On	Animation charts, play controls, page shelf, applications of animation charts	1
Tools for Sharing Information	Understanding Tableau Reader, Tableau online etc.; Publishing our Workbooks in Tableau Server; Exploring publishing options using Tableau , Discussing sharing of workbooks, etc.	2
Connecting Tableau with Tableau Server	Overview of how to connect Tableau with Tableau server.	1
What is R?	R software, installation , R studio , Understanding basic interface of R .	1
Connecting Tableau with R	R servepackage, using functions such as SCRIPT_REAL etc, Understanding with examples.	1
How to integrate Tableau with R?	Rservepackage, external connections, ports, Understanding with examples.	1

Basics of R	Introduction of R; Data Types; Data Structures; Decision Making Statements; Conditional Loops; Flow Control Statements; If Statements; For loops; While Loops; Built Functions in R : Base, datasets, dplyrand ggplot	2
Basics of Python	Introduction to Python & Data Science Python Installation on laptops; Variables -Python Build in functions -Modules -Python Libraries installation using PIP; Python Operators; Flow Control Statements -If Statements -While Loops;-Data & time modules in python -Interfaces in Python -For Loops	2
Python modules for Data Analysis	Python Basics -Webscrapping-Python custom functions -Lambda Function -Regular Expressions; Data science Life cycle -NumpyModule; Data science Life cycle -PandsModule; Data science Life cycle -MatplolibModule	1
Power BI (E-Learning Module)	Introduction to PowerBIPreview; Download the Training Data Files; Introduction to Signing Up for Power; Signing up for PowerBIPreview; Load Data into the Power BI Service Preview; Practical Activity	1
The Power BI Desktop	Intro to PowerBIDesktop Section; Introduction to the Power BI Desktop Preview; Creating Reports in Power BI Desktop	1

Create Reports in Power BI Desktop Section	Creating Tables in Power BI; Table Styles and Formatting Preview; Matrix Visualization 06:11; Tables and Metrics Practical Activity; Answers to Tables and Metrics Practical Activity; Changing the Method of Aggregation; Methods of Aggregation Challenge; Methods of Aggregation Challenge Completed; Cards and Multi Row Cards; Cards, Matrix and Multi Row Card Challenge; Answers to Cards Challenge; Percentage Calculations; Filtering Data -Using Slicers; Filtering Data -Visual Filters; Filtering Data -Page Filters; Filtering Data -DrillThrough Filter; Practical Activity -Filters; Practical Activity Filters Completed	3
Graphs and Visualizations	Introduction to Visualization Section; Clustered Column Graphs; Stacked and 100% Graphs; Column Graph Challenge; Column Graph Challenge Completed; Graph Options; Trend Analysis Graphs; Area Graphs; Ribbon Graphs; Additional Graphs; Scatterplots and Bubble	1
Interactive Dashboards	Creating Interactive Dashboards; Challenge -Create an Interactive Report; Completed Challenge -How to create an Interactive Report; Publishing Reports to the Power BI Service; Pinning Visualizations to Dashboards; Mobile Reports; Q and A; App Workspaces; Publishing an App; Using Themes in Power BI; Using Custom Visualizations	2
DAX Formulas	DAX Formulas Section; DAX Formulas; Date Functions; Formatting Dates; Date Master Tables	1

DAX Measures	Introduction to Measures Section; Introduction to DAX Measures; DAX Measures Practical Activity; DAX Measures Activity Completed; The =Calculate Formula	2
Relationships	Relationships Section; Creating and Managing Relationships in Power BI; Relationship Calculations	1
Power BI Query Editor	Introduction to Power BI Query Editor; Basic Transformations -Part 1; Basic Transformations - Part 2; Aggregating Data	1