CCEK – NSQF ALIGNED PROGRAM

COURSE SYLLABUS

FOR

Data Associate

CCEK - NATIONAL SKILL DEVELOPMENT TRAINING PROGRAM

Data Associate

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	**Data Associate** **Brief Job Description**: Individuals at this job are responsible for designing and implementing processes and layouts for complex, large scale data sets used for modelling, data mining, and research purposes. Responsibilities also include designing and implementing statistical data quality procedures around new data sources.	**SSC/Q0401**	**5**

COURSE DETAILS

Data Associate

EXAMINATION DETAILS

COURSE NAME	COURSE CODE	ELIGIBILITY	DURATION
Data Associate	G29	3 year Diploma after 10th	310

SL. NO.	EXAM	EXAM CODE	MAXIMUM MARK	INTERNAL	TOTAL MARK
THEORY PAPERS					
1	Introduction to Data Management	T001	100	50	150
2	Workplace Readiness and Soft Skills	T002	100	50	150
PRACTICAL PAPERS					
1	Database Management using SQL	L001	100	50	150
TOTAL MARKS					
1	Total Examination Marks (Theory Online + Practical Examination)				300
2	Total Internal Marks				100
3	**Total Marks (Total Internal Marks + Total Examination Marks)**				**450**

Data Associate

INTERNAL MARK CRITERIA FOR EACH

SL NO.	MODULE	MODULE CODE	MAXIMUM MARK	INTERNAL MARK	TOTAL MARK
1	Introduction to Data Management	T001	100	50	150
2	Workplace Readiness and Soft Skills	T002	100	50	150
3	Database Management using SQL	L001	100	50	150
	TOTAL		300	150	450

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

COURSE SYLLABUS

FOR

Data Associate

COURSE	**Data Associate**	
TOTAL MARKS	Mark: 450	Internal Mark: 150
TOTAL HOURS	310 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: Data Science Fundamentals	**1**
2	Module 2: Basics of Statistics	**1**
3	Module 3: Managing Data from Disparate Sources	**1**
4	Module 4: Tools and Software for Analyzing Data	**1**
5	Module 5: Technical Skills for Data Analysis	**1**
6	Module 6: Concept of Data Types	**1**
7	Module 7: Inclusive and Environmentally Sustainable Workplaces	**1**
8	Module 8: Introduction to Employability Skills	**1**
9	Module 9: Constitutional Values - Citizenship	
10	Module 10: Becoming a Professional in the 21st Century	
11	Module 11: Basic English Skills	

12	Module 12: Career Development & Goal Setting	**1**
13	Module 13: Communication Skills	
14	Module 14: Diversity & Inclusion	
15	Module 15: Financial and Legal Literacy	
16	Module 16: Essential Digital Skills	**1**
17	Module 17: Entrepreneurship	
18	Module 18: Customer Service	
19	Module 19: Getting ready for Apprenticeship & jobs	
	Total	**10**

Training Outcomes

- Examine how to conduct statistical analysis, including both the underlying theory and real- world application.
- Discuss the concept of statistical presentation relating to data collection, data analysis and interpretation.
- Examine the process of agreed analysis on the data.
- Identify suitable features from secondary data base for relevant methodological approaches.
- Examine the use of data warehouse software for integrating data from disparate sources.
- Evaluate configuration management and version control techniques to facilitate analysis.
- Conduct rule-based analysis in line with specific guidelines, procedures, and service level agreements.
- Discuss the features of big data in comparison to statistical data with line managers, subject experts, etc.
- Demonstrate data analysis for big data, quantitative data, qualitative data, etc.
- Demonstrate effective communication and collaboration with colleagues.
- Apply measures to maintain standards of health and safety at the workplace.
- Use different approaches to effectively manage and share data and information
- Develop strong relationships at the workplace through effective communication and conflict management.
- Identify best practices to maintain an inclusive, environmentally sustainable workplace

MODULES

Module 1: Data Science Fundamentals

THEORY

- Identify the scope of analysis as per the research data selected by analysts.
- Identify suitable data sources required for analysis.

PRACTICAL

- Evaluate the methods of analysis to be performed on the data.
- Use programming, in at least one of Python or R, as well as SQL and using the command line.
- Organize data from multiple data sources using appropriate software tools.
- Examine the suitability of SQL database in relation to relational database management, data manipulation.
- Evaluate the features of a skills network lab.

Module 2: Basics of Statistics

THEORY

- Define the role of statistics.
- Identify how to represent data analysis and interpretation through statistical presentation.
- Discuss the two basic types of statistics, namely descriptive statistics, and inferential statistics.

PRACTICAL

- Clean data and make it ready for analysis using appropriate software tools.
- Infer justifiable conclusion from the analysis.
- Construct results and inferences from the analysis using standard templates and tools.
- Evaluate the working principle on various statistical elements, like cases, variables, types of variables, matrix, and frequency table, etc.
- Examine how to use the mode, median and mean in statistics.

Module 3: Managing Data from Disparate Sources

THEORY

- Identify different data sources and methods to obtain information from organizational databases, online data sources, research reports.
- Discuss how to use secondary data base for methodological approaches in analysis.

PRACTICAL

- Organize data management and clean the data of errors to make it ready for analysis.
- Examine the use of data warehouse software for integrating data from disparate sources.
- Conduct various forms of analysis on the data.
- Design justifiable inferences from the analysis.
- Deliver designed results and inferences from the analysis using standard templates and tools.
- Review the results of the analysis with experts.

Module 4: Tools and Software for Analyzing Data

THEORY

- Identify the tools, platforms, and architecture available for handling big data.
- Discuss the process to create scripts to automate analysis using SPSS software.
- Collate service requests/data analysis using standard tools and procedures.

PRACTICAL

- Evaluate the utility of Excel as a basic tool for analysis
- Organize big data in ways that support understanding of the data and inferences.
- Examine the methods of operating SPSS (Statistical Package for the Social Sciences), R (R Foundation for Statistical Computing), MATLAB (The MathWorks), SAS (Statistical Analysis Software, etc.
- Evaluate the working process of RapidMiner and Google fusion tables.

Module 5: Technical Skills for Data Analysis

THEORY

- Identify the methods of using database management tools.
- Identify the types of analysis that can be conducted on the collected data.

PRACTICAL

- Execute the policies and compliance requirements that apply to IT service requests and incidents related to SQL database access.
- Evaluate the suitability of solutions/ workarounds, where available.
- Construct a documented resolution of statistical analysis accurately.
- Examine how to use information technology to input and/or extract data.
- Analyse anomalies in data for review.

Module 6: Concept of Data Types

THEORY

- List the various sources of primary and secondary data.
- Identify the difference between big data and statistical data.

PRACTICAL

- Demonstrate data analysis for big data, quantitative data, qualitative data, etc.
- Demonstrate how big data can be used to conduct analysis.

Module 7: 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.

Module 8 : Introduction to Employability Skills

THEORY

- Discuss the Employability Skills required for jobs in various industries
- List different learning and employability related GOI and private portals and their usage

Module 9: Constitutional values - Citizenship

THEORY

- Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
- Show how to practice different environmentally sustainable practices

Module 10: Becoming a Professional in the 21st Century

THEORY

- Discuss importance of relevant 21st century skills.
- Exhibit 21st century skills like Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
- Describe the benefits of continuous learning

Module 11: Basic English Skills

THEORY

- Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
- Read and interpret text written in basic English
- Write a short note/paragraph / letter/e -mail using basic English

Module 12: Career Development and Goal Setting

THEORY

- Create a career development plan with well-defined short- and long-term goals

Module 13: Communication skills

THEORY

- Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
- Explain the importance of active listening for effective communication
- Discuss the significance of working collaboratively with others in a team

Module 14: Diversity and Inclusion

THEORY

- Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
- Discuss the significance of escalating sexual harassment issues as per POSH

Module 15: Financial and Digital Literacy

THEORY

- Outline the importance of selecting the right financial institution, product, and service
- Demonstrate how to carry out offline and online financial transactions, safely and securely

Module 16: Essential Digital Skills

THEORY

- Describe the role of digital technology in today's life
- Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
- Discuss the significance of displaying responsible online behaviour while browsing, using various social media platforms, e-mails, etc., safely and securely
- Create sample word documents, excel sheets and presentations using basic features
- utilize virtual collaboration tools to work effectively

Module 17: Entrepreneurship

THEORY

- Explain the types of entrepreneurship and enterprises
- Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
- Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
- Create a sample business plan, for the selected business opportunity

Module 18: Customer Service

THEORY

- Describe the significance of analysing different types and needs of customers
- Explain the significance of identifying customer needs and responding to them in a professional manner.
- Discuss the significance of maintaining hygiene and dressing appropriately

Module 19: Getting Ready for Apprenticeship and Jobs

THEORY

- Create a professional Curriculum Vitae (CV)
- Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
- Discuss the significance of maintaining hygiene and confidence during an interview
- Perform a mock interview
- List the steps for searching and registering for apprenticeship opportunities