

## Qualification Pack



# Tool and Die Maker

QP Code: CSC/Q0306

Version: 3.0

NSQF Level: 5

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## Qualification Pack

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## Qualification Pack

### CSC/Q0306: Tool and Die Maker

#### Brief Job Description

The incumbent at this job performs various machining, fitting and assembling activities to manufacture tool and die as per the work requirements.

#### Personal Attributes

The job holder must have an eye for detail as well as the patience and discipline required to carry out detailed and repetitive tasks. The candidate should be able to read and understand technical manuals, instructions and warnings.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [CSC/N0307: Prepare for the making of tools and die](#)
2. [CSC/N0316: Perform machining operations](#)
3. [CSC/N0308: Perform fitting operations](#)
4. [CSC/N0309: Perform Assembly Operations](#)
5. [CSC/N1335: Follow the health and safety practices at the work](#)
6. [CSC/N1336: Coordinate with co-workers to achieve work efficiency](#)
7. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Capital Goods
<b>Sub-Sector</b>	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
<b>Occupation</b>	Fitting and Assembly
<b>Country</b>	India



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<b>NSQF Level</b>	5
<b>Credits</b>	21
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7222.050
<b>Minimum Educational Qualification &amp; Experience</b>	12th grade Pass ( with 2 years of relevant experience OR 12th Grade pass with 1-year of NTC/NAC with 1 year of relevant experience OR Completed 1st year of 3-year/ 4-years UG OR Completed 3-year diploma after 10th with 1 year of relevant experience OR 12th pass with 2 year of any combination of NTC/NAC/CITS or equivalent. OR Pursuing 2nd year of 2-year diploma after 12th OR Completed 2nd year of diploma (after 12th) OR Pursuing 2nd year of 3-year/ 4-years UG and continuing education OR Completed 2nd year of 3-year/ 4-years UG OR CNC programmer NSQF-L4 with 3 years relevant experience)
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	31/03/2025
<b>NSQF Approval Date</b>	31/03/2022
<b>Version</b>	3.0
<b>Reference code on NQR</b>	QG-05-CG-00194-2023-V1.1-CGSC
<b>NQR Version</b>	1



## Qualification Pack

### CSC/N0307: Prepare for the making of tools and die

#### Description

This unit is about planning and preparing for making of tools and die as per the given work order and the standards specified by the organization.

#### Scope

The scope covers the following :

- Identify work requirements
- Prepare for tools and die manufacturing process

#### Elements and Performance Criteria

##### *Identify work requirements*

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

- PC1.** identify work requirements by interpreting and analysing drawings; blueprints; planning documentation; quality control documents; operation sheets; process specifications etc. and instructions received from supervisor
- PC2.** compute dimensions, sizes, shapes and tolerances of sub-assemblies of the tools and dies as specified in drawing/blue print
- PC3.** Identify and select appropriate machining, fitting and assembling operations on the basis of drawing/design requirements
- PC4.** identify the tools, lifting equipment, machine and input materials required for the job

##### *Prepare for tools and die manufacturing process*

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

- PC5.** plan sequence of machining, fitting and assembling operations for tools & die manufacturing on the basis of drawing/blue print
- PC6.** use appropriate Personal Protective Equipment (PPE) for safe working in toolroom
- PC7.** select and arrange the raw material, tools, equipment, machines and consumables as per the SOP and job requirements
- PC8.** check the raw material, tools, lifting equipment and machines for any defects and required quality standards
- PC9.** check and calibrate the tools and equipment before use
- PC10.** plan timelines and establish milestones for each task accurately
- PC11.** obtain necessary approvals for the plan by following organizational procedures
- PC12.** allocate responsibilities to machine operators and hand over tools, equipment and metal components to be machined to them

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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- KU1.** relevant legislation, standards, policies, and procedures followed in the organization
- KU2.**
- valid sources for information about job specifications
  - Valid sources: job instruction sheet/job card; work drawings and instructions; planning documentation; quality control documents; operation sheets; process specifications; instructions from supervisor
- KU3.**
- how to read and establish various types of job specification documents for job requirements
  - Job requirements: raw materials or components required (type, quality, quantity); dimensions; limits and tolerances; surface texture requirements; operations required (list, sequence and procedures where applicable); shape or profiles to be fabricated; cutting, bending and rolling allowances for fabricated forms; instruments and tools to be used; interdependencies; timelines
- KU4.**
- various fitting activities to be carried out
  - Fitting activities: measuring and marking out; fabrication using hand tools; fabrication using manually operated power tools (cutting, forming, grinding, drilling, threading, tapping, reaming, polishing, boring, etc.)
- KU5.** various hand fitting methods such as cutting out the rough profile using saws (e.g. hacksaw, band saw), cutting a screw thread (e.g. tapping or dieing), filing (flat, square, curved), drilling holes, tapping
- KU6.** basic tool and die manufacturing process
- KU7.** how to access the specific computer modelling software to be used
- KU8.** geometric dimensioning and tolerancing -- GD&T
- KU9.**
- required dimensional parameters and components quality standards as per the process
  - Parameters: linear dimensions (e.g. lengths, depths); diameters (e.g. external, internal); flatness; squareness; angles; profiles; hole size and position; thread; size and fit; surface finish
  - Quality standards: components to be free from false tool cuts, burrs and sharp edges; dimensional tolerance +/-0.020mm; flatness and squareness 0.05mm; angles within +/- 1 degree; screw threads to fit as per standard; reamed and bored holes within interference: - 0.025mm (hole) + 0.025mm (shaft), transition: - 0.1mm (hole) + 0.1 (shaft) , clearance: 50microns; radius: 0.5 r; surface finish 63in or 1.6 m
- KU10.** various types of machining processes such as drilling, grinding, boring, turning, milling etc.
- KU11.** various assembly operations and methods like bolting, torqueing, tightening, fitting, greasing, hammering, sealing, clamping etc.
- KU12.** the impact of various machining parameters on the final product
- KU13.** SOP recommended by the organisation for operating CNC and conventional machine
- KU14.** SOP recommended by the manufacturer for using tools and machines like grinders, lathe machines, CNC machines and tools like bolting guns, rivet guns, nuts, bolts, screw drivers, wrenches, hacksaws, hammers etc. required during tool and die manufacturing operations
- KU15.** impact of various assembly process like bolting, torqueing, tightening, fitting, greasing, hammering, sealing, clamping on the final product
- KU16.** how to select material to be used based on properties like hardness and tolerance for forming the tool
- KU17.** various work holding devices and equipment such as bench / machine vice; clamps (e.g. toolmakers); three jaw chuck; four-jaw chuck; collet chuck; drive plate and centres; magnetic chucks (holding devices); special purpose tool holders (3R for holding electrodes)
- KU18.**
- properties of metals
  - Properties: plasticity, elasticity, ductility, malleability, toughness, hardness, tensile strength, compressive strength, shear strength, corrosion resistance, density)



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### Generic Skills (GS)

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

- GS1.** note the information related to work and processes
- GS2.** write reports and observations related to work in English/regional language
- GS3.** read and interpret and process flowchart for all operations
- GS4.** read manuals and operation documents to understand the Equipment used into operation
- GS5.** discuss task lists, schedules and activities with the seniors and team members
- GS6.** follow organization rule-based decision making process
- GS7.** take decisions with systematic course of actions and/or response
- GS8.** plan and organize tasks to meet deadlines
- GS9.** find ways of modifying difficult operating stages to make it operation friendly
- GS10.** apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11.** analyse the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12.** recognise a workplace problem and take suitable action to resolve it

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identify work requirements</i>	<b>14</b>	<b>14</b>	-	<b>10</b>
<b>PC1.</b> identify work requirements by interpreting and analysing drawings; blueprints; planning documentation; quality control documents; operation sheets; process specifications etc. and instructions received from supervisor	2	3	-	2
<b>PC2.</b> compute dimensions, sizes, shapes and tolerances of sub-assemblies of the tools and dies as specified in drawing/blue print	2	3	-	1
<b>PC3.</b> Identify and select appropriate machining, fitting and assembling operations on the basis of drawing/design requirements	5	4	-	4
<b>PC4.</b> identify the tools, lifting equipment, machine and input materials required for the job	5	4	-	3
<i>Prepare for tools and die manufacturing process</i>	<b>16</b>	<b>36</b>	-	<b>10</b>
<b>PC5.</b> plan sequence of machining, fitting and assembling operations for tools & die manufacturing on the basis of drawing/blue print	2	5	-	1
<b>PC6.</b> use appropriate Personal Protective Equipment (PPE) for safe working in toolroom	1	2	-	-
<b>PC7.</b> select and arrange the raw material, tools, equipment, machines and consumables as per the SOP and job requirements	3	7	-	2
<b>PC8.</b> check the raw material, tools, lifting equipment and machines for any defects and required quality standards	3	7	-	2
<b>PC9.</b> check and calibrate the tools and equipment before use	2	5	-	2
<b>PC10.</b> plan timelines and establish milestones for each task accurately	1	2	-	1
<b>PC11.</b> obtain necessary approvals for the plan by following organizational procedures	2	4	-	1





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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> allocate responsibilities to machine operators and hand over tools, equipment and metal components to be machined to them	2	4	-	1
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>



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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	CSC/N0307
<b>NOS Name</b>	Prepare for the making of tools and die
<b>Sector</b>	Capital Goods
<b>Sub-Sector</b>	Machine Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Dies, Moulds and Press Tools
<b>Occupation</b>	Fitting and Assembly
<b>NSQF Level</b>	5
<b>Credits</b>	2
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	31/03/2025
<b>NSQC Clearance Date</b>	31/03/2022



## Qualification Pack

### CSC/N0316: Perform machining operations

#### Description

This unit is about performing various machining operations i.e. drilling, grinding, turning, milling etc. for the manufacturing of tools and die as per organizational standards

#### Scope

The scope covers the following :

- Prepare for machining operations
- Perform machining operations
- Perform post-machining activities

#### Elements and Performance Criteria

##### *Prepare for machining operations*

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

- PC1.** plan machining operations for tools & die manufacturing on the basis of drawing/blue print
- PC2.** ensure that the components used are free from foreign objects, dirt or other contamination
- PC3.** prepare and maintain the work area as per procedure or operation specification
- PC4.** confirm with the machine setter that the machine is ready for production
- PC5.** ensure that machine guards are in place and are correctly adjusted
- PC6.** identify and fix different types of cutters or cutting tools in the CNC or conventional machines required for various machining operations
- PC7.** clamp the workpiece securely and without distortion in a chuck/work holding device such as vice, V-block, clamp, angle plate, etc.
- PC8.**
  - ensure that machine settings are adjusted as per SOP to maintain the required accuracy and quality standards
  - Quality standards: components to be free from false tool cuts, burrs and sharp edges; dimensional tolerance 0.020 to 0.030 mm; flatness and squareness within 0.125mm; surface finish 63in or 1.6m; angles within +/- 1 degree
- PC9.** measure and mark reference points/cutting lines on the metal blocks by using appropriate marking and measuring tools
- PC10.** lift the metal blocks manually or by hoist and place the same securely on the working platform as indicated in the drawing/work instructions
- PC11.** cut the metal blocks into required size by using power operated/manual/automatic cutting tools as per the requirement

##### *Perform machining operations*

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

- PC12.** perform rough machining for initial block sizing of work piece
- PC13.** ensure that the right programme is selected in the CNC machine as defined in the SOP
- PC14.** perform various machining operations such as drilling, boring, grinding, turning, milling etc. on the metal block to get the shape and dimension as per the drawing/work order



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- PC15.** operate the machine controls in both hand and power modes
- PC16.** produce components as per given quality standards e.g. components to be free from false tool cuts, burrs and sharp edges; dimensional tolerance 0.020 to 0.030 mm; flatness and squareness within 0.125mm; surface finish 63in or 1.6m; angles within +/- 1 degree, etc.
- PC17.** cut, shape and trim the metal block to specified lengths and shapes by using CNC machines
- PC18.** apply cutting fluids with regard to a range of different materials
- PC19.** monitor the process parameters by reading the various gauges and correct them if not within standards
- PC20.** monitor the machine operations for any malfunctions/defects in the component and inform the supervisor/maintenance team for correction
- PC21.** measure the machined pieces and compare with the dimensions as prescribed in the work order and engineering drawing
- PC22.** shut down the machine to a safe condition on completion of the machining activities

### *Perform post-machining activities*

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

- PC23.** check the machined components for any defects and required quality standards
- PC24.** segregate the machines components in to Ok pieces, defective pieces which can be repaired/reworked and pieces that are beyond repair
- PC25.** maintain and update all the records and reports related to production of tools and die as per the organisational guidelines
- PC26.** dispose scrap or waste material into the disposal area in accordance with the company's policies and environmental regulations
- PC27.** report any difficulties or problems that may arise with the machining activities, and carry out any agreed actions

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures followed in the organization
- KU2.**
  - how to read and establish various types of job specification documents for job requirements
  - Job requirements: raw materials or components required (type, quality, quantity), dimensions, Limits and tolerances, surface texture requirements, operations required (list, sequence and procedures where applicable), shape or profiles to be fabricated, cutting, bending and rolling allowances for fabricated forms, instruments and tools to be used, interdependencies, timelines
- KU3.** various types of machining processes such as drilling, grinding, boring, turning, milling etc.
- KU4.** various types of CNC and conventional machines i.e. milling machines, CNC lathe etc.
- KU5.** different types of cutting tools and their uses
- KU6.** the impact of various machining parameters on the final product
- KU7.** SOP recommended by the organisation for operating CNC and conventional machine
- KU8.** SOP recommended by the manufacturer for using tools and machines like grinders, lathe machines, CNC machines and tools like bolting guns, rivet guns, nuts, bolts, screw drivers, wrenches, hacksaws, hammers etc. required during tool and die manufacturing operations

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- KU9.** how to select material to be used based on properties like hardness and tolerance for forming the tool
- KU10.** how to select cutting tools, tool materials, chip breaker geometry, selecting cutting parameters from tool catalogues, selecting coolant
- KU11.** various work holding devices and equipment such as bench / machine vice, clamps (e.g. toolmakers), three jaw chuck, four-jaw chuck, collet chuck, drive plate and centres, magnetic chucks (holding devices), special purpose tool holders (3R for holding electrodes)
- KU12.** effects of backlash in machine slides and screws, and how this can be overcome
- KU13.** effects of clamping the workpiece in a chuck/work holding device, and how this can cause distortion in the finished components
- KU14.** how to use measurement instruments like rulers, Vernier calipers, micrometer, weighing scale, gauges and other inspection equipment
- KU15.** problems that can occur with the machining activities, and how these can be overcome
- KU16.** various type of defects in machined products
- KU17.** how to check defects in the machined products
- KU18.** safety requirements during the tool and die manufacturing work

## Generic Skills (GS)

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

- GS1.** note the information related to work and processes
- GS2.** write reports and observations related to work in English/regional language
- GS3.** read and interpret and process flowchart for all operations
- GS4.** read manuals and operation documents to understand the equipment used into operation
- GS5.** discuss task lists, schedules and activities with the seniors and team members
- GS6.** follow organization rule-based decision making process
- GS7.** take decisions with systematic course of actions and/or response
- GS8.** plan and organize tasks to meet deadlines
- GS9.** find ways of modifying difficult operating stages to make it operation friendly
- GS10.** apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11.** analyse the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12.** recognise a workplace problem and take suitable action to resolve it

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for machining operations</i>	<b>12</b>	<b>19</b>	-	<b>7</b>
<b>PC1.</b> plan machining operations for tools & die manufacturing on the basis of drawing/blue print	1	1	-	1
<b>PC2.</b> ensure that the components used are free from foreign objects, dirt or other contamination	1	1	-	-
<b>PC3.</b> prepare and maintain the work area as per procedure or operation specification	1	2	-	1
<b>PC4.</b> confirm with the machine setter that the machine is ready for production	-	1	-	-
<b>PC5.</b> ensure that machine guards are in place and are correctly adjusted	1	1	-	-
<b>PC6.</b> identify and fix different types of cutters or cutting tools in the CNC or conventional machines required for various machining operations	2	3	-	1
<b>PC7.</b> clamp the workpiece securely and without distortion in a chuck/work holding device such as vice, V-block, clamp, angle plate, etc.	1	2	-	1
<b>PC8.</b> <ul style="list-style-type: none"> <li>ensure that machine settings are adjusted as per SOP to maintain the required accuracy and quality standards</li> <li>Quality standards: components to be free from false tool cuts, burrs and sharp edges; dimensional tolerance 0.020 to 0.030 mm; flatness and squareness within 0.125mm; surface finish 63in or 1.6m; angles within +/- 1 degree</li> </ul>	2	2	-	1
<b>PC9.</b> measure and mark reference points/cutting lines on the metal blocks by using appropriate marking and measuring tools	1	2	-	1
<b>PC10.</b> lift the metal blocks manually or by hoist and place the same securely on the working platform as indicated in the drawing/work instructions	1	2	-	-
<b>PC11.</b> cut the metal blocks into required size by using power operated/manual/automatic cutting tools as per the requirement	1	2	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Perform machining operations</i>	<b>14</b>	<b>22</b>	-	<b>11</b>
<b>PC12.</b> perform rough machining for initial block sizing of work piece	1	2	-	-
<b>PC13.</b> ensure that the right programme is selected in the CNC machine as defined in the SOP	2	2	-	1
<b>PC14.</b> perform various machining operations such as drilling, boring, grinding, turning, milling etc. on the metal block to get the shape and dimension as per the drawing/work order	3	5	-	3
<b>PC15.</b> operate the machine controls in both hand and power modes	1	1	-	-
<b>PC16.</b> produce components as per given quality standards e.g. components to be free from false tool cuts, burrs and sharp edges; dimensional tolerance 0.020 to 0.030 mm; flatness and squareness within 0.125mm; surface finish 63in or 1.6m; angles within +/- 1 degree, etc.	2	3	-	2
<b>PC17.</b> cut, shape and trim the metal block to specified lengths and shapes by using CNC machines	1	2	-	1
<b>PC18.</b> apply cutting fluids with regard to a range of different materials	1	1	-	1
<b>PC19.</b> monitor the process parameters by reading the various gauges and correct them if not within standards	1	1	-	1
<b>PC20.</b> monitor the machine operations for any malfunctions/defects in the component and inform the supervisor/maintenance team for correction	1	2	-	1
<b>PC21.</b> measure the machined pieces and compare with the dimensions as prescribed in the work order and engineering drawing	1	2	-	1
<b>PC22.</b> shut down the machine to a safe condition on completion of the machining activities	-	1	-	-
<i>Perform post-machining activities</i>	<b>4</b>	<b>9</b>	-	<b>2</b>
<b>PC23.</b> check the machined components for any defects and required quality standards	2	3	-	1



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC24.</b> segregate the machines components in to Ok pieces, defective pieces which can be repaired/reworked and pieces that are beyond repair	1	2	-	-
<b>PC25.</b> maintain and update all the records and reports related to production of tools and die as per the organisational guidelines	1	2	-	1
<b>PC26.</b> dispose scrap or waste material into the disposal area in accordance with the company's policies and environmental regulations	-	1	-	-
<b>PC27.</b> report any difficulties or problems that may arise with the machining activities, and carry out any agreed actions	-	1	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	<b>-</b>	<b>20</b>





## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	CSC/N0316
<b>NOS Name</b>	Perform machining operations
<b>Sector</b>	Capital Goods
<b>Sub-Sector</b>	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
<b>Occupation</b>	Fabrication, Fitting and Assembly
<b>NSQF Level</b>	5
<b>Credits</b>	4
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	31/03/2025
<b>NSQC Clearance Date</b>	31/03/2022



## Qualification Pack

### CSC/N0308: Perform fitting operations

#### Description

The unit is about performing fitting of metal components for making tools and die using hand tools and manually operated machines as per given specifications .

#### Scope

The scope covers the following :

- Prepare for fitting operations
- Perform marking on the components
- Perform fitting operations
- Perform post -fitting activities

#### Elements and Performance Criteria

##### *Prepare for fitting operations*

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

- PC1.** plan fitting operations for tools & die manufacturing on the basis of drawing/blue print
- PC2.** prepare the work area for the fitting operations as per procedure or operational specification
- PC3.** ensure that all measuring equipment is calibrated and approved for usage
- PC4.** set work pieces as per job requirements using appropriate positioning and/or holding devices and support mechanisms

##### *Perform marking on the components*

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

- PC5.** use a range of marking out equipment and mark the dimensions on the workpiece by applying an appropriate method of marking out
- PC6.** mark out a range of features (Features: datum/centre lines, lines (perpendicular, parallel), circles, profiles (square/rectangular, radial, angles/angular), hole positions (radial, linear), allowances for bending, simple pattern development) on the workpiece
- PC7.** mark out templates for tracing/transferring the specified features on the workpieces as per job specification
- PC8.** trace/transfer the specified features from the templates onto the workpieces as per job specification

##### *Perform fitting operations*

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

- PC9.** perform fitting operations on various forms of metal components using a range of hand tools and manually operated machines by following organizational specified sequence and procedure as per job specifications

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- PC10.** produce components with various features as per standards applicable to the process (Features of components produced: flat; parallel and angular faces; perpendicular plates; radii and curved profiles; drilled holes( through, to a depth); internal and external threads; sliding or mating parts; counter bore, countersink, or spot face; chamfers; reamed holes; faces which are square to each other; faces which are parallel to each other)
- PC11.** interpret in-built fault indicators and error codes of equipment and respond to the same as per operating manual/organizational guidelines
- PC12.** check the fitted components to ensure completeness of work
- Perform post-fitting activities*
- To be competent, the user/individual on the job must be able to:
- PC13.** perform necessary quality checks or tests for correct fitting, dimensional accuracy and required quality standards
- PC14.** use the appropriate measuring equipment for checking activities
- PC15.** report conditions and seek appropriate assistance in a timely manner to address risk of failure to comply with necessary targets and specifications
- PC16.** deal with finished components as per organizational guidelines
- PC17.** prepare job card, progress records, incident reports etc. for the higher authorities as per organizational procedures
- PC18.** clean and store all the tools, machine and equipment after completion of work
- PC19.** dispose scrap or waste material into the disposal area in accordance with the company's policies and environmental regulations

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures followed in the organization
- KU2.** common terminology used in fitting
- KU3.**
- importance of using correct procedures as per type and form of materials and metal components
  - Forms of metal components: square/rectangular (e.g. bar stock, sheet material, machined components); circular/cylindrical (e.g. bar stock, tubes, turned components, flat discs); sections (e.g. angles, channel, tee section, joists, extrusions); irregular shapes/profile (e.g. castings, forgings, odd shaped components)
- KU4.** marking methods i.e. direct marking using instruments, use of templates, tracing/transfer methods
- KU5.** methods of marking out cutting guidelines for square and rectangular profiles, circular and radial profiles, angles and hole positions
- KU6.** marking out features i.e. datum/centre lines, lines (perpendicular, parallel), circles, profiles (square/rectangular, radial, angles/angular), hole positions (radial, linear), allowances for bending, simple pattern development
- KU7.**
- ways of laying out the marking-out shapes or patterns to optimize use of materials
  - Marking out tools: scales/tapes, dividers/trammels, scribes, punches, scribing blocks, squares, protractor, depth/internal/external micrometres, callipers (vernier, inside and outside, depth), gauges (height Vernier, feeler, bore/hole, slip, radius/profile, thread, plug), stick micrometres, dial stand and comparator, vee block with u-clamp

## Qualification Pack

- KU8.** SOP recommended by manufacturer for using various measuring instruments, marking and fitting tools and equipment required during work
- KU9.** importance of following specified fitting sequences and procedures
- KU10.** suitability of workpieces/materials and consumables: e.g. correct type and code, correct form, correct dimensions, damage free, correctly issued, etc.
- KU11.**
- correct techniques and procedures to carry out and fitting operations by hand tools and manually operated machines
  - Hand tools: hacksaws; hammers; punches; screwdrivers; sockets; wrenches; spanners; scrapers; chisels; gouges; files; taps; vices and clamps
  - Manually operated machine tools: drills (power drills, pedestal drills), grinders (hand held power grinders, pedestal grinders), saws (jigsaws, cutting saws), shears (hand shear, mechanized shears), nibblers, press V-shape, punching machines, bending machines, threading machines
  - Fitting techniques: filing, drilling, chiselling, threading(external, internal), hand tapping, scraping, manual lapping
- KU12.**
- how to secure and position the workpiece/raw material correctly using appropriate holding devices and mechanisms
  - Positioning and holding devices: belts; braces; clamps; jigs and fixtures; bolt straps; blocks and tables; manual lifts; ropes; jacks
- KU13.** common problems that can occur in the fitting operations and their implications
- KU14.** ways to address problems commonly encountered during fitting operations
- KU15.** importance of reporting problems immediately and accurately
- KU16.**
- how to check the quality and dimensional accuracy of the shaped components against the specified quality standards
  - Components quality standards: flat; parallel and angular faces; perpendicular plates; radii and curved profiles; drilled holes( through, to a depth); internal and external threads; sliding or mating parts; counter bore, countersink, or spot face; chamfers; reamed holes; faces which are square to each other; faces which are parallel to each other
  - Dimensional parameters: linear dimensions; flatness; squareness; depths; angles; profiles; hole position; hole size/fit; thread size and fit
- KU17.**
- how to check the workpiece and the measuring equipment that is used
  - Measuring equipment: external micrometers, vernier/digital/dial caliper, surface finish equipment (e.g. comparison plates, machines), rules, squares, protractors, depth micrometers, depth verniers, feeler gauges, bore/hole gauges, slip gauges, radius/profile gauges, thread gauges, height gauge, hardness tester, dial test indicators (DTI), surface roughness tester, coordinate measuring machine (CMM), profile projectors, for
- KU18.** how to measure internal and external dimensions
- KU19.** safety practices need to follow during fitting activities

## Generic Skills (GS)

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

- GS1.** note the information related to work and processes
- GS2.** write reports and observations related to work in English/regional language
- GS3.** read and interpret and process flowchart for all operations
- GS4.** read manuals and operation documents to understand the Equipment used into operation
- GS5.** discuss task lists, schedules and activities with the seniors and team members



## Qualification Pack

- GS6.** follow organization rule-based decision making process
- GS7.** take decisions with systematic course of actions and/or response
- GS8.** plan and organize tasks to meet deadlines
- GS9.** find ways of modifying difficult operating stages to make it operation friendly
- GS10.** recognise a workplace problem and take suitable action to resolve it
- GS11.** apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS12.** analyse the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for fitting operations</i>	<b>8</b>	<b>12</b>	-	<b>5</b>
<b>PC1.</b> plan fitting operations for tools & die manufacturing on the basis of drawing/blue print	2	3	-	1
<b>PC2.</b> prepare the work area for the fitting operations as per procedure or operational specification	2	3	-	2
<b>PC3.</b> ensure that all measuring equipment is calibrated and approved for usage	2	3	-	1
<b>PC4.</b> set work pieces as per job requirements using appropriate positioning and/or holding devices and support mechanisms	2	3	-	1
<i>Perform marking on the components</i>	<b>6</b>	<b>10</b>	-	<b>4</b>
<b>PC5.</b> use a range of marking out equipment and mark the dimensions on the workpiece by applying an appropriate method of marking out	1	2	-	1
<b>PC6.</b> mark out a range of features (Features: datum/centre lines, lines (perpendicular, parallel), circles, profiles (square/rectangular, radial, angles/angular), hole positions (radial, linear), allowances for bending, simple pattern development) on the workpiece	2	3	-	1
<b>PC7.</b> mark out templates for tracing/transferring the specified features on the workpieces as per job specification	2	3	-	2
<b>PC8.</b> trace/transfer the specified features from the templates onto the workpieces as per job specification	1	2	-	-
<i>Perform fitting operations</i>	<b>8</b>	<b>14</b>	-	<b>6</b>
<b>PC9.</b> perform fitting operations on various forms of metal components using a range of hand tools and manually operated machines by following organizational specified sequence and procedure as per job specifications	3	5	-	2

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> produce components with various features as per standards applicable to the process (Features of components produced: flat; parallel and angular faces; perpendicular plates; radii and curved profiles; drilled holes( through, to a depth); internal and external threads; sliding or mating parts; counter bore, countersink, or spot face; chamfers; reamed holes; faces which are square to each other; faces which are parallel to each other)	3	5	-	2
<b>PC11.</b> interpret in-built fault indicators and error codes of equipment and respond to the same as per operating manual/organizational guidelines	1	2	-	1
<b>PC12.</b> check the fitted components to ensure completeness of work	1	2	-	1
<i>Perform post-fitting activities</i>	<b>8</b>	<b>14</b>	-	<b>5</b>
<b>PC13.</b> perform necessary quality checks or tests for correct fitting, dimensional accuracy and required quality standards	2	3	-	2
<b>PC14.</b> use the appropriate measuring equipment for checking activities	2	3	-	1
<b>PC15.</b> report conditions and seek appropriate assistance in a timely manner to address risk of failure to comply with necessary targets and specifications	1	2	-	1
<b>PC16.</b> deal with finished components as per organizational guidelines	1	1	-	-
<b>PC17.</b> prepare job card, progress records, incident reports etc. for the higher authorities as per organizational procedures	1	2	-	1
<b>PC18.</b> clean and store all the tools, machine and equipment after completion of work	1	2	-	-
<b>PC19.</b> dispose scrap or waste material into the disposal area in accordance with the company's policies and environmental regulations	-	1	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	-	<b>20</b>



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	CSC/N0308
<b>NOS Name</b>	Perform fitting operations
<b>Sector</b>	Capital Goods
<b>Sub-Sector</b>	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
<b>Occupation</b>	Fitting and Assembly
<b>NSQF Level</b>	4
<b>Credits</b>	3
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	31/03/2025
<b>NSQC Clearance Date</b>	31/03/2022





## Qualification Pack

### CSC/N0309: Perform Assembly Operations

#### Description

This unit is about performing assembly and final quality check activities to make tools and die of features as per given specifications

#### Scope

The scope covers the following :

- Prepare for assembling operations
- Perform assembling operations
- Perform post-assembly activities

#### Elements and Performance Criteria

##### *Prepare for assembling operations*

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

- PC1.** plan assembling operations for tools & die manufacturing on the basis of drawing/blue print
- PC2.** prepare the work area for the assembling operations as per procedure or operational specification
- PC3.** select standard and specialized measuring instruments based on tolerances required and take measurements of tools and die components
- PC4.** compare measurements to drawings and sketches to ensure conformity, fits and clearances
- PC5.** record critical dimensions as required by workplace procedures
- PC6.** lift the work pieces manually or by hoist and place the same securely on the designated slot/space as indicated in the drawing/work instructions

##### *Perform assembling operations*

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

- PC7.** assemble and secure the components and sub-assemblies in their correct positions by using appropriate assembly methods and techniques
- PC8.** perform drilling, tapping and reaming operation to create holes in the components as per the requirement
- PC9.** fasten components permanently by using engineered fasteners, applying adhesives, soldering and brazing
- PC10.** produce mechanical assemblies by combining the components as per job specifications
- PC11.** dismantle mechanical assemblies without damage to components and/or subassemblies
- PC12.** deal promptly and effectively with problems within their control, and seek help and guidance from the relevant people if they have problems that they cannot resolve
- PC13.** report to the supervisor about any problems faced or anticipated during the complete process

##### *Perform post-assembly activities*

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

## Qualification Pack

- PC14.** perform necessary quality checks or tests for correct assembly parameters and functioning of the tool and die
- PC15.** use the appropriate measuring equipment for checking activities
- PC16.** produce components within all of the applying quality standards (Quality standards: components to be free from false tool cuts, burrs and sharp edges; dimensional tolerance +/-0.020mm; flatness and squareness 0.05mm; angles within +/- 1 degree; screw threads to fit as per standard; reamed and bored holes within interference: - 0.025mm (hole) + 0.025mm (shaft), transition: - 0.1mm (hole)+ 0.1 (shaft) , clearance: 50microns; radius: 0.5 r; surface finish 1.6 m)
- PC17.** prepare inspection and work completion reports for the higher authorities
- PC18.** clean and store all the tools, machine and equipment after completion of work
- PC19.** dispose scrap or waste material into the disposal area in accordance with the company's policies and environmental regulations

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant legislation, standards, policies, and procedures followed in the organization
- KU2.** methods of holding the workpiece assembly activities
- KU3.** how to mount workpiece
- KU4.**
  - various assembly methods, techniques and procedures to be used (
  - Hand fitting methods: cutting out the rough profile using saws (e.g. hacksaw, bandsaw), cutting a screw thread (e.g. tapping or dieing), filing (flat, square, curved), drilling holes, tapping
- KU5.**
  - how the components are to be aligned, adjusted and positioned prior to securing them, and the tools and equipment
  - Alignment: slideways: flat, vee, dovetail, cylindrical, comparison of their capabilities, main features, accuracy of movement, means of adjustment, lubrication, protection
  - Typical checks: coaxial alignment between main spindle axis, coaxial alignment between two spindles, alignment of spindle to guideway, squareness of slideways movement, concentricity and end float of spindle, squareness of planes to spindle, setting of guards, stops and automatic safety cut-outs; bearings: plain bush (radial, radial and axial) ball (radial, axial, radial and axial) roller (radial, axial, radial and axial);
  - Methods of alignment: standard tests, straight edge, precision level, autocollimator and reflector, roundness measuring machine
- KU6.**
  - how to mount and secure the tools in the tool holding devices
  - Workholding tools: in a bench vice; machine vice; chuck; clamps (e.g. toolmakers); three-jaw chuck; four-jaw chuck; collet chuck; drive plate and centres; magnetic chucks(holding devices); special purpose tool holders ( 3R for holding electrodes), collets etc.
- KU7.** types of production tools such as jigs, fixtures, dies, cutting tools and moulds
- KU8.** specifications for standard assembly fits and clearances
- KU9.** impact of various assembly process like bolting, torqueing, tightening, fitting, greasing, hammering, sealing, clamping on the final product



## Qualification Pack

- KU10.** various assembly methods i.e. assembling components having interference fits (e.g. by pressure, expansion or contraction); securing components using threaded fasteners (e.g. nuts, bolts, machine screws, cap screws); securing components using spring clips (e.g. external circlips, internal circlips, special clips); using locking and retaining devices (e.g. tab washers, locking nuts, wire locks, special purpose types); securing components using rivets (e.g. countersunk, roundhead, blind, special purpose types); applying sealing compounds or adhesives; electrical bonding of components; setting and adjusting components to give correct working parameters (e.g. shimming and packing); torque setting of nuts and bolts
- KU11.** types of fasteners such as screws and dowels
- KU12.** types of adhesives such as temporary and permanent
- KU13.** types of solder such as hard and soft
- KU14.** types of joints such as lap and dovetail
- KU15.** types of dies such as cutting, forming, progressive and compound
- KU16.** methods to dismantle fittings i.e. procedure for isolation and locking off a device/system; sequence of operations used to dismantle a device/system; proof marking, correct storage procedures for removed parts; release of pressure/force; extraction
- KU17.** precautions to be taken when using the adhesives, cements and sealing compounds (such as adequate ventilation, fume extraction, away from naked flames, avoiding skin contact) and gas torches to form the joint
- KU18.** mechanical fastenings and joining techniques i.e. non-permanent - nuts, bolts, studs, permanent - welded, soldered, brazed, riveted
- KU19.**
- techniques of taking trial cuts and checking dimensional parameters; the application of roughing and finishing cuts, and the effect on tool life, surface finish and dimensional parameters
  - Dimensional parameters: linear dimensions (e.g. lengths, depths); diameters (e.g. external, internal); flatness; squareness; angles; profiles; hole size and position; thread size and fit; surface finish
- KU20.**
- how to check the workpiece and the measuring equipment that is used
  - Measuring equipment: external micrometers, vernier/digital/dial caliper, surface finish equipment (e.g. comparison plates, machines), rules, squares, protractors, depth micrometers, depth verniers, feeler gauges, bore/hole gauges, slip gauges, radius/profile gauges, thread gauges, height gauge, hardness tester, dial test indicators (DTI), surface roughness tester, coordinate measuring machine (CMM), profile projectors, for
- KU21.** how to measure internal and external dimensions
- KU22.** various type of defects in final products
- KU23.** how to check defects in the completed products

## Generic Skills (GS)

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

- GS1.** note the information related to work and processes
- GS2.** write reports and observations related to work in English/regional language
- GS3.** read and interpret and process flowchart for all operations
- GS4.** read manuals and operation documents to understand the Equipment used into operation
- GS5.** discuss task lists, schedules and activities with the seniors and team members
- GS6.** follow organization rule-based decision making process



## Qualification Pack

- GS7.** take decisions with systematic course of actions and/or response
- GS8.** plan and organize tasks to meet deadlines
- GS9.** find ways of modifying difficult operating stages to make it operation friendly
- GS10.** apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11.** analyse the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12.** recognise a workplace problem and take suitable action to resolve it

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare for assembling operations</i>	<b>10</b>	<b>15</b>	-	<b>8</b>
<b>PC1.</b> plan assembling operations for tools & die manufacturing on the basis of drawing/blue print	1	2	-	1
<b>PC2.</b> prepare the work area for the assembling operations as per procedure or operational specification	2	2	-	2
<b>PC3.</b> select standard and specialized measuring instruments based on tolerances required and take measurements of tools and die components	2	3	-	2
<b>PC4.</b> compare measurements to drawings and sketches to ensure conformity, fits and clearances	2	3	-	1
<b>PC5.</b> record critical dimensions as required by workplace procedures	1	2	-	1
<b>PC6.</b> lift the work pieces manually or by hoist and place the same securely on the designated slot/space as indicated in the drawing/work instructions	2	3	-	1
<i>Perform assembling operations</i>	<b>13</b>	<b>21</b>	-	<b>8</b>
<b>PC7.</b> assemble and secure the components and sub-assemblies in their correct positions by using appropriate assembly methods and techniques	2	3	-	2
<b>PC8.</b> perform drilling, tapping and reaming operation to create holes in the components as per the requirement	3	5	-	3
<b>PC9.</b> fasten components permanently by using engineered fasteners, applying adhesives, soldering and brazing	2	3	-	1
<b>PC10.</b> produce mechanical assemblies by combining the components as per job specifications	3	5	-	1
<b>PC11.</b> dismantle mechanical assemblies without damage to components and/or subassemblies	1	2	-	1

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> deal promptly and effectively with problems within their control, and seek help and guidance from the relevant people if they have problems that they cannot resolve	1	2	-	-
<b>PC13.</b> report to the supervisor about any problems faced or anticipated during the complete process	1	1	-	-
<i>Perform post-assembly activities</i>	<b>7</b>	<b>14</b>	-	<b>4</b>
<b>PC14.</b> perform necessary quality checks or tests for correct assembly parameters and functioning of the tool and die	2	3	-	1
<b>PC15.</b> use the appropriate measuring equipment for checking activities	1	2	-	-
<b>PC16.</b> produce components within all of the applying quality standards (Quality standards: components to be free from false tool cuts, burrs and sharp edges; dimensional tolerance +/-0.020mm; flatness and squareness 0.05mm; angles within +/- 1 degree; screw threads to fit as per standard; reamed and bored holes within interference: - 0.025mm (hole) + 0.025mm (shaft), transition: - 0.1mm (hole)+ 0.1 (shaft) , clearance: 50microns; radius: 0.5 r; surface finish 1.6 m)	2	4	-	2
<b>PC17.</b> prepare inspection and work completion reports for the higher authorities	1	2	-	1
<b>PC18.</b> clean and store all the tools, machine and equipment after completion of work	1	2	-	-
<b>PC19.</b> dispose scrap or waste material into the disposal area in accordance with the company's policies and environmental regulations	-	1	-	-
<b>NOS Total</b>	<b>30</b>	<b>50</b>	-	<b>20</b>



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	CSC/N0309
<b>NOS Name</b>	Perform Assembly Operations
<b>Sector</b>	Capital Goods
<b>Sub-Sector</b>	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
<b>Occupation</b>	Fitting and Assembly
<b>NSQF Level</b>	5
<b>Credits</b>	4
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	31/03/2025
<b>NSQC Clearance Date</b>	31/03/2022



## Qualification Pack

### CSC/N1335: Follow the health and safety practices at the work

#### Description

This OS unit is about following the appropriate health and safety practices at work. It covers responsibilities towards self and others to ensure a safe work environment.

#### Scope

The scope covers the following :

- Maintain personal health and safety
- Assist in hazard management
- Check the first aid box, firefighting and safety equipment
- Assist in waste management
- Follow the fire safety guidelines
- Follow the emergency and first-aid procedures
- Carry out relevant documentation and review

#### Elements and Performance Criteria

##### *Maintain personal health and safety*

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

- PC1.** follow the recommended practices to ensure protection from infections and transmission to others, such as the use of hand sanitiser and face mask
- PC2.** check the work conditions, assess the potential health and safety risks, and take appropriate measures to mitigate them
- PC3.** select and use the appropriate Personal Protective Equipment (PPE) relevant to the task and work conditions
- PC4.** follow the recommended techniques while lifting and moving heavy objects to avoid injury
- PC5.** follow the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment

##### *Assist in hazard management*

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

- PC6.** identify existing and potential hazards at work
- PC7.** assess the potential risks and injuries associated with the identified hazards
- PC8.** coordinate with the supervisor or other relevant personnel to prevent or minimise the identified hazards
- PC9.** handle hazardous materials safely and store them in the designated storage

##### *Check the first aid box, firefighting and safety equipment*

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

- PC10.** check the first aid box to ensure it is updated with the relevant first aid supplies
- PC11.** check and test the firefighting and various safety equipment to ensure they are in usable condition





## Qualification Pack

**PC12.** coordinate with the supervisor for the repair and replacement of firefighting and safety equipment

### *Assist in waste management*

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

**PC13.** segregate waste into appropriate categories

**PC14.** recycle the recyclable waste appropriately

**PC15.** dispose of the non-recyclable waste in an environment-friendly manner, complying with the applicable regulations

### *Follow the fire safety guidelines*

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

**PC16.** use the appropriate type of fire extinguisher to extinguish different types of fires safely

**PC17.** follow the recommended practices for a safe rescue during a fire emergency

**PC18.** coordinate with the fire department to request assistance to extinguish a serious fire

### *Follow the emergency and first-aid procedures*

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

**PC19.** follow the organisational health and safety guidelines during workplace emergencies to ensure own and co-workers' safety

**PC20.** follow the recommended practices to minimise loss to organisational property during an emergency

**PC21.** follow the recommended procedure to free a person from electrocution

**PC22.** administer appropriate first aid to the injured personnel

**PC23.** perform Cardiopulmonary Resuscitation (CPR) on a potential victim of cardiac arrest

**PC24.** coordinate with the emergency services to request medical assistance for seriously injured/ill personnel requiring professional medical attention or hospitalisation

### *Carry out relevant documentation and review*

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

**PC25.** carry out appropriate documentation following a health and safety incident at work, including all the required information

**PC26.** coordinate with the relevant personnel to review health and safety conditions at work regularly or following an incident

**PC27.** assist in implementing appropriate changes to improve the health and safety conditions at work

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** the recommended practices to be followed to ensure protection from infections and transmission to others, such as the use of hand sanitiser and face mask

**KU2.** the importance and process of checking the work conditions, assessing the potential health and safety risks, and take appropriate measures to mitigate them

**KU3.** the importance and process of selecting and using the appropriate PPE relevant to the task and work conditions



## Qualification Pack

- KU4.** the recommended techniques to be followed while lifting and moving heavy objects to avoid injury
- KU5.** the importance of following the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment
- KU6.** the importance and process of identifying existing and potential hazards at work
- KU7.** the process of assessing the potential risks and injuries associated with the various hazards
- KU8.** how to prevent or minimise different types of hazards
- KU9.** how to handle and store hazardous materials safely
- KU10.** the importance of ensuring the first aid box is updated with the relevant first aid supplies
- KU11.** the process of checking and testing the firefighting and various safety equipment to ensure they are in a usable condition
- KU12.** the criteria for segregating waste into appropriate categories
- KU13.** the appropriate methods for recycling the recyclable waste
- KU14.** the process of disposing of the non-recyclable waste safely and the applicable regulations
- KU15.** Use of different types of fire extinguishers to extinguish different types of fires
- KU16.** the recommended practices to be followed for a safe rescue during a fire emergency
- KU17.** how to request assistance from the fire department to extinguish a serious fire
- KU18.** the appropriate practices to be followed during workplace emergencies to ensure safety and minimise loss to organisational property
- KU19.** common health and safety hazards present in a work environment, associated risks, and how to mitigate them
- KU20.** safe working practices to be followed while working at various hazardous sites and using electrical equipment
- KU21.** the importance of ensuring easy access to firefighting and safety equipment
- KU22.** the appropriate preventative and remedial actions to be taken in the case of exposure to toxic materials, such as poisonous chemicals and gases
- KU23.** various causes of fire in different work environments and the recommended precautions to be taken to prevent fire accidents
- KU24.** different methods of extinguishing fire
- KU25.** different materials used for extinguishing fire, such as sand, water, foam, CO<sub>2</sub>, dry powder, etc.
- KU26.** the applicable rescue techniques to be followed during a fire emergency
- KU27.** the importance of placing safety signs and instructions at strategic locations in a workplace and following them
- KU28.** different types of first aid treatment to be provided for different types of injuries
- KU29.** potential injuries associated with incorrect manual handling
- KU30.** how to move an injured person safely
- KU31.** various hazards associated with the use of various machinery, tools, implements, equipment and materials
- KU32.** the importance of ensuring no obstruction and free access to fire exits
- KU33.** how to free a person from electrocution safely
- KU34.** how to administer appropriate first aid to an injured person



## Qualification Pack

- KU35.** how to perform Cardiopulmonary Resuscitation (CPR)
- KU36.** the importance of coordinating with the emergency services to request urgent medical assistance for persons requiring professional medical attention or hospitalisation
- KU37.** the appropriate documentation to be carried out following a health and safety incident at work, and the relevant information to be included
- KU38.** the importance and process of reviewing the health and safety conditions at work regularly or following an incident
- KU39.** the importance and process of implementing appropriate changes to improve the health and safety conditions at work

## Generic Skills (GS)

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

- GS1.** maintain work-related notes and records
- GS2.** communicate clearly and politely with co-workers and clients
- GS3.** read the relevant literature to get the latest updates about the field of work
- GS4.** listen attentively to understand the information being shared
- GS5.** plan and prioritise tasks to ensure timely completion
- GS6.** take quick decisions to deal with workplace emergencies and accidents
- GS7.** identify possible disruptions to work and take appropriate preventive measures
- GS8.** coordinate with the co-workers to achieve the work objectives
- 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>Maintain personal health and safety</i>	<b>7</b>	<b>12</b>	-	-
<b>PC1.</b> follow the recommended practices to ensure protection from infections and transmission to others, such as the use of hand sanitiser and face mask	2	3	-	-
<b>PC2.</b> check the work conditions, assess the potential health and safety risks, and take appropriate measures to mitigate them	1	2	-	-
<b>PC3.</b> select and use the appropriate Personal Protective Equipment (PPE) relevant to the task and work conditions	1	2	-	-
<b>PC4.</b> follow the recommended techniques while lifting and moving heavy objects to avoid injury	1	3	-	-
<b>PC5.</b> follow the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment	2	2	-	-
<i>Assist in hazard management</i>	<b>4</b>	<b>10</b>	-	-
<b>PC6.</b> identify existing and potential hazards at work	1	1	-	-
<b>PC7.</b> assess the potential risks and injuries associated with the identified hazards	1	3	-	-
<b>PC8.</b> coordinate with the supervisor or other relevant personnel to prevent or minimise the identified hazards	1	3	-	-
<b>PC9.</b> handle hazardous materials safely and store them in the designated storage	1	3	-	-
<i>Check the first aid box, firefighting and safety equipment</i>	<b>3</b>	<b>7</b>	-	-
<b>PC10.</b> check the first aid box to ensure it is updated with the relevant first aid supplies	1	2	-	-
<b>PC11.</b> check and test the firefighting and various safety equipment to ensure they are in usable condition	1	3	-	-

## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> coordinate with the supervisor for the repair and replacement of firefighting and safety equipment	1	2	-	-
<i>Assist in waste management</i>	<b>3</b>	<b>8</b>	-	-
<b>PC13.</b> segregate waste into appropriate categories	1	3	-	-
<b>PC14.</b> recycle the recyclable waste appropriately	1	3	-	-
<b>PC15.</b> dispose of the non-recyclable waste in an environment-friendly manner, complying with the applicable regulations	1	2	-	-
<i>Follow the fire safety guidelines</i>	<b>3</b>	<b>12</b>	-	-
<b>PC16.</b> use the appropriate type of fire extinguisher to extinguish different types of fires safely	1	4	-	-
<b>PC17.</b> follow the recommended practices for a safe rescue during a fire emergency	1	4	-	-
<b>PC18.</b> coordinate with the fire department to request assistance to extinguish a serious fire	1	4	-	-
<i>Follow the emergency and first-aid procedures</i>	<b>7</b>	<b>12</b>	-	-
<b>PC19.</b> follow the organisational health and safety guidelines during workplace emergencies to ensure own and co-workers' safety	1	2	-	-
<b>PC20.</b> follow the recommended practices to minimise loss to organisational property during an emergency	1	3	-	-
<b>PC21.</b> follow the recommended procedure to free a person from electrocution	1	2	-	-
<b>PC22.</b> administer appropriate first aid to the injured personnel	1	2	-	-
<b>PC23.</b> perform Cardiopulmonary Resuscitation (CPR) on a potential victim of cardiac arrest	1	2	-	-
<b>PC24.</b> coordinate with the emergency services to request medical assistance for seriously injured/ ill personnel requiring professional medical attention or hospitalisation	2	1	-	-



### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out relevant documentation and review</i>	3	9	-	-
<b>PC25.</b> carry out appropriate documentation following a health and safety incident at work, including all the required information	1	3	-	-
<b>PC26.</b> coordinate with the relevant personnel to review health and safety conditions at work regularly or following an incident	1	3	-	-
<b>PC27.</b> assist in implementing appropriate changes to improve the health and safety conditions at work	1	3	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	CSC/N1335
<b>NOS Name</b>	Follow the health and safety practices at the work
<b>Sector</b>	Capital Goods
<b>Sub-Sector</b>	Machine Tools, Process Plant Machinery, Dies, Moulds and Press Tools, Electrical and Power Machinery, Plastics Manufacturing Machinery, Light Engineering Goods, Textile Manufacturing Machinery
<b>Occupation</b>	Machining
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	26/05/2022
<b>Next Review Date</b>	31/03/2024
<b>NSQC Clearance Date</b>	31/03/2021



## Qualification Pack

### CSC/N1336: Coordinate with co-workers to achieve work efficiency

#### Description

This OS unit is about working in coordination with co-workers to achieve the work objectives efficiently. It also covers practising inclusion at work.

#### Scope

The scope covers the following :

- Work effectively with co-workers
- Communicate effectively with co-workers
- Practice inclusion at work

#### Elements and Performance Criteria

##### *Work effectively with co-workers*

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

- PC1.** plan daily tasks at work to ensure their timely completion and efficient use of time
- PC2.** carry out work responsibilities adhering to the limits of authority
- PC3.** follow the supervisor's instructions to ensure adherence to the applicable quality standards and timescales
- PC4.** coordinate with the co-workers to achieve the work objectives efficiently
- PC5.** prepare the relevant documents and reports as per the supervisor's instructions, providing appropriate information clearly and systematically
- PC6.** coordinate with the supervisor or relevant personnel to deal with out of authority tasks and concerns
- PC7.** mentor and assist subordinates in the execution of their work responsibilities
- PC8.** identify possible disruptions to work through coordination with the relevant stakeholders and take appropriate preventive measures
- PC9.** use various resources efficiently to ensure maximum utilisation and minimum wastage
- PC10.** follow the recommended practices to avoid and resolve conflicts at work
- PC11.** follow the relevant organisational policies to ensure disciplined behaviour with maximum productivity at work

##### *Communicate effectively with co-workers*

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

- PC12.** follow the organisational policy for the efficient and timely dissemination of information to the authorised personnel
- PC13.** communicate clearly and politely to ensure effective communication with co-workers
- PC14.** follow the appropriate techniques for active listening during interactions

##### *Practice inclusion at work*

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

- PC15.** empathise with Persons with Disabilities (PwD)





## Qualification Pack

**PC16.** adopt gender-neutral behaviour at work

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the importance and process of effective communication in the workplace
- KU2.** the barriers to effective communication and how to overcome them
- KU3.** the importance of teamwork in an organisation's and individual's success
- KU4.** the importance of active listening in the work environment
- KU5.** the appropriate techniques to be followed for active listening
- KU6.** importance of avoiding casual expletives and unpleasant terms while communicating professional circles
- KU7.** the importance of maintaining discipline and ethical behaviour at work
- KU8.** the common reasons for interpersonal conflict and how to resolve them
- KU9.** the importance of developing effective work relationships for professional success
- KU10.** how expressing and addressing grievances appropriately and effectively
- KU11.** the importance and process of planning daily tasks to ensure their timely completion and efficient use of time
- KU12.** the importance of adhering to the limits of authority at work
- KU13.** the importance of following the applicable quality standards and timescales at work
- KU14.** the importance of coordinating with the co-workers to achieve the work objectives efficiently
- KU15.** the relevant documentation requirements
- KU16.** the importance of providing appropriate information clearly and systematically in work documents
- KU17.** the escalation matrix to be followed to deal with out of authority tasks and concerns
- KU18.** the importance and process of mentoring and assisting subordinates in the execution of their work responsibilities
- KU19.** how to identify possible disruptions to work prevent them
- KU20.** how to use various resources efficiently to ensure maximum utilisation and minimum wastage
- KU21.** the recommended practices to be followed at work to avoid and resolve conflicts at work
- KU22.** the importance and process of efficient and timely dissemination of information to the authorised personnel
- KU23.** how to communicate clearly and politely to ensure effective communication
- KU24.** the importance of following the recommended practices to ensure an inclusive environment for PwD and all genders at work

### Generic Skills (GS)

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

- GS1.** maintain work-related notes and records



## Qualification Pack

- GS2.** read work-related and other relevant literature
- GS3.** communicate politely and -professionally
- GS4.** listen attentively to understand the information or instructions being shared
- GS5.** plan and prioritise tasks to ensure timely completion
- GS6.** take prompt decisions to deal with workplace emergencies and accidents
- GS7.** 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>Work effectively with co-workers</i>	<b>20</b>	<b>43</b>	-	-
<b>PC1.</b> plan daily tasks at work to ensure their timely completion and efficient use of time	2	4	-	-
<b>PC2.</b> carry out work responsibilities adhering to the limits of authority	2	4	-	-
<b>PC3.</b> follow the supervisor's instructions to ensure adherence to the applicable quality standards and timescales	2	4	-	-
<b>PC4.</b> coordinate with the co-workers to achieve the work objectives efficiently	2	4	-	-
<b>PC5.</b> prepare the relevant documents and reports as per the supervisor's instructions, providing appropriate information clearly and systematically	2	4	-	-
<b>PC6.</b> coordinate with the supervisor or relevant personnel to deal with out of authority tasks and concerns	2	4	-	-
<b>PC7.</b> mentor and assist subordinates in the execution of their work responsibilities	2	4	-	-
<b>PC8.</b> identify possible disruptions to work through coordination with the relevant stakeholders and take appropriate preventive measures	2	4	-	-
<b>PC9.</b> use various resources efficiently to ensure maximum utilisation and minimum wastage	2	4	-	-
<b>PC10.</b> follow the recommended practices to avoid and resolve conflicts at work	1	4	-	-
<b>PC11.</b> follow the relevant organisational policies to ensure disciplined behaviour with maximum productivity at work	1	3	-	-
<i>Communicate effectively with co-workers</i>	<b>6</b>	<b>15</b>	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> follow the organisational policy for the efficient and timely dissemination of information to the authorised personnel	2	5	-	-
<b>PC13.</b> communicate clearly and politely to ensure effective communication with co-workers	2	5	-	-
<b>PC14.</b> follow the appropriate techniques for active listening during interactions	2	5	-	-
<i>Practice inclusion at work</i>	<b>4</b>	<b>12</b>	-	-
<b>PC15.</b> empathise with Persons with Disabilities (PwD)	2	6	-	-
<b>PC16.</b> adopt gender-neutral behaviour at work	2	6	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	CSC/N1336
<b>NOS Name</b>	Coordinate with co-workers to achieve work efficiency
<b>Sector</b>	Capital Goods
<b>Sub-Sector</b>	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Light Engineering Goods
<b>Occupation</b>	Machining
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	26/05/2022
<b>Next Review Date</b>	31/03/2024
<b>NSQC Clearance Date</b>	31/03/2021



## 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.



## Qualification Pack

**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





## Qualification Pack

- 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>	31/08/2023
<b>Next Review Date</b>	31/08/2026
<b>NSQC Clearance Date</b>	31/08/2023

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Criteria for assessment for the Qualification Pack will be created by CGSC.
2. Performance Criteria (PC) have been assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
3. The assessment for the theory part will/may be based on knowledge bank of questions approved CGSC.
4. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
5. Assessment Agencies will create Assessor Guides comprising of Theory and Practical Assessment Set and Guidelines for each examination/training centre (as per assessment criteria below). The same will be approved by CGSC for adequacy.
6. To successfully attain Certification on the Qualification Pack, the trainee must score a minimum of 70% in each Core NOS and minimum of 50% in all non-core NOS. In addition, a candidate needs to attain a minimum overall pass percentage of 70% for certification.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.



## Qualification Pack

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

(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
CSC/N0307.Prepare for the making of tools and die	30	50	-	20	100	15
CSC/N0316.Perform machining operations	30	50	-	20	100	15
CSC/N0308.Perform fitting operations	30	50	-	20	100	15
CSC/N0309.Perform Assembly Operations	30	50	-	20	100	15
CSC/N1335.Follow the health and safety practices at the work	30	70	-	-	100	15
CSC/N1336.Coordinate with co-workers to achieve work efficiency	30	70	-	-	100	15
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	0	0	50	10
<b>Total</b>	<b>200</b>	<b>370</b>	<b>0</b>	<b>0</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
<b>CNC</b>	Computer Numerically Controlled
<b>EDM</b>	Electric Discharge Machine
<b>VMC</b>	Vertical Machining Centre
<b>CMM</b>	Co-Ordinate Measuring Machine
<b>DTI</b>	Dial Testing Indicators
<b>GD&amp;T</b>	Geometric Dimensioning And Tolerancing
<b>CO2</b>	Carbon Dioxide
<b>CPR</b>	Cardiac Pulmonary Resuscitation
<b>PPE</b>	Personal Protective Equipment
<b>ISO</b>	International Organization For Standardization

## 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.