Model Curriculum

QP Name: Robotics Automation Lead

QP Code: ELE/Q7106

QP Version: 2.0

NSQF Level: 7

Model Curriculum Version: 2.0

Electronics Sector Skills Council of India || 155, 2nd Floor, ESC House, Okhla Industrial Area - Phase 3, New Delhi – 110020

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Training Parameters

Sector	Electronics
Sub-Sector	Industrial Automation
Occupation	Engineering – I&A
Country	India
NSQF Level	7
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7412.0101
Minimum Educational Qualification and Experience	Completed 4 year UG program (Electronics/Mechanical/Electrical/Computer science) with 2 Years of Relevant Experience OR B.Sc (Mechatronics) with 3 Years of Relevant Experience OR Previous relevant Qualification of NSQF Level (6) with 3 Years of Relevant Experience OR Pursuing PhD with NA of experience
Pre-Requisite License or Training	NA
Minimum Job Entry Age	21 Years
Last Reviewed On	24.02.2022
Next Review Date	24.02.2025
NSQC Approval Date	24.02.2022
QP Version	2.0
Model Curriculum Creation Date	24.02.2022
Model Curriculum Valid Up to Date	24.02.2025
Model Curriculum Version	2.0
Maximum Duration of the Course	1260 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:

- Demonstrate the process of using the appropriate Robotic Process Automation (RPA) software.
- Demonstrate the process of integrating robot manipulators with process components.
- Demonstrate the process of performing source control integration in the RPA software.
- Demonstrate the process of using REFramework in the RPA software
- Demonstrate the process of using the robot sensing and machine vision technologies.
- Explain the importance of following inclusive practices for all genders and PwD at work.
- Demonstrate the use of relevant health and safety equipment at work.

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
Bridge Module	**39:00**	**51:00**	**00:00**	**00:00**	**90:00**
Module 1: Introduction to the role of a Robotics Automation Lead	39:00	51:00	00:00	00:00	90:00
ELE/N7117 Use the appropriate Robotic Process Automation (RPA) software	**30:00**	**90:00**	**60:00**	**00:00**	**180:00**
Module 2: Process of using the appropriate Robotic Process Automation (RPA) software	30:00	90:00	60:00	00:00	180:00
ELE/N7118 Integrate robot manipulators with process components	**60:00**	**90:00**	**60:00**	**00:00**	**210:00**
Module 3: Process of integrating robot manipulators with process components	60:00	90:00	60:00	00:00	210:00
ELE/N7119 Perform source control integration in the RPA software	**60:00**	**90:00**	**60:00**	**00:00**	**210:00**
Module 4: Process of performing source control integration in the RPA software	60:00	90:00	60:00	00:00	210:00

ELE/N7120 Use REFramework in the RPA software	**60:00**	**90:00**	**60:00**	**00:00**	**210:00**
Module 5: Process of using REFramework in the RPA software	60:00	90:00	60:00	00:00	210:00
ELE/N7121 Use the robot sensing and machine vision technologies	**60:00**	**120:00**	**60:00**	**00:00**	**240:00**
Module 6: Process of using the robot sensing and machine vision technologies	60:00	120:00	60:00	00:00	240:00
ELE/N1002 Apply health and safety practices at workplace	**15:00**	**15:00**	**00:00**	**00:00**	**30:00**
Module 7: Basic Health and Safety Practice	15:00	15:00	00:00	00:00	30:00
DGT/VSQ/N0103-Employability Skills (90 Hours)	**36:00**	**54:00**	**00:00**	**00:00**	**90:00**
Module 8: Employability Skills (90 Hours)	36:00	54:00	00:00	00:00	90:00
Total Duration	**360:00**	**600:00**	**300:00**	**00:00**	**1260:00**

Module Details

Module 1: Introduction to the role of a Robotics Automation Lead
Bridge Module

Terminal Outcomes:

- Describe the job role of a Robotics Automation Lead.

Duration: 39:00	Duration: 51:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Describe the size and scope of the Electronics industry and its sub-sectors. - Discuss the role and responsibilities of a Robotics Automation Lead. - Discuss various employment opportunities for a Robotics Automation Lead in the Electronics industry. - State the organisational policies on incentives, personnel management reporting structure, etc.	- Awareness with Industry 4.0 - Awareness of the Robotics Automation and Operating System (ROS) - Hands-on the software used for the Robotics Operating System and Mechanism for the Testing - Understanding of the machine to machine communication (M2M) - Understanding of the Human Machine Interface (HMI)
Classroom Aids	
Training Kit - Trainer Guide, Presentations, Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
NA	

Module 2: Process of using the appropriate Robotic Process Automation (RPA) software
Mapped to ELE/N7117

Terminal Outcomes:

- Describe the process of implementing RPA.
- Demonstrate the process of setting up the RPA software for use.
- Describe the process of dealing with cybersecurity attacks in robotics.

Duration: 30:00	Duration: 90:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the importance and use of debugging tools in RPA. - Explain the benefits and applications of RPA. - Explain the difference between RPA and traditional automation. - Explain different types of bots. - Describe the RPA development methodology and key considerations. - Explain the use of various RPA tools. - Explain different types of RPA software and its components. - Explain how to install RPA software. - Explain different workflow files in the RPA software. - Explain the concept of a control system and its process. - Explain the concept of a control system and its process. - Describe the authentication process for accessing the robotics program. - Explain intelligent autonomous robots. - Explain how to mitigate cybersecurity attacks on robotic systems. - Explain the importance and need of robotics in the automation process. - Explain the use of artificial intelligence, screen scraping, and workflow automation in the RPA process. - Explain how the combination of RPA	- Demonstrate how to integrate RPA with the existing systems. - Demonstrate how to automate repetitive tasks and manual processes using RPA. - Demonstrate the process of setting up software libraries and tools to build robot applications using the ROS system. - Demonstrate the use of the RPA software to design automation processes. - Demonstrate how to create a new project based on a template. - Demonstrate the process of applying necessary changes to the template to provides quick access to variables, arguments and imports. - Demonstrate the use of debugging tools. - Demonstrate the process of setting up the authentication process to access the robotics program.

solutions are used with intelligent technologies in different industries.

- Explain the functioning of intelligent agents and autonomous robots.

- Describe the process of integrating RPA with existing systems.

- Describe the process of digitizing, auditing and processing data using RPA.

- Explain how to identify cybersecurity attacks in robotics programming.

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

Active Orbital Kits, Vacuum Tools, Airpicks., Electrical Vacuum Generators, Grippers, Soldering Kits, and Other Universal Robot Solutions

Terminal Outcomes:

- Demonstrate the process of setting up process components.
- Demonstrate the process of integrating robot manipulators.

Duration: 60:00	Duration: 90:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the User Interface (UI) automation process. - Explain applicable system activities and variables. - Explain how to import panel data. - Describe the application of robotics systems in the automation industry. - Explain the working of forwarding and inverse kinematics. - Explain the function of manipulators. - Explain how to control flexible joint robotic systems, feedback, force control, and stability, and drive train dynamics. - Explain multi-finger grasping, walking mechanisms, motion planning. - Describe the process of geometrical modelling and map building. - Describe the process of path planning and avoiding obstacles in robotics by frequently detecting whether two objects will intervene. - Describe the process of object manipulation and grasping. - Explain how to create standalone automation projects. - Explain different types of variables used in UI. - Explain how to use an argument in automation with an invoke workflow file activity. - Describe the process of creating arguments and making changes to them in the arguments panel. - Explain how to rename an argument	- Demonstrate how to use the RPA software to create standalone automation projects such as a process or library. - Demonstrate how to configure a set of changes at the project level and apply them to all the activities of project dependencies. - Demonstrate the use of the relevant variables in the User Interface (UI) to enable the functionality of the panel. - Demonstrate the use of the relevant argument in automation with an Invoke Workflow File activity. - Demonstrate how to create arguments and make changes to them in the Arguments panel. - Demonstrate the process of using the renaming feature in an argument in the panel to automatically updates all occurrences in the current file. - Demonstrate how to integrate the technology behind the application to identify elements, trigger events and get. - Demonstrate how to formulate the various user events related activities found in the RPA. - Demonstrate how to modify the variation of gravity torque and inertia with robot configuration. - Demonstrate how to integrate all the data collected by robots for map building. - Demonstrate the use of a robot manipulator. - Demonstrate the use of rigid

in a panel.

- Explain the user events related activities found in the RPA software.

- Explain the joint torque and recursive Newton-Euler formulation.

- Explain the gravity torque and inertia with robot configuration multi-finger grasping, walking mechanisms, motion planning in robotics.

- Explain how to integrate all the data collected by robots for map building.

- Explain how a robot manipulator measures the angles of rotation and the distances.

- Explain how to estimate the shortest path between a moving part and an obstacle at the given location.

- Explain the use of rigid manipulators and specialised grippers for object manipulation and grasping.

manipulators and specialised grippers for object manipulation and grasping data behind the scenes.

Classroom Aids
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements
Tool Changers, Conveyors, Protective Temperature Covers, Part Feeders, Sensors, Pedestals and Platforms, Rail Systems

Module 4: Process of performing source control integration in the RPA software
Mapped to ELE/N7119

Terminal Outcomes:

- Demonstrate the process of carrying out app integration, recording and scraping.
- Demonstrate the process of carrying out data manipulation and PDF automation.
- Demonstrate the process of carrying out programming, debugging and logging.

Duration: 60:00	Duration: 90:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Describe the process of app integration. - Describe the process of data manipulation. - Describe the process of automating virtual machines. - Describe the process of text, image and PDF automation in RPA. - Explain the basics of programming. - Describe the process of auto-health checking. - Explain the power-on self-diagnosing. - Describe the project organisation process. - Explain how to integrate data in RPA. - Explain the functions of recording in RPA. - Explain how to extract data from a specific UI element or document. - Explain how to automate specific actions in the user interface. - Describe the process of storing the attributes of a graphical user interface element. - Explain how to automate a sequence and summarise the collected data. - Explain how to manipulate data in robotics software. - Describe the process of using a VM software to connect virtually and remotely to the client's applications and networks. - Explain how to enable image and	- Demonstrate how to integrate all the data in the RPA software. - Demonstrate the use of the recording function to detect the fault in jobs. - Demonstrate the use of a screen scraping wizard. - Demonstrate how to extract data from specific UI elements or documents such as a PDF file. - Demonstrate how to automate the relevant actions in the user interface. - Demonstrate the process of storing the attributes of a graphical user interface element and its parents in the shape of an XML fragment. - Demonstrate how to automate the appropriate sequence to extract information from an input text and output it in a different format. - Demonstrate the use of Word Application Scope in the RPA software. - Demonstrate how to summarise the collected data and program it in the robotics software. - Demonstrate how to emulate different computers with different OSs on a single computer or create a virtual lab with several differently configured virtual machines. - Demonstrate the process of using the relevant Virtual Machine (VM) software to connect virtually and remotely to the client's applications and networks.

text-based process automation.

- Describe the process of using computers to gain a high-level understanding of digital images or videos.

- Explain the importance of ensuring an integrated development environment for developers.

- Describe the process of debugging and its functionality in various projects.

- Describe different methods of error handling in the RPA software.

- Explain how self-testing takes place and the steps involved in error checking.

- Describe the process of separation of Orchestrator components within tenants for assigned users.

- Explain how the workflow activity of the RPA path runs in the system.

- Explain how a modular server product provides a rich set of PDF processing functions for different.

- Demonstrate the process of using the self-diagnosing tool appropriately as per the standard procedure.

Classroom Aids

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

Virtual Machine, Software, Keyboard, Mouse

Module 5: Process of using REFramework in the RPA software
Mapped to ELE/N7120

Terminal Outcomes:

- Demonstrate the process of using the relevant RPA tools.
- Demonstrate the process of Implementing the Robotic Enterprise Framework.

Duration: 60:00	Duration: 90:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the benefits and uses of different RPA tools. - Explain the use of REFramework and its architecture. - Explain different workflows available in REFramework. - Describe the process of exception handling and logging. - Explain the applicable rules for developing a process using REFramework. - Explain the three components of the business process. - Explain the use of relevant RPA tools for a centralised bot management hub for learning and testing purposes. - Explain how to create automated email login and remote data entry applications.	- Demonstrate the use of the relevant RPA tool to manage the creation, monitoring, and deployment of resources in the life cycle of the network. - Demonstrate how to create automated email login and remote data entry applications. - Demonstrate how to create Robotic Enterprise Framework (RE Framework) for logging in, exception handling, application and initialisation. - Demonstrate how to use different REFramework workflows as per the requirement. - Demonstrate the use of REFramework to tackle complex business scenarios.
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Active Orbital Kits, Vacuum Tools, Airpicks., Electrical Vacuum Generators, Grippers, Soldering Kits, and Other Universal Robot Solutions	

Module 6: Process of using the robot sensing and machine vision technologies
Mapped to ELE/N7121

Terminal Outcomes:

- Demonstrate the process of using robot sensing and machine vision system.

Duration: 60:00	Duration: 120:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the use of sensors and sensor-based systems in robotics. - Explain the architecture and use of machine vision systems in robotics. - Explain sensing, digitising, image processing and analysis. - Explain the use of robotic assembly sensors and intelligent sensors. - Explain the visual servo-control. - Explain the difference between the contact and non-contact sensors. - Explain different types of sensors used in robotics such as active, passive, contact and non-contact sensors. - Explain various image processing techniques. - Explain the binary morphological operations. - Explain different types of cameras used for machine vision. - Explain the different specialised lighting techniques. - Describe different methods of segmentation.	- Demonstrate the use of the appropriate types of sensors in robotics such as active and passive sensors as per the requirement. **Demonstrate how to measure distance using suitable sensors.** - Demonstrate the use of the contact and non-contact sensor. - Demonstrate the process of using Machine Vision System (MVS) to enable a computing device to inspect, evaluate and identify still or moving images. - Demonstrate how to use the appropriate image processing techniques in the machine vision system. **Demonstrate how to transfer high-resolution pixel arrays to the robot's computer after image processing and analysis.** - Demonstrate the use of the sensing, digitisation and windowing techniques in robot sensing. - Demonstrate the use of binary morphological operations as per the requirement. - Demonstrate the use of the camera as per the standard procedure for machine vision. - Demonstrate the process of carrying out segmentation following an appropriate method
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Sensors, Conveyors, Protective Temperature Covers, Part Feeders	

Module 7: Basic Health and Safety Practice
Mapped to ELE/N1002

Terminal Outcomes:

- Apply health and safety practices at the workplace.

Duration: 15:00	Duration: 15:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Discuss job-site hazards, risks and accidents. - Explain the organizational safety procedures for maintaining electrical safety, handling tools and hazardous materials. - Elaborate on electronic waste disposal procedures. - Describe the process of disposal of hazardous waste - List the name and location of concerned people, documents and equipment for maintaining health and safety in the workplace. - Describe how to interpret warning signs while accessing sensitive work areas. - Explain the importance of good housekeeping. - Describe the importance of maintaining appropriate postures while lifting heavy objects. - List the types of fire and fire extinguishers. - Explain the importance of efficient utilisation of water, electricity and other resources. - List the common sources of pollution and ways to minimize it. - Describe the concept of waste management and methods of disposing hazardous waste. - Explain various warning and safety signs. - Describe different ways of preventing accidents at the workplace.	- Demonstrate the use of protective equipment suitable as per tasks and work conditions. - Prepare a report to inform the relevant authorities about any abnormal situation/behaviour of any equipment/system. - Administer first aid in case of a minor accident. - Demonstrate the steps to free a person from electrocution safely. - Administer Cardiopulmonary Resuscitation (CPR). - Demonstrate the application of defined emergency procedures such as raising alarm, safe/efficient, evacuation, moving injured people, etc. - Prepare a sample incident report. - Use a fire extinguisher in case of a fire incident. - Demonstrate the correct method of lifting and handling heavy objects.
Classroom Aids	

Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop

Tools, Equipment and Other Requirements

Personal Protection Equipment: Safety Glasses, Head Protection, Rubber Gloves, Safety Footwear, Warning Signs and Tapes, Fire Extinguisher, First Aid Kit, Fire Extinguishers and Warning Signs.

Module 8: Employability Skills (90 Hours)
Mapped to DGT/VSQ/N0103

Terminal Outcomes:

- Discuss about Employability Skills in meeting the job requirements
- Describe opportunities as an entrepreneur.
- Describe ways of preparing for apprenticeship & Jobs appropriately.

Duration: 36:00	Duration: 54:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain constitutional values, civic rights, responsibility towards society to become a responsible citizen - Discuss 21st century skills - Explain use of basic English phrases and sentences. - Demonstrate how to communicate in a well-behaved manner - Demonstrate how to work with others - Demonstrate how to operate digital devices - Discuss the significance of Internet and Computer/ Laptops - Discuss the need for identifying business opportunities - Discuss about types of customers. - Discuss on creation of biodata - Discuss about apprenticeship and opportunities related to it.	- List different learning and employability related GOI and private portals and their usage - Show how to practice different environmentally sustainable practices. - Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, etc. - Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone - Demonstrate how to communicate in a well-mannered way with others. - Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette - Utilize virtual collaboration tools to work effectively - Demonstrate how to maintain hygiene and dressing appropriately. - Perform a mock interview
Classroom Aids	
Training Kit (Trainer Guide, Presentations). Whiteboard, Marker, Projector, Laptop	
Tools, Equipment and Other Requirements	
Computer, UPS, Scanner, Computer Tables, LCD Projector, Computer Chairs, White Board OR Computer Lab	

Module 9: On-the-Job Training
Mapped to Robotics Automation Lead

Mandatory Duration: 300:00	Recommended Duration: 00:00
Location: On-Site	

Terminal Outcomes

1. Explain the process of implementing RPA.
2. Explain different types of RPA software and its components.
3. Explain different types of bots.
4. Explain the process of using the relevant RPA tools.
5. Explain the use of REFramework and its architecture.
6. Explain the use of sensors and sensor-based systems in robotics.
7. Install RPA software.
8. Set up process components.
9. Integrate robot manipulators
10. Carry out app integration, recording and scraping.
11. Carry out data manipulation and PDF automation.
12. Carry out programming, debugging and logging.
13. Maintain a healthy, safe and secure working environment.

Annexure

Trainer Requirements

Trainer Prerequisites					
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	*Specialization*	*Years*	*Specialization*	
B.E./ B. Tech/Certified in relevant CITS Trade	Electrical/ Electronics/ Mechanical	7	Robotics Automation	2	Electronics	

Trainer Certification	
Domain Certification	**Platform Certification**
"Robotics Automation Lead", "ELE/Q7106, v2.0", Minimum accepted score is 80%	Recommended that the Trainer is certified for the **Robotics Automation Lead** "Trainer (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2601, V2.0", with minimum score of 80%

Assessor Requirements

Assessor Prerequisites							
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**	
		Years	*Specialization*	*Years*	*Specialization*		
B.E./ B. Tech/Certified in relevant CITS Trade	Electrical/ Electronics/ Mechanical	9	Robotics Automation	2	Electronics		

Assessor Certification	
Domain Certification	**Platform Certification**
"Robotics Automation Lead", "ELE/Q7106, v2.0", Minimum accepted score is 80%	Recommended that the Assessor is certified for the **Robotics Automation Lead** "Assessor (VET and Skills)", mapped to the Qualification Pack: "MEP/Q2701, V2.0", with 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.
   - 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 & 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 in 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 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 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 the site
OJT (R)	On-the-job training (Recommended); trainees are recommended the specified hours of training on the 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
MVS	Machine Vision System
NCO	National Occupational Standards
NOS	National Skills Qualification Committee
NSQF	National Skills Qualification Framework
OJT	On-the-Job Training
PC	Performance Criteria
PwD	Persons with Disabilities
QP	Qualification Pack
REFramework	Robotic Enterprise Framework
RPS	Robotic Process Automation
SDMS	Skill Development & Management System
SIP	Skill India Portal
SME	Small and Medium Enterprises
SOP	Standard Operating Procedure
SSC	Sector Skill Council
TC	Trainer Certificate
ToA	Training of Assessors
ToT	Training of Trainers
TP	Training Provider
UI	User Interface
VM	Virtual Machine