



Qualification Pack



Construction Laboratory & Field Technician

QP Code: CON/Q0402

Version: 3.0

NSQF Level: 3.5

Construction Skill Development Council of India || CPB 103 & 104 (1st Floor), Block 4B, DLF Corporate Park, Phase III, MG Road
Gurgaon-122002 || email:standards@csdcindia.org



Qualification Pack

Contents

CON/Q0402: Construction Laboratory & Field Technician	3
<i>Brief Job Description</i>	3
Applicable National Occupational Standards (NOS)	3
<i>Compulsory NOS</i>	3
<i>Qualification Pack (QP) Parameters</i>	3
CON/N0404: Operate and maintain test instruments and equipment for construction material testing	5
CON/N0405: Carry out testing of cement, concrete, bricks and aggregates	11
CON/N0406: Carry out testing of soil and bitumen in field and site laboratory	17
DGT/VSQ/N0101: Employability Skills (30 Hours)	23
Assessment Guidelines and Weightage	28
<i>Assessment Guidelines</i>	28
<i>Assessment Weightage</i>	29
Acronyms	31
Glossary	32



Qualification Pack

CON/Q0402: Construction Laboratory & Field Technician

Brief Job Description

A Construction Laboratory & Field Technician is responsible for sampling, preparation of test specimens and testing of construction materials including cement, sand, aggregate, bitumen, concrete, brick, and concrete blocks as per standard test procedures.

Personal Attributes

The individual should be physically fit to work in varying sites and conditions. The person should be organized, diligent, methodical, and safety-conscious. The individual should have good communication skills.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

- [1. CON/N0404: Operate and maintain test instruments and equipment for construction material testing](#)
- [2. CON/N0405: Carry out testing of cement, concrete, bricks and aggregates](#)
- [3. CON/N0406: Carry out testing of soil and bitumen in field and site laboratory](#)
- [4. CON/N8001: Work effectively in a team to deliver desired results at the workplace](#)
- [5. CON/N8002: Plan and organize work to meet expected outcomes](#)
- [6. CON/N9001: Work according to personal health, safety and environment protocols at construction site](#)
- [7. DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)

Qualification Pack (QP) Parameters

Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Quality Assurance & Quality Control
Country	India



Qualification Pack

NSQF Level	3.5
Credits	15
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3112.9900
Minimum Educational Qualification & Experience	11th grade pass OR Completed 1st year of 3-year diploma (after 10th) and pursuing regular diploma OR 10th grade pass and pursuing continuous schooling OR 8th grade pass with 3 Years of experience in the relevant field OR Previous relevant Qualification of NSQF Level (2.5) with 3 Years of experience in the relevant field OR Previous relevant Qualification of NSQF Level (3) with 1.5 Years of experience in the relevant field)
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	NA
Next Review Date	30/04/2025
NSQC Approval Date	31/03/2022
Version	3.0
Reference code on NQR	QG-3.5-CO-03377-2024-V1.1-CSDCI
NQR Version	3.0



Qualification Pack

CON/N0404: Operate and maintain test instruments and equipment for construction material testing

Description

This unit describes the skills and knowledge required to select, operate and maintain test instruments & equipment for construction material testing.

Scope

The scope covers the following :

- Check the functioning of instruments prior to testing and maintain them
- Use test instruments, apparatus, and equipment for cement, concrete, and brick sample testing.
- Use test instruments, apparatus, and equipment for aggregate testing
- Use test instruments, apparatus, and equipment for soil and bitumen testing

Elements and Performance Criteria

Check the functioning of instruments prior to testing and maintain them

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

- PC1.** check the working condition of instruments and accessories prior to testing
- PC2.** clean and lubricate the instruments as per applicability
- PC3.** check the calibration of instruments prior to testing as per applicability
- PC4.** upkeep all relevant tools, instruments, apparatus and equipment

Use test instruments, apparatus, and equipment for cement, concrete, and brick samples testing

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

- PC5.** use IS sieves, Vicat apparatus, Le-Chatelier apparatus, Le-Chatelier flask and cube moulds for cement testing as per standard operating procedure
- PC6.** use concrete cube moulds/ cylindrical moulds, slump cone apparatus, compacting factor test apparatus, flow table test apparatus, Vee bee test apparatus for concrete test as per standard operating procedure
- PC7.** operate compressing testing machine as per standard operating procedure for cement, concrete cubes and brick samples
- PC8.** monitor and record temperature of curing tank in standard performance
- PC9.** use weighing balance and heating oven for cement, concrete, brick testing as per applicability

Use test instruments, apparatus, and equipment for aggregate testing

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

- PC10.** use pycnometer, cylindrical metal container, oven, weighing balance for testing of fine aggregate as per standard operating procedure
- PC11.** use IS sieve, flakiness gauge, elongation gauge, crushing value apparatus, impact value apparatus, abrasion value apparatus for testing of coarse aggregate as per standard operating procedure



Qualification Pack

PC12. operate compression testing machine to determine crushing value of coarse aggregate as per standard operating procedure

Use test instruments, apparatus, and equipment for soil and bitumen testing

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

PC13. use IS sieves, compaction test apparatus, rapid moisture content meter apparatus, Casagrande's device, mechanical sieve shaker, heating oven, core cutting test apparatus for field testing of soil as per standard operating procedure

PC14. use centrifuge extractor, thermometer, specific gravity bottle, penetrometer, bitumen compactor, flash and fire point test apparatus, Marshall stability test apparatus for testing of bitumen as per standard operating procedure

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** standard procedure for testing of the material sample in laboratory and field relevant to quality assurance and quality control works in construction
- KU2.** safety rules and regulation for handling and storing of construction laboratory and field testing tools, equipment and materials
- KU3.** importance of personal protection including the use of related safety gears & equipment in accordance with organizational norms
- KU4.** service request procedures for tools, materials and equipment as per organizational norms
- KU5.** how to identify different types of tools, instruments and equipment used for testing of cement, concrete, bricks, aggregate, soil and bitumen
- KU6.** importance of periodical calibration of testing tools, apparatus, instruments and equipment
- KU7.** how to check working condition of testing instruments and equipment used for testing of cement, concrete, bricks, aggregate, soil and bitumen
- KU8.** how to operate instruments and equipment as per manufacturer's specification
- KU9.** upkeep, repair and maintenance of tools and equipment
- KU10.** how to operate compression testing machine for testing of cement, concrete, bricks and aggregate

Generic Skills (GS)

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

- GS1.** write in one or more language, preferably in the local language of the site
- GS2.** read sketches related to setting of instruments, operational manual of instruments, standard test procedure related to testing of material and field testing, various signboards, safety rules, safety tags, and instructions related to exit routes during an emergency at the workplace
- GS3.** speak in one or more language, preferably one of the local language at site
- GS4.** communicate orally and effectively with team members
- GS5.** analyze the safety aspect of the workplace
- GS6.** plan work and organize required resource effectively



Qualification Pack

- GS7.** complete work as per agreed time schedule and quality parameters
- GS8.** resolve any conflict within the teammates
- GS9.** evaluate the complexity of the tasks
- GS10.** identify any violation of safety norms during the work



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Check the functioning of instruments prior to testing and maintain them</i>	8	15	-	3
PC1. check the working condition of instruments and accessories prior to testing	-	-	-	-
PC2. clean and lubricate the instruments as per applicability	-	-	-	-
PC3. check the calibration of instruments prior to testing as per applicability	-	-	-	-
PC4. upkeep all relevant tools, instruments, apparatus and equipment	-	-	-	-
<i>Use test instruments, apparatus, and equipment for cement, concrete, and brick samples testing</i>	8	25	-	2
PC5. use IS sieves, Vicat apparatus, Le-Chatelier apparatus, Le-Chatelier flask and cube moulds for cement testing as per standard operating procedure	-	-	-	-
PC6. use concrete cube moulds/ cylindrical moulds, slump cone apparatus, compacting factor test apparatus, flow table test apparatus, Vee bee test apparatus for concrete test as per standard operating procedure	-	-	-	-
PC7. operate compressing testing machine as per standard operating procedure for cement, concrete cubes and brick samples	-	-	-	-
PC8. monitor and record temperature of curing tank in standard performa	-	-	-	-
PC9. use weighing balance and heating oven for cement, concrete, brick testing as per applicability	-	-	-	-
<i>Use test instruments, apparatus, and equipment for aggregate testing</i>	5	10	-	2
PC10. use pycnometer, cylindrical metal container, oven, weighing balance for testing of fine aggregate as per standard operating procedure	-	-	-	-



Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. use IS sieve, flakiness gauge, elongation gauge, crushing value apparatus, impact value apparatus, abrasion value apparatus for testing of coarse aggregate as per standard operating procedure	-	-	-	-
PC12. operate compression testing machine to determine crushing value of coarse aggregate as per standard operating procedure	-	-	-	-
<i>Use test instruments, apparatus, and equipment for soil and bitumen testing</i>	9	10	-	3
PC13. use IS sieves, compaction test apparatus, rapid moisture content meter apparatus, Casagrande's device, mechanical sieve shaker, heating oven, core cutting test apparatus for field testing of soil as per standard operating procedure	-	-	-	-
PC14. use centrifuge extractor, thermometer, specific gravity bottle, penetrometer, bitumen compactor, flash and fire point test apparatus, Marshall stability test apparatus for testing of bitumen as per standard operating procedure	-	-	-	-
NOS Total	30	60	-	10



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CON/N0404
NOS Name	Operate and maintain test instruments and equipment for construction material testing
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Quality Assurance & Quality Control
NSQF Level	3.5
Credits	3
Version	3.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022



Qualification Pack

CON/N0405: Carry out testing of cement, concrete, bricks and aggregates

Description

This unit describes the skills and knowledge required to carry out testing of cement, concrete, bricks and aggregates

Scope

The scope covers the following :

- Carry out testing of cement, concrete, brick and block sample
- Carry out testing of aggregate sample

Elements and Performance Criteria

Carry out testing of cement, concrete, brick and block sample

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

- PC1.** interpret the testing procedures for the construction materials such as cement, concrete, bricks, blocks etc. from standard lab manuals and IS codes, prior to commencement of testing
- PC2.** collect cement/ concrete/ bricks /blocks sample from the concerned lot of the construction materials
- PC3.** perform standard test on the cement sample to determine consistency, initial and final setting, fineness, soundness, specific gravity etc.
- PC4.** perform slump cone, compaction factor and Vee-bee test on fresh concrete as per standard test procedure
- PC5.** cast the cement cube and concrete cube in fields and laboratory as per standard procedure for compressive strength testing of cement and concrete
- PC6.** carry out test to determine compressive strength of cement cube and concrete cube as per standard test procedure
- PC7.** perform test on the brick sample to determine water absorption, compressive strength, efflorescence as per standard test procedure
- PC8.** perform test on the block sample to determine water absorption, density and compressive strength as per standard test procedure
- PC9.** record readings relevant to cement/concrete/bricks/blocks tests in standard performa as per applicability
- PC10.** store tested cement/concrete/bricks/blocks samples safely in laboratory for specified duration
- PC11.** ensure tested cement/concrete/bricks/blocks sample are reused or safely disposed

Carry out testing of aggregate sample

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

- PC12.** interpret the testing procedures for the aggregates from standard lab manuals and IS codes, prior to commencement of testing



Qualification Pack

- PC13.** collect samples of fine and coarse aggregates from the concerned lot of materials and carry out operations such as washing, weighing, measuring, sieving, tamping, oven drying etc.as per standard test procedure and applicability
- PC14.** perform tests on fine aggregates to determine specific gravity, particle size distribution, silt content and bulking as per standard test procedure
- PC15.** perform tests on coarse aggregate to determine specific gravity, bulk density, gradation, flakiness index, elongation index, crushing value, impact value, and abrasion value as per standard test procedure
- PC16.** record readings relevant to aggregate test in standard performa as per applicability
- PC17.** ensure tested aggregate sample are reused or safely disposed
- PC18.** store tested aggregate samples safely in laboratory for specified duration

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** standard procedure for testing of the material sample in laboratory and field relevant to quality assurance and quality control works in construction
- KU2.** safety rules and regulation for handling and storing of construction laboratory and field testing tools, equipment and materials
- KU3.** importance of personal protection including the use of related safety gears & equipment in accordance with organizational norms
- KU4.** service request procedures for tools, materials and equipment as per organizational norms
- KU5.** how to provide tag/number/label to collected test sample from field or test sample in laboratory
- KU6.** acceptance and rejection criteria of cement, concrete, brick, block and aggregate test sample
- KU7.** visual/physical checking of cement, concrete, brick, aggregate in field
- KU8.** use of tools and equipment for testing of cement, concrete, brick, aggregate in field and in site laboratory
- KU9.** standard procedure for preparing test specimen for various types of cement, concrete, brick, aggregate test in laboratory and in field
- KU10.** standard test procedure for various types of cement, concrete, brick, aggregate test
- KU11.** safe operation of compression testing machine for testing of cement, concrete, brick and aggregate
- KU12.** upkeep, repair and maintenance of tools and equipment relevant to cement, concrete, brick, aggregate testing
- KU13.** importance of periodical calibration of testing tools, apparatus, instruments and equipment
- KU14.** how to read and record reading of gauges and meters along with the least count
- KU15.** disposal/reuse of tested sample in appropriate manner
- KU16.** how to protect instrument and equipment from dust and heat
- KU17.** IS codes relevant to cement, concrete, brick and aggregate testing

Generic Skills (GS)



Qualification Pack

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

- GS1.** write in one or more language, preferably in the local language of the site
- GS2.** read sketches related to setting of instruments, operational manual of instruments, standard test procedure related to testing of material and field testing, instructions provided for the work, and various signboards, safety rules, safety tags, exit route information in one or more languages, preferably in the local language of the site
- GS3.** speak in one or more language, preferably one of the local language at the site
- GS4.** communicate orally and effectively with team members
- GS5.** analyze the safety aspect of the workplace
- GS6.** plan work and organize required resource effectively
- GS7.** complete work as per agreed time schedule and quality parameters
- GS8.** resolve any conflict within the teammates
- GS9.** evaluate the complexity of the tasks
- GS10.** identify any violation of safety norms during the work



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out testing of cement, concrete, brick and block sample</i>	15	30	-	5
PC1. interpret the testing procedures for the construction materials such as cement, concrete, bricks, blocks etc. from standard lab manuals and IS codes, prior to commencement of testing	-	-	-	-
PC2. collect cement/ concrete/ bricks /blocks sample from the concerned lot of the construction materials	-	-	-	-
PC3. perform standard test on the cement sample to determine consistency, initial and final setting, fineness, soundness, specific gravity etc.	-	-	-	-
PC4. perform slump cone, compaction factor and Vee-bee test on fresh concrete as per standard test procedure	-	-	-	-
PC5. cast the cement cube and concrete cube in fields and laboratory as per standard procedure for compressive strength testing of cement and concrete	-	-	-	-
PC6. carry out test to determine compressive strength of cement cube and concrete cube as per standard test procedure	-	-	-	-
PC7. perform test on the brick sample to determine water absorption, compressive strength, efflorescence as per standard test procedure	-	-	-	-
PC8. perform test on the block sample to determine water absorption, density and compressive strength as per standard test procedure	-	-	-	-
PC9. record readings relevant to cement/concrete/bricks/blocks tests in standard performa as per applicability	-	-	-	-
PC10. store tested cement/concrete/bricks/blocks samples safely in laboratory for specified duration	-	-	-	-
PC11. ensure tested cement/concrete/bricks/blocks sample are reused or safely disposed	-	-	-	-
<i>Carry out testing of aggregate sample</i>	15	30	-	5



Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. interpret the testing procedures for the aggregates from standard lab manuals and IS codes, prior to commencement of testing	-	-	-	-
PC13. collect samples of fine and coarse aggregates from the concerned lot of materials and carry out operations such as washing, weighing, measuring, sieving, tamping, oven drying etc.as per standard test procedure and applicability	-	-	-	-
PC14. perform tests on fine aggregates to determine specific gravity, particle size distribution, silt content and bulking as per standard test procedure	-	-	-	-
PC15. perform tests on coarse aggregate to determine specific gravity, bulk density, gradation, flakiness index, elongation index, crushing value, impact value, and abrasion value as per standard test procedure	-	-	-	-
PC16. record readings relevant to aggregate test in standard performa as per applicability	-	-	-	-
PC17. ensure tested aggregate sample are reused or safely disposed	-	-	-	-
PC18. store tested aggregate samples safely in laboratory for specified duration	-	-	-	-
NOS Total	30	60	-	10



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CON/N0405
NOS Name	Carry out testing of cement, concrete, bricks and aggregates
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Quality Assurance & Quality Control
NSQF Level	3.5
Credits	4
Version	3.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQF Clearance Date	31/03/2022



Qualification Pack

CON/N0406: Carry out testing of soil and bitumen in field and site laboratory

Description

This unit describes the skills and knowledge required to carry out testing of soil and bitumen in field and site laboratory

Scope

The scope covers the following :

- Carry out testing of soil and bitumen sample in laboratory
- Carry out field testing of soil and bitumen

Elements and Performance Criteria

Carry out testing of soil and bitumen sample in laboratory

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

- PC1.** interpret standard test procedure for soil and bitumen prior to commencement of test
- PC2.** collect samples of soil and bitumen from the concerned lot of materials and carry out operations such as washing, weighing, measuring, sieving, tamping, oven drying etc.as per standard test procedure and applicability
- PC3.** perform tests for water content, Atterberg's limit, particle size distribution, specific gravity, compaction test and CBR test of soil as per standard test procedure
- PC4.** perform test on bitumen for content, specific gravity, ductility, penetration, softening point, flash point, fire point and Marshall stability as per standard test procedure
- PC5.** record readings relevant to soil and bitumen test in standard performa as per applicability
- PC6.** ensure tested soil and bitumen sample are reused or safely disposed as per requirement
- PC7.** store tested soil and bitumen samples safely in laboratory for specified duration as per requirement

Carry out field testing of soil and bitumen

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

- PC8.** prepare field testing tools and fix all associated accessories for performing tests
- PC9.** perform test to determine rapid moisture content in field as per standard test procedure
- PC10.** perform test to determine dry density of soil by sand replacement method and core cutting method as per standard test procedure
- PC11.** carry out core cutting of bitumen from field to determine bitumen content as per standard test procedure
- PC12.** ensure proper packing and shifting of soil and bitumen samples to laboratory for further testing
- PC13.** observe and record readings relevant to soil and bitumen test in standard performa as per applicability
- PC14.** ensure tested field sample are reused or safely disposed as per requirement



Qualification Pack

PC15. store tested field samples safely in laboratory for specified duration as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** standard procedure for testing of the material sample in laboratory and field relevant to quality assurance and quality control works in construction
- KU2.** safety rules and regulation related to instruments handling and equipment operation for testing of test material sample
- KU3.** importance of personal protection including the use of related safety gears & equipment in accordance with organizational norms
- KU4.** service request procedures for tools, materials and equipment as per organizational norms
- KU5.** how to provide tag/number/label to collected test sample from field or laboratory
- KU6.** how to collect, sample and shift soil and bitumen sample from field
- KU7.** acceptance and rejection criteria of soil and bitumen test sample
- KU8.** storing and handling technique of soil and bitumen testing tools and equipment
- KU9.** visual/physical checking of soil and bitumen in field
- KU10.** use of tools and equipment for testing of soil and bitumen in field and in site laboratory
- KU11.** standard procedure for preparing test specimen for various types of soil and bitumen test in laboratory and in field
- KU12.** the standard test procedure for various types of soil and bitumen test
- KU13.** how to handle hot bitumen during testing of bitumen
- KU14.** upkeep, repair and maintenance of tools and equipment relevant to soil and bitumen testing
- KU15.** importance of periodical calibration of testing tools, apparatus, instruments and equipment
- KU16.** how to read and record reading of gauges and meters along with the least count
- KU17.** disposal/reuse of tested sample in appropriate manner
- KU18.** how to protect instruments and equipment from dust and heat
- KU19.** IS codes relevant to to soil and bitumen testing

Generic Skills (GS)

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

- GS1.** write in one or more language, preferably in the local language of the site
- GS2.** read sketches related to setting of instruments, operational manual of instruments, standard test procedure related to testing of material and field testing, instructions provided for the work, and various signboards, safety rules, safety tags, exit route information in one or more languages, preferably in the local language of the site
- GS3.** speak in one or more language, preferably one of the local language at site
- GS4.** communicate orally and effectively with team members
- GS5.** analyze the safety aspect of the workplace
- GS6.** plan work and organize required resource effectively



Qualification Pack

- GS7.** complete work as per agreed time schedule and quality parameters
- GS8.** resolve any conflict within the teammates
- GS9.** evaluate the complexity of the tasks
- GS10.** identify any violation of safety norms during the work



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Carry out testing of soil and bitumen sample in laboratory</i>	12	32	-	6
PC1. interpret standard test procedure for soil and bitumen prior to commencement of test	-	-	-	-
PC2. collect samples of soil and bitumen from the concerned lot of materials and carry out operations such as washing, weighing, measuring, sieving, tamping, oven drying etc.as per standard test procedure and applicability	-	-	-	-
PC3. perform tests for water content, Atterberg's limit, particle size distribution, specific gravity, compaction test and CBR test of soil as per standard test procedure	-	-	-	-
PC4. perform test on bitumen for content, specific gravity, ductility, penetration, softening point, flash point, fire point and Marshall stability as per standard test procedure	-	-	-	-
PC5. record readings relevant to soil and bitumen test in standard performa as per applicability	-	-	-	-
PC6. ensure tested soil and bitumen sample are reused or safely disposed as per requirement	-	-	-	-
PC7. store tested soil and bitumen samples safely in laboratory for specified duration as per requirement	-	-	-	-
<i>Carry out field testing of soil and bitumen</i>	18	28	-	4
PC8. prepare field testing tools and fix all associated accessories for performing tests	-	-	-	-
PC9. perform test to determine rapid moisture content in field as per standard test procedure	-	-	-	-
PC10. perform test to determine dry density of soil by sand replacement method and core cutting method as per standard test procedure	-	-	-	-



Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. carry out core cutting of bitumen from field to determine bitumen content as per standard test procedure	-	-	-	-
PC12. ensure proper packing and shifting of soil and bitumen samples to laboratory for further testing	-	-	-	-
PC13. observe and record readings relevant to soil and bitumen test in standard performa as per applicability	-	-	-	-
PC14. ensure tested field sample are reused or safely disposed as per requirement	-	-	-	-
PC15. store tested field samples safely in laboratory for specified duration as per requirement	-	-	-	-
NOS Total	30	60	-	10



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	CON/N0406
NOS Name	Carry out testing of soil and bitumen in field and site laboratory
Sector	Construction
Sub-Sector	Real Estate and Infrastructure construction
Occupation	Quality Assurance & Quality Control
NSQF Level	3.5
Credits	4
Version	3.0
Last Reviewed Date	31/03/2022
Next Review Date	31/03/2025
NSQC Clearance Date	31/03/2022



Qualification Pack

DGT/VSQ/N0101: Employability Skills (30 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

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

Elements and Performance Criteria

Introduction to Employability Skills

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

PC1. understand the significance of employability skills in meeting the job requirements

Constitutional values - Citizenship

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

PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

Basic English Skills

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

PC4. speak with others using some basic English phrases or sentences

Communication Skills

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

PC5. follow good manners while communicating with others

PC6. work with others in a team



Qualification Pack

Diversity & Inclusion

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

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

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

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

PC11. approach the concerned authorities for any exploitation as per legal rights and laws

Essential Digital Skills

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

PC12. operate digital devices and use its features and applications securely and safely

PC13. use internet and social media platforms securely and safely

Entrepreneurship

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

PC14. identify and assess opportunities for potential business

PC15. identify sources for arranging money and associated financial and legal challenges

Customer Service

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

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

KU8. different types of disabilities and appropriate communication and behaviour towards PwD

KU9. different types of financial products and services



Qualification Pack

- KU10.** how to compute income and expenses
- KU11.** importance of maintaining safety and security in financial transactions
- KU12.** different legal rights and laws
- KU13.** how to operate digital devices and applications safely and securely
- KU14.** ways to identify business opportunities
- KU15.** types of customers and their needs
- KU16.** how to apply for a job and prepare for an interview
- KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

- GS1.** communicate effectively using appropriate language
- GS2.** behave politely and appropriately with all
- GS3.** perform basic calculations
- GS4.** solve problems effectively
- GS5.** be careful and attentive at work
- GS6.** use time effectively
- GS7.** maintain hygiene and sanitisation to avoid infection



Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values - Citizenship</i>	1	1	-	-
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	1	3	-	-
PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	1	1	-	-
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-



Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	20	30	-	-



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	12/03/2026
Next Review Date	12/03/2029
NSQC Clearance Date	12/03/2026

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the knowledge part will be based on knowledge bank of questions created by Assessment Bodies subject to approval by SSC
3. Individual assessment agencies will create unique question papers for knowledge/theory part for assessment of candidates as per assessment criteria given below
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on assessment criteria.
5. The passing percentage for each QP will be 70%. To pass the Qualification Pack, every trainee should score a minimum of 70% individually in each NOS.
6. The Assessor shall check the final outcome of the practices while evaluating the steps performed to achieve the final outcome.



Qualification Pack

- The trainee shall be provided with a chance to repeat the test to correct his procedures in case of improper performance, with a deduction of marks for each iteration.
- After the certain number of iteration as decided by SSC the trainee is marked as fail, scoring zero marks for the procedure for the practical activity.
- In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack within the specified timeframe set by SSC.
- Minimum duration of Assessment of each QP shall be of 4hrs/trainee.

Minimum Aggregate Passing % at QP Level : 70

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
CON/N0404. Operate and maintain test instruments and equipment for construction material testing	30	60	-	10	100	20
CON/N0405. Carry out testing of cement, concrete, bricks and aggregates	30	60	-	10	100	20
CON/N0406. Carry out testing of soil and bitumen in field and site laboratory	30	60	-	10	100	20
CON/N8001. Work effectively in a team to deliver desired results at the workplace	30	70	0	0	100	10
CON/N8002. Plan and organize work to meet expected outcomes	30	70	0	0	100	10
CON/N9001. Work according to personal health, safety and environment protocols at construction site	30	70	0	0	100	10



Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	10
Total	200	420	0	0	650	100



Qualification Pack

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
EHS	Environmental, Health, and Safety
PPE	Personal Protective Equipment
IS	Indian Standards
BIS	Bureau of Indian Standards



Qualification Pack

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.



Qualification Pack

Knowledge and Understanding (KU)	<p>Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.</p>
Organisational Context	<p>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.</p>
Technical Knowledge	<p>Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.</p>
Core Skills/ Generic Skills (GS)	<p>Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.</p>
Electives	<p>Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.</p>
Options	<p>Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.</p>