Model Curriculum

QP Name: IIoT Data Analytics Engineer

QP Code: CSC/Q0504

Version: 1.0

NSQF Level: 5.5

Model Curriculum Version: 1.0

Capital Goods and Strategic Skill Council || 39,1st Floor, Samyak Tower, Pusa Rd, Block 9A, WEA, Karol Bagh, New Delhi, Delhi, 110005

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Training Parameters

Sector	Capital Goods
Sub-Sector	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods, Defense Equipment, Firefighting & Safety Equipment
Occupation	Service
Country	India
NSQF Level	5.5
Aligned to NCO/ISCO/ISIC Code	2522.0100
Minimum Educational Qualification and Experience	UG Degree in relevant field + 3 years of relevant experience or 3 Years UG Degree in Science and Technology (B.Sc / BCA) / 4 years BE, B.Tech (Electrical, Electronics, Mechanical, Mechatronics, Instrumentation and Control)* or 10th grade pass +3 years Diploma in relevant field + 4 year of relevant experience or Previous NSQC level 5 + 1.5 years of relevant experience *Subject to being offered as 6 months internship/ project
Pre-Requisite License or Training	NA
Minimum Job Entry Age	24 Years
Last Reviewed On	31st January 2024
Next Review Date	31st January 2027
NSQC Approval Date	31st January 2024
QP Version	1.0
Model Curriculum Creation Date	31st January 2024
Model Curriculum Valid Up to Date	31st January 2027
Model Curriculum Version	1.0
Minimum Duration of the Course	570 Hours

Maximum Duration of the Course	570 Hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills to:

- Describe the integration of IIoT within industrial processes and systems.
- Discuss techniques for cleaning and preprocessing raw data collected from industrial sensors.
- Implement statistical analysis and machine learning algorithms for predictive maintenance and anomaly detection in industrial data.
- Comply with relevant regulations and standards governing data privacy and security.
- Implement and enforce robust health, safety, and environmental practices within the workplace.

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
CSC/N0510 Perform Installation and Configuring of IIoT devices and Products **NOS Version- 1.0** **NSQF Level- 5.5**	**20:00**	**40:00**	**30:00**	**00:00**	**90:00**
Module 1: Introduction	02:00	00:00	0:00	00:00	02:00
Module 2: Assist in Installation and Configuring IIoT devices and Products	18:00	40:00	30:00	00:00	88:00
CSC/N0516: Collate and analyze Data arising out of a manufacturing process **NOS Version- 1.0** **NSQF Level- 5.5**	**10:00**	**50:00**	**30:00**	**00:00**	**90:00**
Module 3: Collate and analyze Data arising out of a manufacturing process	10:00	50:00	0:00	00:00	60:00
CSC/N0511: Facilitate in Commissioning and Troubleshooting	**30:00**	**60:00**	**30:00**	**00:00**	**120:00**

of IIoT systems **NOS Version-1.0** **NSQF Level- 5.5**					
Module 3: Facilitate in Commissioning and Troubleshooting of IIoT systems	30:00	60:00	30:00	00:00	120:00
CSC/N0512: Assemble and Test Prototype IoT devices **NOS Version- 1.0** **NSQF Level- 5.5**	**40:00**	**50:00**	**0:00**	**00:00**	**90:00**
Module 4: Assemble and Test Prototype IoT devices	40:00	50:00	0:00	00:00	90:00
CSC/N1339: Collaboratively coordinate with the team **NOS Version- 1.0** **NSQF Level- 5.5**	**20:00**	**70:00**	**0:00**	**00:00**	**90:00**
Module 5: Collaboratively coordinate with the team	20:00	70:00	0:00	00:00	90:00
CSC/N0505: Health, Safety and Environment at workplace **NOS Version- 1.0** **NSQF Level- 6**	**10:00**	**20:00**	**00:00**	**00:00**	**30:00**
Module 6: Health, Safety and Environment at workplace	10:00	20:00	00:00	00:00	30:00
DGT/VSQ/N0102 - Employability Skills (60 hours) **NOS Version No. – 1.0** **NSQF Level – 5**	**20:00**	**40:00**	**00:00**	**00:00**	**60:00**
Module 7: Introduction to Employability Skills	20:00	40:00	00:00	00:00	60:00
Total Duration	**150:00**	**330:00**	**90:00**	**00:00**	**570:00**

Module Details

Module 1: Introduction to the role of a IIOT Data Analytics Engineer

Bridge Module ,mapped to CSC/N0510 v1.0

Terminal Outcomes:

- Discuss the job role of a IIoT Data Analytics Engineer.

Duration: 02:00	**Duration: 0:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Describe the size and scope of the capital good industry and its sub-sectors. • Discuss the role and responsibilities of a IIOT Data Analytics Engineer. • Identify various employment opportunities for a IIOT Data Analytics Engineer.	
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
NA	

Module 2: Perform Installation and Configuration of IIoT devices and Products

Bridge module ,Mapped to CSC/N0510 v1.0

Terminal Outcomes:

- Demonstrate skills to ability to review and interpret provided documents for IIoT device installation.
- Demonstrate the steps to configure IIoT devices and sensors based on specified requirements and provided guidelines.
- Verify and troubleshoot configurations to ensure seamless integration into the industrial network.

Duration: 28:00	**Duration: 60:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the fundamental concepts of Industrial Internet of Things (IIoT) and its significance in the context of data analytics. • Describe the role of IIoT devices and sensors in collecting and transmitting data for analysis. • Define the process of configuring IIoT devices and sensors to ensure compatibility with the intended data analytics framework. • Discuss the importance of security considerations in configuring IIoT devices to protect against potential cyber threats. • Summarize the procedures for physically installing IIoT devices at specified locations. • Describe best practices for ensuring the proper placement and orientation of sensors to optimize data collection. • Explain different methods for interconnecting IIoT devices, including wired and wireless technologies. • Discuss the advantages and disadvantages of various cable and accessory options for interconnecting devices. • Discuss the importance of adhering to industry standards and regulations	• Demonstrate the steps involved in preparing for the installation of IIoT devices. • Demonstrate the ability to interpret provided documents for installation and configuration purposes. • Demonstrate the ability to physically install IIoT devices and sensors at designated locations. • Apply safety measures and follow protocols during the installation process. • Show how to configure IIoT devices based on provided documents and real-world requirements. • Practice ways to implement security measures to safeguard the integrity and confidentiality of data transmitted by the devices. • Use specified cables and accessories to interconnect IIoT devices accurately. • Troubleshoot and resolve connectivity issues that may arise during the interconnection process. • Develop a systematic approach to verify the successful installation and interconnection of IIoT devices. • Perform functional tests to ensure that data is being transmitted effectively for analytics purposes.

during the installation and configuration process. • Discuss the need and use of developing troubleshooting skills for identifying and resolving common issues that may arise during the installation and configuration of IIoT devices.	• Create comprehensive documentation of the installation and configuration process. • Generate reports detailing the successful installation, any challenges encountered, and the resolutions implemented. • Show how to collaborate with team members to ensure seamless integration of IIoT devices into the overall data analytics system. • Demonstrate skills required to communicate effectively with stakeholders to provide updates on the progress of installation and configuration activities.
Classroom Aids	
Computer, Projection Equipment, PowerPoint Presentation and Software, Facilitator's Guide, Participant's Handbook.	
Tools, Equipment and Other Requirements	
IoT Development Kits, Computers/Laptops,Sensors and Actuators, IoT Gateways, Industrial PLC, Edge Computing Device, Cloud Platforms,IIoT Analytics Software, Data Analytics Tools, Database Systems, Communication Protocols, Networking Equipment, Security Tools, Simulation Software	

Module 3: Collate and analyze Data arising out of a manufacturing process

Bridge module, Mapped to CSC/N0516 v1.0

Terminal Outcomes:

- Develop and implement robust IIOT solutions tailored to the unique requirements of the capital goods manufacturing process, ensuring seamless integration with existing systems.
- Implement data acquisition strategies using sensors, edge devices, and communication protocols to collect real-time and historical data from diverse sources within the manufacturing environment.
- Implement and maintain robust security measures within IIOT systems.
- Demonstrate proficiency in programming languages, such as Python, Java, or C++, to code, deploy, and troubleshoot IIOT solutions effectively in a manufacturing context.
- Apply advanced data analytics techniques to extract actionable insights from manufacturing process data.
- Deploy IIOT solutions on cloud platforms (e.g., AWS, Azure, Google Cloud) and effectively utilize edge computing technologies to optimize data processing, storage, and analytics in a manufacturing setting.
- Design and create user-friendly dashboards and reports.

Duration: 10:00	**Duration: 50:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the principles, concepts, and applications of Industrial Internet of Things (IIOT) in the context of the capital goods manufacturing industry. • Explain various data acquisition techniques, including the deployment of sensors, edge devices, and communication protocols, to capture real-time and historical data from manufacturing processes. • Describe IIOT security best practices and the ability to implement robust security measures to protect sensitive data, ensuring compliance with relevant industry regulations. • Discuss the need to acquire proficiency in programming languages such as Python, Java, or C++ to develop and implement IIOT solutions effectively. • Describe advanced data analytics techniques, including predictive analytics, machine learning, and statistical analysis, to extract actionable insights from manufacturing process data. • Familiarize themselves with cloud platforms (e.g., AWS, Azure, Google Cloud) and edge computing technologies,	• Apply theoretical knowledge to design and implement IIOT solutions tailored to the specific requirements of a capital goods manufacturing process. • Practice ways to implementing data collection strategies, integrating data from various sources within the manufacturing environment for comprehensive analysis. • Implement robust security measures to protect data integrity and confidentiality within IIOT systems, ensuring compliance with industry regulations. • Develop practical programming skills to effectively code, deploy, and troubleshoot IIOT solutions using languages such as Python, Java, or C++. • Apply advanced data analytics techniques to extract meaningful insights from manufacturing process data, using tools such as Apache Spark, TensorFlow, or other relevant platforms. • Gain hands-on experience in deploying IIOT solutions on cloud platforms and implementing edge computing technologies to optimize data processing and storage. • Design and create practical, user-friendly

understanding their role in optimizing data storage, processing, and analytics. • Learn to use visualization tools and platforms to design dashboards and reports that effectively communicate key performance indicators (KPIs) derived from manufacturing process data. • Acquire knowledge of predictive maintenance strategies and techniques, enabling the identification of potential equipment failures and minimizing downtime in manufacturing operations. • .	dashboards and reports using visualization tools to communicate key insights and KPIs effectively. • Implement practical predictive maintenance strategies, working with maintenance and engineering teams to optimize machine performance and enhance overall reliability in a manufacturing environment.
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop, Video Films	
Tools, Equipment and Other Requirements	
IoT Development Kits, Computers/Laptops,Sensors and Actuators, IoT Gateways, Industrial PLC, Edge Computing Device, Cloud Platforms,IIoT Analytics Software, Data Analytics Tools, Database Systems, Communication Protocols, Networking Equipment, Security Tools, Simulation Software	

Module 3: Facilitate in Commissioning and Troubleshooting of IIoT systems

Bridge module, Mapped to NOS CSC/N0511 v1.0

Terminal Outcomes:

- Execute the configuration of IIoT systems, including setting up communication protocols, data acquisition parameters, and network configurations.
- Verify and validate the physical connections between IIoT devices and controllers to ensure proper communication and data flow.
- Identify and troubleshoot connection issues in IIoT systems, utilizing diagnostic tools and techniques to resolve communication problems effectively.

Duration: 30:00	**Duration: 60:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the architecture of Industrial Internet of Things (IIoT) systems, including the roles of devices, controllers, and communication protocols. • Describe the significance of physical connections in ensuring seamless data flow within IIoT networks. • Define the commissioning process in the context of IIoT systems, outlining key steps and considerations. • Discuss the responsibilities of IIoT Engineers during the commissioning phase. • the importance of ensuring reliable and secure connections for data transmission. • Explain common challenges faced during the commissioning process and strategies to overcome them. • Define loop testing and its significance in the context of IIoT systems. • Elaborate on setting up and conducting loop tests for validating the functionality of IIoT components. • Discuss the importance of comprehensive documentation during the commissioning process.	• Demonstrate the ability to verify the integrity of physical connections between IIoT devices and controllers. • Develop skills in tracing and troubleshooting connection problems within IIoT systems. • Practice physically verifying connections between IIoT devices and controllers using appropriate tools and techniques. • Perform real-world scenarios to ensure practical competency in maintaining the integrity of connections. • Demonstrate steps to identify and resolve common connection problems in IIoT systems. • Use simulation tools to create realistic scenarios for hands-on problem-solving experience. • Carry out setting up test systems for IIoT devices and controllers. • Perform configuring different components to create a functional test environment. • Conduct hands-on loop testing exercises to validate the functionality of IIoT systems. • Utilize simulation tools and actual hardware to perform comprehensive loop tests. • Participate in collaborative commissioning projects, working with peers to apply theoretical knowledge to real-world scenarios. • Demonstrate teamwork and

	communication skills essential for successful commissioning in an industrial setting. • Create detailed reports on commissioning activities undertaken during practical sessions.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
IoT Development Kits, Computers/Laptops,Sensors and Actuators, IoT Gateways, Industrial PLC, Edge Computing Device, Cloud Platforms,IIoT Analytics Software, Data Analytics Tools, Database Systems, Communication Protocols, Networking Equipment, Security Tools, Simulation Software	

Module 4: Assemble and Test Prototype IoT devices

Bridge module, Mapped to CSC/N0512 v1.0

Terminal Outcomes:

- Demonstrate competence in the accurate and efficient assembly of PCB (Printed Circuit Board) and enclosure components.
- Demonstrate competence in performing comprehensive testing procedures on assembled IoT devices to ensure functionality and adherence to design specifications.
- Discuss identifying and troubleshooting any assembly or functionality issues that may arise during testing.
- Adhere to ethical standards in handling assembly and testing processes, including the responsible use of data and information related to the IoT devices.

Duration: 40:00	Duration: 50:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Define the architecture of IoT devices, including components such as sensors, actuators, microcontrollers, and communication modules. • Explain the role of each component in the overall functionality of the IoT device. • Describe assembly documents, including schematics, PCB layouts, and enclosure designs. • Explain the purpose of various components on the PCB and in the enclosure. • Discuss the quality standards and compliance requirements for IoT devices, emphasizing the differences between devices for Proof of Concept and those for industrial use. • Explain the importance of meeting design and production standards to ensure the reliability and safety of IoT devices. • List the electronic components used in IoT devices and explain their functions. • Discuss strategies for sourcing quality components and ensuring their compatibility with the device design. • Describe techniques for the manual	• Show how to retrieve and organize assembly documents, including schematics, PCB layouts, and enclosure designs. • Demonstrate steps to gather necessary components and verify their compatibility with the design specifications. • Carry out execution of the assembly of PCBs, following the provided schematics and layouts. • Demonstrate steps to assemble electronic parts on the PCB, ensuring proper fitting and alignment of components within the designated space. • Show how to develop a comprehensive testing plan for the assembled IoT device, including functional, performance, and environmental tests. • Perform execution of the testing procedures, recording observations and measurements at each stage. • Identify and address common assembly and testing issues, such as soldering defects, component failures, or communication errors. • Practice troubleshooting strategies to

assembly of PCBs and enclosures, considering factors such as soldering, component placement, and mechanical assembly. • Discuss best practices for minimizing assembly errors and ensuring the reliability of the assembled IoT device.	ensure the functionality of the assembled IoT device. • Compile a detailed report on the assembly and testing process, including any challenges faced and solutions implemented. • Document test results, highlighting performance metrics and confirming that the device meets the specified design criteria.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
IoT Development Kits, Computers/Laptops,Sensors and Actuators, IoT Gateways, Industrial PLC, Edge Computing Device, Cloud Platforms,IIoT Analytics Software, Data Analytics Tools, Database Systems, Communication Protocols, Networking Equipment, Security Tools, Simulation Software	

Module 5: Collaboratively coordinate with the team

Bridge module, Mapped to CSC/N1339 v1.0

Terminal Outcomes:

- Create a collaborative and inclusive team environment conducive to effective communication and cooperation.
- Work cooperatively with team members, fostering a positive and productive atmosphere that contributes to achieving team goals.

Duration: 20:00	**Duration: 70:00**
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Define and explain the key concepts of team dynamics, including roles, norms, and communication patterns. • Discuss the importance of applying effective communication strategies within a team, considering various communication channels and styles. • Describe the components necessary for creating a positive and productive team environment in the context of a Data Analytics Engineer role. • Describe the importance of collaboration in the field of data analytics. • Define the role of each team member in the decision-making process. • Define and demonstrate a sense of responsibility in the context of a Data Analytics Engineer.	• Conduct a practical team-building exercise to foster collaboration and teamwork. • Demonstrate the experience and identify strategies for building a cohesive team environment. • Participate in a communication simulation, considering various scenarios encountered in a data analytics team. • Receive feedback on communication effectiveness and adapt communication styles accordingly. • Work on a collaborative data analytics project, addressing real-world challenges. • Demonstrate the ability to effectively collaborate with team members to achieve project objectives. • Simulate decision-making scenarios specific to data analytics projects. • Contribute actively to decision-making processes and analyze the impact of decisions on project outcomes. • Take on specific responsibilities within the team, such as project management or task ownership. • Demonstrate a proactive approach to fulfilling responsibilities and meeting project deadlines. • Attend a diversity training workshop to gain insights into respecting diverse opinions, customs, and preferences. • Apply the knowledge gained to enhance collaboration within the team,

	considering cultural and professional diversity.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
IoT Development Kits, Computers/Laptops,Sensors and Actuators, IoT Gateways, Industrial PLC, Edge Computing Device, Cloud Platforms,IIoT Analytics Software, Data Analytics Tools, Database Systems, Communication Protocols, Networking Equipment, Security Tools, Simulation Software	

Module 6: Follow health, safety and environment guidelines at workplace

Bridge module, Mapped to CSC/N0505 v1.0

Terminal Outcomes:

- Demonstrate ways to maintain personal health and safety.
- Describe the process of assisting in hazard management.
- Explain how to check the first aid box, firefighting and safety equipment.
- Describe the process of assisting in waste management.
- Explain the importance of following the fire safety guidelines.
- Explain the importance of following the emergency and first-aid procedures.
- Demonstrate the process of carrying out relevant documentation and review

.

Duration: 10:00	Duration: 20:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain the recommended practices to be followed to ensure protection from infections and transmission to others, such as the use of hand sanitizer and face mask. • Explain the importance and process of checking the work conditions, assessing the potential health and safety risks, and take appropriate measures to mitigate them. • Explain the importance and process of selecting and using the appropriate PPE relevant to the task and work conditions. • Explain the recommended techniques to be followed while lifting and moving heavy objects to avoid injury. • Explain the importance of following the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment. • Explain the importance and process of identifying existing and potential hazards at work. • Describe the process of assessing the potential risks and injuries associated with the various hazards. • Explain how to prevent or minimise different types of hazards. • Explain how to handle and store hazardous materials safely. • Explain the importance of ensuring the first aid box is updated with the relevant first aid supplies. • Describe the process of checking and testing the firefighting and various safety equipment to ensure they are in a usable condition.	• Demonstrate the use of appropriate Personal Protective Equipment (PPE) relevant to the task and work conditions. • Demonstrate how to handle hazardous materials safely. • Demonstrate the process of testing the firefighting and various safety equipment to ensure they are in usable condition. • Demonstrate the process of recycling and disposing different types of waste appropriately. • Demonstrate how to use the appropriate type of fire extinguisher to extinguish different types of fires safely. • Demonstrate how to administer appropriate first aid to the injured personnel. • Demonstrate the process of performing Cardiopulmonary Resuscitation (CPR) on a potential victim of cardiac arrest. • Demonstrate the process of carrying out appropriate documentationn following a health and safety incident at work, including all the required information.

• Explain the criteria for segregating waste into appropriate categories. • Describe the appropriate methods for recycling the recyclable waste. • Describe the process of disposing of the non-recyclable waste safely and the applicable regulations. • Explain the use of different types of fire extinguishers to extinguish different types of fires. • State the recommended practices to be followed for a safe rescue during a fire emergency. • Explain how to request assistance from the fire department to extinguish a serious fire. • Explain the appropriate practices to be followed during workplace emergencies to ensure safety and minimise loss to organisational property. • State the common health and safety hazards present in a work environment, associated risks, and how to mitigate them. • State the safe working practices to be followed while working at various hazardous sites and using electrical equipment. • Explain the importance of ensuring easy access to firefighting and safety equipment. Explain the appropriate preventative and remedial actions to be taken in the case of exposure to toxic materials, such as poisonous chemicals and gases. • Explain various causes of fire in different work environments and the recommended precautions to be taken to prevent fire accidents. • Describe different methods of extinguishing fire. • List different materials used for extinguishing fire. • Explain the applicable rescue techniques to be followed during a fire emergency. • Explain the importance of placing safety signs and instructions at strategic locations in a workplace and following them. • Explain different types of first aid treatment to be provided for different types of injuries. • State the potential injuries associated with incorrect manual handling. • Explain how to move an injured person safely. • State various hazards associated with the use of various machinery, tools, implements, equipment and materials. • Explain the importance of ensuring no obstruction and free access to fire exits. • Explain how to free a person from electrocution safely. • Explain howtoadminister appropriate first aid to an injured person.	

• Explain howto perform CardiopulmonaryResuscitation (CPR). • Explain theimportanceof coordinating with the emergency services to request urgent medical assistance for persons requiring professional medical attention or hospitalisation. • State the appropriate documentation to be carried out following a health and safety incident at work, and the relevant information to be included. • Explain the importance and process of reviewing the health and safety conditions at work regularly or following an incident. • Explain the importance and process of implementing appropriate changes to improve the health and safety conditions at work.	
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Personal Protective Equipment, Cleaning Equipment and Materials, Sanitizer, Soap, Mask	

Module 7: Employability Skills

Mapped to DGT/VSQ/N0102 -Employability Skills (60 hours) v1.0

Terminal Outcomes:

- Discuss the Employability Skills required for jobs in various industries
- 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
- Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan

Duration: 20:00	Duration: 40:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the Employability Skills required for jobs in various industries • List different learning and employability related GOI and private portals and their usage • 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 • Discuss importance of relevant 21st century skills. • Describe the benefits of continuous learning. • Explain the importance of active listening for effective communication • Discuss the significance of working collaboratively with others in a team • Discuss the significance of escalating sexual harassment issues as per POSH act. • List the common components of salary and compute income, expenditure, taxes, investments etc. • Discuss the legal rights, laws, and aids • Describe the role of digital technology in today's life • Discuss the significance of displaying responsible online behaviour while browsing, using various social media platforms, e-mails, etc., safely and securely • Explain the types of entrepreneurship and enterprises	• Practice different environmentally sustainable practices. • 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. • Demonstrate 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 • Create a career development plan with well-defined short- and long-term goals • Communicate effectively using verbal and nonverbal communication etiquette. • Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD • 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 • Operate digital devices and use the associated applications and features, safely and securely • Create sample word documents, excel sheets and presentations using basic

• 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 • Detail the significance of analyzing 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 • Explain the significance of maintaining hygiene and confidence during an interview • List the steps for searching and registering for apprenticeship opportunities	features • Utilize virtual collaboration tools to work effectively • Devise a sample business plan, for the selected business opportunity • Create a professional Curriculum Vitae (CV) • Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively • Perform a mock interview
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Computer (PC) with latest configurations – and Internet connection with standard operating system and standard word processor and worksheet software (Licensed) (all software should either be latest version or one/two version below), Scanner cum Printer	

Annexure

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Degree	Degree in Electrical/ Mechatronics/ Industrial/ Information Technology Engineering	7	Relevant	0		Practical skills and knowledge required in the relevant field

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "**IIoT Data Analytics Engineer**"mapped to QP: "CSC/Q0504, v1.0". Minimum accepted score is 80%	Recommended that the Trainer is certified for the Job Role: "Trainer(VET and skills)", mapped to the Qualification Pack: "MEP/Q2601 V3.0". Minimum accepted as per respective SSC guidelines is 80%.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Degree	Degreein Electrical/ Mechatronics/ Industrial/ Information Technology Engineering	7	Relevant	0		Practical skills and knowledge required in the relevant field

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "**IIoT Data Analytics Engineer**" mapped to QP: "CSC/Q0504, v1.0". Minimum accepted score is 80%	Reccomended that the assesor is Certified for the Job Role: "Assessor(VET and skills)", mapped to the Qualification Pack: "MEP/Q2701, v3.0", with a minimum score of 80%.

Assessment Strategy

1. Assessment System Overview:
   - Batches assigned to the assessment agencies for conducting the assessment on SDMS/SIP or email
   - Assessment agencies send the assessment confirmation to VTP/TC looping SSC
   - The assessment agency deploys the ToA certified Assessor for executing the assessment
   - SSC monitors the assessment process & records
2. Testing Environment

   To ensure a conducive environment for conducting a test, the trainer will:
   - Confirm that the centre is available at the same address as mentioned on SDMS or SIP
   - Check the duration of the training.
   - Check the Assessment Start and End time to be 10 a.m. and 5 p.m. respectively
   - Ensure there are 2 Assessors if the batch size is more than 30.
   - Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
   - Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
   - Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
   - Check the availability of the Lab Equipment for the particular Job Role.
3. Assessment Quality Assurance levels / Framework:
   - Question papers created by the Subject Matter Experts (SME)
   - Question papers created by the SME verified by the other subject Matter Experts
   - Questions are mapped with NOS and PC
   - Question papers are prepared considering that levels 1 to 3 are for the unskilled & semi-skilled individuals, and levels 4 and above are for the skilled, supervisor & higher management
   - The assessor must be ToA certified and the trainer must be ToT Certified
   - The assessment agency must follow the assessment guidelines to conduct the assessment
4. Types of evidence or evidence-gathering protocol:
   - Time-stamped & geotagged reporting of the assessor from assessment location
   - Centre photographs with signboards and scheme-specific branding
   - Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
   - Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos
5. Method of verification or validation:

   To verify the details submitted by the training centre, the assessor will undertake:
   - A surprise visit to the assessment location
   - A random audit of the batch
   - A random audit of any candidate
6. Method for assessment documentation, archiving, and access

   To protect the assessment papers and information, the assessor will ensure:
   - Hard copies of the documents are stored

- Soft copies of the documents & photographs of the assessment are uploaded/accessed from Cloud Storage
- Soft copies of the documents & photographs of the assessment are stored on the Hard drive

References

Glossary

Term	Description
Declarative knowledge	Declarative knowledge refers to facts, concepts and principles that need to be known and/or understood in order to accomplish a task or to solve a problem.
Key Learning	The key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
OJT (M)	On-the-job training (Mandatory); trainees are mandated to complete specified hours of training on-site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on-site
Procedural Knowledge	Procedural knowledge addresses how to do something, or how to perform a
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do **upon the completion of the training**.
Terminal Outcome	The terminal outcome is a statement of what a learner will know, understand and be able to do **upon the completion of a module.** A set of terminal outcomes help to achieve the training outcome.

Acronyms and Abbreviations

Term	Description
NOS	National Skills Qualification Committee
NSQF	National Skills Qualification Framework
OJT	On-the-Job Training
OMR	Optical Mark Recognition
PC	Performance Criteria
PwD	Persons with Disabilities
QP	Qualification Pack
SDMS	Skill Development & Management System
SIP	Skill India Portal
SSC	Sector Skill Council
TC	Trainer Certificate
ToA	Training of Assessors
ToT	Training of Trainers
TP	Training Provider