CCEK – NSQF ALIGNED PROGRAM

COURSE SYLLABUS

FOR

AI - Business Intelligence Analyst

CCEK - NATIONAL SKILL DEVELOPMENT TRAINING PROGRAM

AI - Business Intelligence Analyst

CCEK – NSDC course package covers the following Qualification Packs and leads to the following NSDC certifications. The students who successfully completed the course programs are entitled to get NSDC certification after undergoing the assessment process of NSDC as per the rules and regulations stipulated by NSDC from time to time.

SL. NO.	QUALIFICATIONS PACK	QUALIFICATIONS PACK CODE	NSQF LEVEL
1	**AI – Business Intelligence Analyst** **Brief Job Description**: This course prepares individuals to work at the intersection of artificial intelligence (AI) and business intelligence (BI), equipping them with the skills needed to analyze data, extract insights, and support strategic decision-making using advanced AI-powered tools. Learners will gain hands-on experience in data analysis, machine learning applications in business, data visualization, and dashboard creation using platforms like Power BI, Tableau, and Python-based analytics tools.	**SSC/Q8102**	**6**

COURSE DETAILS

AI - Business Intelligence Analyst

EXAMINATION DETAILS

COURSE NAME	COURSE CODE	ELIGIBILITY	DURATION
AI - Business Intelligence Analyst	G31	3 year Diploma after 10th	370

SL. NO.	EXAM	EXAM CODE	MAXIMUM MARK	INTERNAL	TOTAL MARK
THEORY PAPERS					
1	Foundations of Business Intelligence and Data Analytics	T001	100	50	150
2	Business Requirements Analysis	T002	100	50	150
PRACTICAL PAPERS					
1	AI-Driven Business Insights Generation Project	L001	100	50	150
TOTAL MARKS					
1	Total Examination Marks (Theory Online + Practical Examination)				300
2	Total Internal Marks				150
3	**Total Marks (Total Internal Marks + Total Examination Marks)**				**450**

AI - Business Intelligence Analyst

INTERNAL MARK CRITERIA FOR EACH

SL NO.	MODULE	MODULE CODE	MAXIMUM MARK	INTERNAL MARK	TOTAL MARK
1	Foundations of Business Intelligence and Data Analytics	T001	100	50	150
2	Business Requirements Analysis	T002	100	50	150
3	AI-Driven Business Insights Generation Project	L001	100	50	150
	TOTAL		300	150	450

ATTENDANCE	GENERAL PERFORMANCE	INTERNAL EXAMINATIONS/ PROJECTS/ ASSIGNMENTS	TOTAL MARKS
5	5	40	50

COURSE SYLLABUS

FOR

AI - Business Intelligence Analyst

COURSE	AI - Business Intelligence Analyst	
TOTAL MARKS	Mark: 450	Internal Mark: 150
TOTAL HOURS	370 Hrs	

DEFENITION OF CREDIT

1 Credit	15Hrs Theory/ 30Hrs Practical
Skill Components	60 – 70 % of Total Credit

MODULES INCLUDED IN THIS SUBJECT

SL NO	MODULE NAME	CREDIT BREAKUP
1	Module 1: Artificial Intelligence & Big Data Analytics – An Introduction	**.5**
2	Module 2: Basic Statistical Concepts	**.5**
3	Module 3: Statistical Tools and Usage	**.5**
4	Module 4: Business Requirements Analysis	**.5**
5	Module 5: Importing Data	**.5**
6	Module 6: Preprocessing Data	**1.5**
7	Module 7: Exploring Data	**1.5**
8	Module 8: Create Visualizations	**2**
9	Module 9: Manage and plan work requirements	**1**
10	Module 10: Manage and plan work requirements	**1**

11	Module 11: Workplace data management	**.5**
12	Module 12: Relationship management at the workplace	**.5**
13	Module 13: Client relationship management	**.5**
14	Module 14: Persuasive Communication	**.5**
15	Module 15: Inclusive and environmentally sustainable workplaces	**.5**
	Total	**12**

Training Outcomes

- Describe the use cases of AI & Big Data Analytics in various industries and define the various roles under this occupation.
- Define basic statistical concepts used for analysis such as measures of central tendency like mean, median, or mode, or statistical anomalies like missing values, bias, or outliers.
- Collect different stakeholder requirements and map them to the capabilities of the delivery team.
- Apply different methods to import data such as functions used to import data from various file formats.
- Apply different methods to preprocess data such as removing missing values or transforming incorrect data types.
- Apply different methods to explore data such as summarizing data, dimension reduction and defining correlations.
- Assess the most appropriate way to report data by identifying the right audience and creating a suitable narrative.
- Use statistical tools such as statistical integrated development environments (IDEs), or software packages, libraries and frameworks for importing, preprocessing, exploring and visualizing data.
- Plan their schedules and timelines based on the nature of work.
- Demonstrate how to communicate and work effectively with colleagues.
- Use different approaches to effectively manage and share data and information.
- Develop strong relationships at the workplace through effective communication and conflict management.

MODULES

Module 1: Artificial Intelligence & Big Data Analytics – An Introduction

THEORY

- Explain the relevance of AI & Big Data Analytics for the society
- Explain the various use-cases of AI & Big Data in the industry
- Define "general" and "narrow" AI
- Describe the fields of AI such as image processing, computer vision, robotics, NLP, etc.

PRACTICAL

- Outline a career map for roles in AI & Big Data Analytics
- Analyse the differences between key terms such as Supervised Learning, Unsupervised Learning and Deep Learning

Module 2: Basic Statistical Concepts

THEORY

- Distinguish between different probability distributions such as Normal, Poisson, Exponential, Bernoulli, etc.
- Identify correlation between variables using scatterplots and other graphical techniques

PRACTICAL

- Apply basics of descriptive statistics including measures of central tendency such as mean, median and mode
- Apply different correlation techniques such as Pearson's Correlation Coefficient, Methods of Least Squares etc.
- Apply different techniques for regression analysis including linear, logistic, ridge, lasso, etc.
- Use hypothesis testing to draw inferences and measure statistical significance

Module 3: Statistical Tools and Usage

THEORY

- Discover the basics of using statistical software packages and IDEs such as RStudio, Jupyter Notebooks

PRACTICAL

- Apply basic functions and libraries present in statistical software packages and IDEs
- Use statistical packages, frameworks and libraries such as NumPy and Pandas for developing applications

Module 4: Business Requirements Analysis

THEORY

- Outline the process of collecting business requirements and technical capabilities of client
- Distinguish between the various types of requirements that different teams and organizations have
- Discuss the ways to map the requirements with team capabilities
- Define the process of Documentation of requirements and validation by the stakeholders

PRACTICAL

- Apply different approaches to gather business requirements from relevant stakeholders
- Apply different approaches to map requirements to the capabilities of the delivery team

Module 5: Importing Data

THEORY

- Identify the type of data, volume of data, and variables required for the analysis
- Distinguish between different types of data such as numerical, categorical, etc.
- Identify common open and paid data sources

- Discuss the uses and characteristics of different open source and paid data sources
- Describe the purpose of metadata
- Describe various Data validation tools and processes

PRACTICAL

- Demonstrate the process of capturing various types of data such as enterprise data, consumer data etc. from various data sources
- Conduct the process of importing data from both public and private databases or data stores and store it in datasets or data frames
- Organize and map metadata as per the needs of the analysis
- Perform data profiling for data quality assessment and validation

Module 6: Pre-processing Data

THEORY

- Differentiate the unprocessed and processed data
- Explain the impact of unprocessed data on subsequent analytical operations
- Describe the various anomalies that may be found in unprocessed data (e.g. missing values, incorrect data types, and redundant data)
- Explain the Data Normalization techniques and concepts
- Describe the properties of different tools that can be used to validate the pre-processed data

PRACTICAL

- Analyze unprocessed data to discover anomalies such as missing values, incorrect data types, etc.
- Apply different techniques and functions to clean unprocessed data including removing missing values, transforming incorrect data types, etc.
- Apply different approaches to normalize datasets such as feature scaling etc.
- Apply appropriate tools and techniques to perform pre-processed data validation

Module 7: Exploring Data

THEORY

- Identify the key variables and data types required for modelling or analysis
- Explain the limitations in exploring data of different types

- Discuss the process of dimension reduction to optimize the variables in the dataset and define correlation factors
- Categorize the various types of prescriptive actions that can be recommended from the results of a data analysis
- Describe the principles of hypothesis testing to draw inferences from the results of a data analysis

PRACTICAL

- Apply different functions used to summarize data including mean, median, mode, range, variance, frequency
- Select the right tool to explore the data based on its characteristics
- Apply different approaches to perform dimension reduction on a dataset such as Principal Component Analysis, Linear Discriminant Analysis or Non-negative Matrix Factorization
- Use graphical techniques such as scatterplots or clustering to evaluate correlations between different data points

Module 8: Creating Visualizations

THEORY

- Identify the right target audience to report the results of a data analysis
- Define different delivery modes and format to report the results of a data analysis
- Distinguish between the pros and cons of using a specific visualization to represent certain types of data
- Evaluate business impact and disseminate relevant information to the concerned person

PRACTICAL

- Summarize the results of a data analysis into a clear narrative
- Represent outcomes through visualizations using standard templates and tools such as Tableau, QlikView, d3js etc
- Perform version control and maintain reports in a knowledge base

Module 9: Manage and plan work requirements

THEORY

- Discuss the role, responsibilities, limits of the responsibilities
- Discuss the importance of gathering detailed work requirements and prioritizing work areas
- Describe the organizational guideline and policies
- Identify commonly made mistakes in the prioritized work areas
- Explain the importance of completing work accurately

PRACTICAL

- Analyse needs, requirements and dependencies in order to meet the work requirements
- Apply resource management principles and techniques
- Demonstrate the ways to maintain an organized work area
- Apply effective time management principles

Module 10: Communication and collaboration with colleagues

THEORY

- Explain the principles of clear communication
- Outline the importance of being a good listener and adhering to the commitments
- Identify challenges and pain points related to work distribution while working in a team
  Explain the importance of distributing and sharing workloads

PRACTICAL

- Use oral, written and non-verbal communication skills in a variety of forms to construct thoughts and ideas effectively
- Demonstrate professional behaviour at workplace
- Demonstrate effective team mentorship

Module 11: Workplace data management

THEORY

- Discuss data privacy in terms of sharing and retrieving data from different sources
- Explain the significance of providing accurate and up-to-date information on time
- Describe various data types/formats
- Identify the database management tools and importance of CRM database

PRACTICAL

- Demonstrate the rule-based analysis of data/information
- Perform data/information formatting into required types/forms
- Identify the anomalies in the data
- Evaluate information and knowledge management systems
- Apply information confidentiality guidelines
- Use CRM database to record and extract information

Module 12: Relationship management at the workplace

THEORY

- Describe ways to build new professional relationships with colleagues/clients
- Explain the importance of following workplace ethics to create a healthy working environment.
- Discuss the qualities of a supportive team player
- Discuss the ways to maintain relationships with a diverse range of colleagues/clients Identify strategies to build rapport such as remembering names, being empathetic, mirroring, etc.

PRACTICAL

- Apply different approaches for conflict management and resolution
- Demonstrate methods to build healthy relations across business units

Module 13: Client relationship management

THEORY

- Discuss the ways to handle client requirements and their priorities
- Discuss the importance of timely communications and responses with client
- Explain importance of client deliverables management
- Discuss the importance of continuously incorporating client feedback
- Illustrate the techniques to work on the client feedback

PRACTICAL

- Demonstrate methods to gather client requirements
- Apply different approaches to manage client expectations, including priorities and performance expectations
- Demonstrate the effective communication and good working relationships with clients

Module 14: Persuasive Communication

THEORY

- Discuss the principles of persuasive communication, credibility and trust
- Discuss the differences between persuasion and manipulation
- Discuss the importance of listening to people in order to persuad

PRACTICAL

- Demonstrate the use of evidences to support arguments
- Frame goals by finding common ground with those to be persuaded
- Apply visual and verbal communication techniques to influence perspectives and change behaviours

Module 15: Inclusive and environmentally sustainable workplaces

THEORY

- Describe different approaches for efficient energy resource utilisation and waste management
- Describe the importance of following the diversity policies
- Identify stereotypes and prejudices associated with people with disabilities and the negative consequences of prejudice and stereotypes
- Discuss the importance of promoting, sharing and implementing gender equality and PwD sensitivity guidelines at organization level

PRACTICAL

- Practice the segregation of recyclable, non-recyclable and hazardous waste generated
- Demonstrate different methods of energy resource use optimization and conservation
- Demonstrate essential communication methods in line with gender inclusiveness and PwD sensitivity