AI CERTs™

AI + Business Intelligence

Duration: 20 Days

Daily Schedule: 6 Hours

Exam Code: AT-820

Program Overview

This 20-day intensive bootcamp integrates the practical application of Artificial Intelligence (AI) with Business Intelligence (BI) tools to empower participants with the skills required to transform raw data into meaningful insights and strategic decisions. Participants will build complete AI-powered BI solutions using Python, Power BI, Tableau, and Cloud Platforms, culminating in a Capstone Project and Career Portfolio.

Certification Modules Overview

Day-1: Module 1: Introduction to Business Intelligence (6hrs)

- o Understanding of Business Intelligence
- o Application of Business Intelligence
- o Evolution and purpose of Business Intelligence
- o Components: Data Warehousing, ETL, OLAP, Dashboards
- o BI vs Data Science vs Data Analytics
- o Industry use-cases in logistics, finance, healthcare
- o Tool Introductions: Power BI, Tableau walkthrough
- o **Use-case**
- o **Case Study**

Day-2: Module 2: Data Warehousing & ETL Concepts (6hrs)

- o Understanding of Data Warehousing & ETL Concepts
- o Structured, Semi-structured, Unstructured data
- o Star and Snowflake schema models
- o SQL-based ETL pipeline
- o Data cleaning & transformation best practices
- o **Use-case**
- o **Case Study**
- o **Hands-on**

Day-3: Module 3: Foundations of AI in Business (6hrs)

- o Definitions of AI, ML, Deep Learning, NLP
- o Supervised vs Unsupervised Learning
- o Classification vs Regression
- o Neural Networks and how they mimic the brain

- o Predictive vs Descriptive Analytics
- o Role of data in AI
- o AI-powered BI: Recommendation systems, fraud detection
- o **Use-case**
- o **Case Study**
- o **Hands-on**

Day-4: Module 4: Data Analysis (6 hrs)

- o Introduction to Data Analysis and Tools
- o Importing and Reading Datasets (CSV, Excel, APIs)
- o Data Wrangling and Cleaning with Pandas
- o SQL Basics: Queries, Aggregations, and Filtering
- o SQL Joins and Subqueries
- o Exploratory Data Analysis (EDA) and Summary Statistics
- o Data Visualization with Matplotlib and Seaborn
- o **Use-case**
- o **Case Study**
- o **Hands-on**

Day-5: Module 5: Visual Analytics & Modelling (6 hrs)

- o Introduction to Power BI and Its Components
- o Connecting and Importing Data from Various Sources
- o Data Cleaning and Transformation using Power Query
- o Creating Basic Visualizations and Dashboards
- o Advanced Visuals, Slicers, and Interactive Filters
- o Data Modelling with Relationships and DAX Basics
- o Creating Calculated Columns, Measures, and KPIs
- o **Use-case**
- o **Case Study**
- o **Hands-on**

Day-6: Module 6: Advanced Data Visualization (6 hrs)

- o Introduction to Tableau Interface and Workflow
- o Connecting to Data Sources and Preparing Data
- o Creating Basic Charts: Bar, Line, Pie, Map
- o Using Filters, Parameters, and Hierarchies
- o Building Interactive Dashboards and Stories
- o Advanced Visualizations: Dual-axis, Heatmaps, Forecasting
- o Calculated Fields, Table Calculations, and LOD Expressions
- o **Use-case**
- o **Case Study**
- o **Hands-on**

Day-7: Module 7: Machine Learning for Business Insights (6 hrs)

- o   Introduction to Machine Learning and Its Business Relevance
- o   Types of Machine Learning: Supervised, Unsupervised, Reinforcement
- o   Preparing Data for Machine Learning Models
- o   Building Models: Regression, Classification, Clustering
- o   Model Evaluation: Accuracy, Precision, Recall, Confusion Matrix
- o   Applying ML for Business Use-Cases: Churn, Sales Forecasting, Segmentation
- o   Interpreting Results and Extracting Actionable Insights
- o   **Use-case**
- o   **Case Study**
- o   **Hands-on**

Day-8: Module 8: NLP for Business Operations (6 hrs)

- o   Introduction to NLP and Its Role in Business Operations
- o   Text Preprocessing: Tokenization, Stopwords, Lemmatization
- o   Text Representation Techniques: Bag of Words, TF-IDF, Word Embeddings
- o   Sentiment Analysis and Text Classification
- o   Named Entity Recognition and Information Extraction
- o   Topic Modeling for Customer Feedback and Surveys
- o   Chatbots and NLP Automation in Business Processes
- o   **Use-case**
- o   **Case Study**
- o   **Hands-on**

Day-9: Module 9: Forecasting & Predictive Analytics (6 hrs)

- o   Introduction to Forecasting and Predictive Analytics
- o   Understanding Time Series Data and Its Components
- o   Data Preparation: Handling Trends, Seasonality, and Missing Values
- o   Forecasting Techniques: Moving Average, Exponential Smoothing
- o   Predictive Modelling: Linear Regression, Decision Trees, Random Forest
- o   Model Evaluation Metrics: RMSE, MAE, MAPE
- o   Business Applications: Demand Forecasting, Revenue Prediction, Inventory Planning
- o   **Use-case**
- o   **Case Study**
- o   **Hands-on**

Day-10: Module 10: AI-Enhanced BI & Automation (6 hrs)

- o   Introduction to AI in Business Intelligence and Automation
- o   Overview of Modern BI Tools with AI Capabilities (Power BI, Tableau, etc.)
- o   Automating Data Workflows with Python and SQL Scripts
- o   Integrating ML Models into BI Dashboards
- o   AI-Powered Features: Smart Insights, Natural Language Queries, Auto Forecasting

- o RPA (Robotic Process Automation) Basics and Use-Cases in Business
- o End-to-End AI-Driven BI Solution Design
- o **Use-case**
- o **Case Study**
- o **Hands-on**

Day-11: Module 11: Cloud Infrastructure for AI & BI (6 hrs)

- o Introduction to Cloud Computing and Its Role in AI & BI
- o Overview of Leading Cloud Platforms: AWS, Azure, Google Cloud
- o Setting Up Cloud Storage and Databases (S3, BigQuery, Azure Blob)
- o Deploying BI Dashboards and AI Models on the Cloud
- o Using Cloud-Based Tools: AWS SageMaker, Azure ML, Google AutoML
- o Data Security, Privacy, and Compliance in the Cloud
- o Scalability and Cost Optimization for Cloud Resources
- o **Use-case**
- o **Case Study**
- o **Hands-on**

Day-12: Module 12: Ethics, Privacy & AI Governance (6 hrs)

- o Understanding of AI Ethics and Responsible AI
- o Understanding Data Privacy Laws (GDPR, CCPA, etc.)
- o Bias and Fairness in AI Systems
- o Transparency, Explainability, and Interpretability of AI Models
- o Consent, Data Ownership, and User Rights
- o AI Governance Frameworks and Best Practices
- o Risk Assessment and Ethical Auditing in AI Projects
- o **Use-case**
- o **Case Study**
- o **Hands-on**

Day-13: Module 13: Domain-Specific Applications (6 hrs)

- o Understanding of Domain-Specific AI Applications
- o AI in Finance: Fraud Detection, Credit Scoring, Risk Analytics
- o AI in Healthcare: Diagnosis Support, Patient Monitoring, Predictive Care
- o AI in Retail: Recommendation Engines, Demand Forecasting, Inventory Management
- o AI in Manufacturing: Predictive Maintenance, Quality Control, Automation
- o AI in Education: Personalized Learning, Student Analytics
- o **Use-case**
- o **Case Study**
- o **Hands-on**

Day-14: Module 14: Strategy & ROI Planning (6 hrs)

- o Introduction to AI Strategy and Business Alignment

o   Identifying High-Impact AI Use-Cases
o   Cost-Benefit Analysis of AI/BI Projects
o   Measuring ROI: Key Metrics and Financial Indicators
o   AI Adoption Roadmap: From Pilot to Scale
o   Change Management and Organizational Readiness
o   Risk Management and Mitigation Planning
o   **Use-case**
o   **Case Study**
o   **Hands-on**

Day-15: Module 15: Capstone Project – Planning (6 hrs)

o   Understanding Capstone Project Objectives
o   Problem Identification & Domain Selection
o   Project Scoping & Goal Definition
o   Data Planning & Collection Strategy
o   Tool & Tech Stack Finalization
o   Solution Approach & Workflow Design
o   Timeline, Team Roles & Milestone Planning
o   Documentation & Presentation Plan

Day-16: Module 16: Capstone Project – Implementation (6 hrs)

o   Data Collection
o   Exploratory Data Analysis (EDA)
o   Data Cleaning & Preprocessing
o   Model Selection & Training
o   Model Evaluation & Validation
o   Business Intelligence Dashboard Development
o   Deployment Planning
o   Result Interpretation & Business Insights
o   Final Touch: Documentation, Code Cleanup & Report

Day-17: Module 17: Emerging Trends in AI + BI (6 hrs)

o   AI-Augmented Analytics
o   Conversational BI and Natural Language Querying
o   Auto ML and No-Code/Low-Code Platforms
o   Edge AI and Real-Time Decision Systems
o   Generative AI in Business Intelligence
o   Ethical and Explainable AI in BI Context
o   AI-Driven Personalization and Hyper automation
o   Future Skills and Career Paths in AI + BI
o   **Use-case**
o   **Case Study**

Day-18: Module 18: Career Readiness & Portfolio Building (6 hrs)

- o Optimizing LinkedIn and GitHub Profiles
- o Showcasing Projects and Dashboards Effectively
- o Building a Personal Portfolio Website
- o Preparing for Technical and HR Interviews

Day-19: Module 19: Capstone Presentations & Evaluation (9 hrs)

- o Capstone Project-1
- o Capstone Project-2
- o Capstone Project-3
- o Capstone Project-4
- o Capstone Project-5
- o Understanding Presentation Guidelines
- o Preparing the Final Report and Documentation
- o Effective Presentation Skills for Business Audiences
- o Showcasing Key Insights and Business Value
- o Demonstrating the Technical Implementation

Day-20: Module 20: Graduation & Future Roadmap (3 hrs)

- o Course Recap and Key Learnings
- o Celebrating Achievements and Milestones
- o Future Trends in AI and BI