



Advanced Certification Programme in Data Science and Business Analytics with Generative AI

Week	Curriculum Segment	Milestone Tasks
Week 0	Programme Orientation	<ul style="list-style-type: none">• Sign the Student Code of Conduct and Course Agreement• Set up your Vocareum environment• Introduce yourself
Week 1	Math/Stats for Data Science	<ul style="list-style-type: none">• Self-paced videos (Concepts)• Live session (Hands-on)• Practice activities
Week 2	Data Analysis using R	<ul style="list-style-type: none">• Self-paced videos (Concepts)• Live session (Hands-on)• Practice activities
Week 3	Data Cleaning	<ul style="list-style-type: none">• Self-paced videos (Concepts)• Live session (Hands-on)• Practice activities
Week 4	SQL Basics	<ul style="list-style-type: none">• Self-paced videos (Concepts)• Live session (Hands-on)• Practice activities
Week 5	Constraints in SQL	<ul style="list-style-type: none">• Self-paced videos (Concepts)• Live session (Hands-on)• Practice activities
Week 6	Joins in SQL	<ul style="list-style-type: none">• Self-paced videos (Concepts)• Live session (Hands-on)• Practice activities
Week 7	Functions in SQL	<ul style="list-style-type: none">• Self-paced videos (Concepts)• Live session (Hands-on)• Practice activities• IBM Certification: SQL and Relational Databases 101• Graded Mini project*

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Week 8	Data Visualization using Power BI	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 9	Power Query	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 10	Data modelling and DAX	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 11	Publishing BI Reports	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 12	Data Storytelling	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities Graded Mini Project*
Week 13	Python Fundamentals	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 14	Data Engineering Basics	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 15	Data Science using Python packages (Part 1)	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 16	Data Science using Python packages (Part 2)	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities

Week	Curriculum Segment	Milestone Tasks
Week 17	Exploratory Data Analysis (EDA)	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities IBM Certification: Python for Data Science Graded Mini project*
Week 18	Inferential Statistics (part 1)	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 19	Inferential Statistics (part 2)	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 20	Predictive Modelling	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 21	Machine Learning Fundamentals	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 22	Machine Learning Fundamentals (Supervised Learning - Part 1)	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 23	Machine Learning Fundamentals (Supervised Learning - Part 2)	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 24	Machine Learning Fundamentals (Unsupervised Learning)	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities Graded Mini project*
Week 25	Hyper Parameter Tuning and Model Preservation	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities

Week	Curriculum Segment	Milestone Tasks
Week 26	Time Series Forecasting	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 27	Ensemble Modelling	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 28	Association Rule Mining	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities Graded Mini project*
Week 29	Supply Chain Analytics	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 30	Marketing Analytics	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 31	Finance and Risk Analysis	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities IBM Certification: Prompt Engineering for Everyone Graded Mini project*
Week 32 - 34	Specialization 1: Web Analytics, Retail Analytics & Real-World Case Studies in DS	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Week 32 - 34	Specialization 2: Introduction to Generative AI for Data Science, Prompt Engineering for Data Science Use Cases, & Prompt Engineering for Data Science Use Cases	<ul style="list-style-type: none"> Self-paced videos (Concepts) Live session (Hands-on) Practice activities
Two weeks - Capstone project (Graded)*		