Appendix A

DATA ANALYST

WORK PROCESS SCHEDULE

AND

RELATED INSTRUCTION OUTLINE

Appendix A
WORK PROCESS SCHEDULE
DATA ANALYST
O*NET-SOC CODE: 15-2041.00   RAPIDS CODE: 2099CB

This schedule is attached to and a part of these Standards for the above identified occupation.

1. APPRENTICESHIP APPROACH

☐   Time-based   ☒   Competency-based   ☐   Hybrid

2. TERM OF APPRENTICESHIP

The term of the apprenticeship is competency-based with an OJL attainment of not less than 2,000 hours, supplemented by the minimum required 349.0 hours of related instruction.

3. RATIO OF APPRENTICES TO JOURNEYWORKERS

The apprentice to journeyworker ratio is: 1 Apprentice to1 Journeyworker.

4. APPRENTICE WAGE SCHEDULE

Apprentices shall be paid a progressively increasing schedule of wages based on either a percentage or a dollar amount of the current hourly journeyworker wage rate, which is:
$40.

1st Half = $23.00
2nd Half = $28.00

5. PROBATIONARY PERIOD

Every applicant selected for apprenticeship will serve a probationary period of *12 weeks*.

6. SELECTION PROCEDURES

Please see page 10.

Appendix A
ON-THE-JOB LEARNING OUTLINE
DATA ANALYST
O*NET-SOC CODE: 15-2041.00   RAPIDS CODE: 2099CB

Description: Data analysts mine and manipulate data using various tools in support of data analysis to inform data-driven business decisions. In addition, data analysts apply basic statistical methods to summarize data and analyze complex datasets while adhering to governance and quality standards throughout the entire data life cycle.

Work Process Schedule:

Part 1– Data Concepts and Environments

- Demonstrate knowledge of basic data schemas and dimensions.

- Demonstrate knowledge of data types and their differences.

- Demonstrate knowledge of data structures and file formats.

Part 2 – Data Mining

- Demonstrate knowledge of data acquisition concepts.

- Demonstrate knowledge of reasons for cleansing and profiling datasets.

- Demonstrate skills required to execute data manipulation techniques.

- Demonstrate knowledge required to manipulate data and optimize queries.

Part 3 – Data Analysis

- Demonstrate skills required to apply the appropriate descriptive statistical methods.

- Demonstrate knowledge of inferential statistical methods.

- Demonstrate knowledge of types of analysis and key analysis techniques.

- Demonstrate knowledge of data analytics tools.

Part 4 –Visualization

- Demonstrate skills required to translate business requirements to form a report.

- Demonstrate skills required to use appropriate design components for reports and dashboards.

- Demonstrate skills required to use appropriate methods for dashboard development.

- Demonstrate skills required to apply the appropriate type of visualization.

- Demonstrate knowledge of types of reports and skills required to effectively summarize complex information in a written report.

Part 5 – Data Governance, Quality and Controls

- Demonstrate knowledge of important data governance concepts.

- Demonstrate skills required to apply data quality control concepts.

- Demonstrate knowledge of master data management concepts.

Part 6 – General IT Terminology and Concepts

- Demonstrate knowledge of notational systems.

- Demonstrate knowledge of basic data types.

- Demonstrate knowledge of computing and processing basics.

- Demonstrate knowledge related to the importance of data and information.

- Demonstrate knowledge of units of measure in IT.

Part 7 – Computing Infrastructure

- Demonstrate knowledge of input and output interfaces.

- Demonstrate skills required to install and deploy peripheral devices for common computing devices.

- Demonstrate knowledge of internal computing components.

- Demonstrate knowledge related to types of internet service.

- Demonstrate knowledge of types of storage.

- Demonstrate knowledge of computing devices.

- Demonstrate knowledge related to the basics of networking concepts.

- Demonstrate skills required to deploy, secure and maintain a basic wireless network.

Part 8 – Software and Applications

- Demonstrate knowledge related to the purpose of operating systems.

- Demonstrate knowledge related to modules of an operating system.

- Demonstrate knowledge of the purpose of software.

- Demonstrate knowledge related to methods of application delivery models.

- Demonstrate skills required to use web browsers.

- Demonstrate knowledge of general application concepts.

Part 9 – Software Development and Database Basics

- Demonstrate knowledge of programming languages.

- Demonstrate knowledge of general programming concepts.

- Demonstrate knowledge of the purpose of databases.

- Demonstrate knowledge of database structures.

- Demonstrate knowledge of database interface methods.

Part 10 – Security

- Demonstrate knowledge related to the importance of confidentiality, integrity and availability.

- Demonstrate knowledge of device security methods.

- Demonstrate knowledge of security concepts related to behavior.

- Demonstrate knowledge of authentication, authorization, accounting and non-repudiation.

- Demonstrate knowledge of best practices for password use.

- Demonstrate knowledge of encryption use cases.

- Demonstrate knowledge of business continuity.

Part 11 – Business Acumen

- Demonstrate a basic understanding of the employer's corporate structure and business model, including its product and services portfolio, its primary customers, and its top competitors.

- Demonstrate a basic knowledge of the employer's brand messaging, its value proposition in the marketplace, and key success metrics.

Part 12 – Employability Skills

- Demonstrate skills to provide competent customer service using active listening and empathy during various interactions (e.g., in-person, over telephone, email, and chat).

- Demonstrate ability to manage stress and other emotions in the workplace to reduce conflict, foster collaboration, and promote wellness.

- Demonstrate skills required to take and give productive critical feedback.

- Demonstrate skills required to problem-solve using critical thinking, clarifying questions, and knowing when to escalate a situation to a superior.

- Demonstrate skills to explain complex issues to non-technical customerswithout jargon or blaming.

- Demonstrate ability to conduct oneself with integrity, professionalism, and in accordance with organization policy and procedure.

- Demonstrate skills to communicate with colleagues, managers, and end users effectively and clearly, in a timely manner.

- Demonstrate ability to use language, tone of voice, and non-verbal communication to neutralize conflict in the workplace.

- Demonstrate skills required to collaborate effectively with team members fromacross the organization.

- Demonstrate ability to use respectful cross-cultural communication to work successfully across the organization and with diverse coworkers.

- Demonstrate knowledge required to manage time effectively, minimizing distractions to maintain productivity, prioritize work appropriately, and meetdeadlines with situational awareness.

- Demonstrate ability to adapt to changing organizational landscape.

RELATED INSTRUCTION OUTLINE
DATA ANALYST
O*NET-SOC CODE: 15-2041.00   RAPIDS CODE: 2099CB

Method of Delivery: in-house training, classroom, and/or online.

Source of Instruction: any combination of community college, private industry training provider,sponsoring employer, or computer-based training.

Note: These are National Guideline Standards. Course titles and classes may differ slightly depending upon the RTI provider.

Related Instruction Descriptions: **Approximate Hours:**

New Employee Skills • Safety training • Company orientation including privacy and confidentiality • Tools (internal messaging apps, office applications) • Sexual harassment prevention	15
Business Acumen • Company vision, mission, and key success metrics • The company's products and services and value proposition in the market	3
Employability Skills • Managing conflict • Being an effective team member • Business communication etiquette • Interpersonal communication • Intercultural communication • Critical thinking • Time management • Workplace wellness and managing stress • Handling workplace change • Leading across generations and personalities • Understanding diversity, equity, and inclusion fundamentals	60
Technical and Professional Skills - CompTIA Data+ Coursework and Certification • Data Concepts and Environments: Identify data schemas, systems, and data types. Explain the differences between relational and non-relational databases. Explain differences between numeric, alphanumeric, currency, text, images, audio and video. Discuss differences between structured and unstructured data, JSON, XML and HTML formats. • Data Mining: Explain data integration (extract, transform, load) and data collection methods: web scraping and APIs. Identify data duplication, redundant data, missing values and invalid data. Clean and profile datasets to prepare them for analysis. Explain data manipulation (filtering and sorting) and query optimization (parametrization and indexing). • Data Analysis: Apply descriptive statistical methods, including calculating measures of	176

central tendency and dispersion. Explain inferential statistical methods and their purpose. Explain the purpose of t-tests, p-values and simple linear regression. Explain trend analysis, exploratory data analysis and link analysis. Identify SQL, Python, Microsoft Excel, IBM SPSS, SAS, Tableau, Power BI and Qlik.

- Visualization: Communicate insights with visualizations. Create effective reports and dashboards based on business needs. Describe data using appropriate formats, including heat maps, line charts, pie charts, bubble charts, scatter plot and bar chart. Visualizing data using various elements, including reports, dashboards, and appropriate report types. Review data content, generate views and apply filtering. Apply a report cover page, design elements, branding, color codes, versions and data source references. Select data sources and attributes, use mockups/wireframes and apply delivery configurations for distribution. Explain static vs. dynamic reports, self-service and recurring reports.

- Data Governance, Quality and Controls: Apply data governance and Master Data Management (MDM) concepts and best practices. Explain access requirements, security requirements and use requirements. Use data quality dimensions and apply data quality rules and metrics. Explain processes and circumstances for MDM.

- CompTIA Data+ CertMaster Learn, CompTIA Data+ CertMaster Labs and CompTIA Data+ CertMaster Practice (or similar courseware).

- Pass CompTIA Data+ exam

Technical and Professional Skills - CompTIA IT Fundamentals (ITF+) Coursework and Certification	41.5

- IT Concepts and Terminology: Compare and contrast notational systems, fundamental data types and their characteristics. Understand the basics of computing and processing and the value of data information. Compare and contrast common units of measure in IT. Explain troubleshooting methodology.

- Infrastructure: Classify common types of input/output device interfaces. Given a scenario, set up and install common peripheral devices to a laptop/PC. Explain the purpose of common internal computing components. Compare and contrast common Internet service types, storage types, and common computing devices and their purposes. Explain basic networking concepts. Given a scenario, explain how to install, configure and secure a basic wireless network.

- Applications and Software: Compare and contrast components of an operating system. Explain methods of application architecture and delivery models. Given a scenario, configure and use web browsers. Compare and contrast general application concepts and uses.

- Software Development: Compare and contrast programming language categories. Given a scenario, use programming organizational techniques and interpret logic. Explain the purpose and use of programming concepts.

- Database fundamentals: Explain database concepts and the purpose of a database. Compare and contrast various database structures. Summarize methods used to interface with databases.

- Security: Summarize confidentiality, integrity and availability concerns. Explain best practice methods to create passwords and secure devices. Summarize behavioral security concepts. Compare and contrast authentication, authorization, accounting and non-repudiation concepts. Explain business continuity concepts.

• CompTIA IT Fundamentals (ITF+) CertMaster Learn, CompTIA Labs and CertMaster Practice (or similar courseware). • Pass CompTIA IT Fundamentals (ITF+) exam.	
Spreadsheets and Data Manipulation • Sorting and filtering data • Creating and working with pivot tables • Applying conditional formatting • Using functions • Formulas and Functions • Pivot tables • Formatting techniques • Dashboards and charts • Data analysis and reporting • Queries *or similar training	28.5
Customer Engagement Skills - IBM Professional Certificate* • Communication skills focused on clear concise communication and listening • Appropriate empathetic behavior such as such as patience, curiosity, and willingness to help • Problem-solving to research an issue and help determine an appropriate resolution • Process adherence to ensure the proper flow and Service Level Agreements are met *or similar customer service training	25

TOTAL MINIMUM HOURS 349.0

SELECTION PROCEDURES

Selection procedures will be determined by individual local program sponsors. These selection procedures will be included in the appropriate Appendix. Local program sponsors will recruit and select applicants either through an internal process for incumbent workers or will make the apprenticeship opportunity available to the public and external organizations through outreach efforts, job fairs, collaborative partnerships, and web-based activities. Local program sponsors will work with community-based organizations; educational institutions, such as community colleges, technical schools, and high schools; workforce organizations; or other partners to create appropriate outreach and positive recruitment efforts that would reasonably be expected to increase underrepresented population participation in the apprenticeship. The local program sponsor will identify the steps it intends to ensure that the opportunity is accessible. The local program sponsor will undertake a significant number of activities to enable it to meet its obligations under 29 CFR § 30.4(c).