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(Financed by the Asian Development Bank)

Prepared by Ernst & Young India

For Ministry of Skill Development and Entrepreneurship
   National Skill Development Corporation

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Asian Development Bank
Skills Development for Inclusive Growth

VOLUME 1:
Manual for Developing National Occupational Standards and Qualification Packs
Skills Development for Inclusive Growth

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<td>Nominal Group Technique</td>
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<td>NOS</td>
<td>National Occupational Standard</td>
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<td>NSQC</td>
<td>National Skills Qualifications Committee</td>
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<td>NSQF</td>
<td>National Skills Qualifications Framework</td>
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<td>NSDC</td>
<td>National Skill Development Corporation</td>
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<td>NSDA</td>
<td>National Skill Development Agency</td>
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<td>QP</td>
<td>Qualification Pack</td>
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<td>QRC</td>
<td>Qualifications Registration Committee</td>
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<td>sector skills council</td>
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India has set for itself an ambitious economic growth target of 8% in its Twelfth Five-Year Plan, 2012–2017. Achieving this requires a skilled and flexible workforce. To achieve a globally competitive India, the Indian National Technical and Vocational Education and Training (TVET) system is changing to make it more responsive to competency-based learning and to the country’s changing and emerging needs.

The Government of India has established a new system that is intended to be more responsive to skill demand. Industry’s role is to lead the process of defining the required National Occupational Standards (NOS) through the promulgation of a National Skill Qualification Framework (NSQF) and Qualification Packs (QPs) through the sector skill councils (SSCs). Training organisations and assessment bodies will respond to the defined NOS by providing learning and assessment programs. Industry will develop clear descriptions of the skills and knowledge required to perform different tasks in the workplace.

The National Policy for Skill Development and Entrepreneurship, 2015 reiterates the idea of “One Nation One Standard” to ensure that national standards and quality for skilling are globally aligned and learning outcomes are consistent.

Standards-based training and assessment shifts training away from traditional theory-based approaches to practical delivery and assessment that emphasises the achievement and demonstration of skills required to perform at a specified standard demanded by industry.

The accurate expression of industry’s workplace performance needs through NOS and QPs is a cornerstone of an occupational standards-based training and assessment system. This manual establishes the protocols for creating NOS and QPs, and for defining validation and approval. It aims to support SSCs to ensure the quality of the QPs and NOS developed; along with the National Skill Development Corporation (NSDC) and National Skills Qualifications Committee in their quality control and endorsement processes. More recent developments such as preparation of Q-Files are not covered in this document.

This manual was prepared by E&Y for the Government of India with technical assistance from the Asian Development Bank (ADB) under ADB Technical Assistance (TA) No. 8010-IND: Skill Development for Inclusive Growth. The Department of Economic Affairs under the Ministry of Finance was the executing agency for this TA until October 2014. The newly established Ministry of Skill Development and Entrepreneurship (MSDE) became the executing agency with effect from November 2014. The National Skill Development Corporation (NSDC) was the implementing agency.

The TA aimed to assist NSDC in establishing one sector skills council in the services sector and another in the manufacturing sector—which are priority areas in India with significant employment and development potential—for replication across sectors.
PART I: Before You Begin

In this part:
- Purpose of this Manual
- What are National Occupational Standards?
- What are Qualification Packs?
- Alignment with the National Skills Qualifications Framework

Purpose of this Manual

This manual establishes the protocols for creating National Occupational Standards (NOS) and Qualification Packs (QPs) and for defining the process of validation and approval. It is meant to support sector skill councils (SSCs) to assure quality of the QPs and NOS they develop, as well as the National Skill Development Corporation (NSDC) in its quality control and endorsement processes.

The intended users of this manual are industry players in their human resources and hiring processes, TVET providers for alignment of curriculum and courses, and assessment agencies that would carry out the assessments based on these standards. This manual will also provide valuable guidance to policymakers.

This manual covers the following stages:

- Stage 1: Developing Project Governance
- Stage 2: Scoping the Industry
- Stage 3: Preparing National Occupation Standards with Sector Expert Group
- Stage 4: Gaining Qualifications Registration Committee Approval
- Stage 5: Supporting the Implementation of NOS
- Stage 6: Reviewing National Occupational Standards
- Stage 7: Evaluating National Occupational Standards

This manual uses the following references:

(i) Notification of the National Skills Qualifications Framework (27 December 2013)
(ii) National Policy for Skill Development and Entrepreneurship, 2015
The process of developing and reviewing NOS follows the cycle below (Figure 1).

**What are National Occupational Standards?**

National Occupational Standards specify the standard of performance individuals must achieve when carrying out a function in the workplace, and the knowledge and understanding they need to meet that standard consistently. Each NOS must be a concise and readable document, usually consisting of a few pages. Each NOS defines one key function in a job role. NOS are used for two main purposes:

(i) to develop curriculum for the delivery of training, and
(ii) to develop instruments and tools for the assessment and certification of learners.

To be suitable for those two purposes, it is essential that NOS contain sufficient information for curriculum writers, instructional designers, and assessment tool developers to ensure consistency between training providers and assessment bodies.

In addition, NOS can be used by industry partners as the platform for almost any other aspect of human resource management and development, for example, workforce planning, including organisational design and developing career pathways; performance appraisal and development systems; job descriptions; workplace coaching; and reflective practice.

**Figure 1: The National Occupational Standard Development Cycle**

- Functional analysis and other development methodologies
- Identification of existing NOS
- Development of NOS followed by industry validation
- Approval of NOS
- Maintaining relevance and currency of NOS
- Research and analysis of sector and/or occupation needs

NOS = National Occupational Standard.
Source: National Skill Development Corporation.
As the name suggests, NOS are national because they apply to the whole of India. NOS can only be developed by recognised SSCs. When SSCs research and write NOS, they must involve key stakeholders and there must be evidence of wide support before NOS are approved. NOS are representative of a sector that is useful for all companies. NOS are developed by involving a representative sample of organisations in the occupation to which the NOS apply. This will include micro, small, medium, and large organisations, and both the organised and unorganised sectors.

NOS are occupational because they define all the key functions someone should be able to carry out in an occupation—for example, in agriculture, management, construction, healthcare, or production engineering.

Because they describe occupational functions, NOS are designed by analysing an area of work, mainly using the input of employers and others who have a close interest in the occupation such as practitioners, professional bodies, trade associations, or licensing bodies where relevant. How to do this analysis is covered in Part III of this Manual, in particular Stage 2.

NOS are standards because they describe not just the essential activities that people in an occupation must be able to do, but also cover the outcomes they must achieve. As standards, NOS are measurable and identify the acceptable standard of performance required. They need official approval by the NSDC Qualifications Registration Committee (QRC) composed of chief executives of SSCs and one representative of NSDC.

NOS cannot be varied until they have been through official review, updating, and reapproval. In addition, NOS require approval by the National Skills Qualifications Committee (NSQC), which is established as part of the National Skills Qualifications Framework (NSQF).

Like all standards, NOS must be kept up-to-date. Once they are developed and published, their use should be monitored by the SSCs and incrementally changed over time.

NOS do not describe the procedures necessary to perform a particular role. Rather, each NOS describes a specific work activity, and the knowledge and skills required to perform the activity in a competent manner.

By examining various aspects of the NOS, training organisations and assessing bodies will be able to understand the following:

(i) work activity and what it involves,
(ii) particular skills (and level of skills) that are needed to perform the work activity,
(iii) conditions under which the work activity may be conducted,
(iv) evidence that is needed to demonstrate that a person is competent in the work activity,
(v) knowledge and skills that are required to perform the work activity,
(vi) generic work skills that are needed,
(vii) evidence that should be gathered to demonstrate competency, and
(viii) resources that may be needed to gather the evidence.

A fuller description of the components of NOS is found in Appendix 10.

Taken together, NOS describe occupational competence. Competency is the consistent application of knowledge and skill to the standard of performance required in the workplace. It embodies the ability to transfer and apply skills and knowledge to new situations and environments. Competency focuses on the outcome of the application of skills and knowledge as opposed to the activity undertaken.
NOS include knowledge and understanding of facts, principles, and methods that ensure that the person who measures up to the standard can be effective in other organisations, related job roles, and work contexts and be better placed to deal with the unusual or unexpected.

What are Qualification Packs?

A Qualification Pack (QP) defines the set of NOS that are aligned to one job role. The components and required fields in a QP are detailed in Appendix 9.

Some NOS may include QPs of multiple job roles or multiple industries. Examples of such NOS are customer service, work safety, working in a team, and supervising work.

Alignment with the National Skills Qualification Framework

The NSQF organises qualifications according to a series of level descriptors covering knowledge, skills, and aptitude. On 27 December 2013, the NSQF was published, superseding existing frameworks such as the National Vocational Qualification Framework and the National Vocational Educational Qualification Framework. Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are

(i) process,
(ii) professional knowledge,
(iii) professional skill,
(iv) core skill, and
(v) responsibility.

The NSQF requires that when developing QPs and NOS, SSCs must identify a corresponding NSQF level using the NSQF level descriptors, and that this information should be included in the NSQF level field in the QP (see Appendix 9).

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PART II: Overview of Stages in Developing Qualification Packs and National Occupational Standards

Developing Project Governance
- Appoint NOS subcommittee
- Issue Request for Proposal to contractors and consultants
- Manage stakeholders
- Appoint subject matter expert groups to undertake stakeholder analysis and planning and sector expert group to advise on content

Scoping the Industry
- Prepare industry occupational map
- Agree on priority area
- Undertake functional analysis

Preparing National Occupational Standards
- Prepare first draft with sector experts
- Get industry validation through industry network
- Post notification of drafts for comment on the SSC website
- Analyze feedback and prepare final draft
- Follow SSC quality assurance process

Gaining National Endorsement
- Prepare case for approval and submit to NSDC
- Undertake quality control
- Convene Qualifications Registration Committee
- Make the QP or NOS available for final comment on the website
- Enter the QP or NOS into the national register

Supporting Implementation of the NOS
- Plan the implementation of NOS
- Provide access to NOS
- Promote the NOS

Reviewing the NOS

Evaluating the NOS
- Gather information on the use of the NOS
- Record feedback on the NOS
- Evaluate impact
Stage 1: Developing Project Governance

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<th>Who</th>
<th>Description</th>
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<td>1.1</td>
<td>SSC Governing Council</td>
<td>Appoint NOS subcommittee</td>
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<tr>
<td>1.2</td>
<td>SSC Governing Council</td>
<td>Issue Request for Proposal to contractors</td>
</tr>
<tr>
<td>1.3</td>
<td>SSC Governing Council</td>
<td>Manage stakeholders</td>
</tr>
<tr>
<td>1.4</td>
<td>NOS subcommittee</td>
<td>Appoint subject matter expert groups</td>
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Stage 1.1: Appoint subcommittee of the SSC Governing Council

The SSC Governing Council (SSC-GC) must appoint an NOS subcommittee to guide the NOS development process by undertaking a quality assurance and quality control role. This means that the subcommittee will ensure that appropriate people have been consulted in the drafting and validation stages, and that the draft NOS meets appropriate technical standards as detailed in this manual. Box 1 presents draft terms of reference for NOS, accreditation, and certification.

The chair of the NOS subcommittee is nominated by the chair of the SSC-GC. The NOS subcommittee may comprise

(i) a member of the SSC-GC,
(ii) industry representatives,
(iii) sector experts, and
(iv) training providers.
Stage 1.2: Issue Request for Proposal to contractors

The SSC-GC and/or subcommittee are required to issue a Request for Proposal or Request for Tender to seek vendor proposals and identify contractors for developing NOS. They will evaluate responses and engage the successful company.

An example of a Request for Proposal is available on request from the Head of Standards and Quality Assurance, NSDC.

Stage 1.3: Manage stakeholders

The NSDC has laid down the composition of stakeholder groups for each SSC. SSCs and NOS developers must effectively manage stakeholders during the development, validation, and endorsement process. Some useful activities to undertake in this regard include the following:

(i) Identify the key stakeholders to inform them of the project, seek advice of key stakeholders on membership of the subject matter expert groups to develop the business case for NOS development, and get industry engagement.
(ii) Identify a representative sample of business leaders, designated industry representatives, and employers to engage in NOS development.
(iii) Identify other key stakeholders who could be helpful in the development process, e.g., training providers.
(iv) Inform people about the project through e-mails, website, etc.
(v) Actively consult to elicit comment on drafts; for example, hold face-to-face workshops in relevant locations around India.
(vi) Make drafts available on the SSC website together with a structured feedback tool that poses key questions about the QP-NOS for consultation.
(vii) Collect and listen to feedback on drafts.
(viii) Identify issues and keep an Issues Register so that the resolution of issues raised may be tracked and reported back to industry.
(ix) Consolidate feedback and issues for consideration and advice of subject matter expert groups; and
(x) Use visits to sample work sites to conduct detailed testing of the draft qualifications and content of NOS.

Box 1: Sample Terms of Reference for a Subcommittee

- Advise the sector skills council (SSC) to prepare request for tender or proposal criteria, to be used for selection of a contractor
- Advise the SSC to select and finalize a contractor per the prepared request for tender or proposal criteria
- Advise and guide contractor on job roles for which National Occupational Standards (NOS) are to be prepared
- Advise and guide contractors to identify stakeholders for each Qualification Pack (QP) project and to develop a stakeholder management plan and industry engagement plan for implementation by SSC staff and contractor
- Provide inputs and/or expert advice to contractor to develop draft NOS and QPs for identified job roles
- Quality assure the draft NOS and QPs prepared by the contractor to ensure that they meet NSDC requirements
- Finalize the NOS and QPs prepared by the contractor

*The term “contractor” is used rather than “consultant.” Consultants provide advice; contractors provide services (in this case, to develop the product).
Each SSC must ensure that its NOS are formed by a representative sample of relevant employers from across India appropriate to the demographics of the sector, as these stakeholders comprise the forum for validation of NOS. Additionally, SSCs should take into account the needs of other key stakeholders.

The purpose of the consultation is twofold: to inform them of the process and outcomes (as part of an awareness raising process); and to gain access to employers or companies in their network to assist in the development and validation process.

NOS describe the standards of performance required in the workplace and must therefore be informed by what constitutes good practice. It is particularly important for the SSCs to develop strategies to engage with the unorganised sector, which represents 93% of the Indian workforce.²

NOS should also take account the views of other key stakeholders, such as:

(i) ministries in related sectors;
(ii) trade bodies;
(iii) professional bodies;
(iv) statutory bodies, including qualifications regulators;
(v) groups working on gender and inclusion;
(vi) other SSCs whose footprints cover sectors or occupations where the same or similar functions are carried out;
(vii) assessing and awarding bodies; and
(viii) education and training providers.

Further guidance on stakeholder management and engagement processes including a template for an Issues Register is included in Appendix 3.

**Stage 1.4: Appoint subject matter expert groups**

NOS developers should use job experts to provide technical content that will inform the development of the qualifications, and provide advice on conducting functional analyses and other development processes. A subject matter expert group is an advisory group and does not have any decision-making role. It is composed of expert practitioners with representation from the supervisory or management level; as well as small, medium, and large organizations.

Subject matter expert groups are convened throughout the NOS drafting process to allow industry input and recommendations. Initial meetings provide direction for development of initial drafts, while follow-up meetings discuss and validate feedback received from the general public, and formulate recommendations on content revision of key decisions.

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Stage 2: Scoping the Industry

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<th>Description</th>
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<tr>
<td>2.1</td>
<td>Contractor</td>
<td>Prepare industry occupational map</td>
</tr>
<tr>
<td>2.2</td>
<td>NOS subcommittee</td>
<td>Agree on priority areas</td>
</tr>
<tr>
<td>2.3</td>
<td>Contractor</td>
<td>Undertake functional analysis</td>
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Stage 2.1: Occupational map and functional analysis

Before you can begin to develop NOS, you must have a clear picture about for whom they are being developed. This will ensure quality and fit-for-purpose outcomes.

The first step is to identify the occupations that make up a sector, and with the assistance of a facilitator, develop an occupational map. (An example of an occupational map is in Appendix 3.) Even if you are looking at a single occupation, there are still likely to be different areas of specialization within it, which in large organizations might result in different job titles or categories.

Deciding on these titles is often not easy because different organizations use a range of different job titles. However, by bringing representatives of the sector together and encouraging them to think about typical organizational structures and functions, it is usually possible to develop a list of commonly agreed functional titles. Once these titles are clear and agreed, it may be helpful to collect a range of illustrative job descriptions (also called job profile) that will provide further background information for the functional analysis and NOS development.

The technique is used to identify job roles and progression, movement within the industry, and movement into and out of the sector. This process also involves identifying trends and current and future drivers of change. Additional secondary sectoral information is sourced to provide a fuller picture of the careers and progression points in the sector. This information will then be written up as a report.

The following information will usually be covered in occupational mapping:

(i) Size and profile of its sector and/or occupation, subsectors, and geographical location of organizations and workers.
(ii) Types of occupations within the sector and anticipated changes in employment patterns.
(iii) Links between the sector and/or occupation and other sectors and occupations.
(iv) Key trends, developments, and drivers within the sector and/or occupation.
(v) Opportunities for progression and typical career routes.
(vi) Employers and other key stakeholders.

It should be noted that the organisation of work will vary between the organised and unorganised sectors. In the unorganised sector, job roles may be very specific or they may be multi-skilled. It is important that all the job roles that comprise occupations within a sector are identified (Figure 2).
Functional analysis is one of the main tools used to define the nature of an occupational sector and the functions performed within it. This is an essential process in defining occupational competence and in setting boundaries between different occupations. A detailed functional analysis establishes the unique contribution of each occupational area—what makes it different from all others. This is essential to ensure that all primary (main) and secondary (sub) functions are identified, i.e., the relationship between them is clearly established and the direct contribution that they make to the global purpose of the sector is understood. The functional map helps to understand where one occupational area ends and another begins. More information on the concept of occupational competence is found in Appendix 11.

Functional analysis also allows getting to a level of specific activity that allows the definition of occupational competence through the creation of new or adoption of existing NOS. NOS describe what employees in any occupation should be able to do, the standard they should achieve, and the knowledge and understanding they need.

“Functions” means the activities a person is expected to do as part of their job. Functions are not random activities and must have a clear purpose and outcome that are valuable to an employer. Once the functions that people are expected to perform are identified, it becomes easier to identify the standard they should achieve and the knowledge they need. Functional analysis allows the breakdown of any area of work until we see the functions that individuals are expected to perform; in other words, what people need to do. Once these functions are identified, we can work with employers to agree on further content of the NOS.

An example functional analysis format is in Appendix 6.
**Stage 2.2: Agreement on priority areas**

The second step is bringing the sector stakeholders back together to identify the priority areas for NOS development. Using group facilitation techniques, such as the modified nominal group technique (NGT), are very useful for this step. Participants work through the report and once agreement on the priority areas has been reached, then the third step can commence.

The NGT is a structured variation of a small-group discussion to reach consensus. NGT gathers information by asking individuals to respond to questions posed by a moderator, and then asking participants to prioritize the ideas or suggestions of all group members. The process prevents the domination of the discussion by a single person, encourages all group members to participate, and results in a set of prioritized solutions or recommendations that represent the group’s preferences.

There are five stages in the NGT process.

1. **Opening statement.** This statement clarifies member roles and group objectives, and should include: welcome remarks, a statement of the importance of the task, a mention of the importance of each member’s contribution, and an indication of how the group’s output will be used.

2. **Generating ideas.** The moderator presents the question or problem to the group in written form and reads the question to the group. In this case the report has identified areas for NOS development and the task is to prioritize each of the areas using importance and urgency as the criteria. The moderator directs everyone to assign high, medium, or low for each area for both importance and urgency. You may wish to prepare a matrix as the one below for participants to complete. Each person confidentially generates his or her matrix.

<table>
<thead>
<tr>
<th>Importance/Urgency</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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<tr>
<td>Low</td>
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<td>Medium</td>
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<td></td>
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<tr>
<td>High</td>
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3. **Recording ideas.** Group members engage in a round-robin feedback session to concisely record each person’s priority areas (without debate at this point). A moderator writes each priority area from a group member on a matrix on a flip chart that is visible to the entire group, and proceeds to the next group member, and so on. It may be useful to use colored pens to record and tally. Proceed until all members’ priority areas have been documented.

4. **Discussing ideas.** Each recorded priority area is then discussed to determine clarity and importance. For each idea, the moderator asks, “Are there any questions or comments group members would like to make about the item?” This step provides an opportunity for members to express their understanding of the logic and the relative importance of the item.

5. **Voting on ideas.** Individuals vote privately to prioritize the areas. The votes are tallied to identify the ideas that are rated highest by the group as a whole using importance and urgency as the criteria. To start, each group member selects the five most important items from the group list and writes one idea on each index card. Next, each member ranks the five ideas selected, with the most important receiving a rank of 5, and the least important receiving a rank of 1.
After members rank their responses in order of priority, the moderator creates a tally sheet on the flip chart with numbers down the left-hand side of the chart, which correspond to the ideas from the round-robin. The moderator collects all the cards from the participants and asks one group member to read the priority area number and number of points allocated to each one, while the moderator records and then adds the scores on the tally sheet. The priority areas that are the most highly rated by the group are the most favored.

**Stage 2.3: Undertake functional analysis (detailing functions)**

The third step involves bringing together practitioners and their direct supervisors. A practitioner is the person doing the job. The process begins with thinking about the key purpose of jobs and roles chosen for NOS development, i.e., the function of the jobs and roles in outcome terms. The question is, What needs to happen for this key outcome to be achieved? Answering this question is a process of breaking down the key outcomes into smaller components or competencies.

Functional analysis is the primary tool for development of NOS; however, the use of one or two other development methodologies from the “toolkit” may be useful, such as interviews with job holders, critical incident technique, and observation. This use of combined techniques will ensure that the four dimensions of competency are covered: task skills, task management skills, contingency management skills, and job or environment skills.

At each stage of the analysis, care must be taken to delineate whole work roles—technical skills, contingency management, task management, and interaction with the environment. This process continues until units and elements of the competence are reached. Analysis ceases when it is obvious that an informed person reading the description would clearly understand the outcome of the activity being described.

Detailed guidance on undertaking functional analysis is included in Appendix 4.

**Stage 3: Preparing National Occupational Standards with Sector Expert Group**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Who</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Contractor</td>
<td>Prepare draft 1 with Sector Expert Group</td>
</tr>
<tr>
<td>3.2</td>
<td>Contractor and SSC</td>
<td>Industry validation through industry networks</td>
</tr>
<tr>
<td>3.3</td>
<td>SSC</td>
<td>Notification of drafts for comment on SSC website</td>
</tr>
<tr>
<td>3.4</td>
<td>Contractor</td>
<td>Analyse feedback and prepare final draft</td>
</tr>
<tr>
<td>3.5</td>
<td>NOS subcommittee</td>
<td>SSC Quality Assurance process</td>
</tr>
</tbody>
</table>

Once an occupational map is developed, career pathways can be charted. The next phase is to develop the NOS that are required for each of these job roles. By developing an occupational map, one can cover all the occupational standards required within a sector, and start identifying possible structures for meaningful QPs, i.e., a QP can be understood by employers and reflects what actually occurs within a sector.

Once these natural or actual pathways are identified and occupational standards developed, there is normally a progression of skills and knowledge development that matches academic skill and knowledge development.
Once the process of mapping actual career pathways is complete and the content of what is required on the job (occupational standards) are determined, then possible qualification paths can be established.

**Stage 3.1: How to write National Occupational Standards**

The NSDC template for NOS is in Appendix 10. Developers must check the NSDC website (www.nsdcindia.org) and download the latest version of the templates when they are about to commence writing NOS. As part of continuous improvement, the NSDC updates templates as the system evolves.

1. Meeting current and future industry skills needs

A key aspect of the content of NOS is that they should provide the basis for skills formation now and into the future. Industry skill requirements change over time and sometimes those changes can be quite rapid; for example, when technology and workplace practices change.

NOS should capture the ability to apply skills in new situations and changing circumstances, rather than reflect only the current situation. One way of identifying current and likely future workplace changes and the impact these may have on skill requirements is by benchmarking the competencies within India or internationally.

2. Length of NOS

It is difficult to generalise what is an appropriate length for a NOS. It must be useful and manageable for the purposes of training, recognition, and assessment. It must reflect the complexity of skills and knowledge, or the range of activities undertaken. These will vary.

Factors such as the apparent importance of discrete functions within an industry, or the time required for training, are not appropriate indicators of NOS size. Care should be taken not to have widely different approaches to the size of units in the same QP or industry sector.

It is more useful to focus on the uses of the NOS and the relative breadth required for flexible job construction as they are developed. However, a NOS must not be so broad that it contains functions that would not normally all be completed by one person, as competency in that unit could not normally be achieved.

**EXAMPLES**

**NOS: Operate construction equipment**
The scope of this NOS is too wide to enable recognition and transferability of relevant skills and knowledge. Similarly, it is possible to construct units that will be too narrow.

**NOS: Operate drill**
The focus of this NOS is too narrow. A solution may be to divide the unit of competency into broad categories of equipment (say “Use hand tools”) to achieve appropriate size.

**NOS: Use the telephone**
The NOS is too narrow to describe a range of skills and knowledge useful for the recognition of competency and for assessment. A more comprehensive communication unit may better provide scope, for example, “Communicate in the workplace.”
The major components of an NOS are the (i) title, (ii) description, (iii) scope, (iv) elements and performance criteria, and (v) knowledge and understanding.

(i) NOS title

The title concisely describes the standard outcome or work function.

This should be phrased as Verb + object + modifying phrase(s) (if required)

**EXAMPLE**

Analyse and determine remedial action for continuous production process problems.

(ii) Description

The NOS description should expand on the information in the unit title—providing clear and accurate information on the purpose and intent of the unit. The description succinctly captures what the learner will know and be able to do upon achievement of the standard.

The description is provided for information purposes only and should not be used for assessment purposes.

The aim of the description is to rapidly indicate to the reader what the NOS is about and who it is for. It should therefore be as clear and concise as possible and should not seek to provide a summary of the full content of the NOS.

Each NOS description should commence with consistent wording, for example, “This unit describes the outcomes required to...” This is followed by a brief statement defining the focus of the unit of competency.

(iii) Scope

The scope section briefly describes how the NOS is practically applied in the industry and in what context(s) the NOS may be applied. It includes a summary statement of the unit’s content. The summary statement of unit content will form the elements of the standard. Developers should ensure that the scope is consistent with the elements.

The scope also contains focused, useful information on how and where the unit of competency could be practically applied and who might use it. Finally, the scope identifies the relationship of the NOS to any licensing, legislative, regulatory, or certification requirements.

Elements and Performance Criteria

Elements of competency are the basic building blocks of the NOS and as such continue the key purpose of the NOS itself. Elements describe in outcome terms the lowest logical, identifiable, and discrete subgroupings of actions or outcomes that a person is required to demonstrate competency.

The elements describe, in outcome terms, the functions that a person who works in a particular area of work is able to perform—actions or outcomes that are demonstrable, measurable, and assessable.

Elements subdivide the NOS into manageable and meaningful components that are observable in workplace performance. Elements can provide structure to a complex function and break up long lists of performance criteria by presenting them in logical sections. Elements provide the context for the performance criteria.
Developers should write in the imperative voice for the elements, that is, commence with a verb before the subject and make the statement precise and direct. For example, “Confirm site access and conditions.” Avoid commencing with words such as “You will be able to...” as these do not add value.

Avoid task lists. It is not useful to develop elements that simply list the tasks or duties associated with the workplace function. This may generate NOS that overlook the diversity and complexity of the range of skills and knowledge required in the workplace.

A simple procedural listing of tasks is unlikely to capture management of the contingencies that arise in day-to-day workplace activity. It could also tightly link the NOS with particular processes, technologies, or forms of work organization, which may change.

EXAMPLES

Consider the following elements. The elements simply reflect the tasks associated with the unit and have a limited focus on outcomes.

**NOS: Review training**
Elements:
- Trainees’ reaction to training session sought
- Review trainer’s performance against objectives
- Summarize review comments
- Record details of trainees who have completed training
- Complete other records as required by legislation or organization
- Secure record appropriately
- Provide information to management on proposed training, as required
- Provide information to prospective trainees
- Provide information on appropriate training to employees

**NOS: Help customers choose products that meet their needs**
Elements:
- Find out which product features and benefits interest individual customers and focus on these when discussing products
- Describe and explain relevant product features and benefits to customers
- Compare and contrast products in ways that help customers choose the product that best meets their needs
- Check customers’ responses to explanations, and confirm their interest in the product
- Encourage customers to ask questions and respond to their questions, comments, and objections in ways that promote sales and goodwill
- Identify suitable opportunities to tell the customer about associated or additional products
- Constantly check the store for security, safety and potential sales while helping customers

**NOS: Check customer’s preferences and buying decisions when making sales**
Elements:
- Give customers enough time to evaluate products and ask questions
- Handle objections and questions in a way that promotes sales and keeps the customer’s confidence
- Identify the need for additional and associated products and take the opportunity to increase sales
- Acknowledge the customer’s buying decisions
Generally, there should be between three and five elements. More than five may indicate that there is more than one purpose that the standard is trying to address. Fewer than three may indicate that the purpose of the standard is too narrow.

The specific outcomes together reflect and capture the purpose of the unit standard in ways that are measurable and verifiable.

Specific outcome statements focus on competence outcomes and avoid describing specific procedures or methods used in the demonstration of competence. This ensures that NOS have broad and inclusive applicability; avoid frequent review and overhaul because of procedural or methodological shifts in tendencies; and focus on competence outcomes for learning and performance, not descriptions of tasks or jobs.

Meanwhile, if specific outcome statements avoid evaluation where possible, performance criteria are evaluative statements that specify the required level of performance. The performance criteria describe how we know that a learner is competent (“We will know that you are competent to ... if or when...”). Performance criteria describe the performance needed to demonstrate achievement of the element to the level acceptable in employment.

(i) Performance criteria must always be viewed within the context of the overarching element.
(ii) Performance criteria should be written in the form: Verb + noun + possible modifying phrase(s)
(iii) Each performance criterion should start with an active verb in the second person singular and follow the introductory phrase: "You must be able to...."

Developers should ensure that respect for diversity is captured in performance criteria where appropriate.

Where there is a product, the performance criteria for the product may include:

(i) accuracy,
(ii) finish and/or presentation,
(iii) completeness (written information),
(iv) legibility (written information),
(v) clarity (written or spoken information), and
(vi) availability for use or location.
Where work organisation or work role is critical, the performance criteria for the way work is carried out may include:

(i) time, speed, or rate;  
(ii) schedule;  
(iii) procedures involving processes or methods;  
(iv) cost effectiveness;  
(v) user specifications or needs;  
(vi) optimisation of resources;  
(vii) health and safety;  
(viii) hygiene;  
(ix) confidentiality or security;  
(x) dress or appearance;  
(xi) language and behaviour; and  
(xii) creation and maintenance of effective relationships.

**EXAMPLE**

Analyse and determine remedial action for continuous production process problems.

- Analyse remedial action for ...
- Determine the ...

To sum up, performance criteria must clearly relate to and demonstrate achievement of the element. It is important to remember the following:

(i) They are measurable and identify the acceptable standard of performance required.  
(ii) They specify the required performance in relevant tasks, roles, and skills.  
(iii) They reflect the applied knowledge that enables competent performance.  
(iv) Knowledge and Understanding

The application of knowledge is often key to the transferability of competency to new situations, and needs to be assessed to ensure the person understands the “why” as well as the “how.” Clear articulation of the required knowledge will support training and assessment of the NOS. However, while knowledge should be expressed in units, elements and performance criteria should not be entirely knowledge-based unless a clear and measurable workplace outcome is described.

**Knowledge in NOS**

(i) should be in context;  
(ii) should only be included if it refers to knowledge actually applied in the workplace and indicate the type and depth of knowledge required to meet the demands of the NOS;  
(iii) could be referred to in the performance criteria and evidence guide in the QP;  
(iv) specify what the individual must know and understand in order to safely and effectively perform the work task described in the unit of competency; and  
(v) relate directly to the PC.
Knowledge is divided into two categories: organisational context (knowledge of the company or organisation and its processes) and technical knowledge.

**EXAMPLE**

**Organizational Context (knowledge of the company or organisation and its processes)**

The user or individual on the job needs to know and understand:

KA1. abc

**Technical Knowledge**

The user or individual on the job needs to know and understand:

KB1. Xyz

(i) Creating assessment criteria for NOS and QP

After the NOS is finally validated by the stakeholders, assessment criteria would be created for the NOS. This would allow a standard set of metrics to be used, whenever assessment is done on the NOS.

Assessment criteria allow the SSC to assign weights to each performance criterion within the NOS, and also mandate the weightage between theory and practical for each criterion. The SSC also indicates what would be marks for qualifying in each NOS, and thus the QP.

(ii) Process for importing NOS

In order to prevent proliferation of NOS covering the same or similar functions and to maximise the transferability of competence from one sector to another, it is important that the SSCs developing the NOS check the QP-NOS Repository in the NSDC website and other SSCs’ websites. If necessary, SSCs must coordinate with other SSCs to see if NOS already exist that may cover the functions identified in the functional map, or whether another SSC is currently in the process of developing relevant NOS. In particular, these NOS may cover transferable functions, such as plan and manage own work, work as a member of a team, communicate with stakeholders, take decisions, contribute to health and safety at work, or contribute to improving quality.

Existing or draft NOS that are potentially relevant should be evaluated by the SSC developing the NOS and its stakeholders, to see whether they do indeed describe the standard of performance required by the sector, occupation, or area of work covered by the functional map. If they do, they may be imported or suitably tailored, with the agreement of the originating SSC. If the NOS are still in development, it may be possible to influence the content of the NOS so that they can be imported without any tailoring (Table 1).

<table>
<thead>
<tr>
<th>Situation</th>
<th>Condition</th>
<th>Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>When the adopting SSC adopts the QP entirely</td>
<td>QP and NOS names and numbers will be retained as suggested by the originating SSC. Assessment and certification will be by user SSC on the same name and nomenclature as prescribed by the originating SSC, using the same assessment tools.</td>
</tr>
</tbody>
</table>
### Table: National Occupational Standards Development Process

<table>
<thead>
<tr>
<th>Situation</th>
<th>Condition</th>
<th>Policy</th>
</tr>
</thead>
</table>
| **2**     | Where adopting SSC adopts only a few NOS entirely from a QP | A new name and number will be given to the QP.  
NOS numbers created by the originating SSC will be retained.  
Assessment and certification by the user SSC for common NOS, using the same assessment tools. |
| **3**     | Where existing NOS inadequately describe a function and the adopting SSC adopts NOS but modifies them, according to sector requirements | New names and numbers will be given to both QP and NOS.  
Assessment and certification by the user SSC. |
| **4**     | When a few NOS are adopted from a QP, plus new NOS are developed and added, per sector requirements | New name and numbers will be given to QP.  
NOS numbers will be retained if NOS are adopted entirely.  
Assessment and certification by the User SSC.  
For common NOS, assessment would use the same assessment tools as originating SSC. |

NOS = National Occupational Standard, QP = Qualification Pack, SSC = sector skill council.
Source: National Skill Development Corporation.

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**Stage 3.2: Industry validation through industry networks**

The next stage is to take the draft NOS and QPs through wide industry validation to ensure that they accurately reflect the needs of the sector. Further guidance is included in Appendix 3. A sample feedback consultation and validation template is included in Appendix 6.

Once the feedback is collected, it must be collated and analyzed by the contractor. Proposed changes must be taken back to the sector expert group for consideration. Once this group has evaluated the feedback, the contractor will prepare the next draft incorporating the agreed changes.

The expert group will then consider the draft and recommend to the NOS subcommittee of the SSC-GC that the consultation draft be uploaded on the SSC website for further sector feedback for the prescribed period.

**Stage 3.3: Notification in the SSC website**

Once the final draft is approved by the NOS subcommittee of the SSC-GC, the product is to be posted on the SSC website as open for sector comment for a period of 1 month.

**Stage 3.4: Final review of feedback**

Any further feedback collected through the website notification process must be collated and analyzed by the contractor. Proposed changes must be taken back to the sector expert group for consideration. Once the expert group has evaluated the feedback, the contractor will prepare a final document incorporating the agreed changes.
**Stage 3.5: SSC quality assurance process**

The NOS subcommittee of the SSC-GC is required to undertake a formal quality assurance process before submitting the QP-NOS to the NSDC.

The required Quality Assurance Checklist is included in Appendix 8. The chair of the NOS subcommittee of the SSC-GC is required to certify that the required quality assurance processes have been undertaken.

**Stage 4: Gaining Qualification Registration Committee Approval**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Who</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>SSC</td>
<td>Prepare case for approval and submit to NSDC</td>
</tr>
<tr>
<td>4.2</td>
<td>NSDC QRC Secretariat</td>
<td>Undertake quality control process</td>
</tr>
<tr>
<td>4.3</td>
<td>NSDC QRC Secretariat</td>
<td>Convene Qualifications Registration Committee</td>
</tr>
<tr>
<td>4.4</td>
<td>NSDC QRC Secretariat</td>
<td>Make QP or NOS available for final comment on website</td>
</tr>
<tr>
<td>4.5</td>
<td>NSDC QRC Secretariat</td>
<td>Enter QP or NOS into National Register</td>
</tr>
</tbody>
</table>

Stage 4 is the final quality control process before QP-NOS receive Qualification Registration Committee (QRC) approval.

SSC-GCs and the QRC at NSDC have key roles in assuring the quality of NOS and QPs to ensure that they meet the sector’s needs.

**Stage 4.1: Prepare and submit the case for approval**

Each SSC-GC will create a subcommittee for approval of NOS and QPs. The subcommittee will determine the number of large, medium, and small employers who will endorse the NOS and QPs (minimum 10 employers per category). It is critical that the SSCs have appropriate feedback tools that ask the right questions to elicit quality feedback on content of NOS.

A sample feedback consultation and validation questionnaire is in Appendix 6.

The SSC is responsible for ensuring that the NOS contains quality industry content; that technical quality of the NOS text is in accordance with the guidance provided in this manual; and that the templates are appropriately populated.

The NOS and QPs will be endorsed by employers as laid down, approved by the subcommittee and sent to QRC at NSDC.

(i) SCs are required to follow the processes outlined in this QP-NOS Development Manual.
(ii) The SSC is required to complete the Development of QP/NOS: Quality assurance checklist for SSCs (see Appendix 8) and the chair of the board NOS subcommittee is required to certify.
(iii) The SSC is required to provide a “Case for Approval of the QP(s)” when it submits the QP-NOS to NSDC.
Box 2 is the format for NOS and QPs submitted for approval.

Box 2: Format of Case for Approval

The required minimum content of any National Occupational Standard or Qualification Pack submitted for approval includes the following.

1. Sector Details
   - Profile of the sector
   - Size of the sector
   - Details of the subsector
   - Geographical locations from where workers hail
   - Links between sectors and/or occupations and other sector occupations
   - Key trends, developments, drivers within the sector

2. Information about the Workforce
   - Types of occupations within the sector
   - Typical age band of:
     - Entry-level workforce
     - Junior management
     - Middle management
     - Senior management
   - Average age of workforce
   - Gender-disaggregated data
   - Opportunities for progression
   - Typical career routes
   - Anticipated changes in the employment patterns
   - Learning opportunities which can enhance qualifications of workers

3. Stakeholder Engagement
   - Identification of key stakeholders in the sector
   - Approval of governing council on the classification of small, medium, and large companies for NOS development
   - Concurrence of employers who have agreed to participate in NOS development
     - Large: 10 employers minimum
     - Medium: 10 employers minimum
     - Small: 10 employers minimum
   - Details of the industry consultation and validation undertaken
     - Details of workshops conducted with attendance sheets and a record of outcome
     - Details of meetings held with employers with attendance sheets and a record of outcome
     - Summary of feedback forms received from public notification and details of action taken on feedback
     - Copy of the SSC Issues Register in relation to the project and detail of how issues have been resolved
     - Evidence of industry and/or sector employer support for the endorsement of the QP and NOS

4. Occupational Mapping
   - A copy of the relevant Occupational Map prepared by the SSC to prioritize and guide QP development.
   - See Part III Stage 2

5. Functional Analysis
   - A copy of the functional analysis prepared by the developer to guide the development of NOS
   - Detailed guidance on functional analysis is included in Appendix 4 of this manual

Continued.
Stage 4.2: Undertake quality control process

The NSDC QRC Secretariat and the QRC have key roles in ensuring that quality QP-NOS receives national endorsement.

The Qualifications Registration Committee (QRC) is an 11-member team comprising one member each from all approved SSCs and a representative from the NSDC. The constitution of the members is as follows:

(i) Ten members from NSDC-recognized SSCs that have an operating governing council and have a chief executive officer (CEO) in place. Only CEOs are eligible to be members of QRC.
(ii) One member of the QRC is co-opted from the SSC whose NOS are under review (i.e., the CEO). The engagement of this member will be only for the period that their SSC’s NOS is under QRC review. Following the review process their QRC engagement will automatically terminate.
(iii) One member of QRC is a nominated representative of NSDC from its Standards and QA team. The SSC members of QRC team will be formed by a nomination process in which all SSCs will choose the member only for that meeting.
(iv) At each meeting, the elected members will choose a chairperson of the committee to conduct the proceeding of the QRC meeting.
(v) The minimum quorum of QRC will be 60% of present QRC members or as the chairman may deem fit.

As to roles, the QRC will ensure the following:

(i) Ensure appropriateness of the recommended level of QP, per NSQF level descriptors.
(ii) Ensure that the development process is sound including consultation and validation with employers.
(iii) Ensure that the approved NSDC templates have been used and that the fields have been appropriately populated.
(iv) Where the SSC is proposing to import NOS from other sectors, review the record of any discussions and agreements with the “home” SSC.
(v) Ensure any other observation on format is observed.
(vi) It is not the role of the QRC to comment on industry content.

The QRC will consider the following:

(i) SSC case for endorsement and any associated presentation by the SSC.
(ii) Completed Development of QP/NOS: Quality assurance checklist for SSCs.
(iii) Submitted QP-NOS.
(iv) QRC Secretariat report on its review and verification activities on the submitted QP-NOS.
NSDC provides secretariat services for the QRC including taking minutes of meetings and taking action on decisions of the QRC. The QRC Secretariat provides quality assurance and quality control services for all matters referred to the QRC.

When QP-NOS and the accompanying Case for Endorsement are received by the NSDC, the Secretariat will perform the following:

(i) Review the completeness of the documentation
(ii) Review the submitted Development of QP/NOS: Quality Assurance Checklist for SSCs
(iii) Check the technical quality of 20% of the NOS submitted for compliance with the template and this Manual

**Stage 4.3: Convene Qualifications Registration Committee**

Following the document review and verification process, the QRC Secretariat document will advise the QRC members, and the QRC chairperson will convene a meeting of the QRC Team.

The QRC may seek clarification from the proposing SSC CEO and may refer matters back to the SSC for review and resubmission by specified dates. The SSC should resubmit QP-NOS to QRC for endorsement.

If the QRC decides that the QP-NOS submitted meets the quality assurance and quality control requirements, it may give provisional approval.

Box 3 presents the flow of the QRC review and approval process.

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**Box 3: Qualifications Registration Committee Process**

<table>
<thead>
<tr>
<th>Step 1: QRC Validation of QP Level and Format</th>
</tr>
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<tbody>
<tr>
<td><strong>What is the process?</strong></td>
</tr>
<tr>
<td><strong>When is it to be done?</strong></td>
</tr>
<tr>
<td><strong>Who does it?</strong></td>
</tr>
<tr>
<td>Process Owner: NSDC</td>
</tr>
<tr>
<td>Under Intimation: Proposing SSC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2: Identification of similarity between existing NOS and the OS under QRC evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What is the Process?</strong></td>
</tr>
<tr>
<td><strong>After this process, the proposing SSC will present the draft OS to QRC and seek provisional approval.</strong></td>
</tr>
</tbody>
</table>

Continued.
Box 3. Continued.

When is it to be done? This step is to be taken once QRC has done the check on the appropriateness of the QP as per level descriptors of NSQF.

Who does it? QRC with support from relevant SSCs
- Process Owner: QRC chairperson
- Approving Body: QRC quorum along with NSDC representative

Step 3: Open for Review of General Public

What is the Process? After provisional approval of QRC, NSDC and proposing SSC will upload the draft NOS and QPs on their websites for general public viewing for a month.

When is it to be done? After getting provisional approval from QRC.

Who does it? NSDC on its website and proposing SSC on its website
- Process Owner: NSDC and proposing SSC
- Under Intimation: QRC

Step 4: Finalization and Registration of NOS with the National Body

What is the Process? Proposing SSC will take the public feedback and respond to them on acceptance or rejection of the suggestion upon advice to QRC and NSDC. QRC then will promulgate the NOS and QP document and submit it to the NSDC for registration.

When is it to be done? SSC after getting public feedback

Who does it? NSDC
- Process Owner: NSDC
- Approving Body: NSDC and QRC
- Under Intimation: All SSCs

Input to QRC is the SSC draft NOS documents of which due diligence has been completed by NSDC.

NOS = National Occupational Standard, NSDC = National Skill Development Corporation, QRC = Qualifications Registration Committee, QP = Qualification Pack, SSC = sector skills council.

Source: National Skill Development Corporation.

Stage 4.4: QP-NOS final comment

The QRC Secretariat will make the provisionally approved QP-NOS available on the NSDC and the SSC websites for public feedback and comment for a period of one month. A suitable feedback tool will also be provided to encourage quality feedback.

At the end of the 1-month public feedback period, the SSC will provide a short report on the feedback received and the SSC’s proposed responses. Any amendments as a result of the public feedback will be agreed by the QRC Secretariat and the proposing SSC under delegation of the QRC.

Stage 4.5: Enter into National Register

Under delegation, the QRC Secretariat will determine that the provisionally approved QP-NOS be endorsed as National Occupational Standards and entered into the National QP-NOS Registry and made available on the appropriate website.
PART IV: Implementation, Review, and Evaluation of National Occupational Standards

In this part:
Stage 5: Supporting the Implementation of NOS
Stage 6: Reviewing National Occupational Standards
Stage 7: Evaluating National Occupational Standards

Stage 5: Supporting the Implementation of National Occupational Standards

<table>
<thead>
<tr>
<th>Stage</th>
<th>Who</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>SSC</td>
<td>Plan the implementation of NOS</td>
</tr>
<tr>
<td>5.2</td>
<td>SSC</td>
<td>Provide access to NOS</td>
</tr>
<tr>
<td>5.3</td>
<td>SSC</td>
<td>Promote the National Occupational Standards</td>
</tr>
</tbody>
</table>

Stage 5.1: Plan the implementation of the NOS

Each SSC should plan how to ensure that NOS are used effectively by its stakeholders (training affiliates, assessment bodies, employers) in its sector and/or occupation for both skills development and business outcomes.

NOS may be used for both skills development purposes (e.g., training and development, and continuing professional development) and to deliver business outcomes (e.g., productivity, cost reduction, profitability, product and/or service quality, risk reduction, safety and continuity of employment).

Each SSCs, should consider both these aspects in its planning processes.

It is most important that SSCs encourage employers and other stakeholders to identify and measure the business impacts of engaging in competency-based training. This information can be most valuable in developing case studies to promote the uptake of NOS and the skills agenda (see Stage 5.3).
**Stage 5.2: Provide access to NOS**

As a minimum, SSCs must provide access to their NOS via the NSDC website. However, SSCs may also provide access to NOS in their sector on their websites and a range of other NOS-based products (such as curriculum), services, and support to meet needs of the sector and/or occupation.

**Stage 5.3: Promote the National Occupational Standards**

Each SSC must lead the promotion of NOS and/or NOS-based products and services to stakeholders in its sector and/or occupation in ways that are consistent with agreed overarching NSDC guidance.

To ensure messages are consistent and not conflicting, each SSC must ensure that its own promotional activities for NOS and/or NOS-based products and services are aligned with this overarching NSDC guidance.

**Stage 6: Reviewing National Occupational Standards**

SSCs must keep their NOS under continuous review to ensure they are relevant and updated for their sector and/or occupation(s). SSCs are also responsible for revising NOS that need updating and deleting NOS that are no longer required so that they continue to describe current good practice and take into account social, economic, technological, or legislative developments. Where NOS need revising, the SSC should plan to revise them in order of priority as part of its business planning process.

SSCs review their NOS on a regular basis, usually within a 3-year cycle. However, if a substantial body of evidence is provided by employers that existing NOS are not meeting the needs of the sector because of changes in the occupation, earlier reviews may be facilitated. Similarly, new NOS can be developed if SSCs can demonstrate there is a gap in current provision and they can identify who and what for the NOS will be used.

**Stage 7: Evaluating National Occupational Standards**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Who</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>SSC</td>
<td>Gather information on the use of NOS</td>
</tr>
<tr>
<td>7.2</td>
<td>SSC</td>
<td>Record feedback on NOS</td>
</tr>
<tr>
<td>7.3</td>
<td>SSC</td>
<td>Evaluate the impact of NOS</td>
</tr>
</tbody>
</table>

To review NOS regularly, SSCs are expected to follow a three-stage evaluation and quality review process: (i) gather information on the use of NOS, (ii) record feedback on NOS, and (iii) evaluate the impact of NOS.

**Stage 7.1 Gather information on the use of NOS**

The first level of evaluation is to know who is using NOS and for what purpose. This provides quantitative data to gauge the depth and breadth of use. It also provides a database for gathering feedback on the NOS and a means of developing case studies on implementation.
SSCs are required to gather and analyze data from their training affiliates and assessment bodies on their activity. This information may relate to completion rates and employment outcomes (job placements). SSCs may also gather data from employers on employment of people who have completed QPs and for those existing employees who have used QPs to upgrade skills.

This provides quantitative data to gauge the depth (what percentage of organizations are using NOS trained employees) and breadth (for which range of staff) of market penetration.

It also provides a database for gathering feedback on the NOS and developing case studies of how NOS are being implemented.

**Stage 7.2 Record feedback on NOS**

The second level of evaluation is gathering and analysing feedback from users on the NOS and NOS-based products that will inform changes and developments.

SSCs should maintain a continuous improvement feedback register. This will provide valuable information for the review of NOS to ensure their currency and industry relevance.

**Stage 7.3 Evaluate the impact of NOS**

The third level of evaluation is measuring the impact of NOS on both skills development and business outcomes in the sector and/or occupation.

Each SSC must develop meaningful indicators and collect data to measure the impact of NOS on skills development and business outcomes.

This involves establishing measures and working with users to quantify the benefits and costs of using NOS and NOS-based products and services.

Understanding the potential benefits and costs is essential to making the business case for the development and implementation of NOS and NOS-based products and services.
Appendix 1: Background to the Indian Technical and Vocational Education System

Structure of India’s Vocational Education System

The Indian technical and vocational education (TVET) system is in the early stages of evolution and reform. The TVET system in India develops human resource through a three-tier system:

(i) graduate and postgraduate level specialists (e.g., IITs, NITs, and engineering colleges) trained as engineers and technologists;
(ii) diploma-level graduates who are trained at polytechnics as technicians and supervisors; and
(iii) certificate-level for higher secondary students in the vocational stream and crafts people trained in ITIs as well as through formal apprenticeships as semiskilled and skilled workers.

Both national and state governments have a mandate for TVET in India. Figure A1.1 provides an overview of the government departments and other agencies involved in the current TVET process in the country.

Traditional vocational training in India has seen limited success as it faces acute challenges such as lack of adequate industry participation, structurally rigid and outdated syllabi that are not in sync with prevailing market conditions, shortage of trained faculty, limited choice of emerging trades, and lack of opportunities for continuous skill upgrade. The vocational educational system in India prior to 2009 had been largely nonresponsive to the skill demands of industry, leading to a supply–demand gap on various counts. It is estimated that while 90% of the jobs generated in India are “skill-based”, entailing requirement of some form of vocational training, less than 5% of the youth in India are vocationally trained.
Appendixes

Figure A1.1: Indian Government Agencies Engaged in Technical and Vocational Education and Training

Source: National Skill Development Corporation.
Key Players in India’s TVET System

Over the past 5 years, India has witnessed rapid and significant developments in the skill development landscape. Various institutions have been set up at a national level to scale up skill development efforts being undertaken across the country.

The National Policy on Skill Development approved by the government in 2009 aims to train 500 million people in vocational skills by 2022 through various ministries and national bodies. The Government of India has embarked on a series of measures to augment skill development infrastructure in both public and private domains and the system has opened up to greater participation from industry through the establishment of the National Skill Development Corporation (NSDC) and sector skills councils (SSCs), as well as the development of National Occupational Standards (NOS) and the introduction of a National Skills Qualifications Framework (NSQF).

An apex body, the Ministry of Skill Development and Entrepreneurship (MSDE), and a number of agencies—around 18 ministries, 2 national-level agencies (National Skill Development Agency and NSDC), several SSCs, 35 state skill development missions, and several trade and industry bodies—are pushing the national skill development agenda.

Ministry of Skill Development and Entrepreneurship

The Ministry of Skill Development and Entrepreneurship (MSDE) will develop and monitor an overarching framework for skill development. It will also anchor the NSQF and monitor its implementation to ensure it acts as a quality assurance framework and will facilitate capacity building activities. The NSQF, approved by the Cabinet Committee on Skill Development in December 2013, is a quality assurance framework that organises qualifications according to a series of levels of knowledge, skills, and aptitude. These levels are defined in terms of learning outcomes that the learner must possess regardless whether they were acquired through formal, nonformal, or informal learning. All other frameworks including the National Vocational Educational Framework Qualification have ceased to exist, and have been superseded by the NSQF.

Existing national level agencies and ministries have undertaken multiple initiatives to meet their targets. The Ministry of Labour Employment has set up 2500 government ITIs and 7,000 private ITIs to fulfil their training targets. The National Council for Vocational Training, along with ITIs and polytechnics, have been moved under MSDE. The vocational training infrastructure under the Ministry of Human Resource and Development consists of public and privately owned polytechnics and vocational schools. Other key ministries with significant training targets have limited internal training capacity and focus on fund-based training to meet skill development targets for 2022.

The National Skills Qualification Committee (NSQC) is also based within the MSDE, will be responsible for implementing the NSQF. The NSQC will license and regulate SSCs and approve their accreditation “norms” for training providers within their sector. The NSQC is also responsible for approving assessment and certificate norms for regulatory bodies and SSCs. Additionally, the NSQC have responsibility for regulating qualifications, transition, and pathways within the NSQF and other quality functions associated with a fully functioning qualifications framework including:

(i) Approving and notifying NOS and QPs prepared by the SSCs, including job roles that exist across various sectors.
(ii) Reviewing and resolving any issues or disputes among ministries, departments, and regulatory bodies regarding alignment of courses to NSQF, credit transfer, etc.

(iii) Overseeing all matters requiring a cross-sectoral approach, such as credit accumulation and transfer, recognition of nonformal learning, apprenticeship, online and distance learning, lateral mobility, and bridge courses.

(iv) Coordinating and aligning Indian qualifications to international qualifications frameworks to allow international mobility.

(v) Coordinating the mapping of all the progression pathways so determined and agreed, and decide how the progression will take place—how much credit would be allowed for movement from one level to the next, and how such progression can be facilitated.

(vi) Determine progression links between courses and certifications that are granted by regulatory and/or professional bodies and those that are currently unregulated, addressing all transition issues, including developing suitable mechanisms for recognising and aligning to the NSQF all qualifications predating the implementation of the NSQF.

**National Skill Development Corporation**

The NSDC was established in 2009 as a public–private partnership (PPP) and incorporated as a not for profit company under Section 25 of the Companies Act, 1956. Its equity base of $1.67 million, of which the Government of India accounts for 49%, and the private sector 51%. NSDC encourages, supports, and finances the creation of quality training institutions, the establishment of SSCs, and product innovation in skill development. NSDC is financed by the National Skill Development Fund, which is a 100% government-owned trust. NSDC has disbursed INR 592 crore for skill development from 2009 to the end of fiscal year 2013/2014. NSDC also manages the implementation of two focused skill initiatives, the Pradhan Mantri Kaushal Vikas Yojna (PMKVY) Scheme, which is a national skill certification and monetary rewards scheme; and Udaan, which targets unemployed youth from Jammu and Kashmir.

**National Skill Development Agency**

In 2013, the Government of India constituted the National Skill Development Agency (NSDA) to coordinate and harmonise skill development efforts with the private sector to achieve the skill targets of the Twelfth Five-Year Plan, 2012–2017 and beyond. This role has since been assumed by the MSDE. The NSDA functions as an autonomous body and strives to ensure that disadvantaged groups are able to bridge the gaps in their skill requirements.

**Directorate General Training and Employment**

The Director General Training and Employment (DGET) under MSDE has the largest training target of 100 million people by 2022, which it plans to achieve through various schemes such as Craftsman Training Scheme, Apprenticeship Training Scheme, Skill Development Initiative, etc. (see Table A1.1).
### Table A1.1: Directorate General Training and Employment Training Target Plans

<table>
<thead>
<tr>
<th>DGET Schemes</th>
<th>Training Target, 2022 (millions)</th>
<th>DGET Steps to Meet Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Craftsman Training Scheme</td>
<td>29.4</td>
<td>Current capacity of ITIs and ITCs to be increased at 8% (CAGR); 1,500 new ITIs to be opened as PPPs</td>
</tr>
<tr>
<td>Apprenticeship Training Scheme</td>
<td>5.4</td>
<td>Current capacity of institutes to be increased at 5% CAGR</td>
</tr>
<tr>
<td>Skill Development Initiative Schemes and MES</td>
<td>57.2</td>
<td>5,000 SDCs will be set up in PPP mode; 1 million to be trained and tested every year</td>
</tr>
<tr>
<td>DGET Field Institutes</td>
<td>0.5</td>
<td>Current capacity of institutes to be increased at 5% CAGR</td>
</tr>
</tbody>
</table>

CAGR = compound annual growth rate, DGET = Directorate General of Employment and Training, ITC = Industrial Training Centre, ITI = Industrial Training Institute, MES = Modular Employable Scheme, PPP = public–private partnership.

Source: National Skill Development Corporation.

(i) **Craftsman Training Scheme.** The Craftsman Training Scheme (CTS), delivered through government and private ITIs, focuses on leveraging the PPP model in skill development. Currently, there are 2,000 government ITIs in India and an additional 1,500 have been proposed for the Twelfth Five-Year Plan, 2012–2017. In 2007, the government unveiled a plan to enhance the industry relevance of ITIs by upgrading 1,396 ITIs under the PPP route. This was in addition to the 500 ITIs that had already been initiated for upgrading through direct government support (100) and World Bank support (400). By 2012, 1,775 of the existing 2,000 ITIs had been adopted by industry partners under the upgrading scheme of DGET. For example, Tata Motors has adopted nine ITIs. The foreign player could participate in the CTS scheme by partnering with MoLE and/or state-level departments relating to VET to offer content, curriculum, and train-the-trainer services to existing and upcoming ITIs.

(ii) **Apprenticeship Training Scheme.** Implementation of the Apprenticeship Training Scheme is a statutory requirement under Apprentices Act, 1961. The scheme provides opportunities for practical training to graduate engineers, diploma holders (technicians), and 10+2 vocational passers in about 10,000 industrial establishments or organisations as per the policies and guidelines set by the Central Apprenticeship Council, which is an apex statutory body constituted under the Apprentices Act, 1961. The basic purpose of the scheme is to fulfil or match any gap in practical or hands-on experience of fresh graduate engineers, diploma holders, and 10+2 vocational passers to enhance their technical skills as per the needs of industries.

(iii) **Skill Development Initiative.** In this scheme, funding is provided to VET providers to provide training and testing services. Some of the other initiatives include Advanced Training Institutes, Crafts in Structure Training, Hi-Tech Training Scheme, Supervisory Training, and Women Training. Through the Skill Development Initiative Scheme, the government enlists participation from private VET providers on training and certification. The scheme has an outlay of $92 million and is fully funded by the central government. The funds go towards both assessment and certification. There are around 6,400 VTPs (government and private ITIs, and private training providers) across India that provide vocational education and training to 1 million people annually in 1,257 courses. Testing of skills is done by independent Assessing Bodies and certificates are provided by NCVT.
Ministry of Human Resource and Development

In the Twelfth Five-Year Plan, 2012–2017, the initiatives in VET of the Ministry of Human Resource and Development present an opportunity of approximately $7 million per annum in areas like content and trainer development. According to the Twelfth Five-Year Plan, the private sector needs to be engaged under the PPP model as an “academic partner”. The role of the academic partner will include teacher and assessor training and academic content and curriculum development. Thus foreign players could strategically engage with the Ministry of Human Resource and Development to explore phasing of budgetary spends (see Table A1.2) and identify opportunities.

Table A1.2: Ministry of Human Resource and Development Training Target Plans

<table>
<thead>
<tr>
<th>Initiatives</th>
<th>Description</th>
<th>Proposed Budget ($)</th>
<th>Estimated Opportunity for VET Providers ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening 6,000 new schools</td>
<td>Introduction of two courses per school with 50 students in each course</td>
<td>1,332 million</td>
<td>Training: 10–15 million</td>
</tr>
<tr>
<td>Strengthening 3,000 existing schools</td>
<td>Ensure running of two vocational courses per school with 50 students in each course</td>
<td>429 million</td>
<td>Training: 1–2 million</td>
</tr>
<tr>
<td>PPP assistance to 2,500 schools</td>
<td>Reimbursement for 25% of VET students to facilitate opportunities for economically weak children</td>
<td>297 million</td>
<td>Training: 7–10 million</td>
</tr>
<tr>
<td>Assistance to 800 NGOs</td>
<td>To assist NGOs in undertaking two VET courses and train 200 trainees in each course</td>
<td>113 million</td>
<td>Content training: 600,000–900,000</td>
</tr>
<tr>
<td>Training to 90,000 teachers</td>
<td>In-service and induction for batches of 30 teachers</td>
<td>35 million</td>
<td>Content training: 1.6–1.8 million</td>
</tr>
<tr>
<td>Development of 12 modules</td>
<td>In-service and induction training for batches of 30 teachers</td>
<td>8 million</td>
<td>Content: 6 million</td>
</tr>
</tbody>
</table>

NGO = nongovernment organisation, PPP = public–private partnership, VET = vocational education and training.

Source: Indian Ministry of Human Resource and Development.

Sector Skills Councils

Sector skills councils are special purpose vehicles registered as Section 25 companies or societies under the Societies Act. As national partnership organisations, they bring together all stakeholders—industry, labour, and the academia—for the purpose of workforce development for particular industry sectors. To date, NSDC has approved 39 SSCs, and a few more are under consideration. The role of the SSCs is being effectively strengthened, so that the needs of the industry are accurately reflected in the skill development programmes of the government and the curriculum of academic institutions.
Appendix 2: Further Guidance on Stakeholder Management and Engagement

You need to know more about your key stakeholders and how they are likely to feel about and react to your project. You also need to know how best to engage them in your project and how best to communicate with them. Some key questions that can help you understand your stakeholders are as follows:

(i) What financial or emotional interest do they have in the outcome of your work?
(ii) What motivates them?
(iii) What information do they want from you?
(iv) How do they want to receive information from you?
(v) What is the best way of communicating your message to them?
(vi) What is their current opinion of your work? Is it based on good information?
(vii) Who influences their opinions generally and who influences their opinion of you? Do some of these influencers therefore become important stakeholders in their own right?
(viii) If they are not likely to be positive, what will win them around to support your project?
(ix) If you don’t think you will be able to win them around, how will you manage their opposition?
(x) Who else might be influenced by their opinions? Do these people become stakeholders in their own right?

A very good way of answering these questions is to talk to your stakeholders directly. People are often quite open about their views and asking people’s opinions is often the first step in building a successful relationship with them.

You can summarise the understanding you have gained on the stakeholder map, so that you can easily see which stakeholders are expected to be blockers or critics, and which stakeholders are likely to be advocates and supporters of your project. A good way of doing this is by colour coding advocates and supporters, blockers and critics, and others who are neutral.

Conduct a Full Stakeholder Analysis

Ask yourself whether you are communicating as effectively as you should with your stakeholders. What actions can you take to get more from your supporters or win over your critics?

Having conducted a stakeholder analysis exercise you will have most of the information you need to plan how to manage communication with your stakeholders.

One way to do this is to identify who are the stakeholders in the project through brainstorming. Brainstorming is a process of listing without judgment. Get all responses on a whiteboard with no comment. Then, rate each stakeholder on the Stakeholder Power and Interest Grid (Figure A2.1).
Stakeholder Planning

The next stage is to plan your communication so that you can win stakeholder support for your projects. Stakeholder planning is the process by which you do this.

To carry out a stakeholder planning exercise, identify your project stakeholders, and for each one, list the following:

(i) stakeholder name,
(ii) stakeholder power and interest,
(iii) stakeholder issues,
(iv) current status,
(v) desired project support,
(vi) desired project role,
(vii) actions desired,
(viii) messages needed, and
(ix) actions and communications.

Using these headings, work through the planning exercise using the steps below. You may wish to record this on the Stakeholder Planning Sheet that uses the bullet points above as headings.

Update the planning sheet with power or interest grid information. Based on the power or interest grid you created, enter the stakeholders’ names, their influence and interest in your job or project, and your current assessment of where they stand with respect to it.

(i) **Plan your approach to stakeholder management.** The amount of time you should allocate to stakeholder management depends on the size and difficulty of your projects and goals, the time you have available for communication, and the amount of help you need to achieve the results you want. Think through the help you need, the amount of time that will be taken to manage this, and the time you will need for communication. Help with the project could include sponsorship of the project, advice and expert input, reviews of material to increase quality, etc.

(ii) **Think through what you want from each stakeholder.** Work through your list of stakeholders thinking through the levels of support you want from them and the roles you would like them to play (if any). Think through the actions you would like them to perform. Write this information down in the “Desired Support”, “Desired Project Role,” and “Actions Desired” columns.
(iii) **Identify the messages you need to convey.** Identify the messages that you need to convey to your stakeholders to persuade them to support you and engage with your projects or goals. Typical messages will show the benefits to the person or organisation what you are doing and will focus on key performance drivers.

(iv) **Identify actions and communications.** Finally, work out what you need to do to win and manage the support of these stakeholders. With the time and resource you have available, identify how you will manage the communication to and the input from your stakeholders, focusing on the high-power, high-interest stakeholders.

### Tracking Issues

An Issues Register is a useful tool to manage feedback from stakeholders and to ensure that all issues are resolved before QPs are submitted for endorsement. An example is provided in Table A2.1.

#### Table A2.1: Issues Register

<table>
<thead>
<tr>
<th>Project Date</th>
<th>Issue Description</th>
<th>Priority (H, M, L)</th>
<th>Raised by</th>
<th>Assigned to</th>
<th>Status</th>
<th>Date Resolved</th>
<th>Resolution / Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This should be a standard numbering system</td>
<td>High, medium, or low priority</td>
<td>Who raised the issue?</td>
<td>Who is the issue assigned to?</td>
<td>What is the status of the issue?</td>
<td>What date was the issue resolved?</td>
<td>What was the resolution or what is being done to resolve the issue?</td>
</tr>
</tbody>
</table>

Source: National Skill Development Corporation.

### Consultation and Feedback on Draft QPs and NOS

Industry input will inform the drafting of the first version of the QPs and NOS through the Expert Group established by the SSC. Once the SSC, developer, and the expert group believe that the documents are ready for wider industry consultation, a range of methods may be used including the following:

(i) **Workshops at appropriate locations across India.** These could be organised through industry networks and associations and through newspaper advertisements and bulletins on the SSC website and newsletters.

(ii) **Web-based feedback.** The documents are to be placed on the SSC website for the required feedback period together with a feedback questionnaire. An example of a feedback questionnaire is in Appendix 6.
Appendix 3: Example of Occupational Map

Occupational mapping is the first step in the development of occupational standards for any industry or sector. It entails an industry scan and a process of identification of the different occupations in the various subsectors.

The objective of the occupational mapping is to describe the main features and characteristics of an occupation, sector, or subsector. It provides a high-level overview of an occupation in terms of the types of job roles that exist, workforce characteristics, key talent trends, and a review of available education and training. This way, occupational mapping enables information on opportunities that exist for career progression in a specific occupation.

Figure A3.1 below indicates the key occupations identified in the each subsector. These are differentiated on the basis of the skill set requirement for each. These job roles exist in various organisations under different nomenclature and level of detail.

**Figure A3.1: Summary of Key Job Roles within the Health Sector**

<table>
<thead>
<tr>
<th>ALLIED HEALTH SUBSECTORS</th>
<th>JOB ROLES</th>
<th>DIAGNOSTIC SERVICES</th>
<th>CURATIVE SERVICES</th>
<th>NON-DIRECTIVE CARE</th>
<th>REHABILITATION CARE</th>
<th>COMMUNITY RELATED SERVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Cardiovascular</td>
<td>Anesthesiologist</td>
<td>Dental laboratory</td>
<td>Audiologist</td>
<td>ASHA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>technologist and</td>
<td>Blood bank technician</td>
<td>technician</td>
<td>Occupational</td>
<td>Diabetes educator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>technician</td>
<td>Chiropractor</td>
<td>dietitian</td>
<td>therapist</td>
<td>Health educator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cytotechnologist</td>
<td>Dental assistant</td>
<td>nutritionist</td>
<td>Orthotics and</td>
<td>Sanitary inspector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Histotechnician</td>
<td>Dental hygienist</td>
<td>Home health aide</td>
<td>Prosthetics</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medical and</td>
<td>Dialysis technician</td>
<td>Medical equipment</td>
<td>Physiotherapist</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>clinical laboratory</td>
<td>Electro-neuro</td>
<td>technician</td>
<td>Speech – language</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>technician</td>
<td>diagnostic</td>
<td>Medical records</td>
<td>pathologist</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Phlebotomist</td>
<td>technologist</td>
<td>and health</td>
<td></td>
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<td></td>
<td></td>
<td>Radiological</td>
<td>Emergency and</td>
<td>information</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>technician and</td>
<td>medical technician</td>
<td>technician</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>technologist</td>
<td>Medical assistant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and technologist</td>
<td>Mental health</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>counsellor</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Nuclear medicine</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>technologist</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Optician</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Optometrist</td>
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<td></td>
<td></td>
<td></td>
<td>Surgical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>technologist/OT</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Healthcare Sector Skill Council.
What is Functional Analysis and What is Its Purpose?

Functional analysis is one of the main tools used to define the nature of an occupational sector and the functions performed within it. This is an essential process in defining occupational competence and in setting boundaries between different occupations. A detailed functional map establishes the unique contribution of each occupational area—what makes it different from all others. This is essential to ensure that all primary (main) and secondary (sub) functions are identified, that the relationship between them is clearly established and the direct contribution that they make to the global purpose of the sector is understood. The functional map helps to understand where one occupational area ends and another begins.

Functional mapping also allows getting to a level of specific activity that allows the definition of occupational competence through the creation of new or adoption of existing NOS. NOS describe what employees in any occupation should be able to do, the standard they should achieve, and the knowledge and understanding they need.

Functions refer to the activities a person is expected to do as part of their job. Functions are not random activities. Functions must have a clear purpose and outcome that are valuable to an employer. Once the functions people are expected to perform are identified, it becomes easier to identify the standard they should achieve and the knowledge they need. Functional analysis allows the breakdown of any area of work until we see the functions that individuals are expected to perform—in other words what people need to be able to do. Once these functions are identified, we can work with employers to agree on further content of the NOS.

The Process of Functional Analysis

The process begins with consideration of the key purpose of jobs and roles in the whole occupational sector; that is, the function of the sector in outcome terms. The question that will guide any subsequent analysis is, What needs to happen for this key purpose to be achieved? (See Figure A4.1). Answering this question is a process of disaggregation whereby the key purpose is broken into smaller components or competencies.

At each stage of the analysis, care must be taken to delineate whole work roles—technical skills, contingency management, task management, and interaction with the environment (Figure A4.2 is an example.) This process continues until units and elements of the competence are reached (Box A4.1). Analysis ceases when it is obvious that an informed person reading the description would clearly understand the outcome of the activity being described.
Box A4.1: Steps in Functional Analysis

1. Begin with a key purpose of the occupational area, e.g., shop, restaurant, factory, construction site.
   - This is done by establishing a key purpose statement that captures this unique contribution.

2. Identify functions (tasks) by asking: ‘What needs to happen to achieve the key purpose?’
   - This will generally result in a number (often three or more statements) of primary functions (sometimes called functional areas) that cover fairly large components of work within that sector.
   - However, these are still quite large and generic statements so we have to identify what subfunctions are performed in each one to get closer to what individuals do at work. This leads to the next level of analysis, achieved by using exactly the same analytical question, “What needs to happen?” and applying that question to each of the main functional areas.
   - This process is repeated over several levels of subdivision (disaggregation) until we eventually get to statements of function that apply to individual employees that could form the basis of NOS. Once we know what the possible NOS are, we either find existing NOS that cover these functions, or we develop new NOS to meet their requirements.

3. Identify possible NOS titles by asking, “What needs to happen to achieve each function?”

4. For each NOS, identify performance (skills) and knowledge criteria by asking:
   - What are the activities in each NOS that are to be performed? (performance or skills)
   - What are the required knowledge attributes that are to be understood to perform each of above activities? (knowledge criteria)

Figure A4.1: Structure of Functional Analysis

NOS = National Occupational Standard.
Source: National Skill Development Corporation.
Figure A4.2: Example of Functional Analysis (Restaurant Waiter)

<table>
<thead>
<tr>
<th>Key Purpose</th>
<th>Functions</th>
<th>Possible NOS titles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide food and drink to customers in a commercial restaurant</td>
<td>Prepare public areas of the restaurant for service</td>
<td>A1. Prepare the restaurant area for service</td>
</tr>
<tr>
<td></td>
<td>Establish and meet customer needs</td>
<td>A2. Prepare tables for service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B1. Welcome and seat customers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B2. Take and communicate customer orders</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B3. Serve food to customers as ordered</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B4. Serve drinks to customers as ordered</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C1. Take payment from customers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C2. Reconcile and process takings</td>
</tr>
</tbody>
</table>

Source: National Skill Development Corporation.

A functional map is a representation of the results of the functional analysis, showing the different relationships among the various functions identified.

The number of levels of disaggregation in the functional map will depend on the size and nature of the sector, occupation, or area of work being analysed. Also, some parts of the functional map may need to be disaggregated to more levels than others.

Language Used in Functional Analysis

Statements that appear in functional analysis (including the key purposes) have to adhere to an approach suitable for the development of NOS:
Each statement should only be one brief sentence.
Each statement should begin with an active verb (e.g., “provide” not “providing”).
Each statement should also contain one or more objects for the verb.
Most statements (but not all) also contain a context or condition.

There is a consistent way of writing statements for functional analysis. Using the right language assists you to develop fit-for-purpose NOS.

- Since each statement should capture the primary or secondary function being described, statements are short but descriptive of what the person is able to do. Above all, statements need to be understood by employers or employees.
- Each statement should begin with a verb (an action or “doing” word). Sometimes the statement starts with more than one verb, for example “Take and communicate”, but there is always a verb at the beginning. We do this because we are interested in what people should be able to do.
- Each statement should also contain one or more objects for the verb. An object is a thing or person that receives the action of the verb. It might be one word (“information”) or it could be a phrase (“specialist support”) to meet the needs and aspirations of customers.
- Most statements also contain a context or condition. Like the object, this helps us to be more precise about what we want to say. So in the statement “provide information and advice to meet the needs and aspirations of customers” the bold part of the statement defines the context or condition.
- Some words are discouraged in functional analysis. These are mainly qualifiers. Usually these are adverbs—words which tell you how a verb (action word) is carried out. Adverbs end in “-ly.” Examples are “effectively”, “promptly”, “efficiently”, “appropriately.” These words are not required as they are implied if an individual is doing the job competently.

### Example for Restaurant Waiter
The following language is used to describe the functions involved.

<table>
<thead>
<tr>
<th>Verb</th>
<th>Object</th>
<th>Context or condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide</td>
<td>Food and drink</td>
<td>To customers in a commercial restaurant</td>
</tr>
<tr>
<td>Prepare</td>
<td>Public area of the restaurant</td>
<td>For service</td>
</tr>
<tr>
<td>Welcome and seat</td>
<td>Customers</td>
<td></td>
</tr>
<tr>
<td>Process</td>
<td>Financial transactions</td>
<td></td>
</tr>
<tr>
<td>Serve</td>
<td>Food</td>
<td>To customers as ordered</td>
</tr>
</tbody>
</table>

### Inclusive Language to be Used in NOS

NOS are required to meet the needs of the diversity of potential learners and workplaces. Using the following approaches will assist this:

(i) **Use a holistic approach.** Encompass roles and functions as well as specific tasks. For example, skills that enable the learner to achieve core or generic skills should be embedded into the NOS and be explicit where appropriate, not “tacked on”; and PC should demand demonstration of those competencies at the level determined.

(ii) **Use plain English.** Do not use jargon; unclear language and terminology beyond workplace requirements may disadvantage learners.
(iii) **Provide for flexibility in the evidence guide.** Allow learners to demonstrate competency in a range of ways where this meets the needs of groups and does not compromise attainment of the NOS. An example might be allowing a person with writing disability to be assessed in an oral, rather than written mode.

(iv) **Recognise diversity.** Some communities and industries require their employees to have competencies that recognise and address the diversity and special needs of those they work with, such as competencies in working with diverse communities.

(v) **Build in reasonable adjustments.** Reasonable adjustments for people with disability must be considered in NOS, and information added wherever relevant and practicable. An example is that instruction and communication could be in alternative forms, such as Indian Sign Language for deaf and hearing-impaired people. Consultation with people with disabilities or their representative peak bodies will help NOS developers provide effective and meaningful information. NOS that provide clear advice on any adjustments that can be made (without compromising the integrity of NOS or qualification outcomes) will assist providers when assessing whether an adjustment is reasonable.

(vi) **Use inclusive language.** Ensure language is inclusive of the full diversity of all learners, and that it allows for reasonable adjustment to be made in delivery and assessment. Be careful the language does not suggest capacities beyond the essential requirements for workplace competency. For example in a NOS requiring the movement of objects (and where a range of lifting methods can be used), it could be better to use the word “raise” (to focus on the required outcome) instead of “lift” (which appears to focus on the person’s capacity to physically lift an object). Then, to ensure the possible adjustment is clear, the NOS could specify the use of appropriate lifting devices.

(vii) **Include flexible assessment options.** For example, assessment under simulated workplace conditions may provide equitable access to learners in rural and remote communities with limited workplace options, and will also suit learners who are not yet employed. Assessment through verbal questioning may provide equitable access to learners with physical disability, cognitive disability, or dyslexia.

SSCs must ensure that both the content and text of the NOS are free from direct or indirect unfair discrimination against an individual or group of individuals.

Standards should be gender-neutral. The use of the plural “They (them)” is a better way to avoid the use of “he (she)”. Similarly, the use of the word “workforce” is preferred to “manpower”.

**Outcomes**

It is important that NOS are written as outcomes. It is therefore necessary to determine the desired purpose of any activity.

Thinking about the outcomes of work activities, as well as the processes that go into achieving such outcomes, is a key principle of functional analysis. This is not always a natural way to view the world as we often describe things in terms of processes.

Carrying out a functional analysis often involves asking questions starting with why, how, and what for, in order to gain an understanding of the outcomes of a particular work activity. The answers to the questions will help to shape and develop the functional analysis.
<table>
<thead>
<tr>
<th>Activities (Process)</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change an ink cartridge</td>
<td>Maintain the service and use of a printer</td>
</tr>
<tr>
<td>Give a presentation</td>
<td>Inform an audience</td>
</tr>
<tr>
<td>Give first aid</td>
<td>Provide emergency treatment and support to an individual appropriate to their condition</td>
</tr>
<tr>
<td>Answer the phone</td>
<td>Respond to inquiries and concerns from customers and other individuals</td>
</tr>
</tbody>
</table>

### Models of Functional Analysis

There is no right or wrong solution for identifying primary and secondary functions. Different industries and occupations will see things in different ways. However, identifying functions tends to follow one of the following models:

1. **Linear model.** Separates the various stages involved and shows them in sequence, for example, *identify specifications, design, construct.*
2. **Cyclical model.** Separates the stages involved but brings them back to the starting point, for example *plan, do, review.*
3. **Process model.** Separates out different types of processes involved, for example *bake, boil, roast, fry, grill.*
4. **Product model.** Separates out different types of products or materials, for example, *bricks, cement, plaster, wood.*

Examples of the four models are shown below.

**Example of a Linear or Sequential Model**

Key purpose: Organise administrative services

Primary functions:

(i) Agree on specifications for administrative services
(ii) Design administrative services to specifications
(iii) Implement administrative services

**Example of a Cyclical Model**

Key purpose: Plan and provide personal training services to clients

Primary functions:

(i) Plan personal training services with clients
(ii) Deliver personal training services to clients
(iii) Evaluate and improve personal training services with clients

**Example of a Process Model**

Key purpose: Join metal surfaces

Primary functions:

(i) Join metal surfaces by welding
(ii) Join metal surfaces by brazing
(iii) Join surfaces by soldering
(iv) Join metal surfaces by riveting
Example of a Product Model
Key purpose: Prepare and cook food
Primary functions:
(i) Prepare and cook meat
(ii) Prepare and cook fish
(iii) Prepare and cook vegetables
(iv) Prepare and cook grains

The model chosen may depend on how the industry or occupation traditionally organises itself. However, it is important to remember that whatever model (or variation of a model) is adopted, it must follow the logic of functional analysis, i.e., What Needs to Happen to Achieve the Key Purpose?

How to Present Functional Analyses

Figure A4.3 is a simple example of how functional analysis may be presented.

Figure A4.3: Diabetes Educator Sample Functional Map

What needs to happen to achieve the key purpose?
Provides education and skills for effective diabetes management in patients with diabetes or at risk of developing diabetes

What needs to happen to achieve each subfunction?
Assess patient
Set and plan goals for diabetic or prediabetic patients
Implement and evaluate the performance of the treatment plan
Document the patient record and follow-up activities

Treatment procedure

An example of functional analysis for an individual occupation is in Appendix 6.

Interviews

Interviews are widely used in occupational and competency analysis. If interviews are used, the selection of interviewees needs to be carefully considered to ensure that future as well as current competency requirements are addressed. For example, while technicians may give accurate information about the present situation, managers may provide insights into future requirements.
Unstructured or semistructured interviews are valuable during the early stages of competency analysis, and wide-ranging questioning can help to ensure issues are not overlooked. Unstructured interviews generally use a few open-ended questions that focus the interview, with the direction generally guided by the responses of the interviewee.

Interviews can also assist in developing questionnaires by drawing on expertise early in the process. The initial sample should be as representative as possible of the industry.

Structured interviews are of great value when the responses of large numbers of people are being sought. The interviews consist of carefully worded questions asked by the interviewer in a set order. Answers must be faithfully recorded and interview prompting is restricted. The structure represents an attempt to guarantee that a systematic procedure is followed to increase objectivity. Through structured face-to-face interviewing, it is possible to gather detailed in-depth information about the duties and tasks applying to different jobs from within the industry and the competencies required for effective performance.

**Critical Incident Technique**

The critical incident technique requires respondents to recall incidents from their work that were of particular significance to them, and which had an outcome that was clearly either successful or unsuccessful. One of its main applications is to distinguish competencies that characterise outstanding work performance.

The researcher seeks detailed information about events leading up to the situation and factors, which in the respondent’s view, were critical in determining the outcome. Any factor that the respondent believes to be important is noted, including thought processes.

This technique has the potential to go beyond a description of readily observable sequences of behaviour and enable data to be gathered about factors on which successful performance depends. The focus is on individual characteristics and those skills and knowledge that characterise successful resolution of workplace dilemmas and situations.

**Search Conference**

This technique provides a way to **explore desirable future environments** and strategies for achieving future goals. It is a useful method of developing NOS, particularly in relation to **potential workforce and educational needs**.

The technique moves from the generation of information and ideas (brainstorming, divergent thinking) through synthesis and analysis, to action planning. The conference begins and ends with whole group sessions.

The initial session aims to build group cohesion and then engage the group in a brainstorm on the forces shaping the future environment. Small groups are then formed that record the ideas generated. The final plenary session is for reporting from small groups on priorities and strategies, and for collective action planning.
Adapting the search conference technique to the creation of NOS for occupations requires participants to concentrate on determining likely and desirable futures for the occupation. This can be achieved by considering government policy, new technology, and changing social attitudes. From this general analysis, it is possible to determine the competencies needed to implement future directions.

**Observation**

Direct observation of people at work is a general research technique used in a wide variety of fields. It can be applied to analysis of work at all occupation levels and is useful for establishing NOS when used in association with other techniques as a way of validating findings.

The major problem with observation is a possible lack of objectivity and the potential for the observer’s presence to affect the behaviour of those being observed. However, with observation it is possible to

(i) develop rating scales that increase objectivity and reliability of observation;
(ii) train observers to be aware of their subjectivity and, if necessary, compensate for it; and
(iii) undertake a large number of observations over a long period of time.

**Combined Techniques**

A combination of techniques can be used to increase validity of the NOS being developed, and to ensure the full dimensions of competency are covered. Generally, whatever research methodology is used it should:

(i) adequately identify the four dimensions of competency—task skills, task management skills, contingency management skills, job or environment skills;
(ii) develop NOS in the most practical and cost-effective way;
(iii) identify workplace competencies that are widely accepted and endorsed by the industry; and
(iv) develop industry relevant NOS that can be delivered and assessed effectively.

Some research techniques are more suitable for analysing the four dimensions of competency; some are more appropriate for the analysis of tasks and roles; others may identify both. For example, functional analysis identifies tasks and roles and when used alone, may produce very task-oriented NOS. Interviews and critical incident techniques may capture not only tasks and roles, but may also identify underlying contingency management skills, and other dimensions of competency.

Where research techniques that focus on the task or role dimensions of competencies are used alone, it is advisable to combine these techniques with others to identify the underlying skills and wider context of competencies. Combining appropriate research techniques will ensure that all dimensions of competency are captured in the analysis.

While these research techniques are concerned with the process of identifying tasks, skills, functions, and knowledge to be organised into NOS, they do not cover the process of developing NOS and packaging them into QPs.
National Occupations Standards (NOS), and the functional analysis process that leads to NOS are closely linked to the concept of occupational competence. Employers are looking for competent employees, and NOS should provide a description of what that competence is. In analysing an occupational area, we are really finding out and making public what it means to competent in a job or profession.

However, we need to bear in mind that competence is a broad concept that includes several different dimensions. When carrying out functional analysis, we need to look for the following:

- **Technical requirements.** These include the occupational skills and knowledge such as bricklaying, cleaning, developing organisational strategy, giving a presentation.
- **Requirements for managing the work process.** These include things such as identifying resource needs, planning work, monitoring quality, solving problems, and suggesting improvements.
- **Requirements for working relationships.** For example, relationships with customers, team members, colleagues.
- **Requirements for managing the work environment.** This could include things such as ethical considerations and workplace and safety.

**Dimensions of competency:**

- **Task skills** - performing the task or job to the required standard.
- **Task management skills** (variables) - able to do more than one thing at a time and managing the tasks correctly.
- **Contingency management skills** - responding appropriately to irregularities and breakdowns in routine within a job or workplace.
- **Job or role environment skills** (outcomes) - able to deal with the responsibilities and expectations of the work environment.
NOS cover technical requirements, but they also embrace the wider dimensions that employers value in their staff—a repertoire of personal skills, such as teamwork; communication; customer service; and the ability to organise their work, make judgments, solve problems, and improve work processes within given parameters.

Examples of the five dimensions of competency of a work item is as follows: a nurse who draws blood from adult patients and sends the samples for testing.¹

<table>
<thead>
<tr>
<th>Examples of Dimensions of Competency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task Skills</strong></td>
<td>The nurse is able to use the appropriate equipment to draw the blood safely from the adult patient</td>
</tr>
<tr>
<td><strong>Task Management Skills</strong></td>
<td>In addition to drawing blood, the nurse knows how to dispose of the used syringe</td>
</tr>
<tr>
<td><strong>Contingency Management Skills</strong></td>
<td>If the syringe breaks while the nurse is drawing blood, the nurse knows how to handle the situation</td>
</tr>
<tr>
<td><strong>Role and Job Environment Skills</strong></td>
<td>In addition to drawing blood, the nurse is able to communicate with fellow colleagues such as alerting them if a patient feels very ill</td>
</tr>
<tr>
<td><strong>Transfer Skills</strong></td>
<td>The nurse is able to transfer his or her skills of drawing blood from an adult patient to a baby.</td>
</tr>
</tbody>
</table>

Most employers value employees who are broadly competent in this way. Most do not want employees who only meet the technical requirements. When analysing an area of work, the developers should try to ensure that, if any of the above are relevant, they should be covered in some way.

In some sectors, occupational competence is dependent on behaviour. Behaviour is the individual’s response to particular stimuli or inputs. Many see competence as being the result of a combination of knowledge, skill, and behaviour. As a result, for some sectors, understanding the behaviour will have an impact on the way in which the final NOS are drafted.

Detailed guidance on functional analysis and other development techniques is provided in Appendix 4.

¹ Institute for Adult Learning (IAL). Learner’s Guide of WSQ Course on “Interpretation of Singapore Workforce Skills Qualifications.” Singapore.
### Functional Analysis for Welder

<table>
<thead>
<tr>
<th>Role</th>
<th>Welder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job Purpose</strong></td>
<td>Welder is responsible for understanding the welding requirement by studying engineering drawings, operating the welding machine to create a consistent bead and checking the quality of joint post welding</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>1</th>
<th>Plan and prepare for welding</th>
</tr>
</thead>
</table>
| **Purpose** | P1 | This unit or task covers the following:  
1. Interpret the engineering drawings to understand welding requirements  
2. Prepare the welding equipment  
3. Set parameters on the welding machine  
4. Prepare the work pieces to be welded |

<table>
<thead>
<tr>
<th>Activities</th>
<th>Understand design requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Analyse engineering drawings and specifications to plan layout, assembly, and welding operations</td>
</tr>
<tr>
<td>2</td>
<td>Determine required welding method using knowledge of welding techniques</td>
</tr>
<tr>
<td>3</td>
<td>Determine consumables required (electrode, filler metals, etc.) and equipment configuration using knowledge of metallurgy and welding techniques</td>
</tr>
<tr>
<td>4</td>
<td>Report and rectify cases of inappropriate information in design documents as per organisational procedures</td>
</tr>
</tbody>
</table>

**Prepare welding equipment and metals to be joined**

| 5 | Ensure welding equipment is ready for operation |
| 6 | Gather the work pieces, tools, and consumables required for welding |
| 7 | For repair jobs, disassemble the work pieces using appropriate techniques |
| 8 | Prepare the work pieces to be welded by grinding a bevelled edge on the sides that are to be joined |
| 9 | Remove paint, grease, rust, or other contaminants to ensure a clean pool of molten metal while welding |
| 10 | Smoothen out the metal work pieces prior to welding by grinding them |
| 11 | Attach clamps to properly secure the work pieces, or metal to be welded together |
| 12 | Ensure the calibration status of all measuring equipment and instruments |

<table>
<thead>
<tr>
<th>Function</th>
<th>2</th>
<th>Perform welding operation</th>
</tr>
</thead>
</table>
| **Purpose** | P2 | This unit or task covers the following:  
1. Operate the welding machine, electrode holder, etc. |
### Welding operation

<table>
<thead>
<tr>
<th>Activities</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Place the electrode in the electrode holder</td>
<td><strong>Function</strong> 3 Perform postwelding operation activities</td>
</tr>
<tr>
<td>2. Start the welding machine and select the point to start welding</td>
<td><strong>Purpose</strong> P3 This unit or task covers the following:</td>
</tr>
<tr>
<td>3. Create an electric arc between the electrode and the work piece</td>
<td>1. Remove the welded workpieces</td>
</tr>
<tr>
<td>4. Adjust welder’s output amperage to suit the material being welded together and the desired penetration of the arc</td>
<td>2. Quality check the weld</td>
</tr>
<tr>
<td>5. Move the arc steadily along the joint to create consistent beads</td>
<td></td>
</tr>
<tr>
<td>6. Chip and brush the weld between passes to remove slug</td>
<td></td>
</tr>
<tr>
<td>7. Create a bead of required width to provide strength to the weld</td>
<td></td>
</tr>
</tbody>
</table>

### Health and safety

<table>
<thead>
<tr>
<th>Activities</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Adhere to all safety norms (like wearing protective gloves, shoes, etc.)</td>
<td><strong>Activities</strong> Postwelding operation</td>
</tr>
<tr>
<td>9. Comply with health, safety, environment guidelines, regulations etc. in accordance with international or national standards or organisational standard operating procedures</td>
<td>1. Verify dimensions, alignments, and clearances of finished parts for conformance to specifications, using measuring instruments such as calipers, gauge blocks, micrometers, and dial indicators</td>
</tr>
<tr>
<td>10. Ensure that there are no unpermitted materials such as fuels, paints etc. from the welding area</td>
<td>2. Inspect the weld to ensure smoothness and quality of the joint</td>
</tr>
<tr>
<td>11. Ensure protection of adjacent machinery and machined surfaces from weld spatter, flame cutting sparks, and other foreign material generated by the repair process. Sheet metal guards or baffles may be used to protect adjacent machinery. For machined surfaces, asbestos cloth can be employed.</td>
<td>3. Shut down the equipment to a safe condition on completion of joining activities</td>
</tr>
<tr>
<td>12. Identify any potential health hazards or dangers and escalate to supervisor</td>
<td>4. Remove slag, weld stubs, and spatter to clean the welded metals</td>
</tr>
<tr>
<td>13. Dispose waste material in safe manner as per company’s standard operating procedures</td>
<td></td>
</tr>
</tbody>
</table>

### Organisational Knowledge

<table>
<thead>
<tr>
<th>Organisational Knowledge</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>K 1.1 Risk and impact of not following defined procedures or work instructions</td>
<td><strong>Activities</strong> Postwelding operation</td>
</tr>
<tr>
<td>K 1.2 Escalation matrix for reporting identified incidents, troubles and/or emergencies, e.g., system failures, fire, and power failures</td>
<td>1. Verify dimensions, alignments, and clearances of finished parts for conformance to specifications, using measuring instruments such as calipers, gauge blocks, micrometers, and dial indicators</td>
</tr>
<tr>
<td>K 1.3 Types of documentation in organisation and importance of the same</td>
<td>2. Inspect the weld to ensure smoothness and quality of the joint</td>
</tr>
<tr>
<td>K 1.4 Records to be maintained and implications of nonmaintenance of the same</td>
<td>3. Shut down the equipment to a safe condition on completion of joining activities</td>
</tr>
<tr>
<td>K 1.6 Knowledge of daily work or shift timing and company’s leave policy</td>
<td>4. Remove slag, weld stubs, and spatter to clean the welded metals</td>
</tr>
<tr>
<td>K 1.7 EHS and OHS guidelines and regulations per company’s norms</td>
<td></td>
</tr>
</tbody>
</table>
### Technical Knowledge

| K 2.1 | Design blueprints or welding process specifications with interpretation of symbols, scope, content, and application of procedures |
| K 2.2 | Basic understanding of metals, alloys, and their properties |
| K 2.3 | Different welding techniques such as gas tungsten arc (TIG or GTAW), gas metal arc (MIG or GMAW), flux-cored arc (FAW), plasma arc (PAW), shielded metal arc (SMAW), oxy-acetylene (OAW), resistance welding, submerged arc welding (SAW), and brazing |
| K 2.4 | Consumables associated with the various welding process (types of electrodes and/or filler metal and their application; types of shielding gas and their application, gas supply and control; correct control, storage, and drying of electrodes and filler wire) |
| K 2.5 | Steps required for preparing welding equipment |
| K 2.6 | Operation of manual or semiautomatic welding equipment |
| K 2.7 | Checks that need to be made to ensure that it is safe and ready to use (electrical connections, power return and earthing arrangements; equipment calibration, setting welding parameters) |
| K 2.8 | Techniques of operating the welding equipment to produce a range of joints in the various joint positions |
| K 2.9 | Response to emergencies, e.g., power failures, fire and system failures, manual intervention to avoid disaster |
| K 2.10 | Possible causes of common welding problems and their remedies |

### Generic Skills

| SA 1 | Personal skills – communication |
| SA 1.1 | Express statements, opinions, or information clearly so that others can hear and understand |
| SA 1.2 | Respond appropriately to any queries |
| SA 1.3 | Communicate with supervisor |
| SA 1.4 | Communicate with upstream and downstream teams |
| SA 2 | Personal skills – reading and understanding skills |
| SA 2.1 | Read and understand manuals, health and safety instructions, memos, reports, job cards etc. |
| SA 2.2 | Read and interpret engineering and tool drawings |
| SA 3 | Personal skills – motivation and reliability |
| SA 3.1 | Avoid absenteeism |
| SA 3.2 | Act objectively, rather than impulsively or emotionally when faced with difficult, stressful, or emotional situations |
| SA 3.3 | Work in disciplined factory environment |
| SA 3.4 | The capacity to learn from experience in a range of settings and scenarios and the capacity to reflect on and analyse one’s learning |
| SA 3.5 | Is open to new ways of doing things |
| SA 3.6 | The capacity to envisage and articulate personal goals, develop strategies, and take action to achieve them |

### Domain-Specific Knowledge

| SB 1 | Equipment handling |
| SB 1.1 | Handle welding machine, electrode holder, and other accessories wearing protective gloves |
| SB 1.2 | Handle protection shields wearing protective gloves |
| SB 1.3 | Handling of various types of material handling equipment like forklifts, trolleys |
| SB 2 | Analytical thinking |
| SB 2.1 | Diagnose common problems in the machine based on visual inspection, sound, temperature etc. |
| SB 2.2 | Suggest improvements (if any) in process based on experience |
Appendix 7: Sample Feedback Consultation and Validation Questionnaire

Draft Qualification Pack and National Occupational Standards

<table>
<thead>
<tr>
<th>Name of Qualification Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

My details

Name

Organisation

Address

E-mail address

Contact telephone number

Please use the following questions to guide your feedback. You may give your feedback in the response spaces below. Alternatively, you could write your feedback directly on to the QP / NOS documents and scan and email to <Insert Details>

or fax to <Insert Details>

by <Insert Date>

Thank you for your time. Your contribution is appreciated.

Summary Feedback

☐ I support the endorsement of the QP and the associated NOS without amendment

☐ I support the endorsement of the QP and the associated NOS subject to proposed amendments suggested below

☐ I do not support the endorsement of the QP and the associated NOS.

Signature

Date
### Qualification Pack

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the qualification descriptor accurate for your industry?</td>
<td></td>
</tr>
<tr>
<td>Are the job titles appropriate? What are other possible job titles linked to the outcomes of the qualification?</td>
<td></td>
</tr>
<tr>
<td>Are the National Occupational Standards units listed appropriate for the job role(s) described? Do the proposed National Occupational Standards cover the entire job role? (e.g., customer service skills, “soft” skills such as teamwork, compliance with quality systems and standards?) If not, why not?</td>
<td></td>
</tr>
<tr>
<td>Are there any other tasks, duties, or functions that are essential to the job role(s) described? If yes, what are they?</td>
<td></td>
</tr>
</tbody>
</table>

### Evidence and Assessment Requirements

<table>
<thead>
<tr>
<th>Critical aspects for assessment and evidence</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the text relate to particular knowledge and skills that reflect what someone in the workplace is able to do and what is acceptable evidence to permit an assessor to make a professional judgment?</td>
<td></td>
</tr>
<tr>
<td>Does the description reflect what an employer would expect of a competent worker covered by this QP? Is it accurately reflected?</td>
<td></td>
</tr>
<tr>
<td>Is specific guidance about some individual NOS required? If so, please name the NOS and provide details of what is required?</td>
<td></td>
</tr>
<tr>
<td>Are all the performance evidence included?</td>
<td></td>
</tr>
<tr>
<td>What frequency is required to be assessed as competent in this skill? For example, 1 time, 2 times, minimum 120 hours’ work practice before assessment</td>
<td></td>
</tr>
</tbody>
</table>
Context of and Specific Resources for Assessment

Does the QP adequately:
• Stipulate any mandatory conditions for assessment?
• Specify the conditions under which evidence for assessment must be gathered, including any details of equipment and materials, contingencies, specifications, physical conditions, relationships with team members and supervisor, relationship with client or customer, and timeframe?
• Specify assessor requirements, including any details related to qualifications, experience, and industry currency?

What is missing? What needs to be added or deleted?

Response

Assessment Conditions

Does the QP adequately describe:
• What is the work environment where the skills and knowledge described are applied? What environment should the assessment replicate?
• Are workplace requirements reflected accurately? What else can be included?
• Can this QP and NOS be assessed within a workplace environment or simulated environment only?
• Is this skill appropriate for assessment in:
  • the workplace only,
  • simulated environment only, or
  • the workplace or simulated environment?

Response

Method of Assessment

The QP lists minimum types of assessment activities used to certify that candidates demonstrate the required skill and knowledge and can demonstrate that they can apply these to achieve work outcomes.

Are these types of assessment suitable and applicable to the job role? (e.g., if the job role does not require writing skills, a written test is not a valid tool)

What needs to be deleted and/or added?

Response
## National Occupational Standards (Units)

### Unit Title and Description

- Does the title and description reflect the skill and work outcome being described?

**Response**

### Scope

- Does the scope accurately describe how the NOS is practically applied in the industry and in what context(s) the NOS may be applied?
- Are the job environments where this unit of competency is applied accurate?

**Response**

### Elements and Performance Criteria

- Do these describe what people do on a day-to-day basis in the workplace?
- Do they capture skills performed within the workplace?
- Do they capture the work process?
- Is the content clear? Or confusing?
- Is the language used appropriate to the sector and the level of the job?
- Is there anything missing? What could be removed?

**Response**

### Knowledge and Understanding

- What is the essential knowledge required of an individual in order to perform the task described? Is it accurately reflected?
- What is the breadth and depth of knowledge required?
- Is there anything missing? What could be removed?

**Response**
### Core Skills and Generic Skills

- Are the core skills listed what is required of a competent worker in this job role?
- What needs to be added? What could be deleted?

#### Response

### Professional Skills

- Are the professional skills listed what is required of a competent worker in this job role?
- What needs to be added? What could be deleted?

#### Response
# Appendix 8: Development of Qualification Packs and National Occupational Standards—Quality Assurance Checklist for Sector Skills Councils

## Title of Qualification Pack to be Submitted to NDSC

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Criteria Met (yes or no)</th>
<th>Comments</th>
</tr>
</thead>
</table>
| 1. The Qualification Pack (QP) has the following components:  
  - A clear job role description  
  - Unique reference number  
  - National Occupational Standards (NOS)  
  - Evidence guide and assessment advice requirements  
  - National Skill Qualifications Framework (NSQF) level  
  - Keywords and terms  
  - QP version control  
  - Nomenclature for QP and NOS | | |
| 2. The QP complies with the NSQF specification for that qualification type. | | |
| 3. The NOS specify the standards of performance an individual in the workplace must achieve when carrying out a function in the workplace, together with the required knowledge and understanding, as evidenced by industry support. | | |
| 4. The NOS comprise the following **mandatory components**:  
  - Unique reference number  
  - NOS title  
  - NOS overview  
  - Scope  
  - Elements  
  - Performance criteria  
  - Specification of knowledge and understanding  
  - NOS version control. | | |
| 5. The NOS may also contain the following **optional components**:  
  - Core skills and/or generic skills  
  - Professional skills  
  - Links to other NOS external links | | |
| 6. The structure of the NOS complies with the NOS template. | | |
| 7. Each NOS must have a unique, concise title that clearly and accurately describes the function.  
  - There should be no other NOS with the same title.  
  - The title must be as concise as possible while clearly and accurately describing the function it covers.  
  - The NOS title must start with an active verb (e.g., “encourage” not “encouraging”) that accurately describes the nature of the function, followed by the object of the verb (e.g., “innovation”). | | |
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Criteria Met (yes or no)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. The NOS must have an <strong>overview</strong> that clearly and concisely describes what the NOS is about and who it is for.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 9. The NOS must have these **elements**:  
  - Describes in outcome terms the lowest logical, identifiable, and discrete subgroupings of actions or outcomes that a person requires to demonstrate competency.  
  - Elements describe actions or outcomes that are demonstrable, measurable, and assessable; must begin with a verb. | | |
| 10. The NOS must have performance criteria:  
  - Performance criteria clearly and concisely specify the standard of performance required when carrying out the function.  
  - Performance criteria describe how we know that a learner is competent (“We will know that you are competent to .. if or when ..”).  
  - Performance criteria must always be viewed within the context of the overarching element.  
  **Are the PCs demonstrable, measurable, and assessable?**  
  “Know” and “understand” are **not acceptable** | | |
| 11. The NOS must have a specification of the **knowledge and understanding** an individual must possess in order to perform consistently to the required standard.  
  - Does the specification comprise only the knowledge and understanding that is essential for effective performance of the function covered by the NOS?  
  - Is the level of detail to which knowledge and understanding is specified appropriate as validated by sector employers?  
  - Does the knowledge specification relate to every performance criterion? What evidence do you have? | | |
| 12. The NOS may specify the **core and/or generic and professional skills** required to perform the function.  
  - Are the level and specification of the skills appropriate and directly related to the unit, elements, and performance criteria? What evidence do you have? | | |
| 13. Each NOS must specify **current effective practice in the function** as evidenced by research and agreed by representatives of the sector or occupation(s) involved. This evidence may include:  
  - findings of research into effective practice in the function;  
  - outcomes of consultations or deliberations with a representative sample of employers, practitioners, and/or subject matter experts to agree on definitions of effective practice in the function;  
  - empirical studies of the effectiveness of the NOS, or drafts of the NOS, in practice. | | |
| 14. The content and the wording of NOS must be free from **direct or indirect unfair discrimination** against an individual or group of individuals.  
  - Do all the NOS contain gender-neutral language?  
  - Do the entry requirements specified in the QP create an unnecessary barrier for participation of disadvantaged groups? | | |

*The default position is no entry requirements.* The case must be made for inclusion.
Certification by SSC

I certify that the SSC has undertaken a rigorous quality assurance process as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Draft NOS and QPs have been <strong>proofread and edited</strong> against the QP and/or NOS Development Manual by the SSC and/or developer before submission to NSDC</td>
</tr>
<tr>
<td>2.</td>
<td>Draft NOS and QPs are <strong>compliant</strong> with the most recent <strong>templates</strong></td>
</tr>
<tr>
<td>3.</td>
<td>Draft NOS and QPs information and codes are sequenced correctly and are complete</td>
</tr>
<tr>
<td>4.</td>
<td><strong>QPs have all necessary components</strong>, including:  - Introduction and contacts  - Qualification Pack details  - NOS units  - Glossary of key terms  - Evidence and assessment guide, including:    - critical aspects of evidence and assessment;    - conditions under which competency may be assessed;    - relationship to other units, including co-requisites;    - resource implications; and    - appendixes (nomenclature for QP and OS)</td>
</tr>
<tr>
<td>5.</td>
<td><strong>NOS have all necessary components</strong>, including:  - Unit descriptor (including licensing and regulatory advice)  - Scope  - Elements of competency  - Performance criteria  - Required knowledge and understanding  - skills (optional)</td>
</tr>
<tr>
<td>6.</td>
<td><strong>A Case for Endorsement</strong> has been prepared with the required content including details of the development process and industry involvement; the industry validation strategy and documentary evidence of wide industry support</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Title: Chair of Board NOS Subcommittee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
<td>Date</td>
</tr>
</tbody>
</table>
Appendix 9: Style Guide for Qualification Pack Templates

Developers are required to use the **most up-to-date version of the approved templates** for Qualification Packs (QPs) and National Occupational Standards (NOS). They are available for download in MSWord on the NSDC website www.nscdindia.org.

The template contains guidance regarding the format and style guide (e.g., font sizes, hyperlinks to NOS, etc.). The following pages give guidance on the content of each field.

**Insert title of job role and 2–3 lines introduction to the job role**

Example: IT Service Helpdesk Attendant in the IT-ITeS Industry is also known as a Helpdesk Executive, Service Desk Executive, Technology Support, IT Support Executive, etc.

**Insert 3–4 lines job description**

Example: Job holders provide high quality IT support in the form of software services to members of the staff (internal or external). The responsibilities include logging requests, attending to requests within stipulated time limits, and closing the requests.

**Insert the name of the job role next to “Qualifications Pack”**

**The following fields are derived from the industry occupational map.**

- **SECTOR:** Example: IT-ITES
- **SUBSECTOR:** Example: IT Services
- **OCCUPATION:** Example: IT

**Inset QP code. QP – three capital letters followed by slash (/) Q and four numbers. e.g., RET/Q 0002**

**Inset NCO code to which QP has been aligned. Detailed guidance of the alignment process is provided at**


Example: Unarmed Security Guard NCO-2004/9152.30

**Insert 3–5 lines description of personal attributes required for the job role.**

Example: This job requires the individual to work independently and make decisions relating to their area of work. The individual should be results-oriented, be able to demonstrate skills for information ordering, inductive, and deductive reasoning, and comprehension. The individual should be willing to work at a desk job for long hours.
This is a suggested field. SSCs should specify here what training or courses would be beneficial for a learner to complete before attempting the QP. Example: Basic computer fundamentals training courses (6–12 months preferred).

This refers to entry requirements or prerequisite experience to undertake the qualification. Example: 1 year of work experience or internship in IT Service Helpdesk.

In situations where SSC considers minimum qualifications are not relevant, insert “Not Applicable”. Where qualifications are identified, they must be relevant to the job role and language, literacy, and numeracy requirements and SSC must ensure that unnecessary barriers are not created to hinder the participation of identified equity groups. Example: Diploma in Computer Applications.

In situations where SSC considers maximum qualifications are not relevant, insert “Not Applicable”. Example: Graduate courses like BCA B. Sc. (Computer Science).

Insert a list of the NOS that have been identified for the job role. All NOS within a QP are compulsory.

<table>
<thead>
<tr>
<th>Job Role</th>
<th>Insert name of the Job role, Font: Calibri(Body), Font size 11, Bold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role Description</td>
<td>Insert 1-2 lines job description, Font: Calibri(Body), Font size 11</td>
</tr>
<tr>
<td>Minimum Educational Qualifications*</td>
<td>Insert required minimum educational qualification(s), Font: Calibri(Body), Font size 11</td>
</tr>
<tr>
<td>Maximum Educational Qualifications*</td>
<td>Insert required maximum educational qualification(s), Font: Calibri(Body), Font size 11</td>
</tr>
<tr>
<td>Training</td>
<td>Insert required training(s), Font: Calibri(Body), Font size 11</td>
</tr>
<tr>
<td>Experience</td>
<td>Insert required minimum work experience, Font: Calibri(Body), Font size 11</td>
</tr>
<tr>
<td>Applicable National Occupational Standards (NOS)</td>
<td>As described in the relevant NOS units</td>
</tr>
<tr>
<td>Performance Criteria</td>
<td>As described in the relevant NOS units</td>
</tr>
</tbody>
</table>

The details in the table here are the same as on page 1 of the QP. Complete with “To be decided”.

Same as page 1

Insert the relevant level number from the National Skills Qualification Framework considering how the job role matches to the NSQF level.
The standard items in this table are to be included in the template as mandatory text. The SSCs then add explanations of industry terms that are included in performance criteria or other components of the QP or NOS. The list should then be sorted in alphabetical order.

<table>
<thead>
<tr>
<th>Definitions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sector</strong></td>
<td>Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.</td>
</tr>
<tr>
<td><strong>Subsector</strong></td>
<td>Subsector is derived from a further breakdown based on the characteristics and interests of its components.</td>
</tr>
<tr>
<td><strong>Vertical</strong></td>
<td>Vertical may exist within a subsector representing different domain areas or the client industries served by the industry. In the column “Keywords or Terms,” insert applicable keywords used in the document.</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td>Occupation is a set of job roles that perform similar/related set of functions in an industry.</td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td>Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of NOS.</td>
</tr>
<tr>
<td><strong>Subfunctions</strong></td>
<td>Subfunctions are subactivities essential to fulfil the objectives of the function.</td>
</tr>
<tr>
<td><strong>Job Role</strong></td>
<td>Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.</td>
</tr>
<tr>
<td><strong>Occupational Standards</strong></td>
<td>Occupational standards specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational standards are applicable both in the Indian and global contexts.</td>
</tr>
</tbody>
</table>
Performance Criteria | Performance criteria are statements that specify the key performance indicators or standards when carrying out a task.
---|---
National Occupational Standards (NOS) | NOS are occupational standards that apply uniquely in the Indian context.
Qualifications Pack (QP) | QP comprises the set of occupational standards, together with the educational, training, and other criteria required to perform a job role. A QP is assigned a unique qualification pack code.
Unit Code | Unit code is a unique identifier for an occupational standard, which is denoted by “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 occupational standards they are looking for.
Scope | Scope is the 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 the quality of performance required.
Knowledge and Understanding | Knowledge and understanding are statements that together specify the technical, generic, professional, and organisation-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 or Generic Skills | Core skills or generic skills are a group of skills that are key to learning and working in today’s world. These skills are typically needed in any work environment. In the context of the occupational standards, these include communication-related skills that are applicable to most job roles.

![Diagram: Nomenclature for QP and NOS]

**Annexure**

These numbers are allocated by the SSC.
N1 and N2 refer to the subsector as identified in the industry occupational map.
N3 and N4 refer to the allocated sequential number of the QP within the subsector.


The following is an explanation of the content for each of the fields.

National Occupational Standard

Overview

The NOS description should expand on the information in the unit title, providing clear and accurate information on the purpose and intent of the unit.

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Code as per Protocol for National Occupational Standards Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Title (Task)</td>
<td>The title concisely describes the unit outcome</td>
</tr>
<tr>
<td>Description</td>
<td>The National Occupational Standards (NOS) description should expand on the information in the unit title—providing clear and accurate information on the purpose and intent of the unit. The description succinctly captures what the learner will know and be able to do upon the achievement of the standard.</td>
</tr>
</tbody>
</table>
| Scope | The scope section briefly describes how the unit is practically applied in the industry and in what context(s) the unit may be applied. It includes:  
- a summary statement of unit content;  
- focused, useful information on how and where the unit of competency could be practically applied and who might use it; and  
- the NOS relationship to any licensing, legislative, regulatory or certification requirements.  
Further guidance is included in this manual section. |

Elements and Performance Criteria

Elements

Elements describe in terms of outcomes the significant functions and tasks that make up the NOS. Elements of competency are the basic building blocks of the NOS. The elements describe, in outcome terms, the functions that a person who works in a particular area of work is able to perform—results or outcomes that are demonstrable, measurable, and assessable. They should be written in the form: Verb + noun + possible modifying phrase(s).  
Further guidance is included in this manual at Stage 3: Elements.
Performance criteria
Performance criteria are evaluative statements that specify the required level of performance. Performance criteria describe how we know that a learner is competent (“We will know that you are competent to ... if or when ...”). Performance criteria describe the performance needed to demonstrate achievement of the element to the level acceptable in employment. Performance criteria must always be viewed within the context of the overarching element. Further guidance is included in this manual at Stage 3: Performance Criteria.

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The performance criteria specify the required performance in relevant tasks, roles, skills, and in the applied knowledge needed to demonstrate achievement of the element.</td>
</tr>
<tr>
<td></td>
<td>• Performance criteria clearly relate to the element.</td>
</tr>
<tr>
<td></td>
<td>• They are expressed as a standard.</td>
</tr>
<tr>
<td></td>
<td>• They specify the required performance in relevant tasks, roles, and skills.</td>
</tr>
<tr>
<td></td>
<td>• They reflect the applied knowledge that enables competent performance.</td>
</tr>
</tbody>
</table>

Knowledge and Understanding
The application of knowledge is the key to the transferability of competency to new situations, and needs to be assessed to ensure the person understands the “why” as well as the “how.” Clear articulation of the required knowledge will support training and assessment of the NOS. However, while knowledge should be expressed in units, elements and performance criteria should not be entirely knowledge-based, unless a clear and assessable workplace outcome is described.

Knowledge in units of competency
• should be in context;
• should only be included if it refers to knowledge actually applied in the workplace and must indicate the type and depth of knowledge required to meet the demands of the NOS;
• could be referred to in the performance criteria and evidence and assessment guide in the QP;
• specifies what the individual must know and understand in order to safely and effectively perform the work task described in the NOS;
• relates directly to the performance criteria;
• knowledge is divided into two categories:
  • organisational context (knowledge of the company or organisation and its processes); and
  • technical knowledge

Further guidance is included in this manual in Section 6.5: Knowledge and Understanding.

A. Organisational Context
(knowledge of the company and its organisation and processes)

The user or individual on the job needs to know and understand:
KA1.

B. Technical Knowledge

The user or individual on the job needs to know and understand:
KB1.

Element | Performance Criteria
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The performance criteria specify the required performance in relevant tasks, roles, skills, and in the applied knowledge needed to demonstrate achievement of the element.</td>
</tr>
<tr>
<td></td>
<td>• Performance criteria clearly relate to the element.</td>
</tr>
<tr>
<td></td>
<td>• They are expressed as a standard.</td>
</tr>
<tr>
<td></td>
<td>• They specify the required performance in relevant tasks, roles, and skills.</td>
</tr>
<tr>
<td></td>
<td>• They reflect the applied knowledge that enables competent performance.</td>
</tr>
<tr>
<td><strong>Skills(s) [Optional]</strong></td>
<td><strong>This field is optional; however, SSCs are strongly encouraged to define these fields</strong></td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>A. Core Skills or Generic Skills</strong></td>
<td><strong>Writing Skills</strong>&lt;br&gt;The user or individual on the job needs to demonstrate:&lt;br&gt;SA1. These must specifically relate to the NOS and the level of the QP SA2.</td>
</tr>
<tr>
<td></td>
<td><strong>Reading Skills</strong>&lt;br&gt;The user or individual on the job needs to demonstrate:&lt;br&gt;SA3. These must specifically relate to the NOS and the level of the QP SA4.</td>
</tr>
<tr>
<td></td>
<td><strong>Numeracy Skills</strong>&lt;br&gt;The user or individual on the job needs to demonstrate:&lt;br&gt;SA5. These must specifically relate to the NOS and the level of the QP SA6.</td>
</tr>
<tr>
<td></td>
<td><strong>Oral Communication (Listening and Speaking skills)</strong>&lt;br&gt;The user or individual on the job needs to demonstrate:&lt;br&gt;SA7. These must specifically relate to the NOS and the level of the QP SA8.</td>
</tr>
<tr>
<td></td>
<td><strong>Information Technology Skills</strong>&lt;br&gt;The user or individual on the job needs to demonstrate:&lt;br&gt;SA9. These must specifically relate to the NOS and the level of the QP SA10.</td>
</tr>
<tr>
<td><strong>B. Professional Skills</strong></td>
<td><strong>Decision Making</strong>&lt;br&gt;The user or individual on the job needs to demonstrate:&lt;br&gt;SB1. These must specifically relate to the NOS and the level of the QP SB2.</td>
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<td></td>
<td><strong>Plan and Organise</strong>&lt;br&gt;The user or individual on the job needs to demonstrate:&lt;br&gt;SB3. These must specifically relate to the NOS and the level of the QP SB4.</td>
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<td><strong>Customer Centricity</strong>&lt;br&gt;The user or individual on the job needs to demonstrate:&lt;br&gt;SB5. These must specifically relate to the NOS and the level of the QP SB6.</td>
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<td><strong>Problem Solving</strong>&lt;br&gt;The user or individual on the job needs to demonstrate:&lt;br&gt;SB7. These must specifically relate to the NOS and the level of the QP SB8.</td>
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<td><strong>Analytical Thinking</strong>&lt;br&gt;The user or individual on the job needs to demonstrate:&lt;br&gt;SB9. These must specifically relate to the NOS and the level of the QP SB10.</td>
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<td></td>
<td><strong>Critical Thinking</strong>&lt;br&gt;The user or individual on the job needs to demonstrate:&lt;br&gt;SB11. These must specifically relate to the NOS and the level of the QP SB12.</td>
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</tbody>
</table>
The development and writing of NOS is a technical task of a specialist or expert. Competency-based training and assessment has its own vocabulary and NOS developers will need to develop an understanding of that vocabulary.

NOS developers also need to be familiar with competency-based (or criterion referenced) assessment. An understanding of competency-based assessment will assist them to write NOS that are assessable.

**Required Skills**

(i) **Communication skills**
   - identify and clarify the purpose and scope of NOS development
   - elicit relevant information from people during research
   - consult widely and effectively
   - convey ideas and information
   - conduct interviews and ask relevant questions
   - discuss issues and matters relating to NOS development

(ii) **Research and analysis skills**
   - gather information from a range of sources
   - analyse information for validity and reliability
   - undertake literature reviews
   - use a variety of research methods
   - analyse NOS

(iii) **Thinking skills**
   - conceptualise competency
   - synthesise information
   - order and determine relevant information
   - think laterally
   - process and sort information from a range of sources and determine what is useful or relevant
   - filter, order, critique, and evaluate information
   - identify and respond to different stimuli and “discover” new or important information
(iv) **Literacy skills**
   a. read and interpret written information, guidelines, and other documents
   b. write clear and cohesive specifications
   c. use plain English
   d. use appropriate technical language in the area of vocational competency
   e. use the language of training or vocational education and training
   f. translate the range of processes and procedures followed in a job to a set of skills and knowledge

(v) **Facilitation skills**
   a. undertake consultative processes
   b. run workshops and focus groups
   c. ensure effective participation by stakeholders and individuals
   d. obtain support from stakeholders

(vi) **Presentation skills**
   a. present information, feedback, and advice to stakeholders in consultation processes

(vii) **Technology skills**
   a. develop the NOS in the format requested by the brief
   b. distribute and gather information

(viii) **Reflection skills**
   a. own work
   b. other developers’ work
   c. the processes used to develop the NOS

**Required Knowledge**

(i) **Knowledge of QP-NOS development processes, including**
   a. the structure and format of endorsed NOS
   b. how the different parts of a NOS work together and how to link them
   c. how and where assessment requirements are defined in the Qualification Pack
   d. the language and terminology used
   e. current NSDC guidelines for developing competency standards and any other related guidelines

(ii) **Knowledge of who to collaborate with to get information about NOS and their development, for example:**
   a. other developers
   b. trainers, facilitators, and/or assessors
   c. sector skills councils
   d. employer organisations and unions
   e. international organisations
   f. regulatory authorities
   g. professional bodies
(iii) **Knowledge of the difference between:**
   - a. skills, knowledge, and attributes
   - b. technical skills and generic skills
   - c. tasks and work functions
   - d. the dimensions of competency and the format of NOS

(iv) **Knowledge of a range of research methods, for example:**
   - a. focus groups
   - b. functional analysis workshops
   - c. structured interviews
   - d. observation
   - e. evaluation of documentation
   - f. desk research
   - g. using international standards

(v) **Knowledge of the technical and vocational education and training environment, for example:**
   - a. different organisations and the information they can provide
   - b. endorsement processes set out by NSDC
   - c. the role of Qualification Packs and NOS
   - d. developments relating to Qualification Packs and NOS as the Indian system evolves and improves

(vi) **Knowledge of relevant policy, legislation, codes of practice, and national standards including national and state legislation, for example:**
   - a. plagiarism, copyright, ethical practice
   - b. major policy impacting on NOS development
   - c. licensing requirements
   - d. duty of care under common law
   - e. anti-discrimination including equal opportunity, and disability discrimination
   - f. industrial relations requirements including relevant workplace agreements
   - g. relevant workplace safety and health (WSH) knowledge relating to the work role and WSH considerations which need to be included in the content of NOS
   - h. WSH obligations of the training provider and/or assessment body, the trainer or facilitator, and/or assessor and learner
This glossary has been developed by the National Skill Development Corporation to define technical and other terms related to the policy, development, endorsement, and content of Qualification Packs (QPs) and National Occupational Standards (NOS).

<table>
<thead>
<tr>
<th>Code</th>
<th>The unique alpha-numeric identifier allocated to the NOS and QPs</th>
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<tbody>
<tr>
<td>Competency</td>
<td>The consistent application of knowledge and skill to the standard of performance required in the workplace. It embodies the ability to transfer and apply skills and knowledge to new situations and environments.</td>
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<tr>
<td>Contingency Management Skills</td>
<td>One of the four dimensions of competency. These skills involve responses to irregularities and breakdowns in routine.</td>
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<tr>
<td>Credit</td>
<td>The value assigned for the recognition of equivalence in content and learning outcomes between different types of learning and/or qualifications that reduces the amount of learning required to achieve a qualification.</td>
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<tr>
<td>Credit Transfer</td>
<td>A process that provides students with agreed and consistent credit outcomes based on identified equivalence in content and learning outcomes between matched qualifications.</td>
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<tr>
<td>Dimensions of Competency</td>
<td>Dimensions are part of the broad concept of competency, which includes all aspects of work performance, namely, task skills, task management skills, contingency management skills, and job or role environment skills.</td>
</tr>
<tr>
<td>Elements</td>
<td>Elements of NOS that describe actions or outcomes that are demonstrable and assessable.</td>
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<tr>
<td>Entry Requirements</td>
<td>Specified prior knowledge, skill, and experience, expressed in terms of competency, and may include licensing or industry recognized standards. Where entry requirements are identified, these are mandatory.</td>
</tr>
<tr>
<td>Job or Role Environment Skills</td>
<td>One of the four dimensions of competency. These skills involve demonstrating the ability to deal with responsibilities and expectations of the workplace, including working with others.</td>
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<tr>
<td>Knowledge</td>
<td>Conceptual and procedural forms of knowledge and the disposition (the values and attitudes) that underpin them. Conceptual knowledge comprises facts, information, propositions, assertions, and concepts that range in levels of increasing complexity. Procedural knowledge comprises techniques, skills, and the ability to secure goals.</td>
</tr>
<tr>
<td>Language, Literacy, and Numeracy</td>
<td>The collective skills for communicating in oral and written form. Includes reading and use of written information; ability to write appropriately and in a range of contexts; and integration of speaking, listening, and critical thinking with reading and writing. Also includes numeracy, such as the recognition and use of numbers and basic mathematical signs and symbols within text.</td>
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<tr>
<td>National Occupational Standard</td>
<td>The specifications of knowledge and skill, and the application of that knowledge and skill to the standard of performance required in the workplace.</td>
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<tr>
<td>National Skills Quality Framework Alignment</td>
<td>Alignment to the National Skills Quality Framework (NSQF): occurs when a group of NOS within a QP are a viable NSQF level (in line with the guidance provided in the current National Skills Quality Framework notification at <a href="http://www.skilldvelopment.gov.in/sites/default/files/resources/NQSF_Notification_English.pdf">http://www.skilldvelopment.gov.in/sites/default/files/resources/NQSF_Notification_English.pdf</a>)</td>
</tr>
<tr>
<td>National Skills Qualification Framework</td>
<td>The policy framework that defines all qualifications recognized nationally in postcompulsory education and training in India.</td>
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<tr>
<td>NOS Descriptor</td>
<td>Communicates the content of the unit of NOS and the skill area it addresses.</td>
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<tr>
<td>NOS Title</td>
<td>A concise description of the discrete workplace outcome to be achieved by the NOS.</td>
</tr>
<tr>
<td>Occupational Mapping</td>
<td>Framework to help identify unique job roles that exist in the industry in each subsector.</td>
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<tr>
<td>Performance Criteria</td>
<td>Specifies the standard to which elements must be achieved and reflects the applied knowledge that enables competent performance.</td>
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<tr>
<td>Assessment to Qualification Pack</td>
<td>Formal certification, issued by a relevant approved body, in recognition that a person has achieved learning outcomes or competencies relevant to identified individual, professional, or industry needs. In the TVET sector, qualifications are awarded for the achievement of competencies.</td>
</tr>
<tr>
<td>Skills and Knowledge</td>
<td>Essential personal attributes and professional abilities identified in NOS as required for competent performance.</td>
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<tr>
<td>Sector Skills Councils</td>
<td>National bodies contracted by the NSDC to develop and maintain NOS and QPs specific to the industry area(s) for which they have coverage, and to accredit training affiliates and assessment bodies.</td>
</tr>
<tr>
<td>Skills</td>
<td>An ability to perform a particular activity that may be developed by training or practice, which may be intellectual, manual, motor, perceptual, or social. Specified skills are identified as part of each NOS and competence usually requires a combination of skills in the application of cognitive and psycho-motor functions.</td>
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<tr>
<td>Task Management Skills</td>
<td>One of the four dimensions of competency. These skills involve demonstration of the ability to manage a number of different tasks, operations, and activities within the job role or work environment.</td>
</tr>
<tr>
<td>Task Skills</td>
<td>One of the four dimensions of competency encompassing the ability to perform individual tasks.</td>
</tr>
<tr>
<td>Technical and Vocational Education and Training</td>
<td>The sector responsible for developing the skills and knowledge of individuals for work. It includes vocational education and training undertaken in industries, enterprises, government agencies, and community and school settings.</td>
</tr>
<tr>
<td>Vocational Competency</td>
<td>Broad industry knowledge and experience, usually combined with a relevant industry qualification. A person who has vocational competency will be familiar with the content of the vocation and will have relevant current experience in the sector.</td>
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