सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

Qualification Pack

Automated/Robotic Metal Fabrication Engineer

QP Code: CSC/Q0309

Version: 1.0

NSQF Level: 6

Capital Goods & Strategic Skill Council || 1st Floor, L-29, Outer Circle, Connaught Place
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Qualification Pack

CSC/Q0309: Automated/Robotic Metal Fabrication Engineer

Brief Job Description

An Automated/Robotic Metal Fabrication Engineer is a professional who designs and oversees the use of machines and robots to create metal products.

Personal Attributes

The person should be result oriented with good technical and analytical skills, should have Excellent Interpersonal Skills, communication and presentation skills and a good team player. They should have ability to manage projects, prioritizing of work and mentoring the budding engineers.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. CSC/N0330: Setting up robotic work cells and automated fixtures for specific fabrication processes
2. CSC/N0331: Select and develop additive manufacturing prototypes using metal materials for fabrication processes.
3. CSC/N0332: Inspect for Dimensional Defects by Implementing process optimization strategies
4. CSC/N1339: Collaboratively coordinate with the team
5. CSC/N0505: Follow health, safety and environment guidelines at workplace
6. DGT/VSQ/N0102: Employability Skills (60 Hours)

Qualification Pack (QP) Parameters

Sector	Capital Goods
Sub-Sector	Machining, Welding, Manufacturing
Occupation	Fabrication, Fitting and Assembly
Country	India
NSQF Level	6
Credits	22

Qualification Pack

Aligned to NCO/ISCO/ISIC Code	NCO-2015/7412.0101
Minimum Educational Qualification & Experience	Completed 4 year UG program (Mechanical/Automobile/Electrical/Electronics) OR Completed 2nd year diploma after 12th with 3 Years of experience relevant OR Previous relevant Qualification of NSQF Level (5.5) with 1.5 years of experience relevant OR Previous relevant Qualification of NSQF Level (5) with 3 Years of experience relevant
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	08/05/2028
NSQC Approval Date	08/05/2025
Version	1.0
Reference code on NQR	QG-06-IT-04199-2025-V1-CGSC
NQR Version	1.0

CSC/N0330: Setting up robotic work cells and automated fixtures for specific fabrication processes

Description

This NOS unit is about to setting up robotic work cells and automated fixtures for specific fabrication processes.

Scope

The scope covers the following :

- Select robotic work cells and automated fixtures streamlines fabrication processes, enhancing efficiency and precision.
- Ensure consistent quality in production by minimizing errors and variations through the utilization of these advanced systems.
- Optimize workflow and adapt to evolving manufacturing needs

Elements and Performance Criteria

Select robotic work cells and automated fixtures streamlines fabrication processes, enhancing efficiency and precision

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

PC1. Analyze the fabrication process to identify tasks suitable for automation, considering factors like repeatability, complexity, and safety requirements

PC2. Choose robotic systems based on the required payload capacity, reach, speed, and accuracy to effectively perform the identified tasks

PC3. Design automated fixtures tailored to the specific parts and processes, ensuring secure clamping, alignment, and accessibility for robotic manipulation

Ensure consistent quality in production by minimizing errors and variations through the utilization of these advanced systems

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

PC4. Develop robot programs to execute tasks accurately and efficiently, integrating sensors and vision systems for real-time feedback and adaptive control.

PC5. Implement safety measures such as barriers, interlocks, and light curtains to protect personnel and equipment from potential hazards associated with automated operations

PC6. Incorporate inspection and testing systems within the work cell to monitor part quality and detect defects, ensuring consistency and compliance with specifications.

optimize workflow and adapt to evolving manufacturing needs

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

PC7. Establish maintenance schedules and procedures to keep robotic systems and fixtures in optimal condition, minimizing downtime and ensuring reliable operation.

PC8. . Design work cells and fixtures with modularity and flexibility to accommodate changes in production requirements and facilitate future expansions or reconfigurations.

PC9. Define performance metrics such as cycle time, throughput, and uptime to measure the efficiency and productivity of the automated fabrication processes

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Understand robot types, kinematics, and programming languages for effective integration. Learn automation technologies such as sensors, actuators, and controllers to optimize fabrication processes

KU2. Grasp machining, welding, assembly, and material handling principles to identify automation opportunities. Implement robotic solutions within workflows for increased efficiency and productivity

KU3. Master fixture design concepts including clamping mechanisms, part locating features, and ergonomics. Develop fixtures ensuring secure workpiece holding and efficient robotic manipulation

KU4. Utilize CAD for fixture design and CAM for generating tool paths and robot programs. Ensure compatibility with robotic systems for seamless integration and operation.

KU5. Proficiently program robots and integrate them into manufacturing processes. Configure communication interfaces to facilitate seamless interaction with other equipment and systems.

KU6. Adhere to safety standards like ISO 10218 for industrial robots. Ensure compliance with regulations governing robotic work cell design and operation to prioritize personnel and equipment safety.

KU7. Implement quality control methods such as vision systems, coordinate measuring machines, and statistical process control to maintain part quality. Detect and address defects promptly for optimal production outcomes.

KU8. Establish maintenance procedures and predictive strategies to minimize downtime. Troubleshoot issues promptly to ensure smooth operation of robotic systems and fixtures

KU9. Commit to ongoing learning and improvement, staying updated with robotics and automation advancements. Utilize feedback and data analytics to enhance productivity, quality, and efficiency in fabrication processes

Generic Skills (GS)

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

GS1. read safety instructions/guidelines

GS2. modify work practices to improve them

GS3. work with supervisors/team members to carry out work related tasks

GS4. Complete task efficiently and accurately with stipulated time

GS5. inform/report to concerned person in case of any problem

GS6. Make timely decision for efficient utilization of resources

GS7. write reports such as accident report, in at least English/regional language

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Select robotic work cells and automated fixtures streamlines fabrication processes, enhancing efficiency and precision	10	10	-	6
PC1. Analyze the fabrication process to identify tasks suitable for automation, considering factors like repeatability, complexity, and safety requirements	3	2	-	2
PC2. Choose robotic systems based on the required payload capacity, reach, speed, and accuracy to effectively perform the identified tasks	3	4	-	2
PC3. Design automated fixtures tailored to the specific parts and processes, ensuring secure clamping, alignment, and accessibility for robotic manipulation	4	4	-	2
Ensure consistent quality in production by minimizing errors and variations through the utilization of these advanced systems	15	15	-	10
PC4. Develop robot programs to execute tasks accurately and efficiently, integrating sensors and vision systems for real-time feedback and adaptive control.	5	5	-	3
PC5. Implement safety measures such as barriers, interlocks, and light curtains to protect personnel and equipment from potential hazards associated with automated operations	5	5	-	3
PC6. Incorporate inspection and testing systems within the work cell to monitor part quality and detect defects, ensuring consistency and compliance with specifications.	5	5	-	4
optimize workflow and adapt to evolving manufacturing needs	15	15	-	4
PC7. Establish maintenance schedules and procedures to keep robotic systems and fixtures in optimal condition, minimizing downtime and ensuring reliable operation.	6	5	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC8. . Design work cells and fixtures with modularity and flexibility to accommodate changes in production requirements and facilitate future expansions or reconfigurations.	5	6	-	1
PC9. Define performance metrics such as cycle time, throughput, and uptime to measure the efficiency and productivity of the automated fabrication processes	4	4	-	1
NOS Total	**40**	**40**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0330
NOS Name	Setting up robotic work cells and automated fixtures for specific fabrication processes
Sector	Capital Goods
Sub-Sector	
Occupation	Fabrication, Fitting and Assembly
NSQF Level	6
Credits	3
Version	1.0
Last Reviewed Date	08/05/2025
Next Review Date	08/05/2028
NSQC Clearance Date	08/05/2025

CSC/N0331: Select and develop additive manufacturing prototypes using metal materials for fabrication processes.

Description

This unit is about to Select and develop additive manufacturing prototypes using metal materials for fabrication processes.

Scope

The scope covers the following :

- Prioritize material traits for process suitability and end-use requirements.
- Apply cutting-edge techniques for precise material shaping and preparation
- Ensuring dimensional accuracy, metallurgical integrity, and adherence to standards through inspections and documentation.

Elements and Performance Criteria

Prioritize material traits for process suitability and end-use requirements

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

PC1. Identify performance requirements encompassing mechanical, thermal, and chemical properties crucial for the application's demands. Evaluate metals based on criteria such as strength, ductility, and cost-effectiveness to determine the most suitable materials for fabrication processes.

PC2. Thoroughly clean metal surfaces to eliminate contaminants like oil, grease, and rust, ensuring optimal adhesion and quality in subsequent fabrication steps. Utilize various methods such as degreasing, pickling, or sandblasting to achieve pristine surface conditions

PC3. Maintain precise dimensional accuracy during cutting and shaping processes to meet design specifications effectively.

Maintain precise dimensional accuracy during cutting and shaping processes to meet design specifications effectively.

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

PC4. Employ processes such as annealing, quenching, or tempering to modify material properties as required for fabrication.

PC5. Consider factors such as texture, smoothness, and reflectivity when selecting surface finishing methods for metal materials

PC6. Consider factors such as texture, smoothness, and reflectivity when selecting surface finishing methods for metal materials

Consider factors such as texture, smoothness, and reflectivity when selecting surface finishing methods for metal materials

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

PC7. Consider factors such as texture, smoothness, and reflectivity when selecting surface finishing methods for metal materials

PC8. Consider factors such as texture, smoothness, and reflectivity when selecting surface finishing methods for metal materials

PC9. Emphasize continuous process improvement by soliciting feedback, analyzing performance metrics, and identifying areas for optimization.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Material Properties: Knowledge of mechanical properties such as tensile strength, yield strength, hardness, and ductility is crucial to ensure that the selected material can withstand the intended loads and stresses encountered during fabrication and in service

KU2. Corrosion Resistance: Understanding the environmental conditions to which the fabricated component will be exposed helps in selecting materials with appropriate corrosion resistance properties, thus ensuring longevity and performance.

KU3. Fabrication Techniques: Familiarity with different fabrication methods such as welding, machining, forming, and casting enables the selection of materials that can be effectively processed using the chosen techniques, ensuring ease of fabrication and high-quality results.

KU4. Cost Considerations: Knowledge of material costs and availability allows for the selection of materials that meet performance requirements while staying within budget constraints, optimizing cost-effectiveness.

KU5. Application Requirements: Understanding the specific functional and aesthetic requirements of the fabricated component guides the selection of materials with the right combination of properties to meet those needs, ensuring that the final product performs as intended.

KU6. Material Standards and Specifications: Familiarity with industry standards and material specifications helps in selecting materials that comply with regulatory requirements and quality standards, ensuring the reliability and safety of the fabricated components.

KU7. Environmental and Sustainability Factors: Awareness of environmental regulations, recycling capabilities, and sustainability goals influences material selection decisions, leading to the use of eco-friendly materials and processes that minimize environmental impact.

KU8. • Supplier and Supply Chain Considerations: Knowledge of material suppliers, their reliability, and the stability of the supply chain ensures consistent access to quality materials, reducing the risk of production delays or disruptions.
• Improvement.

Generic Skills (GS)

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

GS1. follow instructions, guidelines, procedures, rules, and service level agreements

GS2. listen effectively and communicate information accurately

GS3. follow rule-based decision-making processes

GS4. make decisions on suitable courses

GS5. plan and organize the work to achieve targets and meet deadlines

GS6. apply problem-solving approaches to different situations

GS7. analyse the business impact and disseminate relevant information to others

GS8. apply balanced judgments to different situations

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prioritize material traits for process suitability and end-use requirements	10	10	-	6
PC1. Identify performance requirements encompassing mechanical, thermal, and chemical properties crucial for the application's demands. Evaluate metals based on criteria such as strength, ductility, and cost-effectiveness to determine the most suitable materials for fabrication processes.	3	2	-	2
PC2. Thoroughly clean metal surfaces to eliminate contaminants like oil, grease, and rust, ensuring optimal adhesion and quality in subsequent fabrication steps. Utilize various methods such as degreasing, pickling, or sandblasting to achieve pristine surface conditions	3	4	-	2
PC3. Maintain precise dimensional accuracy during cutting and shaping processes to meet design specifications effectively.	4	4	-	2
Maintain precise dimensional accuracy during cutting and shaping processes to meet design specifications effectively.	15	15	-	10
PC4. Employ processes such as annealing, quenching, or tempering to modify material properties as required for fabrication.	5	5	-	3
PC5. Consider factors such as texture, smoothness, and reflectivity when selecting surface finishing methods for metal materials	5	5	-	3
PC6. Consider factors such as texture, smoothness, and reflectivity when selecting surface finishing methods for metal materials	5	5	-	4
Consider factors such as texture, smoothness, and reflectivity when selecting surface finishing methods for metal materials	15	15	-	4
PC7. Consider factors such as texture, smoothness, and reflectivity when selecting surface finishing methods for metal materials	6	5	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC8. Consider factors such as texture, smoothness, and reflectivity when selecting surface finishing methods for metal materials	5	5	-	-
PC9. Emphasize continuous process improvement by soliciting feedback, analyzing performance metrics, and identifying areas for optimization.	4	5	-	3
NOS Total	**40**	**40**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0331
NOS Name	Select and develop additive manufacturing prototypes using metal materials for fabrication processes.
Sector	Capital Goods
Sub-Sector	
Occupation	Fabrication, Fitting and Assembly
NSQF Level	6
Credits	6
Version	1.0
Last Reviewed Date	08/05/2025
Next Review Date	08/05/2028
NSQC Clearance Date	08/05/2025

CSC/N0332: Inspect for Dimensional Defects by Implementing process optimization strategies

Description

This unit is about to Inspect for Dimensional Defects by implementing process optimization strategies

Scope

The scope covers the following :

- dentifying dimensional discrepancies in fabricated components through thorough inspection processes. Implementing strategies to enhance fabrication methods, including adjusting parameters, refining tooling, or improving workflow efficiencies, to minimize dimensional defects.
- Iteratively refining optimization strategies based on inspection findings and feedback to continually reduce dimensional defects and enhance overall fabrication quality and efficiency

Elements and Performance Criteria

identifying dimensional discrepancies in fabricated components through thorough inspection processes

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

PC1. Employ precise measurement tools to accurately detect dimensional discrepancies, ensuring compliance with specified tolerances and standards.

PC2. Analyze fabrication processes meticulously to identify inefficiencies and areas for improvement, aiming to enhance dimensional accuracy and minimize defects.

PC3. Establish robust inspection protocols to comprehensively examine components for dimensional defects, maintaining consistency and reliability in defect detection.

implementing strategies to enhance fabrication methods, including adjusting parameters, refining tooling, or improving workflow efficiencies, to minimize dimensional defects

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

PC4. Utilize advanced data analysis techniques to assess inspection results, extract insights, and refine optimization strategies accordingly.

PC5. Provide comprehensive training on measurement techniques and result interpretation, facilitating effective communication of findings and optimization recommendations across teams

PC6. Maintain meticulous records documenting inspection outcomes, optimization activities, and corrective measures, ensuring traceability and accountability.

iteratively refining optimization strategies based on inspection findings and feedback to continually reduce dimensional defects and enhance overall fabrication quality and efficiency

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

PC7. Develop and monitor key performance indicators such as defect rates and process capability indices, leveraging insights to drive continuous improvement efforts

PC8. . Foster collaboration between inspection and optimization teams, integrating their efforts to achieve synergistic improvements in dimensional defect prevention

PC9. . Remain adaptable to evolving process requirements and technological advancements, continually refining inspection and optimization strategies for sustained effectiveness.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. Proficiency in using measurement tools and methods to accurately assess dimensional attributes and detect defects

KU2. Understanding of the fabrication processes involved and how variations in parameters can affect dimensional accuracy.

KU3. Familiarity with inspection protocols, standards, and quality control measures to ensure thorough examination and compliance with specifications

KU4. Ability to analyse inspection data effectively, identify trends, and derive insights to guide process optimization efforts.

KU5. Capability to troubleshoot dimensional defects, analyze root causes, and develop targeted solutions for improvement

KU6. Collaboration with cross-functional teams to integrate inspection and optimization efforts, leveraging diverse expertise for holistic improvement

KU7. Commitment to ongoing learning, adaptation to technological advancements, and proactive pursuit of optimization opportunities for sustained enhancement of fabrication processes.

KU8. Proficiency in maintaining detailed records of inspection results, optimization activities, and performance metrics to track progress and facilitate decision-making

KU9. Ability to communicate findings, recommendations, and progress effectively to stakeholders, fostering alignment and support for optimization initiatives

Generic Skills (GS)

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

GS1. follow instructions, guidelines, procedures, rules, and service level agreements

GS2. listen effectively and communicate information accurately

GS3. follow rule-based decision-making processes

GS4. make decisions on suitable courses

GS5. plan and organize the work to achieve targets and meet deadlines

GS6. apply problem-solving approaches to different situations

GS7. analyse the business impact and disseminate relevant information to others

GS8. apply balanced judgments to different situations

GS9. check the work is complete and free from errors

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
identifying dimensional discrepancies in fabricated components through thorough inspection processes	10	10	-	7
PC1. Employ precise measurement tools to accurately detect dimensional discrepancies, ensuring compliance with specified tolerances and standards.	3	3	-	2
PC2. Analyze fabrication processes meticulously to identify inefficiencies and areas for improvement, aiming to enhance dimensional accuracy and minimize defects.	3	3	-	2
PC3. Establish robust inspection protocols to comprehensively examine components for dimensional defects, maintaining consistency and reliability in defect detection.	4	4	-	3
implementing strategies to enhance fabrication methods, including adjusting parameters, refining tooling, or improving workflow efficiencies, to minimize dimensional defects	15	15	-	9
PC4. Utilize advanced data analysis techniques to assess inspection results, extract insights, and refine optimization strategies accordingly.	5	5	-	3
PC5. Provide comprehensive training on measurement techniques and result interpretation, facilitating effective communication of findings and optimization recommendations across teams	5	5	-	3
PC6. Maintain meticulous records documenting inspection outcomes, optimization activities, and corrective measures, ensuring traceability and accountability.	5	5	-	3
iteratively refining optimization strategies based on inspection findings and feedback to continually reduce dimensional defects and enhance overall fabrication quality and efficiency	15	15	-	4
PC7. Develop and monitor key performance indicators such as defect rates and process capability indices, leveraging insights to drive continuous improvement efforts	5	5	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC8. . Foster collaboration between inspection and optimization teams, integrating their efforts to achieve synergistic improvements in dimensional defect prevention	5	5	-	1
PC9. . Remain adaptable to evolving process requirements and technological advancements, continually refining inspection and optimization strategies for sustained effectiveness.	5	5	-	1
NOS Total	**40**	**40**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0332
NOS Name	Inspect for Dimensional Defects by Implementing process optimization strategies
Sector	Capital Goods
Sub-Sector	
Occupation	Fabrication, Fitting and Assembly
NSQF Level	6
Credits	7
Version	1.0
Last Reviewed Date	08/05/2025
Next Review Date	08/05/2028
NSQC Clearance Date	08/05/2025

CSC/N1339: Collaboratively coordinate with the team

Description

This OS unit is about building relationships and working with people and groups inside and outside the organization, using skills and habits, to achieve the team goals and objectives

Scope

The scope covers the following :

- This unit/task covers the following:
- Creating team environment
- Communicating - giving and receiving
- Working cooperatively
- Participating in team decision making
- Demonstrating Sense of Responsibility
- Showing respect for opinions, customs, and preferences

Elements and Performance Criteria

Communicate effectively at the workplace

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

PC1. exchange information and instruction with colleagues, and seek clarifications and feedback

PC2. assist colleagues where required

PC3. follow business communication etiquette in all interactions and communicative formats (online, digital, and in-person)

PC4. document and share all relevant information with stakeholders in agreed formats and as per agreed timelines

Work effectively

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

PC5. identify and obtain clarity regarding organisational, team and own goals and targets

PC6. prioritise and plan work in order to achieve goals and targets

PC7. monitor own and team performance as per agreed plan

PC8. complete duties accurately, systematically and within required timeframes

PC9. express emotions appropriately at the workplace and manage own response to heightened emotions

PC10. maintain orderliness and cleanliness in the work area Maintain and enhance professional competence

PC11. identify own strengths and weaknesses in relation to goals and targets

PC12. adapt self, service, or product to meet success criteria

PC13. seek and select opportunities for continuous professional development

PC14. formulate a professional development plan to enhance capabilities

PC15. build or contribute to the organizational knowledge base of cases, clients, issues, solutions, and innovations

PC16. examine developments and trends in field of work and their potential impact on work

PC17. take feedback from peers, supervisors and clients to improve own performance and practices

Work in a disciplined and ethical manner

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

PC18. perform tasks as per workplace standards, organizational policies and legislative requirements

PC19. display appropriate professional appearance at the workplace and adhere to the organizational dress code

PC20. demonstrate responsible and disciplined behavior at the workplace such as punctuality; completing tasks as per given time and standards; demonstrating professional behavior at all times, adopting environment- friendly practices, etc.

PC21. identify the cause of conflict and options for resolution with peers or escalate grievances and problems to appropriate authority as per procedure for conflict resolution

PC22. protect the rights of the client and organization when delivering services

PC23. ensure services are delivered equally to all clients regardless of personal and cultural beliefs

PC24. operate within an agreed ethical code of practice and report unethical conduct to the appropriate authorities

PC25. follow organizational guidelines and legal requirements on disclosure and confidentiality

Uphold social diversity at the workplace

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

PC26. recognize and evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes

PC27. identify and report discrimination and harassment based on gender, disability, or cultural difference at the workplace

PC28. use inclusive or neutral language and gestures in all interactions

PC29. respect the personal and professional space of others

PC30. access grievance redressal mechanisms as per legislations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the organisation's policies and procedures for working with colleagues, roles and responsibilities

KU2. the importance of effective communication and establishing good working relationships with colleagues

KU3. different methods of communication and the circumstances in which it is appropriate to use these

KU4. the importance of creating an environment of trust and mutual respect

KU5. the implications of own work on the work and schedule of others

KU6. different types of information that colleagues might need and the importance of providing this information when it is required

KU7. the importance of helping colleagues with problems, to meet quality and time standards as a team

Generic Skills (GS)

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

GS1. read and write instructions, guidelines, procedures, messages, emails, and other media in language of the workplace
GS2. communicate in common and technical terms in language of the workplace
GS3. listen effectively and orally communicate information
GS4. be punctual, do work scheduling and reporting
GS5. comply with workplace practices and ethics
GS6. maintain cleanliness and healthy environment
GS7. be customer friendly - understand real needs of the customer and suggest most appropriate solution
GS8. be safety conscious and avoid risk
GS9. be observant, vigilant, and security consciousness
GS10. respond, handle problem, and escalate as necessary
GS11. ask for clarification and advice from concerned persons
GS12. make decisions on a suitable course of action or response keeping in view resource utilization while meeting commitments
GS13. plan and organize work to achieve targets and deadlines

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Communicate effectively at the workplace	7	20	-	-
PC1. exchange information and instruction with colleagues, and seek clarifications and feedback	-	-	-	-
PC2. assist colleagues where required	-	-	-	-
PC3. follow business communication etiquette in all interactions and communicative formats (online, digital, and in-person)	-	-	-	-
PC4. document and share all relevant information with stakeholders in agreed formats and as per agreed timelines	-	-	-	-
Work effectively	7	20	-	-
PC5. identify and obtain clarity regarding organisational, team and own goals and targets	-	-	-	-
PC6. prioritise and plan work in order to achieve goals and targets	-	-	-	-
PC7. monitor own and team performance as per agreed plan	-	-	-	-
PC8. complete duties accurately, systematically and within required timeframes	-	-	-	-
PC9. express emotions appropriately at the workplace and manage own response to heightened emotions	-	-	-	-
PC10. maintain orderliness and cleanliness in the work area Maintain and enhance professional competence	-	-	-	-
PC11. identify own strengths and weaknesses in relation to goals and targets	-	-	-	-
PC12. adapt self, service, or product to meet success criteria	-	-	-	-
PC13. seek and select opportunities for continuous professional development	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14. formulate a professional development plan to enhance capabilities	-	-	-	-
PC15. build or contribute to the organizational knowledge base of cases, clients, issues, solutions, and innovations	-	-	-	-
PC16. examine developments and trends in field of work and their potential impact on work	-	-	-	-
PC17. take feedback from peers, supervisors and clients to improve own performance and practices	-	-	-	-
Work in a disciplined and ethical manner	8	20	-	-
PC18. perform tasks as per workplace standards, organizational policies and legislative requirements	-	-	-	-
PC19. display appropriate professional appearance at the workplace and adhere to the organizational dress code	-	-	-	-
PC20. demonstrate responsible and disciplined behavior at the workplace such as punctuality; completing tasks as per given time and standards; demonstrating professional behavior at all times, adopting environment- friendly practices, etc.	-	-	-	-
PC21. identify the cause of conflict and options for resolution with peers or escalate grievances and problems to appropriate authority as per procedure for conflict resolution	-	-	-	-
PC22. protect the rights of the client and organization when delivering services	-	-	-	-
PC23. ensure services are delivered equally to all clients regardless of personal and cultural beliefs	-	-	-	-
PC24. operate within an agreed ethical code of practice and report unethical conduct to the appropriate authorities	-	-	-	-
PC25. follow organizational guidelines and legal requirements on disclosure and confidentiality	-	-	-	-
Uphold social diversity at the workplace	8	10	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. recognize and evaluate biased practices against underrepresented groups like women and persons with disabilities, in workplace systems and processes	-	-	-	-
PC27. identify and report discrimination and harassment based on gender, disability, or cultural difference at the workplace	-	-	-	-
PC28. use inclusive or neutral language and gestures in all interactions	-	-	-	-
PC29. respect the personal and professional space of others	-	-	-	-
PC30. access grievance redressal mechanisms as per legislations	-	-	-	-
NOS Total	**30**	**70**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N1339
NOS Name	Collaboratively coordinate with the team
Sector	Capital Goods
Sub-Sector	Generic
Occupation	Generic
NSQF Level	5
Credits	3
Version	1.0
Last Reviewed Date	01/10/2025
Next Review Date	01/10/2030
NSQC Clearance Date	01/10/2025

CSC/N0505: Follow health, safety and environment guidelines at workplace

Description

This OS unit is about following adequate safety procedures to make work environment healthy and safe

Scope

The scope covers the following :

- This unit/task covers the following:
- Adhere to standard safety procedures of the company
- Follow healthy practices and posture
- Practice waste management and recycling
- Conserve material and resources

Elements and Performance Criteria

Adhere to standard safety procedures of the organisation

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

PC1. comply with general safety procedures and those for handling equipment, tools, chemicals, and hazardous material, as prescribed and followed in the organisation

PC2. remove finger rings or any other metal objects likely to interfere with the work

PC3. ensure that identification badge or any other object worn around the neck or on the clothing does not get caught in any rotating machine, or otherwise interfere with the work

PC4. use appropriate safety devices such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, helmets etc. recommended for the work being performed

PC5. inform, escalate, or raise alarm about any suspicions, unaccounted hazardous material, devices, or other objects found in the premises

PC6. inform, escalate, or raise alarm about any breach of safety or security procedure in the organisation

PC7. help achieve zero accidents goals at work

PC8. avoid damage to sensitive electronic components due to negligence of ESD procedures

PC9. participate regularly in fire drills or other safety related workshops organised by the organisation

PC10. follow strictly all access control and perimeter safety procedures in designated factory areas such as robotic work stations, automated production lines, automated material movement and other potentially risky operations

PC11. ensure that other people follow all access control and perimeter safety procedures in designated factory areas and help avoid accidents

PC12. use emergency switches or other mechanisms of stopping a machine immediately in case any emergency situation has developed or about to happen

PC13. ensure that electrical equipment are properly grounded

PC14. follow Cyber Security guidelines and be vigilant at workplace

PC15. proceed to designated safe assembly area immediately on hearing fire alarm

Follow healthy practices and posture

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

PC16. wash hands and use sanitizers as recommended to prevent spread of diseases

PC17. follow common personal hygiene practices

PC18. maintain appropriate posture, especially in long hours of sitting or standing position and in handling heavy materials

PC19. participate in company organised health sessions such as exercises, games, yoga, physiotherapy, and other activities

PC20. handle heavy and hazardous materials with care, while maintaining appropriate posture, using suitable tools, and handling equipment such as trolleys, jacks, and ladders

PC21. learn and apply first aid devices available in the workplace

PC22. learn and apply safety and handling procedures for electrical shock and electrocution

PC23. learn and apply emergency medical help services

PC24. follow workplace decorum and avoid emotional outbursts or inappropriate language

PC25. prevent any harassment at workplace

Practice waste management and recycling

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

PC26. identify recyclable, non-recyclable, and hazardous waste generated in the workplace and comply with their disposal procedures

PC27. dispose non-recyclable waste and hazardous waste following recommended processes

PC28. deposit recyclable and reusable material at identified locations

PC29. support education and compliance of waste management processes

Conserve material and resources

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

PC30. identify ways to optimize usage of material and resources such as water, electricity, energy in various tasks, activities, and processes

PC31. check for spills and leakages of material in various tasks, activities, and processes and plug them

PC32. escalate the leakage issue to appropriate authority if needed

PC33. carry out routine cleaning of tools, machines, and equipment and maintain them in good working condition to optimize efficiency and wastage

PC34. check if the equipment is functioning normally before commencing work and rectify or report any malfunctioning to the responsible agency

PC35. check for any odour, sparks, fumes, emission, unusual vibration, noise, or any other objectionable presence in the environment and take immediate corrective action followed by report to responsible agency

PC36. ensure electrical equipment are properly connected for use and are switched off when not in use

PC37. support education and compliance of resource conservation processes

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. company policies on workplace, environment, and personnel management
KU2. company policy on occupational safety and health
KU3. professional hazards related to nature of work and how to deal with them
KU4. how to maintain the work area safe and secure
KU5. how to handle hazardous materials, tools, and equipment
KU6. emergency procedures for fire, electrocution, physical injury, wounds, etc.
KU7. need for proper body posture and use of appropriate handling equipment
KU8. understand electrical grounding practices
KU9. common sources of pollution and ways to minimize it
KU10. waste management - categorisation, colour coding, handling, and disposal procedure
KU11. organisation policies and procedures for minimizing waste
KU12. efficient use of electricity, material, and water in processes
KU13. organization policies regarding network usage and security
KU14. norms for professional behaviour at workplace and dealing with deviations

Generic Skills (GS)

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

GS1. communicating in the language of the workplace
GS2. reading and interpreting documents, drawings, symbols, and instructions
GS3. operating computer and common office equipment and diagnosing common electrical and interconnection problems
GS4. writing notes, reports, observations, emails
GS5. using personnel protective devices
GS6. maintaining clean and healthy work environment
GS7. using and operating safety devices and equipment
GS8. conducting work following workplace security processes and rules
GS9. responding to emergency situations pertaining to workplace
GS10. understanding people and collaborating to create a healthy workplace

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Adhere to standard safety procedures of the organisation	7	10	-	-
PC1. comply with general safety procedures and those for handling equipment, tools, chemicals, and hazardous material, as prescribed and followed in the organisation	-	-	-	-
PC2. remove finger rings or any other metal objects likely to interfere with the work	-	-	-	-
PC3. ensure that identification badge or any other object worn around the neck or on the clothing does not get caught in any rotating machine, or otherwise interfere with the work	-	-	-	-
PC4. use appropriate safety devices such as goggles, gloves, ear plugs, caps, ESD pins, covers, shoes, helmets etc. recommended for the work being performed	-	-	-	-
PC5. inform, escalate, or raise alarm about any suspicions, unaccounted hazardous material, devices, or other objects found in the premises	-	-	-	-
PC6. inform, escalate, or raise alarm about any breach of safety or security procedure in the organisation	-	-	-	-
PC7. help achieve zero accidents goals at work	-	-	-	-
PC8. avoid damage to sensitive electronic components due to negligence of ESD procedures	-	-	-	-
PC9. participate regularly in fire drills or other safety related workshops organised by the organisation	-	-	-	-
PC10. follow strictly all access control and perimeter safety procedures in designated factory areas such as robotic work stations, automated production lines, automated material movement and other potentially risky operations	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. ensure that other people follow all access control and perimeter safety procedures in designated factory areas and help avoid accidents	-	-	-	-
PC12. use emergency switches or other mechanisms of stopping a machine immediately in case any emergency situation has developed or about to happen	-	-	-	-
PC13. ensure that electrical equipment are properly grounded	-	-	-	-
PC14. follow Cyber Security guidelines and be vigilant at workplace	-	-	-	-
PC15. proceed to designated safe assembly area immediately on hearing fire alarm	-	-	-	-
Follow healthy practices and posture	8	10	-	-
PC16. wash hands and use sanitizers as recommended to prevent spread of diseases	-	-	-	-
PC17. follow common personal hygiene practices	-	-	-	-
PC18. maintain appropriate posture, especially in long hours of sitting or standing position and in handling heavy materials	-	-	-	-
PC19. participate in company organised health sessions such as exercises, games, yoga, physiotherapy, and other activities	-	-	-	-
PC20. handle heavy and hazardous materials with care, while maintaining appropriate posture, using suitable tools, and handling equipment such as trolleys, jacks, and ladders	-	-	-	-
PC21. learn and apply first aid devices available in the workplace	-	-	-	-
PC22. learn and apply safety and handling procedures for electrical shock and electrocution	-	-	-	-
PC23. learn and apply emergency medical help services	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC24. follow workplace decorum and avoid emotional outbursts or inappropriate language	-	-	-	-
PC25. prevent any harassment at workplace	-	-	-	-
Practice waste management and recycling	-	-	-	-
PC26. identify recyclable, non-recyclable, and hazardous waste generated in the workplace and comply with their disposal procedures	-	-	-	-
PC27. dispose non-recyclable waste and hazardous waste following recommended processes	-	-	-	-
PC28. deposit recyclable and reusable material at identified locations	-	-	-	-
PC29. support education and compliance of waste management processes	-	-	-	-
Conserve material and resources	-	-	-	-
PC30. identify ways to optimize usage of material and resources such as water, electricity, energy in various tasks, activities, and processes	-	-	-	-
PC31. check for spills and leakages of material in various tasks, activities, and processes and plug them	-	-	-	-
PC32. escalate the leakage issue to appropriate authority if needed	-	-	-	-
PC33. carry out routine cleaning of tools, machines, and equipment and maintain them in good working condition to optimize efficiency and wastage	-	-	-	-
PC34. check if the equipment is functioning normally before commencing work and rectify or report any malfunctioning to the responsible agency	-	-	-	-
PC35. check for any odour, sparks, fumes, emission, unusual vibration, noise, or any other objectionable presence in the environment and take immediate corrective action followed by report to responsible agency	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC36. ensure electrical equipment are properly connected for use and are switched off when not in use	-	-	-	-
PC37. support education and compliance of resource conservation processes	-	-	-	-
NOS Total	**15**	**20**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	CSC/N0505
NOS Name	Follow health, safety and environment guidelines at workplace
Sector	Capital Goods
Sub-Sector	Machine Tools, Dies, Moulds and Press Tools, Plastics Manufacturing Machinery, Textile Manufacturing Machinery, Process Plant Machinery, Electrical and Power Machinery, Defence Equipment, Fire-Fighting & Safety Equipment, Homeland Security
Occupation	Service
NSQF Level	5
Credits	1
Version	1.0
Last Reviewed Date	01/10/2025
Next Review Date	01/10/2030
NSQC Clearance Date	01/10/2025

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:

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.

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

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

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
Constitutional values - Citizenship	1	1	-	-
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	2	4	-	-
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	2	3	-	-
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	1	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
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	2	2	-	-
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	1	2	-	-
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	2	3	-	-
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	3	4	-	-
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	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Entrepreneurship	2	3	-	-
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	1	2	-	-
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	2	3	-	-
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	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	07/10/2025
Next Review Date	07/10/2028
NSQC Clearance Date	07/10/2025

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 70% 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.

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/N0330.Setting up robotic work cells and automated fixtures for specific fabrication processes	40	40	0	20	100	25
CSC/N0331.Select and develop additive manufacturing prototypes using metal materials for fabrication processes.	40	40	0	20	100	20
CSC/N0332.Inspect for Dimensional Defects by Implementing process optimization strategies	40	40	0	20	100	20
CSC/N1339.Collaboratively coordinate with the team	30	70	-	-	100	15
CSC/N0505.Follow health, safety and environment guidelines at workplace	15	20	-	-	35	15
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	5
Total	**185**	**240**	**-**	**60**	**485**	**100**

Acronyms

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

Glossary

Sector	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.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	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.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	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.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	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.
Scope	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.

Knowledge and Understanding (KU)	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.
Organisational Context	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.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	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.
Electives	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.
Options	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.