

## Qualification Pack



# Drone Operator - Over Dimensional Cargo

QP Code: LSC/Q0403

Version: 1.0

NSQF Level: 4

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## Qualification Pack

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### LSC/Q0403: Drone Operator - Over Dimensional Cargo

#### Brief Job Description

A Drone Operator - Over Dimensional Cargo (ODC) is responsible for using drones to ensure safety during the transportation of ODC. The individual monitors ODC during its loading, unloading and transit. The person identifies the relevant risks during ODC's handling and transit and supports in mitigating them. The individual also performs the regular repair and maintenance of drones to keep them operational.

#### Personal Attributes

This individual should be able to work for long durations with attention. The person should have problem-solving skills and the ability to work in coordination with others. The individual should have appropriate written and verbal communication skills.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [LSC/N0416: Prepare for monitoring over dimensional cargo using drone](#)
2. [LSC/N0408: Carry out drone flight simulation and test flight](#)
3. [LSC/N0417: Carry out repair and maintenance of the drone](#)
4. [LSC/N0418: Monitor ODC during loading and unloading](#)
5. [LSC/N0419: Monitor ODC during transit and support in improving transportation of ODC](#)
6. [LSC/N0420: Maintain health and safety during drone operations for ODC monitoring](#)
7. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Logistics
<b>Sub-Sector</b>	Land Transportation
<b>Occupation</b>	Engineering/Maintenance, Transport Operations
<b>Country</b>	India
<b>NSQF Level</b>	4

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<b>Credits</b>	18
<b>Aligned to NCO/ISCO/ISIC Code</b>	NC0-2015/3139.9900 & ISCO-08/3139
<b>Minimum Educational Qualification &amp; Experience</b>	12th grade Pass OR Completed 2nd year of the 3-year diploma after 10 (and pursuing a regular diploma) OR 10th grade pass with 2 Years of experience relevant experience in warehousing/ transportation OR Previous relevant Qualification of NSQF Level (3.0 (Transportation) with minimum education as 8th Grade pass) with 3 Years of experience relevant experience
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	Drone Pilot License
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	03/05/2026
<b>NSQC Approval Date</b>	03/05/2023
<b>Version</b>	1.0
<b>Reference code on NQR</b>	QG-04-TW-00369-2023-V1-LSC
<b>NQR Version</b>	1.0

## Qualification Pack

### LSC/N0416: Prepare for monitoring over dimensional cargo using drone

#### Description

This OS unit is about preparing for monitoring over dimensional cargo using drone, including obtaining the necessary approvals.

#### Scope

The scope covers the following :

- Assemble the drone
- Perform necessary checks and troubleshooting
- Obtain the necessary approvals
- Determine the ODC project requirements
- Conduct route survey for ODC transportation

#### Elements and Performance Criteria

##### *Assemble the drone*

To be competent, the user/individual on the job must be able to:

- PC1.** determine the drone assembly procedure by studying the manufacturer's manual
- PC2.** assemble the drone appropriately following the instructions in the manufacturer's manual
- PC3.** follow the appropriate safety measures to protect the drone components from damage while assembling them
- PC4.** check the drone for correct assembly and carry out appropriate troubleshooting, as required

##### *Perform necessary checks and troubleshooting*

To be competent, the user/individual on the job must be able to:

- PC5.** check the drone manufacturer's checklist to determine all the pre-flight checks to be conducted on the drone
- PC6.** check the drone and controller batteries are charged and charge them as required
- PC7.** examine the propellers for the correct orientation and free movement and adjust their orientation if required
- PC8.** check the camera for correct installation and make appropriate adjustments, if required
- PC9.** test the camera gimbal control for the correct functioning and check the camera for smooth movement
- PC10.** examine the drone compass for correct calibration and calibrate it, if required
- PC11.** test the Global Positioning System (GPS) for the correct functioning and carry out troubleshooting, as required
- PC12.** perform the appropriate test to check the functioning of the Return to Home (RTH) system
- PC13.** check the wiring in the drone to ensure it is intact, and replace the damaged or worn-out wires
- PC14.** test the indicator lights on the drone to ensure their correct functioning and repair or replace them as appropriate

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- PC15.** examine the drone components for damage and determine the requirement of repairing or replacing the drone components
- PC16.** repair or replace the damaged drone components as appropriate
- PC17.** coordinate with the drone manufacturer to resolve damage-related issues, as required
- PC18.** ensure all the necessary checks are conducted as per the drone manufacturer's checklist, and appropriate troubleshooting is carried out per the manufacturer's instructions
- PC19.** carry out appropriate documentation concerning the pre-flight checks conducted on the drone

### *Obtain the required approvals*

To be competent, the user/individual on the job must be able to:

- PC20.** determine the requirement for obtaining the necessary approvals and certifications for deploying drones for ODC-related logistics operations
- PC21.** coordinate with the relevant authority to obtain the required approvals and certifications
- PC22.** maintain appropriate documentation concerning the approvals and certifications

### *Determine the ODC project requirements*

To be competent, the user/individual on the job must be able to:

- PC23.** determine the ODC transportation project requirements in terms of material involved, dimensions, weight, volume, etc.
- PC24.** determine the ODC loading and unloading requirements, lashing requirements based on the centre of gravity, stability required, etc.

### *Conduct route survey for ODC transportation*

To be competent, the user/individual on the job must be able to:

- PC25.** determine the planned dates and route for the transportation of ODC
- PC26.** arrange the necessary documents, tools and equipment e.g. camera, GPS, tackles etc., to conduct a route survey
- PC27.** undertake route survey on the planned route, identifying and recording the details of critical points, such as water crossings, canals, overhead electric wires, residential areas, railway crossings, etc.
- PC28.** use the relevant logistics and route-planning tools, as appropriate
- PC29.** check and record details concerning road conditions, traffic composition, road hazards, etc.
- PC30.** identify narrow roads, sharp turns, culverts and other obstacles that require removing, shifting, widening, construction of bypass etc., for the safe transportation of ODC
- PC31.** check bridges and culverts for the safe movement of heavy ODC
- PC32.** support route survey with photographs and identify major milestones and detail reasons for the non-feasibility of a particular route for the transportation of ODC
- PC33.** coordinate with the relevant personnel to mitigate the risks to ODC during transit, e.g. risk of damage by bridges and other infrastructure on roads or rough/uneven terrain
- PC34.** check the weather forecast to ensure the weather conditions are conducive on the selected dates for deploying drone
- PC35.** ensure adherence to the applicable health and safety standards and regulations while performing the route survey

## Knowledge and Understanding (KU)

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The individual on the job needs to know and understand:

- KU1.** the process of assembling different types of drone
- KU2.** the appropriate safety measures to be followed to protect the drone components from damage while assembling them
- KU3.** the importance of checking the drone for correct assembly and the appropriate troubleshooting to be carried out
- KU4.** how to check the drone and controller batteries for appropriate charging
- KU5.** the process of examining the propellers for the correct orientation and free movement
- KU6.** how to check the drone camera for correct installation
- KU7.** the process of testing the camera gimbal control for the correct functioning and checking the camera for smooth movement
- KU8.** how to examine the drone compass for correct calibration and calibrate it
- KU9.** how to test and Global Positioning System (GPS) and Return to Home (RTH) system for the correct functioning and carry out troubleshooting
- KU10.** the process of checking the wiring in the drone and replacing the damaged wires
- KU11.** the appropriate documentation to be completed concerning the pre-flight checks conducted on the drone
- KU12.** the importance of following the drone manufacturer's checklist while preparing the drone for use and ensuring all the necessary checks are conducted
- KU13.** the necessary approvals and certifications required for deploying drones for monitoring ODC and the relevant authority to be contacted for the purpose
- KU14.** the importance of determining the ODC project requirements before undertaking route survey and transportation of ODC
- KU15.** the use of relevant logistics and route-planning tool
- KU16.** the process of conducting a route survey before the transportation of drones to check the route feasibility and appropriate conditions for deploying drones in the field
- KU17.** the tools and equipment required for conducting a route survey
- KU18.** the common risks to ODC during its transportation

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain appropriate work-related notes and records
- GS2.** read the relevant manuals and literature
- GS3.** communicate politely and professionally
- GS4.** assist and coordinate the co-workers to achieve work efficiency and organizational goals
- GS5.** evaluate all possible solutions to a problem and select the best solution
- GS6.** plan and prioritize tasks to ensure their timely completion
- GS7.** take quick decisions to deal with disruptions to work and workplace emergencies
- GS8.** determine the customer requirements and work on meeting them
- GS9.** identify trends/common causes for errors and identify appropriate solutions



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**GS10.** follow appropriate measures to streamline work processes



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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Assemble the drone</i>	<b>3.5</b>	<b>8</b>	-	<b>1</b>
<b>PC1.</b> determine the drone assembly procedure by studying the manufacturer's manual	1	2	-	-
<b>PC2.</b> assemble the drone appropriately following the instructions in the manufacturer's manual	1	2	-	1
<b>PC3.</b> follow the appropriate safety measures to protect the drone components from damage while assembling them	0.5	2	-	-
<b>PC4.</b> check the drone for correct assembly and carry out appropriate troubleshooting, as required	1	2	-	-
<i>Perform necessary checks and troubleshooting</i>	<b>12.5</b>	<b>27</b>	-	<b>5</b>
<b>PC5.</b> check the drone manufacturer's checklist to determine all the pre-flight checks to be conducted on the drone	1	2	-	-
<b>PC6.</b> check the drone and controller batteries are charged and charge them as required	1	2	-	-
<b>PC7.</b> examine the propellers for the correct orientation and free movement and adjust their orientation if required	1	1	-	-
<b>PC8.</b> check the camera for correct installation and make appropriate adjustments, if required	1	2	-	-
<b>PC9.</b> test the camera gimbal control for the correct functioning and check the camera for smooth movement	0.5	2	-	1
<b>PC10.</b> examine the drone compass for correct calibration and calibrate it, if required	1	1	-	-
<b>PC11.</b> test the Global Positioning System (GPS) for the correct functioning and carry out troubleshooting, as required	0.5	2	-	1
<b>PC12.</b> perform the appropriate test to check the functioning of the Return to Home (RTH) system	1	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> check the wiring in the drone to ensure it is intact, and replace the damaged or worn-out wires	1	2	-	-
<b>PC14.</b> test the indicator lights on the drone to ensure their correct functioning and repair or replace them as appropriate	0.5	2	-	1
<b>PC15.</b> examine the drone components for damage and determine the requirement of repairing or replacing the drone components	1	2	-	-
<b>PC16.</b> repair or replace the damaged drone components as appropriate	0.5	2	-	1
<b>PC17.</b> coordinate with the drone manufacturer to resolve damage-related issues, as required	1	1	-	-
<b>PC18.</b> ensure all the necessary checks are conducted as per the drone manufacturer's checklist, and appropriate troubleshooting is carried out per the manufacturer's instructions	0.5	2	-	1
<b>PC19.</b> carry out appropriate documentation concerning the pre-flight checks conducted on the drone	1	2	-	-
<i>Obtain the required approvals</i>	<b>3</b>	<b>5</b>	-	<b>2</b>
<b>PC20.</b> determine the requirement for obtaining the necessary approvals and certifications for deploying drones for ODC-related logistics operations	1	1	-	1
<b>PC21.</b> coordinate with the relevant authority to obtain the required approvals and certifications	1	2	-	-
<b>PC22.</b> maintain appropriate documentation concerning the approvals and certifications	1	2	-	1
<i>Determine the ODC project requirements</i>	<b>2</b>	<b>2</b>	-	<b>1</b>
<b>PC23.</b> determine the ODC transportation project requirements in terms of material involved, dimensions, weight, volume, etc.	1	1	-	-
<b>PC24.</b> determine the ODC loading and unloading requirements, lashing requirements based on the centre of gravity, stability required, etc.	1	1	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Conduct route survey for ODC transportation</i>	<b>9</b>	<b>18</b>	-	<b>1</b>
<b>PC25.</b> determine the planned dates and route for the transportation of ODC	1	1	-	-
<b>PC26.</b> arrange the necessary documents, tools and equipment e.g. camera, GPS, tackles etc., to conduct a route survey	0.5	2	-	-
<b>PC27.</b> undertake route survey on the planned route, identifying and recording the details of critical points, such as water crossings, canals, overhead electric wires, residential areas, railway crossings, etc.	1	1	-	1
<b>PC28.</b> use the relevant logistics and route-planning tools, as appropriate	0.5	2	-	-
<b>PC29.</b> check and record details concerning road conditions, traffic composition, road hazards, etc.	1	1	-	-
<b>PC30.</b> identify narrow roads, sharp turns, culverts and other obstacles that require removing, shifting, widening, construction of bypass etc., for the safe transportation of ODC	1	1	-	-
<b>PC31.</b> check bridges and culverts for the safe movement of heavy ODC	0.5	2	-	-
<b>PC32.</b> support route survey with photographs and identify major milestones and detail reasons for the non-feasibility of a particular route for the transportation of ODC	0.5	2	-	-
<b>PC33.</b> coordinate with the relevant personnel to mitigate the risks to ODC during transit, e.g. risk of damage by bridges and other infrastructure on roads or rough/uneven terrain	1	2	-	-
<b>PC34.</b> check the weather forecast to ensure the weather conditions are conducive on the selected dates for deploying drone	1	2	-	-
<b>PC35.</b> ensure adherence to the applicable health and safety standards and regulations while performing the route survey	1	2	-	-
<b>NOS Total</b>	<b>30</b>	<b>60</b>	-	<b>10</b>

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	LSC/N0416
<b>NOS Name</b>	Prepare for monitoring over dimensional cargo using drone
<b>Sector</b>	Logistics
<b>Sub-Sector</b>	Land Transportation
<b>Occupation</b>	Engineering/Maintenance
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	03/05/2026
<b>NSQF Clearance Date</b>	03/05/2023

## Qualification Pack

### LSC/N0408: Carry out drone flight simulation and test flight

#### Description

This OS unit is about performing drone flight simulation and test flight in preparation for using a drone.

#### Scope

The scope covers the following :

- Simulate the drone flight
- Undertake drone test flight

#### Elements and Performance Criteria

##### *Simulate the drone flight*

To be competent, the user/individual on the job must be able to:

- PC1.** determine the operations and controls of the drone flight simulator
- PC2.** check the controls on the drone flight simulator are working appropriately
- PC3.** select the appropriate drone make and settings in the simulator for drone flight simulation
- PC4.** plan the drone flight on the simulator with the appropriate parameters, such as distance, height, duration, etc.
- PC5.** perform pre-flight checks on the drone as per the drone simulator instructions
- PC6.** carry out drone demo flight in the drone flight simulator
- PC7.** follow the drone flight simulator instructions for the safe take-off, flight and landing of the drone
- PC8.** perform the appropriate post-flight checks on the drone in the simulation

##### *Undertake drone test flight*

To be competent, the user/individual on the job must be able to:

- PC9.** follow the appropriate procedure to register the drone with the relevant authority, i.e. Digitalsky platform registration with the Directorate General of Civil Aviation (DGCA)
- PC10.** perform the applicable pre-flight assessments
- PC11.** carry out drone flight testing at the recommended altitude and appropriate patterns
- PC12.** use gimbal controls, e.g. pan, tilt and zoom, appropriately
- PC13.** perform the appropriate directional manoeuvres according to the type of drone for the loiter/hover test
- PC14.** test the drone for smooth ascend and descend during the flight
- PC15.** perform the cruise test to test the relevant factors concerning the drone's hardware and software, e.g. the drone's endurance time
- PC16.** test the drone's Return to Home (RTH) feature and landing capability
- PC17.** follow the recommended safety measures while test-flying the drone
- PC18.** identify emergencies/abnormal conditions and handle them appropriately
- PC19.** record the appropriate data concerning the drone test flight, e.g. the flight's duration, battery drain rate, issues experienced, etc.

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### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the operations and controls of a drone flight simulator
- KU2.** the appropriate selections to be made in the simulator for drone flight simulation
- KU3.** how to plan the drone flight on the simulator with appropriate parameters
- KU4.** the appropriate pre-flight and post-flight checks to be performed on a drone simulator
- KU5.** how to carry out drone demo flight in the drone flight simulator
- KU6.** the importance of registering the drone with the relevant authority
- KU7.** the necessary pre-flight assessments to be performed before the test flight of a drone
- KU8.** the process of conducting a drone's test flight
- KU9.** how to use different gimbal controls on a drone
- KU10.** the appropriate directional manoeuvres to be performed according to the type of drone for the loiter/hover test
- KU11.** the importance of testing the drone for smooth ascend and descend during the test flight
- KU12.** the importance of performing the cruise test to test the relevant factors concerning the drone's hardware and software
- KU13.** the process of testing the drone's Return to Home (RTH) feature and landing capability
- KU14.** the appropriate safety measures to be followed while test-flying the drone
- KU15.** the appropriate data to be recorded concerning the drone's test flight

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** communicate politely and professionally
- GS3.** read the relevant literature to learn about the latest developments in the field of work
- GS4.** perform work-related calculations
- GS5.** listen attentively to understand the information/ instructions being shared
- GS6.** plan and prioritize tasks to ensure timely completion
- GS7.** coordinate with co-workers to achieve the work objectives
- GS8.** evaluate all possible solutions to a problem to select the best one
- GS9.** identify possible disruptions to work and take appropriate preventive measures
- GS10.** take quick decisions to deal with workplace emergencies/ accidents

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Simulate the drone flight</i>	<b>13</b>	<b>24</b>	-	<b>4</b>
<b>PC1.</b> determine the operations and controls of the drone flight simulator	2	3	-	1
<b>PC2.</b> check the controls on the drone flight simulator are working appropriately	2	3	-	-
<b>PC3.</b> select the appropriate drone make and settings in the simulator for drone flight simulation	1	3	-	-
<b>PC4.</b> plan the drone flight on the simulator with the appropriate parameters, such as distance, height, duration, etc.	2	3	-	-
<b>PC5.</b> perform pre-flight checks on the drone as per the drone simulator instructions	1	3	-	1
<b>PC6.</b> carry out drone demo flight in the drone flight simulator	2	3	-	1
<b>PC7.</b> follow the drone flight simulator instructions for the safe take-off, flight and landing of the drone	1	3	-	-
<b>PC8.</b> perform the appropriate post-flight checks on the drone in the simulation	2	3	-	1
<i>Undertake drone test flight</i>	<b>17</b>	<b>36</b>	-	<b>6</b>
<b>PC9.</b> follow the appropriate procedure to register the drone with the relevant authority, i.e. Digitalsky platform registration with the Directorate General of Civil Aviation (DGCA)	2	3	-	-
<b>PC10.</b> perform the applicable pre-flight assessments	1	3	-	-
<b>PC11.</b> carry out drone flight testing at the recommended altitude and appropriate patterns	2	3	-	1
<b>PC12.</b> use gimbal controls, e.g. pan, tilt and zoom, appropriately	2	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> perform the appropriate directional manoeuvres according to the type of drone for the loiter/hover test	1	3	-	1
<b>PC14.</b> test the drone for smooth ascend and descend during the flight	1	3	-	1
<b>PC15.</b> perform the cruise test to test the relevant factors concerning the drone's hardware and software, e.g. the drone's endurance time	2	4	-	-
<b>PC16.</b> test the drone's Return to Home (RTH) feature and landing capability	1	3	-	1
<b>PC17.</b> follow the recommended safety measures while test-flying the drone	2	4	-	-
<b>PC18.</b> identify emergencies/abnormal conditions and handle them appropriately	1	3	-	1
<b>PC19.</b> record the appropriate data concerning the drone test flight, e.g. the flight's duration, battery drain rate, issues experienced, etc.	2	4	-	1
<b>NOS Total</b>	<b>30</b>	<b>60</b>	<b>-</b>	<b>10</b>



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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	LSC/N0408
<b>NOS Name</b>	Carry out drone flight simulation and test flight
<b>Sector</b>	Logistics
<b>Sub-Sector</b>	Warehousing (Storage & Packaging)
<b>Occupation</b>	Engineering/Maintenance
<b>NSQF Level</b>	4
<b>Credits</b>	3
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	03/05/2026
<b>NSQF Clearance Date</b>	03/05/2023

## Qualification Pack

### LSC/N0417: Carry out repair and maintenance of the drone

#### Description

This OS unit is about maintaining the drone in working condition through appropriate repair and maintenance.

#### Scope

The scope covers the following :

- Repair and maintain the drone
- Coordinate with the drone manufacturer
- Maintain the record of repair and maintenance

#### Elements and Performance Criteria

##### *Repair and maintain the drone*

To be competent, the user/individual on the job must be able to:

- PC1.** arrange the appropriate maintenance tools and equipment, ensuring they are manufacturer-recommended and compatible with the make of the drone
- PC2.** ensure the availability of genuine drone components to replace the faulty/damaged components
- PC3.** follow the drone maintenance manual to perform regular checks on the drone
- PC4.** follow the manufacturer's instructions to dismantle the drone components to avoid any damage to them
- PC5.** examine the drone components and identify damage to them, such as cracks in the hull or damage to the propellers
- PC6.** determine the malfunctioning of drone components, e.g. issues with the drone's controller, rotors, motors, etc.
- PC7.** check the drone's camera is able to capture still images and videos in an appropriate resolution without any issues
- PC8.** check the requirement of installing firmware updates for the optimum performance of drone hardware and install the required updates
- PC9.** clean the relevant drone components, e.g. hull and propellers, appropriately, ensuring no impact on electronic components
- PC10.** check for smooth syncing between the drone and its controller and carry out appropriate troubleshooting
- PC11.** identify issues with manoeuvring the drone and carry out troubleshooting as required
- PC12.** check the drone's altimeter and accelerometer for the correct functioning and replace the faulty ones
- PC13.** repair or replace the faulty rotors and motors in the drone
- PC14.** carry out troubleshooting for the issues identified with the drone's camera, e.g. inability to capture images/ videos or blurred images/videos

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- PC15.** check the compass and Inertial Measurement Unit (IMU) for correct calibration and calibrate them if required
- PC16.** follow the appropriate measures to protect the relevant drone components from Electromagnetic Interference (EMI)
- PC17.** examine the drone's landing gear for damage and repair or replace it as appropriate
- PC18.** identify the issues with the batteries, such as overheating or discharging too quickly and replace them with the compatible batteries
- PC19.** identify faulty compass and GPS modules and replace them with the new ones
- PC20.** remove the faulty Electronic Speed Controller (ESC) module taking appropriate precautions, and replace it with a compatible one
- PC21.** identify common issues with the nuts, bolts and wiring in the drone and carry out appropriate maintenance

### *Coordinate with the drone manufacturer*

To be competent, the user/individual on the job must be able to:

- PC22.** identify manufacturing defects or complex issues with the drone components
- PC23.** coordinate with the drone manufacturer to resolve manufacturing defects or complex issues with the drone

### *Maintain the record of repair and maintenance*

To be competent, the user/individual on the job must be able to:

- PC24.** maintain the record of the drone's repair and maintenance
- PC25.** follow the recommended maintenance schedule for different drone components
- PC26.** maintain and analyze the records concerning drone's repair and maintenance to identify and resolve recurring issues

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance of using manufacturer-recommended maintenance tools and equipment and genuine drone components
- KU2.** the use of relevant tools and equipment
- KU3.** the benefits of performing regular checks on the drone following the drone maintenance manual
- KU4.** the process of dismantling drone components safely
- KU5.** the common damages and malfunctioning found in drone components and the appropriate remedial measures to be taken
- KU6.** the remedial measures for the common issues experienced with the drone's camera and gimbal
- KU7.** the importance and process of checking for and installing the firmware updates for the optimum performance of drone hardware
- KU8.** the process of carrying out regular maintenance of a drone, e.g. cleaning, tightening loose screws, bolts and replacing damaged and worn-out components
- KU9.** how to identify and troubleshoot issues with syncing between the drone and its controller
- KU10.** how to resolve issues with the drone's manoeuvring, its altimeter and accelerometer

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- KU11.** the process of repairing or replacing the faulty rotors and motors in the drone
- KU12.** the importance of ensuring correct calibration for the drone's compass and IMU
- KU13.** how to protect the relevant drone components from Electromagnetic Interference (EMI)
- KU14.** the resolution for common issues with the drone's landing gear, batteries, GPS modules and ESC module
- KU15.** the importance of coordinating with the drone manufacturer to resolve manufacturing defects or complex issues with the drone
- KU16.** the importance of following the recommended maintenance schedule for different drone components
- KU17.** the importance of maintaining and analyzing the repair and maintenance records

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain work-related notes and records
- GS2.** read the relevant literature to get information about the latest developments in the field of work
- GS3.** listen attentively to understand the information/ instructions being shared by the speaker
- GS4.** communicate clearly and politely with co-workers and clients
- GS5.** coordinate with co-workers to achieve work objectives
- GS6.** plan and prioritize tasks to ensure timely completion
- GS7.** identify possible disruptions to work and take appropriate preventive measures
- GS8.** take quick decisions to deal with workplace emergencies/ accidents
- GS9.** evaluate all possible solutions to a problem to select the best one

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Repair and maintain the drone</i>	<b>24</b>	<b>47</b>	-	<b>6</b>
<b>PC1.</b> arrange the appropriate maintenance tools and equipment, ensuring they are manufacturer-recommended and compatible with the make of the drone	1	2	-	1
<b>PC2.</b> ensure the availability of genuine drone components to replace the faulty/damaged components	1	2	-	-
<b>PC3.</b> follow the drone maintenance manual to perform regular checks on the drone	1	2	-	1
<b>PC4.</b> follow the manufacturer's instructions to dismantle the drone components to avoid any damage to them	1	2	-	1
<b>PC5.</b> examine the drone components and identify damage to them, such as cracks in the hull or damage to the propellers	1	2	-	-
<b>PC6.</b> determine the malfunctioning of drone components, e.g. issues with the drone's controller, rotors, motors, etc.	1	3	-	-
<b>PC7.</b> check the drone's camera is able to capture still images and videos in an appropriate resolution without any issues	1	2	-	-
<b>PC8.</b> check the requirement of installing firmware updates for the optimum performance of drone hardware and install the required updates	2	2	-	-
<b>PC9.</b> clean the relevant drone components, e.g. hull and propellers, appropriately, ensuring no impact on electronic components	2	2	-	-
<b>PC10.</b> check for smooth syncing between the drone and its controller and carry out appropriate troubleshooting	1	2	-	-
<b>PC11.</b> identify issues with manoeuvring the drone and carry out troubleshooting as required	1	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> check the drone's altimeter and accelerometer for the correct functioning and replace the faulty ones	1	2	-	-
<b>PC13.</b> repair or replace the faulty rotors and motors in the drone	1	2	-	-
<b>PC14.</b> carry out troubleshooting for the issues identified with the drone's camera, e.g. inability to capture images/ videos or blurred images/videos	1	2	-	-
<b>PC15.</b> check the compass and Inertial Measurement Unit (IMU) for correct calibration and calibrate them if required	1	3	-	-
<b>PC16.</b> follow the appropriate measures to protect the relevant drone components from Electromagnetic Interference (EMI)	1	2	-	1
<b>PC17.</b> examine the drone's landing gear for damage and repair or replace it as appropriate	1	3	-	-
<b>PC18.</b> identify the issues with the batteries, such as overheating or discharging too quickly and replace them with the compatible batteries	1	3	-	1
<b>PC19.</b> identify faulty compass and GPS modules and replace them with the new ones	1	2	-	-
<b>PC20.</b> remove the faulty Electronic Speed Controller (ESC) module taking appropriate precautions, and replace it with a compatible one	2	2	-	-
<b>PC21.</b> identify common issues with the nuts, bolts and wiring in the drone and carry out appropriate maintenance	1	2	-	1
<i>Coordinate with the drone manufacturer</i>	<b>2</b>	<b>6</b>	-	<b>1</b>
<b>PC22.</b> identify manufacturing defects or complex issues with the drone components	1	3	-	-
<b>PC23.</b> coordinate with the drone manufacturer to resolve manufacturing defects or complex issues with the drone	1	3	-	1
<i>Maintain the record of repair and maintenance</i>	<b>4</b>	<b>7</b>	-	<b>3</b>

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC24.</b> maintain the record of the drone's repair and maintenance	1	2	-	1
<b>PC25.</b> follow the recommended maintenance schedule for different drone components	1	2	-	1
<b>PC26.</b> maintain and analyze the records concerning drone's repair and maintenance to identify and resolve recurring issues	2	3	-	1
<b>NOS Total</b>	<b>30</b>	<b>60</b>	-	<b>10</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	LSC/N0417
<b>NOS Name</b>	Carry out repair and maintenance of the drone
<b>Sector</b>	Logistics
<b>Sub-Sector</b>	Land Transportation
<b>Occupation</b>	Engineering/Maintenance
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	03/05/2026
<b>NSQF Clearance Date</b>	03/05/2023



## Qualification Pack

### LSC/N0418: Monitor ODC during loading and unloading

#### Description

Monitor ODC during loading and unloading

#### Scope

The scope covers the following :

- Monitor ODC during loading
- Monitor ODC during unloading

#### Elements and Performance Criteria

##### *Monitor ODC during loading*

To be competent, the user/individual on the job must be able to:

- PC1.** identify the dedicated area for the loading of ODC
- PC2.** check the area for adequate height and space for convenient and safe use of drone
- PC3.** coordinate with the relevant personnel to understand the planned ODC loading activities and plan the use of drone accordingly
- PC4.** assist the equipment operator, e.g. crane operator in the correct and safe lifting of ODC, using the drone
- PC5.** check for the appropriate and safe placement of ODC on the transport vehicle using the drone, taking aerial views from different angles
- PC6.** check for appropriate fastening and tension of straps on ODC with the help of the drone

##### *Monitor ODC during unloading*

To be competent, the user/individual on the job must be able to:

- PC7.** deploy the drone in the area dedicated for unloading ODC
- PC8.** check for safe unloading of ODC, helping ensure no damage to ODC
- PC9.** monitor the personnel involved in unloading activities and help in their correct positioning to ensure no injuries to them
- PC10.** assist in carrying out documentation concerning the loading and unloading activities, providing information concerning the drone's use and data captured by it, e.g. images and videos

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the criteria for considering a cargo as ODC
- KU2.** the regulations applicable to the loading, unloading and transportation of ODC
- KU3.** the appropriate safety measures to be taken during loading/ unloading and transportation of ODC and the implications of not following them

## Qualification Pack

- KU4.** the importance of planning loading and unloading activities and following the plans to avoid any accidents
- KU5.** the benefit of using drones to monitor ODC during loading and unloading activities

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** maintain the appropriate notes, records, and checklists
- GS2.** read the appropriate literature to stay updated about the latest developments in the field of work
- GS3.** communicate politely and professionally
- GS4.** coordinate with co-workers to achieve the work objectives
- GS5.** provide advice and guidance to peers and subordinates
- GS6.** make appropriate decisions to improve work efficiency, achieve work objectives and deal with workplace emergencies
- GS7.** prioritize and execute tasks within the scheduled time limits
- GS8.** maintain schedules and punctuality
- GS9.** identify potential disruptions to work and take appropriate preventive measures

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Monitor ODC during loading</i>	<b>18</b>	<b>36</b>	-	<b>6</b>
<b>PC1.</b> identify the dedicated area for the loading of ODC	3	6	-	1
<b>PC2.</b> check the area for adequate height and space for convenient and safe use of drone	3	6	-	1
<b>PC3.</b> coordinate with the relevant personnel to understand the planned ODC loading activities and plan the use of drone accordingly	3	6	-	1
<b>PC4.</b> assist the equipment operator, e.g. crane operator in the correct and safe lifting of ODC, using the drone	3	6	-	1
<b>PC5.</b> check for the appropriate and safe placement of ODC on the transport vehicle using the drone, taking aerial views from different angles	3	6	-	1
<b>PC6.</b> check for appropriate fastening and tension of straps on ODC with the help of the drone	3	6	-	1
<i>Monitor ODC during unloading</i>	<b>12</b>	<b>24</b>	-	<b>4</b>
<b>PC7.</b> deploy the drone in the area dedicated for unloading ODC	3	6	-	1
<b>PC8.</b> check for safe unloading of ODC, helping ensure no damage to ODC	3	6	-	1
<b>PC9.</b> monitor the personnel involved in unloading activities and help in their correct positioning to ensure no injuries to them	3	6	-	1
<b>PC10.</b> assist in carrying out documentation concerning the loading and unloading activities, providing information concerning the drone's use and data captured by it, e.g. images and videos	3	6	-	1
<b>NOS Total</b>	<b>30</b>	<b>60</b>	-	<b>10</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	LSC/N0418
<b>NOS Name</b>	Monitor ODC during loading and unloading
<b>Sector</b>	Logistics
<b>Sub-Sector</b>	Land Transportation
<b>Occupation</b>	Engineering/Maintenance
<b>NSQF Level</b>	4
<b>Credits</b>	3
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	03/05/2026
<b>NSQF Clearance Date</b>	03/05/2023

## Qualification Pack

# LSC/N0419: Monitor ODC during transit and support in improving transportation of ODC

## Description

This OS unit is about monitoring ODC during transit and providing support in improving the transportation of ODC.

## Scope

The scope covers the following :

- Monitor ODC during transit
- Recommend appropriate risk mitigation measures

## Elements and Performance Criteria

### *Monitor ODC during transit*

To be competent, the user/individual on the job must be able to:

- PC1.** use Artificial Intelligence (AI) based drones for autonomous flight for easy operation and increased accessibility
- PC2.** operate the drone at the recommended altitude and speed
- PC3.** ensure constant communication with the relevant personnel during the transportation of ODC
- PC4.** conduct real-time tracking of ODC during transit, monitoring it for safe transportation
- PC5.** assist the supervisor with real-time updates to be shared with the client concerning the transportation of their ODC
- PC6.** ensure adherence to the applicable laws while using drones in logistics operations
- PC7.** maintain the relevant records concerning the monitoring of ODC using a drone
- PC8.** assist the drivers and trailer operators in taking appropriate safety measures during the transportation of ODC through drone monitoring
- PC9.** assist in rescue operations using a drone in case the ODC consignment topples during transit
- PC10.** assist in ensuring compliance with the applicable environmental safety and occupational health and safety regulations, e.g. ISO-14001 and ISO-18001, during the transportation of ODC

### *Recommend appropriate risk mitigation measures*

To be competent, the user/individual on the job must be able to:

- PC11.** identify the need of deploying additional resources, e.g. more personnel for monitoring ODC during transit
- PC12.** determine the need of using customized vehicles, more effective equipment and accessories based on the observation of ODC during transportation and make appropriate suggestions
- PC13.** identify the instances of safety lapses/ violation of applicable regulations, and suggest appropriate solutions to address them
- PC14.** identify and suggest additional training needs for the personnel involved in loading, unloading and transporting ODC

## Qualification Pack

- PC15.** determine the maintenance needs of the vehicle and equipment based on drone-based monitoring and make appropriate suggestions to the relevant personnel
- PC16.** assist in the implementation of the identified risk mitigation measures, checking their implementation and efficacy using drone

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the scope of applying AI and machine learning in drone operations
- KU2.** the appropriate conditions for deploying drones for monitoring ODC during its transit
- KU3.** the procedures for dealing with ODC
- KU4.** the common risks to the ODC during transit and how to mitigate them
- KU5.** the appropriate safety measures to be taken while using a drone to monitor ODC during transit
- KU6.** the process of conducting real-time tracking using a drone
- KU7.** the laws applicable to the use of drones in logistics operations
- KU8.** how to deal with the emergencies concerning the transportation of ODC
- KU9.** the importance of identifying risks and appropriate mitigation measures concerning the transportation of ODC

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** communicate politely and professionally
- GS2.** listen attentively to understand the information/ instructions being shared by the speaker
- GS3.** maintain work-related notes and records
- GS4.** read the relevant literature to learn about the latest developments in the field of work
- GS5.** plan and prioritize tasks to ensure timely completion
- GS6.** evaluate all possible solutions to a problem to select the best one
- GS7.** identify possible disruptions to work and take appropriate preventive measures
- GS8.** take quick decisions to deal with workplace emergencies/ accidents

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Monitor ODC during transit</i>	<b>18</b>	<b>36</b>	-	<b>6</b>
<b>PC1.</b> use Artificial Intelligence (AI) based drones for autonomous flight for easy operation and increased accessibility	2	4	-	1
<b>PC2.</b> operate the drone at the recommended altitude and speed	2	4	-	1
<b>PC3.</b> ensure constant communication with the relevant personnel during the transportation of ODC	1	2	-	1
<b>PC4.</b> conduct real-time tracking of ODC during transit, monitoring it for safe transportation	2	4	-	-
<b>PC5.</b> assist the supervisor with real-time updates to be shared with the client concerning the transportation of their ODC	2	4	-	-
<b>PC6.</b> ensure adherence to the applicable laws while using drones in logistics operations	1	2	-	1
<b>PC7.</b> maintain the relevant records concerning the monitoring of ODC using a drone	2	4	-	-
<b>PC8.</b> assist the drivers and trailer operators in taking appropriate safety measures during the transportation of ODC through drone monitoring	2	4	-	1
<b>PC9.</b> assist in rescue operations using a drone in case the ODC consignment topples during transit	2	4	-	-
<b>PC10.</b> assist in ensuring compliance with the applicable environmental safety and occupational health and safety regulations, e.g. ISO-14001 and ISO-18001, during the transportation of ODC	2	4	-	1
<i>Recommend appropriate risk mitigation measures</i>	<b>12</b>	<b>24</b>	-	<b>4</b>
<b>PC11.</b> identify the need of deploying additional resources, e.g. more personnel for monitoring ODC during transit	2	4	-	1

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> determine the need of using customized vehicles, more effective equipment and accessories based on the observation of ODC during transportation and make appropriate suggestions	2	4	-	-
<b>PC13.</b> identify the instances of safety lapses/ violation of applicable regulations, and suggest appropriate solutions to address them	2	4	-	1
<b>PC14.</b> identify and suggest additional training needs for the personnel involved in loading, unloading and transporting ODC	2	4	-	1
<b>PC15.</b> determine the maintenance needs of the vehicle and equipment based on drone-based monitoring and make appropriate suggestions to the relevant personnel	2	4	-	-
<b>PC16.</b> assist in the implementation of the identified risk mitigation measures, checking their implementation and efficacy using drone	2	4	-	1
<b>NOS Total</b>	<b>30</b>	<b>60</b>	<b>-</b>	<b>10</b>



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	LSC/N0419
<b>NOS Name</b>	Monitor ODC during transit and support in improving transportation of ODC
<b>Sector</b>	Logistics
<b>Sub-Sector</b>	Land Transportation
<b>Occupation</b>	Engineering/Maintenance
<b>NSQF Level</b>	4
<b>Credits</b>	3
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	03/05/2026
<b>NSQC Clearance Date</b>	03/05/2023

## Qualification Pack

# LSC/N0420: Maintain health and safety during drone operations for ODC monitoring

## Description

This OS unit is about following appropriate health and safety measures in drone operations. It also covers appropriate health and safety practices at work.

## Scope

The scope covers the following :

- Follow the applicable drone safety regulations
- Ensure the safety of the drone
- Protect others from drones
- Maintain personal health and safety
- Ensure preparedness for emergencies
- Deal with emergencies at work

## Elements and Performance Criteria

### *Follow the applicable drone safety regulations*

To be competent, the user/individual on the job must be able to:

- PC1.** determine the relevant drone safety regulation applicable in the area of operation
- PC2.** follow the applicable regulations as per the instructions of the relevant regulatory authority

### *Ensure the safety of the drone*

To be competent, the user/individual on the job must be able to:

- PC3.** determine and adhere to the selected drone's tolerance limits
- PC4.** follow the appropriate measures for the weatherproofing of the drone, e.g. cover the sensitive electronic parts with silicone conformal coating
- PC5.** use the drone in an environment with the recommended precipitation and temperature to avoid adverse impacts on the drone, protecting it from rain, high temperatures and dust
- PC6.** maintain the drone at a safe distance from overhead wires and obstructions
- PC7.** operate the drone at the recommended altitude to prevent it from crashing into vehicles
- PC8.** maintain the drone at an appropriate distance from ODC during operation to ensure good visibility of ODC and prevent potential damage to the drone

### *Protect others from drones*

To be competent, the user/individual on the job must be able to:

- PC9.** maintain the drone at a safe distance from people and appropriate altitude to prevent any harm
- PC10.** operate the drone at the recommended speed for its effective control and prevent collision with people
- PC11.** follow the drone's planned flight path to prevent any deviations and accidents

### *Maintain personal health and safety*

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To be competent, the user/individual on the job must be able to:

- PC12.** identify the requirement for relevant Personal Protection Equipment (PPE)
- PC13.** arrange the required PPE and examine it to ensure it is in usable condition, and repair or replace the defective/worn-out PPE
- PC14.** use the appropriate PPE in hazardous activities and handling hazardous materials to ensure effective personal protection
- PC15.** follow the appropriate safety practices while handling heavy objects
- PC16.** follow appropriate measures to protect against infections and common diseases, such as appropriate hand-washing and the use of face masks and hand sanitizer
- PC17.** maintain cleanliness in the workplace

### *Ensure preparedness for emergencies*

To be competent, the user/individual on the job must be able to:

- PC18.** identify unsafe conditions and practices at work and take appropriate preventive measures or report them to the concerned authority
- PC19.** ensure the availability of a first aid box to administer first aid for relevant health emergencies
- PC20.** ensure own preparedness for fire emergencies by participating in fire drills
- PC21.** assist in checking preparedness at work for fire emergencies, i.e. checking the fire extinguishers, fire alarms, water sprinklers and smoke detectors for the correct functioning

### *Deal with emergencies at work*

To be competent, the user/individual on the job must be able to:

- PC22.** follow the organizational policy to deal with emergencies such as fire, accidents, disease outbreaks or natural calamities
- PC23.** administer immediate first aid in medical emergencies and request professional medical assistance for serious cases
- PC24.** ensure the safe use of emergency equipment according to the manufacturer's instructions
- PC25.** arrange for the emergency equipment to be repaired or replaced as required
- PC26.** report workplace emergencies/ accidents to the relevant authority in compliance with the organizational and regulatory requirements

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance of selecting an appropriate drone with the required weatherproofing and adhering to its tolerance limits
- KU2.** the appropriate height, space and environment required for drone operations
- KU3.** the importance of protecting drones from dust and water/rain for their improved life and performance
- KU4.** the appropriate drone safety regulations and the relevant regulatory authority
- KU5.** the importance of maintaining drones at a safe distance from overhead wires and obstructions and planning the drone flight path accordingly
- KU6.** the ways to protect others from injury in the vicinity of drone operations

## Qualification Pack

- KU7.** the importance of using the appropriate PPE, ensuring it is in usable condition
- KU8.** the appropriate safety practices to be followed while handling heavy objects
- KU9.** the appropriate measures to be followed to protect against infections and common diseases
- KU10.** the benefits of maintaining cleanliness in the workplace
- KU11.** the importance of identifying unsafe conditions and practices at work and taking appropriate preventive measures
- KU12.** the importance of ensuring the availability of the first aid box at work
- KU13.** the importance of ensuring own and workplace preparedness for dealing with emergencies, such as fire, accidents, disease outbreaks or natural calamities
- KU14.** how to administer first aid in medical emergencies, and the importance of requesting immediate professional medical assistance for serious cases
- KU15.** the importance of using emergency equipment safely according to the manufacturer's instructions
- KU16.** the process of reporting workplace emergencies/ accidents to the relevant authority in compliance with the organizational and regulatory requirements

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** communicate clearly and politely
- GS2.** prepare work-related records
- GS3.** listen attentively to comprehend the information being shared
- GS4.** read work-related manuals and literature
- GS5.** provide advice and guidance to peers and subordinates
- GS6.** prioritize and execute tasks within the scheduled time limits
- GS7.** maintain schedules and punctuality
- GS8.** coordinate with co-workers to achieve the work objectives
- GS9.** analyze trends and make appropriate adjustments to work processes
- GS10.** identify possible disruptions to work and take appropriate preventive measures

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Follow the applicable drone safety regulations</i>	<b>2</b>	<b>5</b>	-	<b>1</b>
<b>PC1.</b> determine the relevant drone safety regulation applicable in the area of operation	1	3	-	-
<b>PC2.</b> follow the applicable regulations as per the instructions of the relevant regulatory authority	1	2	-	1
<i>Ensure the safety of the drone</i>	<b>6</b>	<b>14</b>	-	<b>3</b>
<b>PC3.</b> determine and adhere to the selected drone's tolerance limits	1	2	-	1
<b>PC4.</b> follow the appropriate measures for the weatherproofing of the drone, e.g. cover the sensitive electronic parts with silicone conformal coating	1	4	-	-
<b>PC5.</b> use the drone in an environment with the recommended precipitation and temperature to avoid adverse impacts on the drone, protecting it from rain, high temperatures and dust	1	2	-	1
<b>PC6.</b> maintain the drone at a safe distance from overhead wires and obstructions	1	2	-	-
<b>PC7.</b> operate the drone at the recommended altitude to prevent it from crashing into vehicles	1	2	-	1
<b>PC8.</b> maintain the drone at an appropriate distance from ODC during operation to ensure good visibility of ODC and prevent potential damage to the drone	1	2	-	-
<i>Protect others from drones</i>	<b>3</b>	<b>6</b>	-	-
<b>PC9.</b> maintain the drone at a safe distance from people and appropriate altitude to prevent any harm	1	2	-	-
<b>PC10.</b> operate the drone at the recommended speed for its effective control and prevent collision with people	1	2	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> follow the drone's planned flight path to prevent any deviations and accidents	1	2	-	-
<i>Maintain personal health and safety</i>	<b>6</b>	<b>12</b>	-	<b>1</b>
<b>PC12.</b> identify the requirement for relevant Personal Protection Equipment (PPE)	1	2	-	-
<b>PC13.</b> arrange the required PPE and examine it to ensure it is in usable condition, and repair or replace the defective/worn-out PPE	1	2	-	-
<b>PC14.</b> use the appropriate PPE in hazardous activities and handling hazardous materials to ensure effective personal protection	1	2	-	-
<b>PC15.</b> follow the appropriate safety practices while handling heavy objects	1	2	-	-
<b>PC16.</b> follow appropriate measures to protect against infections and common diseases, such as appropriate hand-washing and the use of face masks and hand sanitizer	1	2	-	-
<b>PC17.</b> maintain cleanliness in the workplace	1	2	-	1
<i>Ensure preparedness for emergencies</i>	<b>6</b>	<b>7</b>	-	<b>2</b>
<b>PC18.</b> identify unsafe conditions and practices at work and take appropriate preventive measures or report them to the concerned authority	2	2	-	-
<b>PC19.</b> ensure the availability of a first aid box to administer first aid for relevant health emergencies	1	1	-	1
<b>PC20.</b> ensure own preparedness for fire emergencies by participating in fire drills	2	2	-	-
<b>PC21.</b> assist in checking preparedness at work for fire emergencies, i.e. checking the fire extinguishers, fire alarms, water sprinklers and smoke detectors for the correct functioning	1	2	-	1
<i>Deal with emergencies at work</i>	<b>7</b>	<b>16</b>	-	<b>3</b>

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC22.</b> follow the organizational policy to deal with emergencies such as fire, accidents, disease outbreaks or natural calamities	2	4	-	-
<b>PC23.</b> administer immediate first aid in medical emergencies and request professional medical assistance for serious cases	1	2	-	1
<b>PC24.</b> ensure the safe use of emergency equipment according to the manufacturer's instructions	2	4	-	-
<b>PC25.</b> arrange for the emergency equipment to be repaired or replaced as required	1	2	-	1
<b>PC26.</b> report workplace emergencies/ accidents to the relevant authority in compliance with the organizational and regulatory requirements	1	2	-	1
<b>NOS Total</b>	<b>30</b>	<b>60</b>	<b>-</b>	<b>10</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	LSC/N0420
<b>NOS Name</b>	Maintain health and safety during drone operations for ODC monitoring
<b>Sector</b>	Logistics
<b>Sub-Sector</b>	Land Transportation
<b>Occupation</b>	Engineering/Maintenance
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	03/05/2026
<b>NSQC Clearance Date</b>	03/05/2023



## Qualification Pack

### DGT/VSQ/N0102: Employability Skills (60 Hours)

#### Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

#### Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

#### Elements and Performance Criteria

##### *Introduction to Employability Skills*

To be competent, the user/individual on the job must be able to:

- PC1.** identify employability skills required for jobs in various industries
- PC2.** identify and explore learning and employability portals

##### *Constitutional values - Citizenship*

To be competent, the user/individual on the job must be able to:

- PC3.** recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.
- PC4.** follow environmentally sustainable practices

##### *Becoming a Professional in the 21st Century*

To be competent, the user/individual on the job must be able to:

- PC5.** recognize the significance of 21st Century Skills for employment
- PC6.** practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

##### *Basic English Skills*

To be competent, the user/individual on the job must be able to:

## Qualification Pack

- PC7.** use basic English for everyday conversation in different contexts, in person and over the telephone
- PC8.** read and understand routine information, notes, instructions, mails, letters etc. written in English
- PC9.** write short messages, notes, letters, e-mails etc. in English

### *Career Development & Goal Setting*

To be competent, the user/individual on the job must be able to:

- PC10.** understand the difference between job and career
- PC11.** prepare a career development plan with short- and long-term goals, based on aptitude

### *Communication Skills*

To be competent, the user/individual on the job must be able to:

- PC12.** follow verbal and non-verbal communication etiquette and active listening techniques in various settings
- PC13.** work collaboratively with others in a team

### *Diversity & Inclusion*

To be competent, the user/individual on the job must be able to:

- PC14.** communicate and behave appropriately with all genders and PwD
- PC15.** escalate any issues related to sexual harassment at workplace according to POSH Act

### *Financial and Legal Literacy*

To be competent, the user/individual on the job must be able to:

- PC16.** select financial institutions, products and services as per requirement
- PC17.** carry out offline and online financial transactions, safely and securely
- PC18.** identify common components of salary and compute income, expenses, taxes, investments etc
- PC19.** identify relevant rights and laws and use legal aids to fight against legal exploitation

### *Essential Digital Skills*

To be competent, the user/individual on the job must be able to:

- PC20.** operate digital devices and carry out basic internet operations securely and safely
- PC21.** use e- mail and social media platforms and virtual collaboration tools to work effectively
- PC22.** use basic features of word processor, spreadsheets, and presentations

### *Entrepreneurship*

To be competent, the user/individual on the job must be able to:

- PC23.** identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research
- PC24.** develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion
- PC25.** identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

### *Customer Service*

To be competent, the user/individual on the job must be able to:

- PC26.** identify different types of customers
- PC27.** identify and respond to customer requests and needs in a professional manner.

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**PC28.** follow appropriate hygiene and grooming standards

*Getting ready for apprenticeship & Jobs*

To be competent, the user/individual on the job must be able to:

**PC29.** create a professional Curriculum vitae (Résumé)

**PC30.** search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

**PC31.** apply to identified job openings using offline /online methods as per requirement

**PC32.** answer questions politely, with clarity and confidence, during recruitment and selection

**PC33.** identify apprenticeship opportunities and register for it as per guidelines and requirements

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** need for employability skills and different learning and employability related portals

**KU2.** various constitutional and personal values

**KU3.** different environmentally sustainable practices and their importance

**KU4.** Twenty first (21st) century skills and their importance

**KU5.** how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

**KU6.** importance of career development and setting long- and short-term goals

**KU7.** about effective communication

**KU8.** POSH Act

**KU9.** Gender sensitivity and inclusivity

**KU10.** different types of financial institutes, products, and services

**KU11.** how to compute income and expenditure

**KU12.** importance of maintaining safety and security in offline and online financial transactions

**KU13.** different legal rights and laws

**KU14.** different types of digital devices and the procedure to operate them safely and securely

**KU15.** how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

**KU16.** how to identify business opportunities

**KU17.** types and needs of customers

**KU18.** how to apply for a job and prepare for an interview

**KU19.** apprenticeship scheme and the process of registering on apprenticeship portal

## Generic Skills (GS)

User/individual on the job needs to know how to:

**GS1.** read and write different types of documents/instructions/correspondence

**GS2.** communicate effectively using appropriate language in formal and informal settings



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- GS3.** behave politely and appropriately with all
- GS4.** how to work in a virtual mode
- GS5.** perform calculations efficiently
- GS6.** solve problems effectively
- GS7.** pay attention to details
- GS8.** manage time efficiently
- GS9.** maintain hygiene and sanitization to avoid infection

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	<b>1</b>	<b>1</b>	-	-
<b>PC1.</b> identify employability skills required for jobs in various industries	-	-	-	-
<b>PC2.</b> identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values - Citizenship</i>	<b>1</b>	<b>1</b>	-	-
<b>PC3.</b> recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
<b>PC4.</b> follow environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	<b>2</b>	<b>4</b>	-	-
<b>PC5.</b> recognize the significance of 21st Century Skills for employment	-	-	-	-
<b>PC6.</b> practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
<i>Basic English Skills</i>	<b>2</b>	<b>3</b>	-	-
<b>PC7.</b> use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
<b>PC8.</b> read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
<b>PC9.</b> write short messages, notes, letters, e-mails etc. in English	-	-	-	-
<i>Career Development &amp; Goal Setting</i>	<b>1</b>	<b>2</b>	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> understand the difference between job and career	-	-	-	-
<b>PC11.</b> prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	<b>2</b>	<b>2</b>	-	-
<b>PC12.</b> follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
<b>PC13.</b> work collaboratively with others in a team	-	-	-	-
<i>Diversity &amp; Inclusion</i>	<b>1</b>	<b>2</b>	-	-
<b>PC14.</b> communicate and behave appropriately with all genders and PwD	-	-	-	-
<b>PC15.</b> escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
<i>Financial and Legal Literacy</i>	<b>2</b>	<b>3</b>	-	-
<b>PC16.</b> select financial institutions, products and services as per requirement	-	-	-	-
<b>PC17.</b> carry out offline and online financial transactions, safely and securely	-	-	-	-
<b>PC18.</b> identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
<b>PC19.</b> identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
<i>Essential Digital Skills</i>	<b>3</b>	<b>4</b>	-	-
<b>PC20.</b> operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
<b>PC21.</b> use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
<b>PC22.</b> use basic features of word processor, spreadsheets, and presentations	-	-	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Entrepreneurship</i>	<b>2</b>	<b>3</b>	-	-
<b>PC23.</b> identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
<b>PC24.</b> develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
<b>PC25.</b> identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
<i>Customer Service</i>	<b>1</b>	<b>2</b>	-	-
<b>PC26.</b> identify different types of customers	-	-	-	-
<b>PC27.</b> identify and respond to customer requests and needs in a professional manner.	-	-	-	-
<b>PC28.</b> follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship &amp; Jobs</i>	<b>2</b>	<b>3</b>	-	-
<b>PC29.</b> create a professional Curriculum vitae (Résumé)	-	-	-	-
<b>PC30.</b> search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
<b>PC31.</b> apply to identified job openings using offline /online methods as per requirement	-	-	-	-
<b>PC32.</b> answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
<b>PC33.</b> identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
<b>NOS Total</b>	<b>20</b>	<b>30</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	DGT/VSQ/N0102
<b>NOS Name</b>	Employability Skills (60 Hours)
<b>Sector</b>	Cross Sectoral
<b>Sub-Sector</b>	Professional Skills
<b>Occupation</b>	Employability
<b>NSQF Level</b>	4
<b>Credits</b>	2
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	03/05/2026
<b>NSQC Clearance Date</b>	03/05/2023

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion
5. To pass the Qualification Pack, every trainee should score a minimum of 70% for NSQF level 4 & above job roles and 50% for NSQF level 1 to 3 job roles
6. In case of unsuccessful completion, the trainee may seek re-assessment on the Qualification Pack

**Minimum Aggregate Passing % at QP Level : 70**



## Qualification Pack

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

### Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
LSC/N0416.Prepare for monitoring over dimensional cargo using drone	30	60	-	10	100	20
LSC/N0408.Carry out drone flight simulation and test flight	30	60	-	10	100	20
LSC/N0417.Carry out repair and maintenance of the drone	30	60	-	10	100	20
LSC/N0418.Monitor ODC during loading and unloading	30	60	-	10	100	10
LSC/N0419.Monitor ODC during transit and support in improving transportation of ODC	30	60	-	10	100	10
LSC/N0420.Maintain health and safety during drone operations for ODC monitoring	30	60	-	10	100	10
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	10
<b>Total</b>	<b>200</b>	<b>390</b>	<b>-</b>	<b>60</b>	<b>650</b>	<b>100</b>



## Qualification Pack

### Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training

## Qualification Pack

### Glossary

<b>Sector</b>	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
<b>Scope</b>	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

## Qualification Pack

<b>Knowledge and Understanding (KU)</b>	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
<b>Organisational Context</b>	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
<b>Electives</b>	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
<b>Options</b>	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.