

Curriculum For “Urban Area Planning and Management”

(Level -2)

18th to 22th April 2022



**National Vocational & Technical
Training Commission**

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Introduction

Definition/ Description of the training programme for Urban Area Field Assistant

There is an increasing demand of the Urban Area Field Assistant in construction industry. If an individual is planning to pursue a career in Urban Area Planning and Management, this program will be helpful in targeting various industries including town planning.

Purpose of the training programme

The purpose of this training is to develop a range of skills and techniques, soft skills and attributes essential for successful performance in construction in accordance with industry requirements. Graduates of this program may find employment in local and international industries.

Overall objectives of training programme

The main objective of this training program is to improve the employability of young graduates through qualifying job-related training in the construction sector, and to train them so that they can prove to be an asset to this sector.

Competencies to be gained after completion of course

- Follow Safety Rules at Site
- Perform Basic Communication Skills
- Demonstrate Basic Numeracy Skills
- Perform Basic Technical Drawing
- Perform Basic Computer Operations
- Perform Bench Work
- Perform Basic Electrical Installations
- Perform Operation and Maintenance of Pumping Station

Possible available job opportunities available immediately and later in the future

- Field Assistant Urban Management Unit
- Pumping station operator

Trainee entry level

Middle or Equivalent (with English, Urdu, Numeracy, reading and writing skills)

Minimum qualification of trainer

Teaching staff should have Matriculation with one year technical course in (Civil/Architectural/Mechanical) trade and at least five years' experience in

Construction Industry. Other formal certification in the Operation and Maintenance of Pumping Station and having grip on the engineering drawings and computer skills

OR

Teacher should have Level-4 / DAE in Mechanical / Civil with specialization with at least one years' experience in construction industry. Other formal certification in the installation and operation water and waste water system would be useful in addition to the above.

Recommended trainer: trainee ratio

The recommended maximum trainer: trainee ratio for this programme is 1 trainer for 25 trainees.

Medium of instruction i.e., language of instruction

Instruction will be Urdu and English.

Duration of the course (Total time, Theory & Practical time)

This curriculum comprises 8 modules. The recommended delivery time is 600 hours. Delivery of the course could therefore be full time, 5 days a week. Training providers are at liberty to develop other models of delivery, including part-time and evening delivery.

The full structure of the course is as follow:

No	Module Title	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

Sequence of the Modules

Each module covers a range of learning components. These are intended to provide detailed guidance to teachers (for example the Learning Elements component) and give them additional support for preparing their lessons (for example the Materials Required component). The detail provided by each module will contribute to a standardized approach to teaching, ensuring that training providers in different parts of the country have clear information on what should be taught. Each module also incorporates the industrial needs of Pakistan.

The distribution table is shown below:

Module 1: Follow Safety Rules at Site Safety 30 Hours	Module 6: Perform Bench Work 130 Hours
Module 2: Perform Basic Communication Skills 40 Hours	Module 4: Perform Basic Technical Drawing 100 Hours
Module 3: Demonstrate Basic Numeracy Skills 60 Hours	Module 5: Perform Basic Computer Operations 110 Hours
Module 7: Perform Basic Electrical Installation 80 Hours	Module 8: Perform Operation & Maintenance of Pumping station 50 Hours

Summary – overview of the curriculum

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 1: Follow Safety Rules at Site Aim: After successful completion of this module, the trainee is competent in maintaining personal Health, Hygiene and safety	LU1: Maintain occupational safety and health at workplace LU2: Use Personal Protective and Safety Equipment (PPE) LU3: Perform Communication Signals LU4: Manual Handling of Loads	12	18	30
Module 2: Perform Basic Communication Skills Aim: After successful completion of this module, the trainee is competent in performing basic communication skills	LU1: Demonstrate Basic Reading Skills LU2: Demonstrate Basic Speaking Skills LU3: Demonstrate Basic Writing Skills LU4: Communicate in a team LU5: Follow Supervisor's instructions as per organizational SOPs	10	30	40

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 3: Demonstrate Basic Numeracy Skills Aim: After successful completion of this module, the trainee is competent in demonstrating basic numeracy skills	LU1: Apply Basic Numeracy Skills LU2: Perform Measurement LU3: Calculate Area and Volume of figures	15	45	60
Module 4: Perform Basic Technical Drawing Aim: After successful completion of this module, the trainee is competent in performing basic technical drawing	LU1: Explore basic elements of geometrical drawings LU2: Draw Different Geometrical Shapes LU4: Draw pictorial view of objects LU3: Explore Orthographic views of simple shapes	10	90	100

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 5: Perform Basic Computer Operations Aim: After successful completion of this module, the trainee is competent in performing basic computer operations	LU1: Perform basic Configuration of Computer System LU2: Create a document using MS word LU2: Prepare Spreadsheet using MS Excel LU2: Prepare a presentation using MS PowerPoint LU3: Create an e-mail account	20	90	110
Module 6: Perform Bench Works Aim: After successful completion of this module, the trainee is competent in Maintaining Diesel Engine Systems	LU1: Carry out Sawing LU2: Carry out Filing LU3: Carry out Hand Drilling LU4: Carry out Reaming LU5: Carry out Tapping LU6: Calibrate Vernier Caliper/ micro meter LU7: Perform General Housekeeping & Maintenance	28	102	130

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module 6: Perform Basic Electrical Installations Aim: After successful completion of this module, the trainee is competent in performing basic electrical installations	LU1: Prepare Basic Electric Circuits LU2: Perform Basic Electrical Measurements LU3: Provide Power Supply to machine	23	57	80
Module 8: Perform Operation and Maintenance of Pumping Stations Aim: After successful completion of this module, the trainee is competent in performing operation and maintenance of pumping stations	LU1 Perform pre-operative checks LU2: Operate the pump stations LU3: Maintain pump station	8	42	50

Module 1: Follow Safety Rules at site

Objective of the module: The aim of this module to get knowledge, skills and understanding to maintain personal health, hygiene and safety

Duration: 30 hours **Theory:** 12 hours **Practical:** 18 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Maintain occupational safety and health at workplace	The trainee will be able to: 1. Identify the safety signs and symbols 2. Erect barricades, hoardings, signage in the hazardous areas 3. Maintain housekeeping 4. Report unsafe condition to immediate supervisor (shift person)	• Types of hazards that are most likely to cause harm to health and safety • Unsafe working conditions • Health and safety signs and symbols • Housekeeping • Methods of Dealing with hazard to avoid any accident or injury Activity: • Practice to identify the physical hazards in Mock situation and apply control measures, safety sign and barricade.	Total 6 hrs Theory: 3 hrs Practical: 3 hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners Non Consumable • White board • Multimedia	• Class Room • Simulated environment

LU2: Use Personal Protective and Safety Equipment (PPE)	The trainee will be able to: 1. Identify risk associated with job to be done 2. Select PPE according to job 3. Wear PPE according to job 4. Store PPE at Designated place after use	• Describe the types of Personal protective equipment (PPEs) • Describe the procedure to identify risk associated with job to be done • Importance of personal protective equipment • Describe the Maintenance and cleaning of PPEs • Describe the procedure to wear full body harness Activity: • Demonstrate to select PPEs for specific job. • Practice to wear full body harness and anchorage	Total: 9 hrs Theory: 3 hrs Practical: 6 hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners Non Consumable • White board • Multimedia • PPEs (Safety glasses, Ear muffs/ear plugs, Protective Gloves, Cap, Safety shoes etc.)	• Class Room • Simulated environment
LU3: Perform communication signals	The trainee will be able to: 1. Identify different types of communication hand signals.	• Types of communication signals • Types of hand signals • Importance of hand signals Activity:	Total 6 hrs Theory: 3 hrs Practical: 3 hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners	• Class Room • Simulated environment

	2. Use appropriate hand signals as per situation	• Demonstrate the hand signals for different activities		Non Consumable • White board • Multimedia • Safety manuals	
LU4: Manual handling of loads	The trainee will be able to: 1. Check the load's weight to be handles 2. Check the availability of broad stable base 3. Lift and place the load with proper posture 4. Lift the load as per given standards	• Importance of safely lifting loads • Describe types of loads • Explain basic ergonomics principles • State the load Lifting procedures Activity: • Practice of shifting manually the load from ground to a designated location.	Total: 9 hrs Theory: 3 hrs Practical: 6 hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners Non Consumable • White board • Multimedia • Internet • Computer system	• Class Room • Simulated environment

Module2: Perform Basic Communication Skills

Objective of the module: The aim of this module to get knowledge, skills of reading, speaking and writing skills as well as professional communication in a team environment.

Duration: 40 hours **Theory:** 10 hours **Practical:** 30hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1. Demonstrate basic reading skills	The trainee will be able to: 1. Pronounce the words accurately 2. Exhibit Fluency in reading the text 3. Exhibit control on voice pitch	• Describe the modes of communication • Explain the 7Cs of effective communication • Explain the language phonetics. Activity: • Practice to read the different documents such as; company safety policy, workplace regulation & rules etc.	Total: 8 hrs Theory: 2 hrs Practical: 6 hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners • White board marker Non Consumable • White board	• Class Room

LU2. Demonstrate Basic Speaking skills	The trainee will be able to: 1. Prepare hints for speech 2. Exhibit control on the pace of speech as per situation 3. Use Jargons as per situations	• Describe verbal and non-verbal communication • State different Sources of information • Explain workplace Rules & regulations. • Describe the interviewing skills Activity: • Each trainee introduce himself. • Each trainee will convey the company general rules & regulations to fellow workers. • Mock interview; each trainee will appear against the panel of experts for the specific job employment.	Total: 8 hrs Theory: 2 hrs Practical: 6 hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners • White board marker Non Consumable • White board	• Class Room
LU3. Demonstrate Basic writing skills	1. Select writing format 2. Prepare important points as required 3. Take written notes as per situation	• Describe the ways to write and sequence paragraphs according to the required purpose of written material • Describe the ways to produce business letters, job applications, resumes and meeting agendas. • Describe spelling, punctuation and grammar for workplace documents	Total: 8 hrs Theory: 2 hrs Practical: 6 hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners • White board marker Non Consumable	• Class Room

		Activity: - Practice to prepare job application & C.V. - Practice to take notes of the instructions given by the supervisor.		White board	
LU4. Communicate in a team	1. Treat team members with respect 2. Maintain positive relationships with team members to achieve common organizational goals 3. Comply with the given instructions 4. Get work related information from team 5. Identify interrelated work	- Describe the role and objective of team. - Explain the method of recording the information/instructions. Activity: - Participate in mock preparation meeting for a specific task, take notes and then convey the instructions to the co-workers, - Conduct group discussions on a specific topic.	Total: 8 hrs Theory: 2 hrs Practical: 6 hrs	Consumable - Notebooks - Pencils - Erasers - Sharpeners - White board marker Non Consumable - White board	Class Room

	activities to avoid confusion 6. Adopt communication skills, which are designed in a team. 7. Identify problems and report to supervisor 8. Resolve communication barrier through discussion and mutual agreement				
LU5. Follow Supervisor's instructions as per organizational SOPs	1. Receive the instructions from Supervisor 2. Carry out the instructions of the supervisor 3. Report to the supervisor as per	- Describe the importance of creating cooperative work environment. - Describe the importance of resolving the co-worker's problems - State plan work and organize required resources in coordination with team	Total: 8 hrs Theory: 2 hrs Practical: 6 hrs	Consumable - Notebooks - Pencils - Erasers - Sharpeners - White board marker Non Consumable	Class Room

	organizational SOPs	Activity: Get instruction regarding a specific task from supervisor, convey it to coworkers and identify problems regarding implementation of job instructions and report it to the supervisor.		White board	
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Module3: Demonstrate Basic Numeracy Skills

Objective of the module: The aim of this module to get knowledge, skills and understanding to demonstrate basic numeracy skills

Duration: 60hours

Theory: 15hours

Practical: 45 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Apply Basic Numeracy Skills	The trainee will be able to: 1. Perform addition 2. Perform subtraction 3. Perform multiplication 4. Perform division 5. Calculate percentage	• Basic principles of addition, subtraction, multiplication and division of whole number • Basic principles of addition, subtraction, multiplication and division of fractions • Basic principles of addition, subtraction, multiplication and division of decimals • Percentage calculation • Time saving practices Activity: • Practice of addition, subtraction, multiplication division of whole number • Practice of addition, subtraction, multiplication division of fraction • Practice of addition, subtraction, multiplication division of decimal	Total: 20 hrs. Theory: 5 hrs. Practical: 15 hrs.	Consumable • Notebooks • Pencils • Erasers • Sharpeners • Pen • White board marker Non Consumable • White board • Multimedia • Internet • Computer system • Printer • Measuring tape	Class Room

		Practice of calculate percentage between referred number		• Scale • Calculator	
LU2: Perform Measurement	The trainee will be able to: 1. Select measuring tools as per requirement 2. Measure the dimension of specific objects 3. Perform inter conversion of measuring units	• Types of measuring tools • Imperial and metric system • Basic measuring units and its inter conversion • Time saving practices Activity: • Take the measurement of different geometrical figures with scale. • Practice to measure the boundaries of specific land and calculate its area and perimeter. • Take the measurements of different solids with the help of different measuring tools. • Practice of inter-conversion of units.	Total: 20hrs Theory: 5hrs Practical: 15hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners • White board marker Non Consumable • White board • Multimedia • Internet • Computer system • Printer • Measuring tape • Scale • Calculator	Class Room

LU3: Calculate Area and Volume of Figures	The trainee will be able to: 1. Calculate area of geometrical figures 2. Calculate volume of solid figures	• Types of plain geometrical figures • Types of geometrical solids • Area of plain geometrical figures • Area of composite plain geometrical figures • Volume of geometrical solids • Surface area of geometrical solids • Time saving practices Activity: • Calculate the area of given geometrical figures • Calculate the area and perimeter of given composite geometrical figures • Calculate the volume of given geometrical solids. • Calculate the surface area of given geometrical figures and solids. • Practice of calculating quantity of material in piles/stack.	Total:20hrs Theory:5 hrs. Practical:15hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners • White board marker Non Consumable • White board • Multimedia • Internet • Computer system • Printer • Measuring tape • Scale • 3D model of geometrical solids • Calculator	Class Room
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Module 4: Perform Basic Technical Drawing

Objective of the module: The aim of this module to get knowledge, skills and understanding to perform basic technical drawing

Duration: 100hours

Theory: 10hours

Practical: 90 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Explore basic elements of geometrical drawings	The trainee will be able to: 1. Perform different types of single stroke lettering 2. Draw different types of lines 3. Draw different types of plane scales 4. Draw different conventional drawing symbols	• Importance of technical drawings • Types of technical drawings • Types of lines • Types of scales • Developing plain scale • Types of Lettering • Different types of drawing pencils (Clutch pencil Mechanical pencils, etc.) • Different grades of pencil • Types of drawing symbols • Different drawing sheets (scholar sheet, chart paper, Canson Sheet, etc.) Activity: • Practice to draw different types of lines	Total: 23hrs Theory: 2hrs Practical: 21hrs	Consumable • Notebooks • Erasers • Sharpeners • White board marker • Drawing sheets • Drawing pen • Masking tape • Different drawing pencils • Scale Non Consumable	Class Room/Drawing hall

		• Practice to perform single stroke inclined and vertical lettering • Practice to develop a scale of given ratio • Practice to draw conventional symbols • Practice to draw different styles of title block		• White board • Multimedia • Internet • Computer system • Drawing board • Drawing instruments	
LU2: Draw Different Geometrical Shapes	The trainee will be able to: 1. Draw different geometrical shapes 2. Draw conic sections 3. Create a pattern with simple shapes	• Types of geometrical solids and geometrical figures • Types of angles • Understanding and significance of conic sections • Methods to draw different regular polygons • Draw ellipse by concentric and parallelogram methods and draw parabola Activity: • Practice to draw simple geometrical figures, triangles, quadrilaterals. • Practice to draw simple geometrical polygons	Total: 23hrs Theory: 2hrs Practical: 21hrs	Consumable • Notebooks • Erasers • Sharpeners • White board marker • Drawing sheets • Drawing pen • Masking tape • Different drawing pencils • Scale	Class Room/Drawing Hall

		- Practice to draw ellipse with concentric circle and by parallelogram method - Practice to draw parabola - Practice to draw given pattern comprising of lines, arcs and geometrical figures		Non Consumable - White board - Multimedia - Internet - Computer system - Drawing board - Drawing instruments	
LU3: Draw pictorial view of objects	The trainee will be able to: - Select base line on sheet - Draw isometric view of given object - Draw oblique view of given object - Draw title strip on sheet	- Types of pictorial drawings - Method to draw isometric view - Method to draw oblique view Activity: - Practice to draw isometric view of given block - Practice to draw oblique view of given block - Practice to draw isometric view of given block having a hole and draw title strip.	Total: 27hrs Theory: 3hrs Practical: 24hrs	Consumable - Notebooks - Erasers - Sharpeners - White board marker - Drawing sheets - Drawing pen - Masking tape	Class Room/Drawing Hall

				• Different drawing pencils • Scale Non Consumable • White board • Multimedia • Internet • Computer system • Drawing board • Drawing instruments	
LU4. Explore Orthographic views of simple shapes	The trainee will be able to: 1. Draw first angle projection 2. Draw third angle projection 3. Draw missing views 4. Draw different section views 5. Dimension the drawing by different method	• Concept of orthographic projections, first and third angle • Plane of orthographic projections • Types of orthographic projections • Types of sections • Types of dimensioning	Total: 27hrs Theory: 3hrs Practical: 24hrs	Consumable • Notebooks • Erasers • Sharpeners • White board marker • Drawing sheets • Drawing pen	Class Room/Drawing Hall

		Activity: • Practice to draw first angle projection of simple object blocks. • Practice to draw third angle projection of simple object blocks. • Practice to draw the missing view of different given orthographic projection. • Practice to draw the section view of different given blocks. • Practice to dimension the different given drawings/ views		• Masking tape • Different drawing pencils • Scale Non Consumable • White board • Multimedia • Internet • Computer system • Drawing board • Drawing instruments	
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Module 5: Perform Basic Computer Operations

Objective of the module: The aim of this module to get knowledge, skills and understanding of Basic Computer Operations

Duration: 110

Theory: 20 hours

Practical: 90 hours

hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Perform basic Configuration of Computer System	The trainee will be able to: 1. Connect computer components and peripherals as per requirement 2. Install drivers and applications according to the software specification 3. Troubleshoot applications to trace and fix faults in a specific application to bring it in a running condition	• Knowledge of Operating systems • Knowledge of Hardware and Software • Knowledge of Troubleshooting • Knowledge of Peripheral devices • Knowledge of different software installation • Knowledge of BIOS • Knowledge of RAM and ROM • Knowledge of Components of computer system • Knowledge of Input devices and output devices • Knowledge of basic units of memory	Total: 23hrs Theory: 5 hrs Practical: 18 hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners Non Consumable • White board • Multimedia • Internet • Computer system • Pen • Operating system CD	• Computer Lab

		Activity: - Practice of installing operating system in computer system. - Practice of installing MS word. - Practice of Installation of printer and scanner.		Software and peripheral driver CD	
LU2: Create a document using MS word	The trainee will be able to: - Compose a document as per the requirement - Format Word Document according to given requirements - Print Word Documents according to requirements	- Knowledge of MS Word - Knowledge of inserting information in tabular form - Knowledge of Table formatting - Knowledge of Hyperlink and referencing - Knowledge of Printing - Knowledge of Short Keys - Knowledge of document formatting in MS Word - Knowledge of WPM (Word Per Minute) Activity: - Practice of document opening/closing, saving, copying and pasting. - Practice of document formatting using short keys. - Practice of creating and editing a document/letter in MS word and	Total: 24hrs Theory: 3 hrs Practical: 21hrs	Consumable - Notebooks - Pencils - Erasers - Sharpeners Non Consumable - White board - Multimedia - Internet - Computer system - Software CD	Computer Labs

		print it.			
LU3: Prepare Spreadsheet using MS Excel	1. Create worksheet as per given data 2. Format the worksheet according to given criteria 3. Apply formulas according to the requirement 4. Generate Charts/Graphs according to the given data 5. Print Worksheet according to requirements	• Knowledge of Table formatting • Knowledge of Hyperlink and referencing • Knowledge of Printing • Knowledge of MS Excel • Knowledge of Types of Short Keys • Knowledge of Different types of formulas in MS Excel • Knowledge of Formatting styles MS Excel • Knowledge of workbook and sheet • Knowledge of chart Activity: • Practice to develop a work sheet as per given data and print it • Format and apply a formula to a work sheet according to the requirement. • Practice to generate chart/graph according to given data.	Total: 26 hrs Theory: 5 hrs Practical: 21hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners Non Consumable • White board • Multimedia • Internet • Computer system • Software CD	

LU4: Prepare a presentation using MS PowerPoint	1. Insert slides with different layouts according to requirements of presentation. 2. Insert text, tables, images, etc. according to the requirement. 3. Apply a set of effects to animate the slide according to requirement. 4. Apply slide transitions on slides according to requirement. 5. Apply sound effects on objects/text/images according to requirement.	• Knowledge of Table formatting • Knowledge of Hyperlink and referencing • Knowledge of Printing • Knowledge of MS PowerPoint • Knowledge of Types of Short Keys • Knowledge of presentation format • Knowledge of WPM (Word Per Minute) • Knowledge of effects, transition and sound effects Activity: • Practice of inserting slides different layout according to the requirement of presentation. • Practice of inserting text, tables, images into the slides. • Practice of applying effects, slide transition and sound effects according to requirement.	Total:24hrs Theory: 3 hrs Practical:21hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners Non Consumable • White board • Multimedia • Internet • Computer system • Software CD	•
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LU5: Create an e-mail account	The trainee will be able to: 1. Select email browser 2. Go to sign in page 3. Add Personal Information 4. Enter and confirm password	• Knowledge of Internet • Knowledge of emailing • Knowledge of Internet browser • Knowledge of email attachments • Knowledge of email drafting Activity: • Practice of creating an email address • Practice of composing an email along with an attachment (document, image and video.)	Total: 13 hrs Theory: 4 hrs Practical: 9 hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners Non Consumable • White board • Multimedia • Internet • Computer system	• Computer Lab
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Module 6: Perform Bench Works

Objective of the module: The aim of this module to get knowledge, skills and understanding to perform bench works.

Duration: 130 hours

Theory: 28 hours

Practical: 102 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Carry out Sawing	The trainee will be able to: 1. Select blade according to the material and set in hacksaw frame 2. Mark layout of job as per drawing using required marking tool 3. Perform clamping of the work piece according to the instructions 4. Perform sawing according to the given	• Describe basic mechanical drawings and drawing symbols • Describe different types & application of clamping devices • Explain different types of nut and bolts • Explain of different types of torque wrench • Explain of different types and uses of basic measuring instruments required during different operations • Describe of different types and uses of layout tools • Explain about different types of hacksaw blades and its use	Total: 19 hrs. Theory: 4hrs Practical: 15hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners • Sawing Blades Non Consumable • White board • Scriber	• Class Room/workshop

	instructions 5. Inspect quality of the job at suitable intervals. 6. Verify the final job with the given drawing	Activity: • Practice of sawing the mild steel work piece with hand hacksaw.		• Measuring Tape • Scale • Torque wrench	
LU2: Carry out Filing	The trainee will be able to: 1. Select required file type according to the material 2. Select required marking tool and mark layout of job as per drawing 3. Select clamping device and clamp the work piece 4. Perform filing as per standard procedures 5. Inspect quality of the job at suitable intervals. 6. Verify the final job with the given drawing	• Describe different kinds of file types and their uses • Describe different tools required during grinding operations • Explain the standard filing procedure. Activity: • Practice of filing the surface and edges on mild steel work piece according to drawing and instruction.	Total: 13hrs Theory:4hrs Practical:9hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners Non Consumable • White board • Multimedia • Files • Measuring tape • Scriber • Scale	• Class Room/workshop

LU3: Carry out hand Drilling	The trainee will be able to: 1. Select hand brace and drilling bit according to the job requirement. 2. Use marking tool and measuring instruments as per job requirement. 3. Clamp the work piece as per job requirement. 4. Perform drilling as per standard procedures 5. Inspect quality of job at suitable intervals. 6. Perform post drilling operations 7. Verify the final job with the given drawing	• Explain different types & properties of material • Describe drilling process and its uses. • Explain different types of drill bits. Activity: • Practice to drill hole of different diameter with hand brace in the work piece as per drawing.	Total: 25hrs Theory: 4hrs Practical: 21hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners • Drill bits Non Consumable • White board • Multimedia • Scraper • Hand brace • Round files • Hand drill • Center punch • Hammer	• Class Room/workshop
LU4: Carry out Reaming	The trainee will be able to: 1. Select required reamer according to the job specification 2. Select required	• Explain the importance of reaming. • Describe different types and application of reamers.	Total: 19 hrs Theory: 4hrs Practical: 15hrs	Consumable • Notebooks • Pencils • Erasers	• Class Room/workshop

	marking tool and mark layout of job as per drawing 3. Select clamping device and clamp the work piece 4. Perform drilling to produce hole 5. Perform reaming as per job specification 6. Verify final job with given drawing	Activity: • Practice of reaming on drilled holes of different diameter of work piece.		• Sharpeners • Drill bit Non Consumable • White board • Multimedia • Reamer • Hand brace • Hand drill	
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LU5: Carry out Tapping	The trainee will be able to: 1. Select required tap according to the job specification 2. Select required marking tool and mark layout of job as per drawing 3. Select clamping device and clamp the work piece 4. Perform drilling to produce hole according to tap size 5. Perform tapping as per job specification 6. Verify final job with given drawing	• Explain the types of tapping. • Explain the pitch gauge. • Describe different methods of tapping. • Describe tap and die set. Activity: • Select the tap according to the drilled holes of different sizes on the work piece. • Practice of tapping on a drilled holes on work piece to make an internal thread.	Total:25hrs Theory:4hrs Practical:21hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners Non Consumable • White board • Multimedia • Tapping set • Center punch • Hammer	• Class Room/workshop
LU6: Calibrate Vernier Caliper/ micro meter	The trainee will be able to:	• Explain the importance of calibration of measuring tools. • Describe precision tools. • Describe the procedure of calibration of Vernier Caliper and micro meter.	Total: 13hrs Theory:4hrs	Consumable • Notebooks • Pencils • Erasers	• Class Room/workshop

	1. Close both jaws of Vernier Caliper/ micro meter. 2. Check zero error 3. Open up jaws and precisely match the both jaws and assemble device	Activity: • Practice of calibration of Vernier Caliper and micro meter.	Practical:9hrs	• Sharpeners Non Consumable • White board • Multimedia • Precision tools (micrometer/ vernier caliper)	
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LU7: Perform General Housekeeping & Maintenance	The trainee will be able to: 1. Clean and maintain all workplace tools & machines as per housekeeping checklists or given instructions 2. Prepare checklist for daily cleanliness of the workplace 3. Place all tools & material in proper place to ensure safe work 4. Fill checklists to conduct maintenance and housekeeping of machines & tools	• Explain guidelines and checklists to conduct maintenance and housekeeping of tools & equipment. • Explain the Importance of daily cleanliness of workplace. • Describe the Importance of storing tools and material in specific place. • Identify faulty/damaged/ worn out parts of tools & equipment. • Explain the Importance of Record keeping. Activity: • Practice of sorting of different types of tool, trace defects and preform maintenance.	Total: 16hrs Theory:4hrs Practical:12hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners Non Consumable • White board • Multimedia • Internet • Computer system • Tool box • Layout tools • Cutting tools • Measuring tools • Precision tools	• Class Room/workshop
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Module 7: Perform Basic Electrical Installations

Objective of the module: The aim of this module to get knowledge, skills and understanding to perform basic electrical installations

Duration: 80 hours

Theory: 23hours

Practical: 57 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Prepare Basic Electrical Circuits	The trainee will be able to: 1. Select required tools 2. Prepare series circuit on work bench 3. Prepare parallel circuit on work bench 4. Prepare Head and Tail Light Circuit on work bench 5. Prepare indicator circuit on work bench	• Knowledge of AC and DC • Knowledge of Ohm's Law • Knowledge of Voltage, current, resistance and continuity • Knowledge of Types of circuits (series and parallel) • Knowledge of Knowledge of indicator circuit • Knowledge of Continuity test of a circuit • Knowledge of Electrical connection scheme of the job • Knowledge of Handling techniques for placement for electrical equipment • Knowledge of Different methods of cable testing • Knowledge of Different types of coding procedures (e.g., color coding / tagging / numbering)	Total: 29 hrs Theory: 8 hrs Practical: 21hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners • Sockets • Jumper wires • Fuse • Bulb • Switches • Bulb holder • Workbench • Solder Non Consumable • White board • Multimedia	Class Room/ Wiring/ Electrical lab

		• Knowledge of Earthling and testing procedures • Knowledge of Working principle of earth tester • Knowledge of Electrical symbols to be used in drawings Activity: • Practice of preparing a circuit diagram of one switch bulb and socket • Practice to install bulb, switch and socket according to drawing		• Internet • Computer system • Soldering Iron	
LU2: Perform Basic Electrical Measurements	The trainee will be able to: 1. Measure voltage in a circuit 2. Measure current in a circuit 3. Measure resistance in a circuit 4. Perform test for continuity in a circuit	• Knowledge of electrical measuring instruments • Knowledge of Voltage • Knowledge of Current • Knowledge of Resistance • Knowledge of wattage • Knowledge of unit of currents Activity: • Practice to perform test for continuity in a circuit • Practice to measure	Total: 26 hrs Theory:8 hrs Practical:18 hrs	Consumable • Notebooks • Pencils • Erasers • Sharpeners • Jumper wires • Fuse • Bulb • Switches	Class Room/ Wiring/ Electrical lab

		voltage, current and resistance in a circuit		- Bulb holder - Workbench - Socket Non Consumable - White board - Multimedia - Tool box - Multimeter - Internet - Computer system	
LU3: Provide Power Supply to Machine	The trainee will be able to: - Select electrical appliances - Connect cables with electrical appliances as per manual - Verify the connections according to color code. - Check the connectivity of earthing point.	- Knowledge of power supply to appliances - Knowledge of Power supply cable according to appliances - Knowledge of different type of connections Activity: - Practice to provide power supply to any appliance as per requirement	Total: 25 hrs Theory: 7 hrs Practical: 18hrs	Consumable - Notebooks - Pencils - Erasers - Sharpener - Power supply cable - Different types of wire connection	Class Room/ Wiring/ Electrical lab

				Non Consumable • White board • Multimedia • Electrical • Tool box • Multimeter • Internet • Computer system	
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Module 8: Perform Operation and Maintenance of Pumping Station

Objective of the module: The aim of this module to get knowledge, skills and understanding to perform operation and maintenance of pumping station.

Duration: 50 hours **Theory:** 8 hours **Practical:** 42 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1: Perform pre-operative checks	The trainee will be able to: 1. Check the water level in storage tank 2. Check the adequacy of voltage/frequency 3. Check the air relief valve 4. Check the tightness of all connections 5. Check the operation of sluice valves 6. Check the pressure gauges 7. Check the storage of chemicals as per MSDS	• Knowledge of System layout • Knowledge of Components of Pumping station • Knowledge of Risk factors and potential hazards of operating wastewater transfer systems • Knowledge of operational equipment capacity and limitations • Knowledge of effects of weather and conditions on system • Knowledge of Operate service according to procedures • Knowledge of Identify and respond to operational problems • Knowledge of use tools and machinery • Knowledge of Chemicals used for water cleaning • Knowledge of Material Safety Data Sheet (MSDS)	Total: 18hrs Theory: 3hrs Practical: 15hrs	Consumable • Notebooks • Pen • Lubricant • Coolant • Seals • Gasket Non Consumable • White board • Multimedia • Air relief valve • Sluice valve • Pressure gauge	Class Room/ on site

	Check the functionality of emergency stop switch	• Knowledge of types of air relief valve • Knowledge of types of sluice valve • Knowledge of types of pressure gauges • Knowledge of emergency stop switch • Knowledge of different types of water supply connection joints • Knowledge of different types of waste water supply connection joints Activity: • Practice to check water level, air relief valve and sluice valve. • Practice to check pressure gauge of pumping station. • Practice to check storage of chemicals as per MSDS		• Pipes (sizes as per requirement) • Pumping station • Different types Connection joints of water and wastewater • Internet • Computer system	
LU2: Operate the pump station	The trainee will be able to: • Startup the power switch • Monitor the pressure gauges	• Knowledge of pumps and pump station • Knowledge of types of pumps and their operational function • Knowledge of principles of pumps	Total:18hrs Theory:3hrs Practical:15hrs	Consumable • Notebooks • Pen • Lubricant • Coolant • Seals • Gasket	Class Room/on site

		- Knowledge of pumping station maintenance standards and procedures Activity: - Practice to operate a pumping station		Non Consumable - White board - Multimedia - Pumping station - Internet - Computer system	
LU3: Maintain pump station	The trainee will be able to: 1. Check pump station components. 2. Perform schedule maintenance task 3. Identify and report pump station faults 4. Maintain the maintenance record 5. Maintain the inventory/log register	- Knowledge of different types of schedule maintenance - Knowledge of common pump faults - Knowledge of preparing maintenance record - Knowledge of maintaining inventory/log register Activity: - Practice to check the operation of pumping station as per the SOPs.	Total:14hrs Theory:2hrs Practical:12hrs	Consumable - Notebooks - Pen - Lubricant - Coolant - Seals - Gasket - Inventory/Log register - Maintenance record register Non Consumable - White board	Class Room/ on site

		• Practice to update the maintenance record and inventory/log register		• Multimedia • Pumping station • Internet • Computer system	
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General assessment guidance for Urban Area Planning and Management

Good practice in Pakistan makes use of sessional and final assessments, the basis of which is described below. Good practice by vocational training providers in Pakistan is to use a combination of these sessional and final assessments, combined to produce the final qualification result.

Sessional assessment is going on all the time. Its purpose is to provide feedback on what students are learning:

- To the student: to identify achievement and areas for further work
- To the teacher: to evaluate the effectiveness of teaching to date, and to focus future plans.

Assessors need to devise sessional assessments for both theoretical and practical work. Guidance is provided in the assessment strategy

Final assessment is the assessment, usually on completion of a course or module, which says whether or not the student has "passed". It is – or should be – undertaken with reference to all the objectives or outcomes of the course, and is usually fairly formal. Considerations of security – ensuring that the student who gets the credit is the person who did the work – assume considerable importance in final assessment.

Methods of assessment

For lessons with a high quantity of theory, written or oral tests related to learning outcomes and/ or learning content can be conducted. For workplace lessons, assessment can focus on the quality of planning the related process, the quality of executing the process, the quality of the product and/or evaluation of the process.

Methods include direct assessment, which is the most desirable form of assessment. For this method, evidence is obtained by direct observation of the student's performance.

Examples for direct assessment of Urban Area Field Assistant include:

- Work performances, for example perform basic communication, maintain personal health, hygiene and safety and perform basic computer operations
- Direct questioning, where the assessor would ask the student how to perform personal safety at work place, how they can communicate work place policy and procedures, how they can create electrical circuits and how they can measure these circuits
- Paper-based tests, such as multiple choice or short answer questions on communication at work place policy and procedures.

- Indirect assessment is the method used where the performance could not be watched and evidence is gained indirectly.

Examples for indirect assessment of an Urban Area Field Assistant include:

- Work products, such as preparing and handling documents, perform some procedures of benchworks.

Indirect assessment should only be a second choice. (In some cases, it may not even be guaranteed that the work products were produced by the person being assessed.)

Principles of assessment

All assessments should be valid, reliable, fair and flexible:

Fairness means that there should be no advantages or disadvantages for any assessed person. For example, it should not happen that one student gets prior information about the type of work performance that will be assessed, while another candidate does not get any prior information.

Validity means that a valid assessment assesses what it claims to assess. For example, if documentation or identifying Measurements are to be assessed and certificated, the assessment should involve performance criteria that are directly related to that documentation activity. An interview about the identifying Electrical Circuits and Measurements would not meet the performance criteria.

Reliability means that the assessment is consistent and reproducible. For example, if the work performance of preparing documents in words has been assessed, another assessor (e.g. the future employer) should be able to see the same work performance and witness the same level of achievement.

Flexibility means that the assessor has to be flexible concerning the assessment approach. For example, if there is a power failure during the assessment, the assessor should modify the arrangements to accommodate the students' needs.

Assessment strategy for Urban Area Field Assistant

This curriculum consists of 8 modules:

- **Module 1:** Follow Safety Rules at Site
- **Module 2:** Perform Basic Communication Skills
- **Module 3:** Demonstrate Basic Numeracy Skills
- **Module 4:** Perform Basic Technical Drawing
- **Module 5:** Perform Basic Computer Operations
- **Module 6:** Perform Bench Work
- **Module 7:** Perform Basic Electrical Installations
- **Module 8:** Perform Operation and Maintenance of Pumping Station

Sessional assessment

The sessional assessment for all modules shall be in two parts: theoretical assessment and practical assessment. The sessional marks shall contribute to the final qualification.

Theoretical assessment for all learning modules must consist of a written paper lasting at least one hour per module. This can be a combination of multiple choice and short answer questions.

For practical assessment, all procedures and methods for the modules must be assessed on a sessional basis. Guidance is provided below under Planning for assessment.

Final assessment

Final assessment shall be in two parts: theoretical assessment and practical assessment. The final assessment marks shall contribute to the final qualification.

The assessment teams

The number of assessors must meet the needs of the students and the training provider. For example, where two assessors are conducting the assessment, there must be a maximum of five students per assessor. In this example, a group of 25 students shall therefore require assessments to be carried out over a four-day period. For a group of only 10 to 15 students, assessments would be carried out over a two-day period only.

Planning for assessment

Sessional assessment: assessors need to plan in advance how they will conduct sessional assessments for each module. The tables on the following pages are for assessors to use to insert how many hours of theoretical and practical assessment will be conducted and what the scheduled dates are. Final assessment: Training providers need to decide ways to combine modules into a cohesive two-day final assessment programme for each group of five students. Training providers must agree the content for practical assessments in advance.

LIST OF TOOLS, MACHINERY and EQUIPMENT

Sr #	Description	Quantity
1.	Computer Systems	25
2.	Scanner	1
3.	Printer	1
4.	Steel Rules	1
5.	Drawing board	25
6.	PPEs	25
7.	Tri Square	10
8.	Measuring tape (Steel)	10
9.	Calculator	10
10.	Spirit level	5
11.	Plumb bob	5
12.	Internet connection	25
13.	Divider	25
14.	Scraper	25
15.	Pliers	5
16.	Wrench	5
17.	Hacksaw	5
18.	Reaming tool	5
19.	Threading tool	5
20.	Bench Vice	5

21.	Pipe Heating tool	5
22.	Spanner set	5 each
23.	Clamping tools	5
24.	Hand drill	5
25.	Scriber	5
26.	Files	5
27.	Torch	5
28.	Micrometer	5
29.	Vernier caliper	5
30.	Tapping set	5
31.	Chisels	5
32.	Hand Brace	5
33.	Drill bits	5
34.	Ball peen Hammer	5
35.	Cross peen hammer	5
36.	Sledge hammer	5
37.	Slip joint pliers	25
38.	Bread Board	10
39.	Resistors	25
40.	Power Supply	1
41.	Water Pump	1
42.	Motor	1
43.	Closed tube well	1

44.	Work bench	10
45.	White board	2
46.	Multimedia	1
47.	Safety manuals	10
48.	Center punch	10
49.	Precision tool	10
50.	Round files	10
51.	Electrical Tool box	5
52.	Power supply cable	10
53.	Air relief value	10
54.	Sluice value	10

LIST OF CONSUMABLE SUPPLIES

Sr no	Material	Quantity
1.	Note book	25
2.	Pencil	25
3.	White sheets	25
4.	Eraser	25
5.	Sharpener	25
6.	Pen	25
7.	Clutch pencils	25
8.	Sticky Notes	25

9.	Card sheets	100
10.	Cleaning brush	25
11.	Cotton rags	1KG
12.	PPE's	25
13.	Lubricants	In Litters
14.	Drawing Board	25
15.	Drawing Sheets	25 Books
16.	Jumper wires	25
17.	Bulbs	10
18.	Switches	10
19.	White board marker	10
20.	Sawing blade	5
21.	Coolant	1kg
22.	Gasket	25
23.	Bulb holder	10
24.	Masking pen	25
25.	Fuse	25
26.	Seals	25
27.	Maintenance record register	25

Credit values

The credit value of the National Certificate Level 2 in Urban Area Field Assistant is defined by estimating the amount of time/ instruction hours required to complete each competency unit and competency standard. The NVQF uses a standard credit value of 1 credit = 10 hours of learning (Following Higher Education Commission (HEC) guidelines).

The credit values are as follows:

Competency Standard	Estimate of hours	Credit
A. Follow Safety Rules at Site	30	03
B. Perform Basic Communication Skills	40	04
C. Demonstrate Basic Numeracy Skills	60	06
D. Perform Basic Technical Drawing	100	10
E. Perform Basic Computer Operations	110	11
F. Perform Bench Work	130	13
G. Perform Basic Electrical Installations	80	08
H. Perform Operation and Maintenance of Pumping Station	50	05

Members of the Curriculum 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.	Mr. Muhammad Usman Khan	Building Inspector	Kasur
5.	Mr. Sikandar Hayat	Instructor	GCT, Raiwand road Lahore
6.	Mr. Nadeem Zaigham	Sr. Instructor	GCT, Raiwind, Lahore
7.	Ms. Nigar Majeed	QCM, Human Development Organization	Faisalabad
8.	Engr. Rehan Younis	AD	FWO, Rawalpindi
9.	Mr. Arsalan Hameed	AD	Planning Development 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

Members of the Curriculum Review 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. Mudassir Mujeeb	DACUM Expert	Jampur
5.	Ms. Anum Fayyaz	Instructor, Architecture Depaetment	GCT ,Railway road Lahore
6.	Ms. Hira Ishtiaq	Community Designer	AIMS Engineering Lahore
7.	Mr. Mohsin Ali Sheikh	AM	Engro fertilizers, Gotki
8.	Mr. Tahir Mahmood	Senior Instructor	GTTI Mughalpura, Lahore
9.	Engr. Abdul Basit Mansoor	AEE	PWD Sialkot
10.	Mr. Abdul Shakoor	Site Supervisor	RYK
11.	Engr. Rehan Younis	AD	FWO Rawalpindi
12.	Mr. Muhammad Umer	Civil Contractor	Faisalabad
13.	Mr. Arsalan Hameed	AD	Planning Development, Lahore
14.	Engr. Muhammad Ibrar	Manager Site	Bahawalpur
15.	Syed Zafar Ayub Hussain Shah	Project Coordinator ZKB	Peshawar

16.	Mr. Faran Asif	Msc. Geotechnical Engineering	NUST Islamabad
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