NCVET Code
2022/IS/IISSC/05653

NSQF QUALIFICATION FILE
Approved in 17th NSQC Meeting-NCVET-Dated 31st March, 2022

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Name and address of submitting body:

Indian Iron and Steel Sector Skill Council - IISSSC

Karigari Bhawan, 5th Floor, Room No-509, Plot No-B/7, Action Area-III, New Town, Rajarhat, Kolkata-700160

Name and contact details of individual dealing with the submission

Name: Mr. Sushim Banerjee

Position in the organization: Chief Executive Officer

Address if different from above: Same as above

Tel. number(s): 033 23247559

E-mail address: ceo@iisssc.org, sushim_banerjee@yahoo.com

List of documents submitted in support of the Qualifications File

1. Qualification Pack:- ISC/Q0906
2. Documents related to QP Development (Refer to folder “Common Files”)
   (i) Model Curriculum

NSQC Approved

SUMMARY

1	**Qualification Title:** Asst. Mechanic - Bearing Maintenance
2	**Qualification Code, if any:** ISC/Q0906
3	**NCO code and occupation:** NCO-2015/ 8343.0501, 8343.0700 Iron Making, Steel Making, Foundry, Rerolling and Sponge Iron
4	**Nature and purpose of the qualification (Please specify whether qualification is short term or long term):** Identify the problems in the equipment, rectify the root causes for e.g. leakages, replaces the bearings, lubricates the bearings, ensures fitness of all types of bearings in the plant and carry out routine maintenance.
5	**Body/bodies which will award the qualification:** Indian Iron and Steel Sector Skill Council - IISSSC
6	**Body which will accredit providers to offer courses leading to the qualification:** Indian Iron and Steel Sector Skill Council - IISSSC
7	**Whether accreditation/affiliation norms are already in place or not, if applicable (if yes, attach a copy):** Yes
8	**Occupation(s) to which the qualification gives access:** Mechanical Maintenance
9	**Job description of the occupation**: The individual in this role to identify the problems in the equipment, rectify the root causes for e.g. leakages, replaces the bearings, lubricates the bearings, ensures fitness of all types of bearings in the plant and carry out routine maintenance.
10	**Licensing requirements:** N/A
11	**Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided):** N/A
12	**Level of the qualification in the NSQF:** Level 3
13	**Anticipated volume of training/learning required to complete the qualification:** 480 Hours
14	Indicative list of training tools required to deliver this qualification: Laptop, white board, marker, projector Sanitization kit, disinfectants, alcohol-based sanitizers, different types of face masks, shields etc. Different type of waste bins to collect and segregate waste for disposal

NSQC Approved

	Samples for bearings and respective machines, Hand tools and lifting machines, Lubricants, Measuring tools Bearing Pullers, measuring instruments etc		
15	**Entry requirements and/or recommendations and minimum age:** 8th Class Pass with 1 year of relevant experience OR 10th Class Pass And 8 years		
16	**Progression from the qualification (Please show Professional and academic progression):** Mechanical Maintenance Technician Safety Supervisor Level - 5		
17	**Arrangements for the Recognition of Prior learning (RPL):** RPL will be based on the same approved Qualification Pack and Assessment Criteria mentioned in the Qualification Pack by Indian Iron and Steel Sector Skill Council		
18	**International comparability where known (research evidence to be provided):** No		
19	**Date of planned review of the qualification:** 1st July 2026		
21	**Formal structure of the qualification** **Mandatory components**		
(i)	**Title of component and identification code/NOSs/Learning outcomes**	**Estimated size (learning hours)**	**Level**
1	Bridge Module	8	
2	Follow basic health and safety practices at the workplace	50	3
3	Effective communication and interpersonal skills at workplace	30	3
4	Preparation for bearing maintenance work	122	3
5	Carryout bearing maintenance activities	140	3
6	Carry-out post maintenance activities	130	3

NSQC Approved

	Sub Total (A)	**480**	

NSQC Approved

SECTION 1
ASSESSMENT

1 **Body/Bodies which will carry out assessment:**

Indian Iron and Steel Sector Skill Council.

Proposed Body/Bodies which will carry out assessment:

S.No	Name of the Assessment Agency
1	ACE Foundation
2	Brisk Mind Pvt. Ltd.
3	Demorgia Consulting Services
4	EduVantage Private Limited
5	GLOCAL THINKER'S PRIVATE LIMITED
6	IRIS Corporate Solutions Private Limited
7	MS Certification Services Pvt. Ltd.
8	Nitya Skill Development Organization Samiti
9	Palmary Project & Services Pvt. Ltd.
10	STAR PROJECTS SERVICES PVT. LTD.
11	Vedokt Skill & Consulting Pvt. Ltd.
12	Vistaskills Pvt Ltd
13	Vsquare Techsolutions Pvt. Ltd.

2 **How will RPL assessment be managed and who will carry it out?**

The RPL assessment will be managed by selected assessment partners from the applications received

3 **Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.**

The emphasis is on practical demonstration of skills and knowledge based on the performance criteria. The assessment papers are developed by Subject Matter Experts (SME) available with the Assessment Agency as per the performance and assessment criteria mentioned in the Qualification Pack. The assessment papers are also checked for the various outcome-based parameters such as quality, time taken, precision, tools & equipment requirement etc. The assessment results are backed by evidences collected by assessors.

NSQC Approved

	1. The assessor needs to collect a copy of the attendance for the training done under the scheme. The attendance sheets are signed and stamped by the In-charge / Head of the Training Centre. 2. The assessor needs to verify the authenticity of the candidates by checking the photo ID card issued by the institute as well as any one Photo ID card issued by the Central/Government. The same needs to be mentioned in the attendance sheet. In case of suspicion, the assessor should authenticate, and cross verify trainee's credentials in the enrolment form. 3. The assessor needs to punch the trainee's roll number on all the test pieces. 4. The assessor can take a photograph of all the students along with the assessor standing in the middle and with the centre name/banner at the back as evidence. 5. The assessor also needs to carry a photo ID card. The assessment agencies are instructed to hire assessors with integrity, reliability and fairness. Each assessor shall sign a document with its assessment agency by which they commit themselves to comply with the rules of confidentiality and conflict of interest, independence from commercial and other interests that would compromise impartiality of the assessments.

Please attach most relevant and recent documents giving further information about assessment and/or RPL.
Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

NSQC Approved

ASSESSMENT EVIDENCE

Complete a grid for each component as listed in "Formal structure of the qualification" in the Summary.

NOTE: this grid can be replaced by any part of the qualification documentation which shows the same information – i.e. Learning Outcomes to be assessed, assessment criteria and the means of assessment.

24. Assessment evidences

Title of Component: Asst. Mechanic - Bearing Maintenance

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Asst. Mechanic - Bearing Maintenance

Qualification Pack ISC/Q0906

Sector Skill Council Indian Iron and Steel Sector Skill Council

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below).
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training centre based on these criteria.
5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
ISC/N0929: Prepare for bearing maintenance work				
Identify work requirements	**17**	**24**	**-**	**12**
PC1. identify the work to be done by interpreting the engineering drawings/blueprints/SOPs	2	3		1
PC2. identify correct limits, tolerance and fits of equipment by interpreting drawings/blueprints properly	3	5		2

PC3. report and rectify cases of any inappropriate information in design documents as per organisational procedures	1	2		1
PC4. identify tools, measuring instruments and equipment required to perform the assembling of Components	6	5		4
PC5. select and arrange the right tools, measuring instruments and equipment as per the SOP and job requirements	5	9		4
Prepare for assembling activities	**13**	**26**	**-**	**8**
PC6. use appropriate Personal Protective Equipment (PPE) for safe working in workshop	1	2		1
PC7. plan sequence of activities need to perform for assembling work	2	3		1
PC8. check the tools, measuring instruments and equipment are cleaned, free from any defects and functioning properly	5	9		3
PC9. check and calibrate the tools and equipment before use	2	5		2
PC10. check that machine/electrical panels is cleaned and free from paint, grease, rust, or other contaminants	2	5		1
PC11. report about damaged / defective components of equipment as per the escalation matrix	1	2		
NOS Total	**30**	**50**	**-**	**20**

ISC/N0930: Perform bearing maintenance activities

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Perform installation of machine/electrical panels and its components	**14**	**23**	**-**	**10**

NSQC Approved

PC1. prepare the foundation base as per the job requirements i.e. cleaning using hand files, scraper, etc.	3	5		2
PC2. lift the machine/electrical panels manually or by hoist and place the same securely on the designated place as indicated in the drawing/work instructions	2	4		2
PC3. use braces, jacks, clamps, ropes or bolt straps to hold parts in position	3	4		2
PC4. prepare control cables, electrical components like MCB's, contactors, relays etc. as per drawing requirement	3	4		2
PC5. mount, align and level all attachments and fixtures on machine/electrical panels by using hand tools and precision measuring instruments	3	6		2
Perform assembling activities	16	27		10
PC6. perform assembly operations and assemble all the parts of machine/electrical panels as mentioned in drawing/blueprint	4	6		3
PC7. use tools such as saws, cutting torches, pipe threaders or benders to cut, thread or bend parts as per the specifications	4	6		3
PC8. fasten the mechanical components/ subassemblies together by using specified screws, bolts, and collars	2	4		1
PC9. set and adjust the linkages, tensions and clearances of assembled components to specified specifications by using fixed gauges and hand tools	2	3		2
PC10. use wires strippers, crippling tool and other insulated tools for making the electrical connections of machine/electrical panels	2	4		1
PC11. follow the do's and don'ts of the manufacturing process as defined in SOPs/Work Instructions or given by supervisors	1	2		
NOS Total	**30**	**50**	**-**	**20**
ISC/N0931: Perform post-maintenance activities				

NSQC Approved

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Conduct tests to ensure fitness of equipment	**19**	**31**	**-**	**12**
PC1. check the alignment of bearing related parts in the equipment	4	7		3
PC2. check the bearing for vibrations to ensure they are within desired limits	4	7		3
PC3. conduct trials of the equipment to ensure that specified parameters are attained with no abnormalities	4	6		2
PC4. record the trial results as per the organisation guidelines	3	5		2
PC5. ensure that all maintenance points are adequately considered and report the superiors about maintenance activity done on the bearing	4	6		2
Perform post-testing activities	11	19		8
PC6. clean and store all the tools, machine and equipment after completion of work	4	5		3
PC7. check the machine operations for any malfunctions/defects in the component and inform the supervisor/maintenance team for correction	3	5		2
PC8. dispose scrap or waste material into the disposal area in accordance with the company's policies and environmental regulations	2	5		2
PC9. report to the supervisor about any problems faced or anticipated during the complete process	2	4		1
NOS Total	**30**	**50**	**-**	**20**

ISC/N0008: Use basic health and safety practices at the workplace

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain safe and secure working	**10**	**14**	**-**	**6**

NSQC Approved

environment				
PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace	2	2	-	1
PC2. follow safe working practices while dealing with hazards to ensure safety of self and others	2	3	-	1
PC3. use appropriate protective clothing/ equipment for specific tasks and work	1	2	-	1
PC4. follow appropriate safety practices while working in and around trenches, elevated places and confined areas	2	1	-	-
PC5. lift heavy objects safely using correct procedures	1	2	-	1
PC6. carry out routine check of the machine for identifying potential hazards	1	2	-	1
PC7. report any identified breaches in health, safety and security policies and procedures to the designated person	1	2	-	1
Emergencies, rescue and first aid procedures	**6**	**9**	**-**	**5**
PC8. use appropriate type of fire extinguisher	1	1	-	1
PC9. apply appropriate rescue techniques during fire hazard	1	2	-	1
PC10. provide appropriate first aid procedure to victims wherever required eg.in case of bleeding, burns, choking, electric shock etc.	2	2	-	1
PC11. follow emergency procedures such as raising alarm, safe evacuation etc.	1	2	-	1
PC12. attend safety training and fire drills to respond promptly during an emergency	1	2	-	1
Health and hygiene	**2**	**6**	**-**	**2**
PC13. follow regular cleaning and disinfection practices at work place	1	2	-	1

NSQC Approved

using appropriate techniques and materials				
PC14. follow hand hygiene practices at work place using appropriate techniques and materials	1	2	-	1
PC15. report regarding the contagious illness of self or people in close contact	-	1	-	-
PC16. avoid contact with ill people and self-isolate in a similar situation	-	1	-	-
Housekeeping and waste management	**7**	**12**	**-**	**5**
PC17. follow the fundamentals of 5S for housekeeping	2	3	-	2
PC18. ensure good housekeeping in order to prevent hazards and accidents	1	2	-	-
PC19. store the material, tools and equipment in the correct location and in good condition	1	2	-	-
PC20. segregate waste into different categories	1	2	-	1
PC21. identify recyclable, non-recyclable and hazardous waste	1	1	-	1
PC22. dispose non-recyclable, recyclable and reusable waste appropriately at identified location	1	2	-	1
Material and energy conservation	**5**	**9**	**-**	**2**
PC23. identify ways to optimize usage of material in various tasks/activities/processes	1	2	-	-
PC24. check for spills/leakages in various tasks/ activities/processes	1	2	-	1
PC25. plug spills/leakages and escalate to appropriate authority if unable to rectify	1	2	-	1
PC26. check if the equipment/machine is functioning normally before commencing work and rectify wherever required	1	2	-	-

NSQC Approved

PC27. ensure electrical equipment and appliances are properly connected and turned off when not in use	1	1	-	-
NOS Total	**30**	**50**	**-**	**20**

ISC/N0009: Work effectively with others

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Communicate effectively with colleagues and others	**13**	**20**	**-**	**9**
PC1. coordinate with colleagues to share work, as per the workload in order to achieve team goals	3	5	-	2
PC2. maintain clear communication with colleagues and others, wherever needed, through all means i.e. face-to-face, telephonic or written	5	7	-	3
PC3. adjust communication styles to reflect gender and persons with disability (PwD) sensitivity	3	4	-	2
PC4. respect all colleagues and co-workers	1	2	-	1
PC5. resolve conflicts by communicating with colleagues and other departments	1	2	-	1
Interact with supervisor	**8**	**14**	**-**	**6**
PC6. identify work requirements by receiving instructions from reporting supervisor	2	3	-	1
PC7. escalate problems to supervisors that cannot be handled	2	3	-	2
PC8. report the completed work	2	3	-	1
PC9. interact with the reporting supervisor about any possible hazards and safety concerns	2	5	-	2
Follow appropriate behaviour at work place	**9**	**16**	**-**	**5**
PC10. extend help to people with Disability (PwD) at workplace, if	2	4	-	2

NSQC Approved

required				
PC11. empathize with people with disability	2	4	-	1
PC12. adopt a gender neutral behavior	2	4	-	1
PC13. adopt responsible and disciplined behaviours at the workplace	3	4	-	1
NOS Total	**30**	**50**	**-**	**20**

Outcomes to be assessed/NOSs to be assessed	**Assessment criteria for the outcome**
Provided in the above section	

Means of assessment 1

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below.)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on these criteria.

Means of assessment 2

Add boxes as required.

Pass/Fail

1. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS.
2. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

NSQC Approved

NSQC Approved

SECTION 2
EVIDENCE OF LEVEL

Title/Name of qualification/component: Asst. Mechanic - Bearing MaintenanceLevel: 3			
NSQF Domain	**Outcomes of the Qualification/Component**	**How the outcomes relates to the NSQF level descriptors**	**NSQF Level**
Process	Carryout the cleaning activities, calibrations of the measuring equipment, bearings checkup and fittings and working status, setting of bearings, basic maintenance activities of crane	Person may carry out a job which may require limited range of activities routine and predictable. This level 3	3
Professional knowledge	Knowledge related to workshop and plant terminology, basic measurements, Bearing maintenance and assembly (mounting and dismounting)	Basic facts, process and principle applied in trade of employment and hence is level 3.	3
Professional skill	Attaching utmost importance to safety and housekeeping, maintenance and operations of Bearing Maintenance operations	demonstrate practical skill, routine and repetitive in narrow range of application and Hence this is level 3	3
Core skill	Reading and writing; addition, subtraction; hygiene and environment.	skill of basic arithmetic and algebraic principles, personal banking, basic understanding of social and natural environment. Hence this is level 3	3
Responsibility	Responsible for completing the assigned task, working under guidance of supervisor	Under close supervision. Some responsibility for own work within defined limit and hence level 3	3

NSQC Approved

SECTION 3
EVIDENCE OF NEED

1 **What evidence is there that the qualification is needed? What is the estimated uptake of this qualification and what is the basis of this estimate?**

Basis	In case of SSC	In case of other Awarding Bodies (Institutes under Central Ministries and states departments)
Need of the qualification The Indian and Steel Sector is second largest steel producing nation in the world after China poised to grow from 110MT to 300 MT by 2030. It will undergo a substantial transformation. The sector employs a total of 2 million direct and indirect workers, as of 2018.	The SSC would undertake market study and would enclosed demand forecast for the proposed job role both on short-term and long-term basis to substantiate the requirement of the Qualification proposed. The SSC can produce the data from primary or authorized secondary sources as well.	The Submitting Body would produce any reputable and reliable research reports, such as labour market information reports; occupational mapping or similar research carried out by Ministry/State/Any other authentic source forecasting the demand for the proposed qualification
Industry Relevance We are in the process of taking industry validation.	The SSC would undertake validation of the job roles with actual end-user industry where such employment is going to be generated and absorbed instead of generic validation of industry. The SSC would submit the	The Submitting Body would submit the list of industry participation while preparation of the curriculum/ course content of the qualifications. These could include minutes of

NSQC Approved

	endorsements from users/intended users of the qualification clearly supporting or otherwise the need for trained people against specific job role.(*The industry validation format to be used*)	the meeting/ reports of these consultations
Usage of the qualification: This Qualification Pack will be used across iron and steel industry which is organised as well as unorganised	The SSC would submit details of the employment generated (wherever applicable) and realised by virtue of training in the Qualifications of the sector earlier submitted for NSQF alignment. In case of unorganized sector, case studies or evidences may be given	The submitting body would submit the details of trained and placed data in the proposed qualification (if an existing qualification is being proposed for NSQF alignment) Information about the success of the qualification should be given (e.g. uptake figures, examples of use in recruitment and placement rates (if known) should be given. However, many of the bodies that do not have placement tracking mechanism established in place would provide necessary endorsements by the state/ ministry stating that a tracking mechanism would be institutionalized and placement records shall be provided annually or later, depending on length of qualification.
Estimated uptake The Iron and Steel sector will require a	The SSC would submit the estimated uptake of the qualification and	The Submitting Body should submit the estimated uptake by

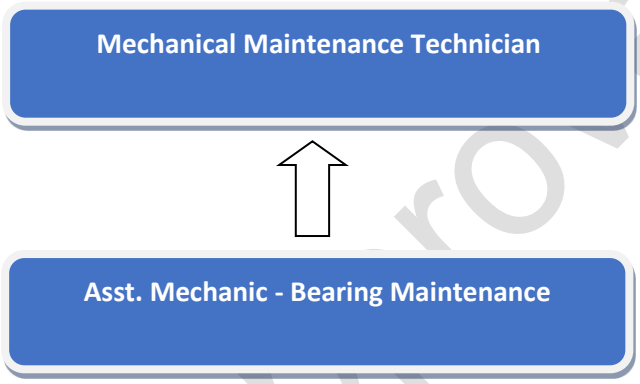
NSQC Approved

	series of non-routine tasks like social intelligence, complex critical thinking, and creative problem solving to remain relevant in the steel industry.	What steps were carried out to test the likely uptake of the qualification? The basis of this estimate should include data about the number of jobs or places in courses of learning which will be available to people who are awarded the qualification.	reflecting the number of the takers for this qualification for at least two years from submission of the qualification
2	**Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences** N/A		
3	**What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF? Give justification for presenting a duplicate qualification** NSDC list of Approved and Under-Development QPs was checked prior to commencement the work.		
4	**What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated? Specify the review process here** • Agencies have been appointed by the SSC to interact with training providers to gather feedback in implementation • Monitoring of results of assessments • Employer feedback will be sought post-placement • A formal review is scheduled by 2026		

Please attach most relevant and recent documents giving further information about any of the topics above.
Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

NSQC Approved

SECTION 4
EVIDENCE OF PROGRESSION

1	**What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?** 1. Endorsed and accepted by the Industry players 2. Formal recognition from the Industry players 3. Horizontal and vertical mobility options are available **Annexure 1: Career Map of Assistant Asst. Mechanic - Bearing Maintenance** 

NSQC Approved