



National Vocational Certificate Level 2 in Urban Area Planning and Management (Field Assistant)



Competency Standards

**National Vocational and Technical Training Commission
(NAVTTTC), Government of Pakistan**



National Competency Standards

For

National Vocational Certificate Level 2 in Urban Area Planning and Management “Field Assistant”

NVQF Level 2

DACUM Facilitator: Mr. Abdul Moez – DACUM Facilitator / Structural Engineer

NAVTTTC Coordinator: Mr. Shahzad Ahmad– Deputy Director SS&C, NAVTTTC HQs.



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INTRODUCTION

Urban area planning and management is an art of shaping and guiding the physical growth of the town creating buildings and environments to meet the various needs such as social, cultural, economic and recreational etc. and to provide healthy conditions for both rich and poor to live, to work and to play or relax, thus bringing about the social and economic well-being for the majority of mankind.

Keeping in view of the above the competency based national vocational qualifications have been developed by NAVTTTC to train the unskilled human resource on the technical and entrepreneurial skills to be employed / self-employed and inevitably set sustainable impact on their lives by increase in their livelihood income.

Training Course is based on competency standards which are defined by the industry and the traditional role of a trainer changes and shifts towards the facilitation of training. A trainer encourages and assists trainees to learn for themselves. Trainees are likely to work in groups (pairs) and all doing something different. Some are doing practical tasks in the workshop, some writing, some not even in the classroom or workshop but in another part of the building using specialist equipment, working on computers doing research on the Internet or the library. As trainees learn at different pace they might well be at different stages in their learning, thus learning must be tailored to suit individual needs.

PURPOSE OF THE QUALIFICATION

The purpose of the training is to provide skilled manpower to improve the new and existing urban area management. This will improve the quality in town planning sector and the availability of skilled professionals will bring socio-economic benefits to all stakeholders. The specific objectives of developing these qualifications are as under:

- Improve the professional competence of managing urban area
- Capacitate the local community and trainers in modern CBT training, methodologies and processes as envisaged under NVQF



- Provide flexible pathways and progressions in the town planning and management sector
- Enable the trainees to perform their duties in efficient manner
- Establish a standardized and sustainable system of training for urban area management in Pakistan

DATE OF VALIDATION

This national vocational qualification (NVQ) has been validated by the Qualifications Development Committee (QDC) in 7th March to 11th March 2022 and will remain in currency until 1st March 2032

*Shall be reviewed after 3 years

CODE OF QUALIFICATION

Qualification Title	Code
National Vocational Certificate Level 2 in Urban Area Planning and Management “Field Assistant”	719UPM02

ENTRY REQUIREMENTS

- For National Vocational Certificate Level-2 in Urban Area Planning and Management “Field Assistant”, the entry requirement is Middle or Equivalent for admission in formal institute. The entry in informal sector is not prescribed.



QUALIFICATIONS DEVELOPMENT COMMITTEE

The following members participated in the qualification development of these qualifications:

Sr. No.	Name	Designation	Organization
1.	Muhammad Abdul Moez	DACUM Facilitator/ Structural Engineer	RMCE Lahore
2.	Mr. Shahzad Ahmad	Coordinator	Deputy Director NAVTTTC, Islamabad
3.	Engr. Azhar Iqbal Shad	Retired Principal	GCT, Raiwand road Lahore
4.	Malik Liaqat Ali	Town Planning officer	MC Sahiwal
5.	Mr. Sikandar Hayat	Instructor	GCT, Raiwand road Lahore
6.	Mr. Hijaz Ali Shah	Field Worker in Civil	Peshawar
7.	Mr. Muhammad Usman Khan	Building Inspector	Local Body Board, Kasur
8.	Syed Ali Raza	Civil Engineer	Nespak, Islamabad
9.	Engr. Ahmad Ali	Site Supervisor	Urban Unit, Lahore
10.	Mr. Tahir Mahmood	Senior Instructor	GTTI Mughalpura, Lahore
11.	Engr. Abdul Basit Mansoor	AEE	PWD Sialkot
12.	Mr. Usama Ahmed Sheikh	Track and Infrastructure Engineer	Orange Line Lahore



QUALIFICATIONS VALIDATION COMMITTEE

The following members participated in the qualification validation of these qualifications:

Sr. No.	Name	Designation	Organization
1.	Muhammad Abdul Moeez	DACUM Facilitator/ Structural Engineer	RMCE Lahore
2.	Mr. Shahzad Ahmad	Coordinator	Deputy Director NAVTTTC, Islamabad
3.	Engr. Azhar Iqbal Shad	Retired Principal	GCT , Raiwand road Lahore
4.	Mr. Nadeem Zaigham	Sr. Instructor	GCT ,Raiwand road Lahore
5.	Mr. Sikandar Hayat	Instructor	GCT ,Raiwand road Lahore
6.	Mr. Hijaz Ali Shah	Field Worker in Civil	Peshawar
7.	Ms. Sadia Saleem	Quality Checker	Interloop, Faisalabad
8.	Mr. Tahir Mahmood	Senior Instructor	GTTI Mughalpura, Lahore
9.	Engr. Abdul Basit Mansoor	AEE	PWD Sialkot
10.	Mr. Usama Ahmed Sheikh	Track and Infrastructure Engineer	Orange Line Lahore
11.	Mr. Waqar Khan	Lab Engineer	NUML Rawalpindi
12.	Mr. Muhammad Adnan	Secretary	PBTE Lahore
13.	Engr. Muhammad Ibrar	Manager site	DHA Bahawalpur
14.	Muhammad Maroof	Representative of STEVTA	Hyderabad
15.	Syed Zafar Ayub Hussain Shah	Project Coordinator ZKB	Peshawar
16.	Mr. Abdul Samad	Civil Contractor	FSB



SUMMARY OF COMPETENCY STANDARDS

Code	Competency Standards	Level	Theory		Practical		Total	
			C	Hr.	C	Hr.	C	Hr.
1.	Follow Safety Rules at Field	2	1.2	12	1.8	18	3	30
2.	Perform Basic Communication Skills	2	1.0	10	3.0	30	3	40
3.	Demonstrate Basic Numeracy Skills	2	1.5	15	4.5	45	6	60
4.	Perform Basic Technical Drawing	2	1.0	10	9.0	90	10	100
5.	Perform Basic Computer Operations	2	2.0	20	9.0	90	11	110
6.	Perform Bench Work	2	2.8	28	10.2	102	13	130
7.	Perform Basic Electrical Installation	2	2.3	23	5.7	57	8	80
8.	Perform Operation & Maintenance of Pumping station	2	0.8	8	4.2	42	5	50
Total			12.6	126	4.74	474	60	600



719UPM02A - Competency Standard: Follow Safety Rules at Field

Overview: This competency standard covers the skills and knowledge required to work according to personal health and safety protocol at workplace. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Maintain occupational safety and health at workplace	<i>You must be able to:</i> P1. Identify basic safety signs and symbols P2. Erect barricades, hoardings, signage in the hazardous areas P3. Maintain housekeeping P4. Report unsafe condition to immediate supervisor (shift position)
CU2. USE Personal Protective and Safety Equipment (PPE)	<i>You must be able to:</i> P1. Identify risk associated with job to be done P2. Select PPE according to job P3. Wear PPE according to job P4. Store PPE at designated place after use
CU3. Perform Communication Signals	<i>You must be able to:</i> P1. Identify different types of communication hand signals. P2. Use appropriate hand signals as per situation.
CU4. Manual Handling of Loads	<i>You must be able to:</i> P1. Check the load's weight to be handled P2. Check the availability of broad stable base P3. Lift and place the load with proper posture

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Types of hazards



- Verbal and non-verbal (Hand Signals) communication
- Basic first aid treatment
- Safety signs and symbols
- Manual handling of loads
- Standard procedure of handling, storing and stacking material.
- Types of PPEs
- Usage of Appropriate PPE for different situations

Critical Evidence(s) Required

The candidate needs to produce following critical evidence (s) to be competent in this competency standard:

- Use of PPE according to hazard/job
- Keep the workplace clean and tidy
- Balance the load while handling manually
- Use of first aid kit



719UPM02B - Competency Standard: Perform Basic Communication Skills

Overview: This module covers the skills and knowledge required to assist in the development of basic communication competence by providing information regarding different forms of communication and their appropriate use. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Demonstrate basic reading skills	<i>You must be able to:</i> P1. Pronounce the words accurately P2. Exhibit Fluency in reading the text P3. Exhibit control on voice pitch
CU2. Demonstrate basic speaking skills	<i>You must be able to:</i> P1. Prepare hints for speech P2. Exhibit control on the pace of speech as per situation P3. Use Jargons as per situations
CU3. Demonstrate basic writing skills	<i>You must be able to:</i> P1. Select writing format P2. Prepare important points as required P3. Take written notes as per situation
CU4. Communicate in a team	<i>You must be able to:</i> P1. Treat team members with respect P2. Maintain positive relationships with team members to achieve common organizational goals P3. Comply with the given instructions P4. Get work related information from team P5. Identify interrelated work activities to avoid confusion P6. Adopt communication skills, which are designed in a team. P7. Identify problems and report to supervisor



	P8. Resolve Communication barrier through discussion and mutual agreement
CU5. Follow Supervisor's instructions as per organizational SOPs	<i>You must be able to:</i> P1. Receive the instructions from Supervisor P2. Carry out the instructions of the supervisor P3. Report to the supervisor as per organizational SOPs

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Reporting techniques
- Application of Work ethics
- Good communication skills (7Cs of effective communication)
- Workplace dress code
- The role of team members and functionality of the teams
- Team dynamics
- Basic Reading Skills
- Basic Writing skills
- Writing formats
- Speech hints and ideas
- Word Pronunciations and phonetics
- Basic verbal and non – verbal communication skills
- Basic Problem-solving skills
- Knowledge about technical Jargons
- Basic Self-Management Skills
- Basic Technology Skills
- Basic Interview Skill

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:



- Maintain effective communication with colleagues and supervisors
- Prepare job application
- Convey the work-related information to the team members
- Take notes of the instructions given by the instructor
- Prepare CV



719UPM02C - Competency Standard: Demonstrate Basic Numeracy Skills

Overview: This module covers the skills and knowledge required to apply basic numeracy skills, perform measurement, perform basic mathematical calculations and calculate area and Volume of figures. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Apply Basic Numeracy Skills	<i>You must be able to:</i> P1. Perform addition P2. Perform subtraction P3. Perform multiplication P4. Perform division P5. Calculate percentage
CU2. Perform Measurement	<i>You must be able to:</i> P1. Select measuring tools as per requirement P2. Measure the dimension of specific objects P3. Perform inter conversion of measuring units
CU3. Calculate Area and Volume of figures	<i>You must be able to:</i> P1. Calculate area of geometrical figures P2. Calculate volume of solid figures

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Basic principles of addition, subtraction, multiplication, division and percentage
- Types of measuring tools
- Imperial and metric system
- Basic measuring units and its inter conversion
- Area and Volume of solid figures
- Time saving practices



Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Perform addition
- Perform subtraction
- Perform multiplication
- Calculate percentage
- Perform division
- Inter convert measuring units.
- Calculate Area and Volume of geometrical figures



719UPM02D - Competency Standard: Perform Basic Technical Drawing

Overview: This competency standard deal with learning the competencies needed to perform basic technical drawing. That includes lettering/lines, different geometrical shapes. It will also allow you to learn orthographic views, dimensioning and drawing symbols. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Explore basic elements of geometrical drawings	<i>You must be able to:</i> P1. Perform different types of single stroke lettering P2. Draw different types of lines P3. Draw different type of plane scales P4. Draw different conventional drawing symbols
CU2. Draw Different Geometrical Shapes	<i>You must be able to:</i> P1. Draw different geometrical shapes P2. Draw conic sections P3. Create a pattern with simple shapes
CU3. Draw pictorial view of objects	<i>You must be able to:</i> P1. Select base line on sheet P2. Draw isometric view of given object P3. Draw oblique view of given object P4. Draw title strip on sheet
CU4. Explore Orthographic views of simple shapes	<i>You must be able to:</i> P1. Draw first angle projection P2. Draw third angle projection P3. Draw hidden views P4. Draw different section views P5. Dimension the drawing by different method



Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Types of orthographic views
- Types of pictorial drawings
- Types of sectional views
- Types of lines
- Types of scales
- Types of Lettering
- Single Stroke Lettering
- Types of dimensioning and drawing symbols
- Types of developmental drawings
- Types of geometrical solids and geometrical figures
- Different types of drawing pencils (Clutch pencil Mechanical pencils, etc.)
- Layout drawings
- Different types of rulers
- Pictorial views
- Types of drawing symbols
- Different drawing sheets (scholar sheet, chart paper, Canson Sheet, etc.)

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Portfolio
- Draw different geometrical shapes
- Draw first and third angle projection with symbols
- Identify different installation and assembly plans and sections



719UPM02E - Competency Standard: Perform Basic Computer Operations

Overview: This Competency Standard identifies the competencies required to perform basic computer hardware, software, applications and troubleshooting. Trainee will be able to apply acquired skills in operating a computer system and software such as MS Word, MS Excel and MS PowerPoint as well as installation and troubleshooting of operating system and software. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Perform basic Configuration of Computer System	<i>You must be able to:</i> P1. Connect computer components and peripherals as per requirement P2. Install drivers and applications according to the software specification P3. Troubleshoot applications to trace and fix faults in a specific application to bring it in a running condition
CU2. Create a document using MS word	<i>You must be able to:</i> P1. Compose a document as per the requirement P2. Insert a table as per requirement P3. Format Word Document according to given requirements P4. Print Word Documents according to requirements
CU3. Prepare Spreadsheet using MS Excel	<i>You must be able to:</i> P1. Create worksheet as per given data P2. Format the worksheet according to given criteria P3. Apply formulas according to the requirement P4. Generate Charts/Graphs according to the given data P5. Print Worksheet according to requirements
CU4. Prepare a presentation using MS PowerPoint	<i>You must be able to:</i> P1. Insert slides with different layouts according to requirements of presentation.



	P2. Insert text, tables, images, etc. according to the requirement. P3. Apply a set of effects to animate the slide according to requirement. P4. Apply slide transitions on slides according to requirement. P5. Apply sound effects on objects/text/images according to requirement.
CU5. Create an e-mail account	<i>You must be able to:</i> P1. Select email browser P2. Go to sign in page P3. Add Personal Information P4. Enter and confirm password

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Operating systems
- Table formatting
- Hardware and Software
- Troubleshooting
- Internet Browser
- Internet and E-mailing
- Email Attachments
- Hyperlink and referencing
- Printing
- MS Word
- MS Excel
- MS PowerPoint
- Types of Short Keys
- Different types of formulas in MS Excel
- Short Keys MS Excel, Power Point and Word
- Types of presentation format
- Formatting styles in MS Word and MS Excel
- WPM (Word Per Minute)



Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Install MS Office Application correctly
- Prepare a formatted document using MS Word
- Create account and send email with attachment
- Prepare graph by entering data and applying formula into the respective columns and rows as per given instructions
- Prepare and present a presentation in Power Point according to 7Cs of communication.



719UPM02F - Competency Standard: Perform Bench Works

Overview: This competency standard deals with learning the competencies needed to perform bench works. That includes carry out sawing, filing, drilling, reaming, tapping, hand grinding and general housekeeping & maintenance according to instructions. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Carry out Sawing	You must be able to: P1. Select blade according to the material and set in hacksaw frame P2. Mark layout of job as per drawing using required marking tool P3. Perform clamping of the work piece according to the instructions P4. Perform sawing according to the given instructions P5. Inspect quality of the job at suitable intervals. P6. Verify the final job with the given drawing
CU2. Carry out Filing	You must be able to: P1. Select required file type according to the material P2. Select required marking tool and mark layout of job as per drawing P3. Select clamping device and clamp the work piece P4. Perform filing as per standard procedures P5. Inspect quality of the job at suitable intervals. P6. Verify the final job with the given drawing
CU3. Carry out Hand Drilling	You must be able to: P1. Select hand brace and drilling bit according to the job requirement. P2. Use marking tool and measuring instruments as per job



	requirement. P3. Clamp the work piece as per job requirement. P4. Perform drilling as per standard procedures P5. Inspect quality of job at suitable intervals. P6. Perform post drilling operations P7. Verify the final job with the given drawing
CU4. Carry out Reaming	<i>You must be able to:</i> P1. Select required reamer according to the job specification P2. Select required marking tool and mark layout of job as per drawing P3. Select clamping device and clamp the work piece P4. Perform drilling to produce hole P5. Perform reaming as per job specification P6. Verify final job with given drawing
CU5. Carry out Tapping	<i>You must be able to:</i> P1. Select required tap according to the job specification P2. Select required marking tool and mark layout of job as per drawing P3. Select clamping device and clamp the work piece P4. Perform drilling to produce hole according to tap size P5. Perform tapping as per job specification P6. Verify final job with given drawing
CU6. Calibrate Vernier Caliper/ micro meter	<i>You must be able to:</i> P1. Close both jaws of Vernier Caliper/ micro meter P2. Check zero error P3. Open up jaws and precisely match the both jaws and assemble device



CU7. Perform General Housekeeping & Maintenance	<i>You must be able to:</i> P1. Clean and maintain all workplace tools & machines as per housekeeping checklists or given instructions P2. Prepare checklist for daily cleanliness of the workplace P3. Place all tools & material in proper place to ensure safe work P4. Fill checklists to conduct maintenance and housekeeping of machines & tools
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Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out the tasks covered in this competency standard. This includes the knowledge of:

- Basic engineering drawings
- Types & application of clamping devices
- Types and uses of basic measuring instruments required during different operations
- Types and uses of layout tools
- Different types of hacksaw blades and its use
- File types and their uses
- Types and application of reamers
- Methods of tapping
- Types & properties of material
- Drilling and its uses.
- Types of drilling tools
- Types and uses of measuring instruments required during grinding operations
- Types of nut and bolts
- Guidelines and checklists to conduct maintenance and housekeeping of tools and equipments
- Importance of daily cleanliness of workplace
- Importance of storing tools and material in specific place
- Faulty/damaged/ worn out parts
- Importance of Record keeping
- Utilization of tools (measuring, marking & cutting) equipment and their working method



Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Produce a component containing the following operations marking, sawing & filing
- Produce a component containing the following operations with drilling, threading & reaming
- Clean and maintain all bench-work tools and machines as per instructions given
- Interpret guidelines and checklists of conducting housekeeping of machines and tools
- Calibrate Vernier Caliper/Micro meter



719UPM02G - Competency Standard: Perform Basic Electrical Installations

Overview: This unit describes the performance outcomes, skills and knowledge required to perform basic electrical installations. It covers basic electric circuits, basic electrical measurements and power supply to machine. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Prepare Basic Electric Circuits	<i>You must be able to:</i> P1. Select required tools P2. Prepare series circuit on work bench P3. Prepare parallel circuit on work bench P4. Prepare Head and Tail Light Circuit on work bench P5. Prepare indicator circuit on work bench
CU2. Perform Basic Electrical Measurements	<i>You must be able to:</i> P1. Measure voltage in a circuit P2. Measure current in a circuit P3. Measure resistance in a circuit P4. Perform test for continuity in a circuit
CU3. Provide Power Supply to machine	<i>You must be able to:</i> P1. Select electrical appliances P2. Connect cables with electrical appliances as per manual P3. Verify the connections according to color code. P4. Check the connectivity of earthing point.

Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- AC and DC
- Ohm's Law



- Voltage, current, resistance and continuity
- Types of circuits (series and parallel)
- Knowledge of indicator circuit
- Continuity test of a circuit
- Electrical connection scheme of the job
- Handling techniques for placement for electrical equipment
- Different methods of cable testing
- Different types of coding procedures (e.g., color coding / tagging / numbering)
- Earthing and testing procedures
- Working principle of earth tester
- Multimeter
- Electrical symbols to be used in drawings

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Prepare series and parallel circuit
- Perform basic electrical measurement
- Provide Power Supply to machine



719UPM02H - Competency Standard: Perform Operation and Maintenance of Pumping Station

Overview: This unit describes the performance outcomes, skills and knowledge required to perform operation and maintenance of pumping station. It covers performing pre operative checks, operating and maintaining pumping station. Your underpinning knowledge will be sufficient to provide you the basis for your work.

Competency Units	Performance Criteria
CU1. Perform pre operative checks	<i>You must be able to:</i> P1. Check the water level in storage tank P2. Check the adequacy of voltage/frequency P3. Check the air relief valve P4. Check the tightness of all connections P5. Check the operation of sluice valves P6. Check the pressure gauges P7. Check the storage of chemicals as per MSDS P8. Check the functionality of emergency stop switch
CU2. Operate the pump station	<i>You must be able to:</i> P1. Startup the power switch P2. Monitor the pressure gauges
CU3. Maintain pump station	<i>You must be able to:</i> P1. Check pump station components. P2. Perform schedule maintenance task P3. Identify and report pump station faults P4. Maintain the maintenance record P5. Maintain the inventory/log register



Knowledge & Understanding

The candidate must be able to demonstrate underpinning knowledge and understanding required to carry out tasks covered in this competency standard. This includes the knowledge of:

- System hydraulics basics, including suction and lift
- System layout
- Components of Pumping station
- principles and purpose of pump operation and their functions
- OHS requirements
- Types of pumps and their operational function
- Pump and pump station operation and maintenance procedures and standards
- Lock-out procedures for mechanical and electrical installations
- Risk factors and potential hazards of operating wastewater transfer systems
- Equipment operation, capacity and limitations
- effects of weather and conditions on system
- Operate service according to procedures
- Identify and respond to operational problems
- Produce reports and logs
- Use safety and personal protective equipment
- Use tools and machinery
- Follow plans and instructions
- Chemicals used for water cleaning
- Material Safety Data Sheet (MSDS)

Critical Evidence(s) Required

The candidate needs to produce following critical evidence(s) in order to be competent in this competency standard:

- Perform pre operative checks of pumping station
- Perform schedule maintenance of pumping station



LIST OF TOOLS AND EQUIPMENT

SR#	Tools & Equipment
1.	Computer Systems
2.	Scanner
3.	Printer
4.	Steel Rules
5.	Drawing board
6.	PPEs
7.	Tri Square
8.	Measuring tape (Steel)
9.	Pencil
10.	Eraser
11.	Sharpener
12.	Field book
13.	Notebook
14.	Scotch tape
15.	Calculator
16.	Spirit level
17.	Plumb bob
18.	Internet connection
19.	Divider
20.	Scraper
21.	Pliers
22.	Wrench
23.	Hacksaw
24.	Reaming tool



25.	Threading tool
26.	Bench Vice
27.	Pipe Heating tool
28.	Spanner set
29.	Clamping tools
30.	Scriber
31.	Files
32.	Torch
33.	Micrometer
34.	Vernier caliper
35.	Tapping set
36.	Chisels
37.	Hand Brace
38.	Drill bits
39.	Ball peen Hammer
40.	Cross peen hammer
41.	Sledge hammer
42.	Slip joint pliers
43.	Jumper
44.	Bread Board
45.	Resistors
46.	Power Supply
47.	Water Pump
48.	Motor
49.	Tubewell