



Model Curriculum

QP Name: Surveyor-Aide

QP Code: CON/Q0903

QP Version: 1.0

NSQF Level: 2

Model Curriculum Version: 1.0

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Training Parameters

Sector	Construction
Sub-Sector	Real Estate and Infrastructure Construction
Occupation	Surveying
Country	India
NSQF Level	2
Aligned to NCO/ISCO/ISIC Code	NCO-2015/2165.9900
Minimum Educational Qualification and Experience	Ability to read and write
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	N/A
Next Review Date	N/A
NSQC Approval Date	N/A
QP Version	Version number 1.0
Model Curriculum Creation Date	15/02/2023
Model Curriculum Valid Up to Date	15/08/2023
Model Curriculum Version	Version number 1.0
Minimum Duration of the Course	210 hrs
Maximum Duration of the Course	210 hrs



Program Overview

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Identify and handle various tools and instruments used in surveying.
- Demonstrate handling, storing and stacking of surveying tools, instruments and materials.
- Explain the standard procedures of levelling, linear and angular measurements.
- Demonstrate placement and fixing of tripod.
- Demonstrate initial setup and fixing of staff for angular measurement and levelling.
- Demonstrate layout marking for setting out.
- Demonstrate effective communication with co-workers, superiors and sub-ordinates across different teams
- Provide support to co-workers, superiors and sub-ordinates within the team and across interfacing teams to ensure effective execution of assigned task.
- Demonstrate practices sensitive to disabilities (physical, mental, intellectual or sensory impairment), cultural diversity and gender neutrality
- Identify various hazards at construction site.
- Use PPE's relevant to surveying works.
- Perform safe waste disposal at construction site.
- Demonstrate the activities to check the spread of infection as per medical/ organizational guidelines

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration (Hrs)	Practical Duration (Hrs)	On-the-Job Training Duration (Mandatory) (Hrs)	On-the-Job Training Duration (Recommended) (Hrs)	Total Duration (Hrs)
CON/N0901: Handle and store tools and instruments used in surveying work as per the instructions NOS Version No. 2.0 NSQF Level 2	09:00	36:00	--	--	45:00
Handle tools and instruments used in surveying	09:00	36:00	--	--	45:00
CON/N0902: Provide support in various surveying works NOS Version No. 2.0 NSQF Level 2	09:00	36:00	--	--	45:00
Provide support in surveying works	09:00	36:00	--	--	45:00
CON/N8001-Work effectively in a team to	06:00	24:00	--	--	30:00



deliver results at a construction site NOS Version No.11.0 NSQF Level 2					
Communicate effectively at workplace	06:00	24:00	--	--	30:00
CON/N8002 Plan and organize work to meet expected outcomes NOS Version No. 8.0 NSQF Level 2	06:00	24:00	--	--	30:00
Prioritise activities and organise resources	06:00	24:00	--	--	30:00
CON/N9001-Work according to personal health, safety and environment protocol at construction site NOS Version No.9.0 NSQF Level 2	06:00	24:00	--	--	30:00
Follow safety norms as defined by organization, adopt healthy and safe work practices	06:00	24:00	--	--	30:00
DGT/VSQ/N0101: Employability Skills (30 Hours) NOS Version No.1.0 NSQF Level 2	30:00 hrs	00:00	--	--	30:00 hrs
Employability Skills	30:00 hrs	00:00	--	--	30:00 hrs
Total Duration	84:00 hrs	126:00 hrs	--		210:00 hrs



Module Details

Module 1: Handle and store tools and instruments used in surveying work as per the instructions

Mapped to CON/N0901

Terminal Outcomes:

- Identify and handle various tools and instruments used in surveying.
- Demonstrate handling, storing and stacking of surveying tools, instruments and materials.

Duration: 09:00	Duration: 36:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • List various tools and accessories such as chains, tapes, offsets, poles, compass, pegs etc. used in chain and compass surveying • Explain the purpose and area of applications of linear measurement instruments. • List the various level and bearing measuring instruments such as dumpy level, auto level, tilting level etc. • Explain the process and use of levelling accessories such as levelling staff, arrows and pegs. • List various level and angle measuring instruments like tachometer, theodolite, total station etc. • Explain the standard handling of various surveying instruments and materials used in linear, angular , level and bearing measurement. 	<ul style="list-style-type: none"> • Classify various instruments types of surveying instruments such as linear, level and bearing measurement instruments etc. • Demonstrate handling of chains and tapes for precise reading. • Demonstrate handling of offsets, levelling equipment, angles, angle measuring instruments and other tools and accessories used in surveying works. • Demonstrate handling of miscellaneous instruments such as those used in GPS, photogrammetry and transit surveys. • Demonstrate storing and stacking of surveying tools and instruments. • Demonstrate handling, stacking and storing different surveying materials such as lime, strings, hurdles, paints etc. as per standard practices/instructions.
Classroom Aids:	
Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts, Safety tags, Safety Notice board, registers and other teaching aids	
Tools, Equipment and Other Requirements	
chains , tapes, offsets, poles, compass, dumpy level, auto level, tilting level, tripods, levelling staff, arrows, Pegs, Tachometer, Theodolite, Total station, lime, strings, hurdles , paints	



Module 2: Provide support in various surveying works

Mapped to CON/N0902

Terminal Outcomes:

- Explain the standard procedures of levelling, linear and angular measurements.
- Demonstrate placement and fixing of tripod.
- Demonstrate initial setup and fixing of staff for angular measurement and levelling.
- Demonstrate layout marking for setting out.

Duration: 09:00	Duration: 36:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain selection of tripods based upon the instrument to be used. • Describe importance of placing the tripod at the exact location of marking. • Explain standard procedure for linear and angular measurements. • List different types of staffs to be used for different types of instruments. • Describe different method of holding the staff. • Explain standard procedure for marking various points and symbols for layout, using paint. • Explain procedure for setting out using hurdles/profiles for layout marking. • Explain procedures for installing hurdles and profiles for setting out. • Describe importance of correct setting out. • Explain the process of marking layout for excavation using lime. 	<ul style="list-style-type: none"> • Demonstrate selection and shifting of tools and materials to the instructed location. • Demonstrate placing and fixing of tripod on the marked location. • Demonstrate unfolding of the chain as per standard practices. • Demonstrate liner measurements of distances using chains, ranging rods and arrows, while properly interpreting the hand signals. • Demonstrate initial setting up of instruments and fixing of staff for capturing reading in angular measurement and levelling. • Demonstrate the process of setting out — marking points of layout and installing hurdles, marking grids and connecting hurdles —as per layout/work plan. • Demonstrate marking of layout for excavation using lime.
Classroom Aids:	
Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts, Safety tags, Safety Notice board, registers and other teaching aids	
Tools, Equipment and Other Requirements	
chains , tapes, offsets, poles, compass, dumpy level, auto level, tilting level, tripods, levelling staff, arrows, Pegs, Tachometer, Theodolite, Total station, lime, strings, hurdles , paints	



Module 3: Communicate effectively at workplace

Mapped to CON/N8001

Terminal Outcomes:

- Demonstrate effective communication with co-workers, superiors and sub-ordinates across different teams
- Provide support to co-workers, superiors and sub-ordinates within the team and across interfacing teams to ensure effective execution of assigned task.
- Demonstrate practices sensitive to disabilities (physical, mental, intellectual or sensory impairment), cultural diversity and gender neutrality.

Duration: 06:00	Duration: 24:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the effects and benefits of timely actions relevant to the task at hand with examples. • Explain the importance of teamwork and its effects relevant to the task at hand with examples. • Explain the importance of proper and effective communication and its adverse effects in case of failure of proper communication. • Discuss about gender and its related concept: gender equality, gender equity (group work) • Discuss different types of disabilities (physical, mental, intellectual or sensory impairment). • Discuss the activities sensitive to the cultural diversity, disabilities and gender neutrality at the workplace. • Discuss the basic rules and regulations related to gender sensitivity, disabilities, and cultural diversity, with their impact on operations of a workplace. • Discuss how to take initiative in resolving issues among co-workers in a given situation. • Discuss reporting procedure followed at the workplace. 	<ul style="list-style-type: none"> • Apply effective communication skills while interacting with co-workers, trade seniors and others during the assigned task. • Use appropriate writing skills and verbal communication reporting as per commonly acceptable organisational norms. • Demonstrate teamwork skills during assigned task. • Demonstrate acceptable interpersonal transactions with individuals having disabilities (physical, mental, intellectual or sensory impairment) or cultural diversity. • Demonstrate the process modifications required to make the workplace free from gender biases.
Classroom Aids:	
Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts, Safety tags, Safety Notice board, registers and other teaching aids	
Tools, Equipment and Other Requirements	
N/A	



Module 4: Prioritise activities and organise resources

Mapped to CON/N8002

Terminal Outcomes:

- Demonstrate prioritizing of work activities to achieve the desired productivity.
- Demonstrate organizing of resources as per work plan prior to commencement of work.

Duration: 06:00	Duration: 24:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain methods to upkeep, store and stack tools, materials used for domain specific works. • Explain the process of planning of the given tasks and activities relevant to the trade/job role within defined scope and duration. • Explain the procedure adopted for prioritizing an activity and sequencing of activities. • Explain the work plan and flow of activities in sequence for the assigned work. • Explain basic concept of labour productivity and work productivity. • Explain requisition of resources, reporting for requirement of resources orally and in written to concerned authority. • Explain how to minimise wastage of resources. • Explain the plan for waste collection and disposal after task. • • 	<ul style="list-style-type: none"> • Identify the work target and plan activities to achieve the desired productivity. • Demonstrate requisition of resource citing an example. • Demonstrate the planning for various activities relevant to task as per the scope and schedule. • Demonstrate how to organise the required tool, manpower and material resources for the assigned task. • Select required quantity of materials, tools or devices for defined work activities. • Demonstrate how to prioritize all works/ activities to maximise output. • Demonstrate optimum use of resources while performing domain specific work activities. • Demonstrate waste collection and disposal as per organisational norms. • Demonstrate completion of work within stipulated time and plan.
Classroom Aids:	
Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts, Safety tags, Safety Notice board, registers and other teaching aids	
Tools, Equipment and Other Requirements	
N/A	



Module 5: Follow safety norms as defined by organization, adopt healthy and safe work practices

Mapped to CON/N9001

Terminal Outcome:

- Identify various hazards at construction site.
- Use PPE's relevant to surveying task.
- Perform safe waste disposal at construction site.
- Demonstrate the activities to check the spread of infection as per medical/ organizational guidelines.

Duration: 06:00	Duration: 24:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Explain the types of hazards at the construction sites and identify the hazards specific to the domain related works. • Recall the safety control measures and actions to be taken under emergency situation. • Explain the classes of fire and types of fire extinguishers. • Explain the importance of participation of workers in safety drills. • Explain the reporting procedure to the concerned authority in case of emergency situations. • Describe the standard procedure for handling, storing and stacking of material, tools, equipment and accessories. • Explain different types of waste at construction sites and their disposal method. • Explain the purpose and importance of vertigo test at construction site. • List out basic medical tests required for working at construction site. • Explain the types and benefits of basic ergonomic principles, which should be adopted while carrying out specific task at the construction sites. • Explain the importance of housekeeping works. • List different types of infectious disease that can spread/ originate at a construction site • Discuss the ways of transmission of the various infectious disease. 	<ul style="list-style-type: none"> • Demonstrate the operating procedure of the fire extinguishers. • Demonstrate use of PPEs as per work requirements. • Demonstrate vertigo test. • Demonstrate safety techniques to be adopted in case of accidents. • Demonstrate safe waste disposal practices followed at construction site. • Demonstrate safe housekeeping practices. • Demonstrate the practices to maintain personal hygiene, workplace hygiene and site/ workplace sanitization. • Demonstrate the methods to clean and disinfect all materials, tools and supplies before and after use. • Demonstrate the procedure to report to the concerned authority regarding the outbreak/ hazard of any infectious disease/ pandemic.



- Explain the methods to check the spread of the infectious disease.
- Describe the symptoms and cure of the various infectious disease.

Classroom Aids:

Black/White board, marker, Projector/LED Monitor, Computer, Trade specific charts, Safety tags, Safety Notice board, registers and other teaching aids

Tools, Equipment and Other Requirements

Safety Helmets, Face shield, Overalls, Knee pads, Safety shoes, Safety belts, Safety harness, Safety Gloves, Safety goggles, Particle masks, Ear Plugs, Reflective jackets, Fire Extinguisher, Fire prevention kit, First Aid box, Safety tags, Safety Notice board



Module 6: Employability Skills

Mapped to DGT/VSQ/N0101

Terminal Outcome:

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

Duration: 30:00	Duration: 00:00
Theory – Key Learning Outcomes	Practical – Key Learning Outcomes
<ul style="list-style-type: none"> • Discuss the importance of Employability Skills in meeting the job requirements • Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen. • Show how to practice different environmentally sustainable practices • Discuss 21st century skills. • Display positive attitude, self-motivation, problem solving, time management skills and continuous learning mindset in different situations. • Use appropriate basic English sentences/phrases while speaking • Demonstrate how to communicate in a well-mannered way with others. • Demonstrate working with others in a team • Show how to conduct oneself appropriately with all genders and PwD • Discuss the significance of reporting sexual harassment issues in time • Discuss the significance of using financial products and services safely and securely. • Explain the importance of managing expenses, income, and savings. • Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws 	



<ul style="list-style-type: none">• Show how to operate digital devices and use the associated applications and features, safely and securely• Discuss the significance of using internet for browsing, accessing social media platforms, safely and securely• Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges• Differentiate between types of customers• Explain the significance of identifying customer needs and addressing them• Discuss the significance of maintaining hygiene and dressing appropriately• Create a biodata• Use various sources to search and apply for jobs• Discuss the significance of dressing up neatly and maintaining hygiene for an interview• Discuss how to search and register for apprenticeship opportunities	
Classroom Aids:	
Computer, printer, projector, white board/ flip chart, marker and duster	
Tools, Equipment and Other Requirements	
Computer (PC) with latest configurations – and Internet connection with standard operating system and standard word processor and worksheet software (Licensed) (all software should either be latest version or one/two version below), UPS, Scanner cum Printer, Computer Tables, Computer Chairs, LCD Projector, White Board 1200mm x 900mm	



Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Post-Graduation/ Graduation in Engineering	M. Tech in Civil/B. Tech in civil	6 months	Civil Engineering	0	Civil Engineering	As a pre-requisite for new entrant, no prior experience in training /assessment is mandatory. However, if someone with prior experience in requisite domain joins, experience will be measured in terms of relevant industry experience.
Diploma	Diploma in Civil/surveying	One	Civil Engineering	0	Civil Engineering	
Graduation/ Ex. Army /ITI /12 th pass	General B.A./B.Sc./ Graduation certificate from Army/ITI certificate in relevant trade/12 th pass	Two	Working as surveyor/surveying domain	0	Working as surveyor/surveying domain	

Trainer Certification	
Domain Certification	Platform Certification
70 % in each NOS of Qualification Pack “Surveyor-Aide CON/Q0903 v1.0” & 80% overall.	80% in each NOS of Qualification Pack “Trainer MEP/Q2601, v2.0” and 80% overall



Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training/Assessment Experience		Remarks
		Years	Specialization	Years	Specialization	
Post-Graduation/ Graduation in Engineering	M. Tech in Civil/B. Tech in civil	One	Civil Engineering	0	Civil Engineering	As a pre-requisite for new entrant, no prior experience in training /assessment is mandatory. However, if someone with prior experience in requisite domain joins, experience will be measured in terms of relevant industry experience.
Diploma	Diploma in Civil/surveying	Two	Civil Engineering	0	Civil Engineering	
Graduation/ Ex. Army /ITI /12 th pass	General B.A./B.Sc./ Graduation certificate from Army/ITI certificate in relevant trade/12 th pass	Three	Working as surveyor/surveying domain	0	Working as surveyor/surveying domain	

Assessor Certification	
Domain Certification	Platform Certification
70% in each NOS of Qualification Pack “Surveyor-Aide CON/Q0903 v1.0” & 80% overall	80% in each NOS of Qualification Pack “Assessor MEP/Q2701, v2.0” and overall 80%.



Assessment strategy

Assessment system Overview

Assessment is done through CSDCI affiliated Assessment Body. Assessors are trained & certified by CSDCI after a 10-day training of assessor's program. Assessments is conducted to gauge and assess the trainee's skill and knowledge competency in the specified areas. The assessment will have both theory and practical components in 20:80 ratio for Surveyor-Aide job role.

During the practical task, trainees are assessed on their workmanship, quality of finished product and time management .They will be graded for all their assessments based on the approved assessment strategy which is signed off by CSDCI. The Assessor submits an assessment plan to CSDCI prior to assessments

The assessment plan contains the following information:

- What will be assessed, i.e. the competency based on each NOS based on theory and practical questions
- How assessment will occur i.e. methods of assessment
- When the assessment will occur
- duration of assessment
- Where the assessment will take place i.e. context of the assessment (workplace/simulation)
- The criteria for decision making i.e. those aspects that will guide judgments and
- Where appropriate, any supplementary criteria used to make a judgment on the level of performance.

Testing Environment

Training partner shares the batch start date and end date, number of trainees and the job role.

Assessment will be fixed for a day after the end date of training. It could be next day or later. Assessment will be conducted at the training venue/test center.

The knowledge/theory assessments are conducted with proper seating arrangements with enough space between the candidates to prevent copying.

Question set for theory and practical will be distributed to each candidate by the Assessor. Theory testing will include multiple choice questions, pictorial question, etc. which will test the trainee on his theoretical knowledge of the subject. The skill /practical assessments will be conducted in the approved test centers. The Assessment agency/ Assessor will ensure adequate tools and materials are available to conduct the practical test.

The theory and practical assessments will be carried out on same day. If number of candidates are more than 20, more assessors will be organized on same day to complete the assessment

The assessment has to comprise of two components, namely:

1. Knowledge assessment (theory/viva assessment)
2. Skill assessment (practical/hands-on skill assessment)



Mode of assessment

1. Demonstration/Practical for Performance /Skill Assessment
 2. Synoptic multiple choice question test
 3. Viva
- } For Knowledge Assessment

Performance/skill assessment: The performance/skill assessment will be conducted through demonstration/practical

For the practical test trainees are assessed through a given task, which they have to complete correctly for them to be marked as passed.

The assessment is conducted in a simulated working environment. Due to this fact, the assessors must note that the naturally occurring evidence of competence is unavailable or infrequent. Simulation must be undertaken in a Realistic Working Environment which provides an environment that replicates the key characteristics of the workplace in which the skill to be assessed is normally employed.

Knowledge Assessment: The knowledge assessments are conducted through written test/ viva.

Synoptic test is used for this. It is an MCQ (Multiple Choice Question) test which are prepared externally and externally marked, meaning by agency having no link with training partners. The test may be conducted by the assessor in the oral mode, if required, considering the lack of reading and comprehending acumen (skills) of trainees. In such cases, the assessor will mention it on top of the MCQ submitted to CSDCI.

The assessment strategy, weightage and duration of assessment for assistant surveyor is summarized below:

Assessment Type	Formative or Summative	Strategies	Weightage	Duration (hours)
Knowledge	Summative	MCQ/Viva	20	1.0
skill	Summative	Structured practical task	80	5.0

Assessment Quality Assurance framework

CSDCI has developed assessment criteria framework for each Qualification pack as per National Occupational Standards. The criteria framework includes weightages/marks for each criteria under knowledge and skill. This criteria ensures quality assurance as it ensures valid, consistent and fair assessments at all locations. Issued to the affiliated Assessment body. The Assessment body develop questions based on CSDCI issued assessment criteria.

Evidences in the form of answer sheets in case of knowledge assessments are collected. For skill assessments videos and photographs are prepared as evidence. These are submitted by the assessor to



the assessment agency. CSDCI does random checks of the same with the participant/ trainee's ID and ascertains authenticity and validity of assessments.

The training partner will intimate the time of arrival of the assessor and time of leaving the venue. Random spot checks/audit is conducted by CSDCI to monitor assessment.

Methods of Validation

Unless the trainee is registered, the person cannot undergo assessment. To further ensure that the person registered is the person appearing for assessment, id verification is carried out. Aadhar card number is part of registering the candidate for training. This forms the basis of further verification during the assessment.

Assessor conducts the assessment through theory and practical questions developed in accordance with the assessment criteria and guidelines issued by CSDCI. This too is verified by random audits carried out by CSDCI.

Evidences for assessments are to be collected and submitted to CSDCI for verification as per demand.

Assessment agency is responsible to put details in SIP. CSDCI will also validate the data and result received from the assessment agency.

Method of assessment documentation and access

The assessment agency will upload the result of assessment in the portal. The data will not be accessible for change by the assessment agency after the upload. The assessment data will be validated by CSDCI assessment team. After upload, only CSDCI can access this data.

CSDCI approves the results within five days after which results are uploaded on SIP by Assessment Agency.