Competency Based Training (CBT)
Curriculum Guide
for
Rod Binder

[Market Oriented Short Term (MOST), Modular Curriculum]

Developed by:
Skills and Employment Programme-Bangladesh (SEP-B)

UKaid
from the British people

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Skills and Employment Programme Bangladesh

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1. INTRODUCTION:

The TVET system has a large role to play in economic growth and social development as workforce provider to the labor market and as provider of skills to those who are looking for employment. In the case of Bangladesh, the TVET sector needs major reforms to ensure that issues of quality and capacity, relevance, and access are properly addressed.

This curriculum guide is designed and developed using competency based training (CBT) approach with the aim of producing skilled human resources for respective trade and occupation. This is based on the tasks to be performed for Rod Binder occupation. The modules are included in course structure section of this curriculum guide. The training methodology is learner friendly where theoretical inputs, demonstration, guided and individual practices will be sufficiently provided to master the skills at the industry standards. Sufficient and updated tools and equipment will also be used during the training to provide hands on skills to the trainees. The curriculum guide is developed in consultation with the trainer, mid-level industry supervisors, and skilled workers. Curriculum Design Africa has been involved to develop the curriculum.

2. AIMS:

The main aim of this training program is to produce medium level skilled workforce (semi-skilled workers) required for the construction sector in the formal and informal sector and create better opportunities for employment and increased revenue.

3. OBJECTIVES:

At the end of the training course, the trainees will be able to:

- Practice Occupational Health and Safety (OHS) Procedure
- Apply Fundamental Skills of Rod Binding Works
- Perform Cutting and Bending Reinforcement
- Pre-fix Reinforcement for Structural Work
- Fix and Tie Reinforcement

4. DESCRIPTION:

This is a competency based training package for the unemployed and underemployed workforce of Bangladesh. The curriculum is based on the tasks to be performed in the Rod Binder occupation and subsequently these tasks have been grouped to form various modules. This will provide flexibility for the trainees to learn one module at a time. The modules are included in the 'Course Structure' section of this curriculum guide. The training methodology will be **learner-centered** where theoretical input, demonstration, guided and individual practices will sufficiently be provided to the trainees to **master their skills at business and industry standards**. Sufficient tools, equipment and aids will also be used during the training to provide hands on skills to the trainees.

5. COURSE STRUCTURE:

Job title: Rod Binder				Time (hrs.)		
S.N.	**Modules**	**Tasks**	**Nature**	**Th.**	**Pr.**	**Tot.**
1.	Practice Occupational Health and Safety (OHS) Procedure	**5**	**T+P**	2.5	3.5	06.0
2.	Apply Fundamental Skills of Rod Binding Works	**5**	**T+P**	2.5	25.5	28.0
3.	Perform Cutting and Bending Reinforcement	**4**	**T+P**	2.5	25.5	28.0
4.	Pre-fix Reinforcement for Structural Work	**4**	**T+P**	3.0	32.0	35.0
5.	Fix and Tie Reinforcement	**7**	**T+P**	3.5	79.5	83.0
	All total:	**25**		**14.0**	**166.0**	**180.0**

Timings are subject to verification during pilot phase.
It should further be noted that although Health and Safety is dealt with as a separate module, the principles should be integrated into each task. It should be seen as a way of life and not an activity to be done during training only.

6. DURATION:

Total duration of the training is **180 hours** excluding soft skills and On-the-Job Training (OJT)/Apprenticeship. The participants will be sent for wage employment after completion of the training. Only technical modules have been considered under this duration.

7. TARGET GROUP:

The target group of this training course will be dropped out youths from the formal schooling, job seekers/underemployed young men or women, disadvantaged people. Male and female both are entitled to receive this training. The basic education for the trainees would be grade-V or equivalent. Above 18 years of age trainees will be enrolled in the training course.

8. GROUP SIZE:

A total of maximum 20 trainees will be placed in each group and provided adequate resources.

9. TARGET LOCATION:

The training will be implemented in partnership with private training providers situated in the different areas of the country.

10. MEDIUM OF INSTRUCTION:

The medium of instruction for this course will be Bangla but the trainees will be oriented on technical terminology in English.

11. PATTERN OF ATTENDANCE:

At least 90% attendee will be required during the theory and practical classes to appear in the internal and final assessment.

12. FOCUS OF THE PROGRAM:

Since this course is a competency based training, the focus is given on the performance of the trainees rather than the theoretical input. Where practicable at least 80% of the total training time is allocated for practical training and 20% for theory.

13. ENTRY CRITERIA:

The following criteria will be considered for the individual to enter into this training program:

- Education: Class 5 or equivalent
- Age: 18 years and above
- Physical and mental health

14. FOLLOW UP SUGGESTION:

The training institutes who implement CBT program will build rapport with the employers to link graduates with the industries for employment.

Placement: Within one month after completion of the training program, the graduates will be assisted in finding out appropriate and decent wage-based job relevant to the occupation concerned.

To measure the success in job, the follow up will be taken as below:
First follow-up- three months after placement of graduates in job and the next follow up six months after placement of graduates in job.

15. CERTIFICATE REQUIREMENT:

Training service provider will certify the graduates as a semi-skilled Rod Binder only after successful completion of the training program though systematic skills testing. Certification can also be linked to the Bangladesh Technical and Education Board (BTEB) at the relevant NTVQF level through Recognition of Prior Learning (RPL).

16. TRAINEES EVALUATION DETAILS:

Monthly evaluation will be conducted to ensure the performance of the learners. Final evaluation will be conducted to evaluate the participants at the end of the training course. Trainees must secure 100% marks in practical and 80% marks in theoretical examination.

17. TRAINERS' QUALIFICATION:

Preference will be given to the trainer's having the following criteria:

- Minimum Five years' experience in the respective occupation in the construction industry
- Working experience as an Instructor/Trainer
- Trade course/Diploma Engineering in Civil Construction Technology

18. TRAINER – TRAINEES RATIO:

- For theoretical class, trainer and trainee ratio should be 1:20.
- For practical class, trainer and trainee ratio should be 1:10.
- And for final practical assessment 1:1

19. SUGGESTION FOR INSTRUCTION:

Where practicable:

- At least 80% time of the course will be allocated for practical purpose
- At least 20% time of the course will be allocated for theoretical purpose
- Follow the safety rules
- Create a friendly learning environment
- Arrange the materials and equipment at the right place
- Trainer/Instructor will be available in the training classes/labs in time
- Take attendance of participants
- Learner centered training
- Encourage the participants to speak
- Arrange question and answer (Q&A) sessions
- Make plans for classroom / workshop instructions
- Prepare lesson plans for theoretical and practical classes

LIST OF MODULES AND SUB MODULES:

Module: 1: Practice Occupational Health and Safety (OHS) Procedure

Module: 2: Apply Fundamental Skills of Rod Binding Works

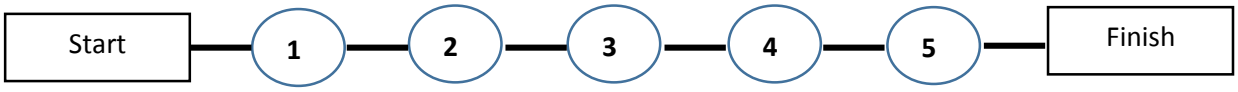
Module: 3: Perform Cutting and Bending Reinforcement

Module: 4: Pre-fix Reinforcement for Structural Work

Module: 5: Fix and Tie Reinforcement

20. MODULE SEQUENCE:

MODULE SEQUENCE:



21. DETAILS OF MODULES AND SUB MODULES:

Module 1: Practice Occupational Health and Safety (OHS) Procedure

<table>
<tr><th colspan="7">22.1 Module- 1: Practice Occupational Health and Safety (OHS) Procedure</th></tr>
<tr><td></td><td colspan="4">Description: It consists of skills and knowledge related to occupational health and safety applicable to the related performance.</td><td colspan="3">Hours</td></tr>
<tr><td></td><td colspan="4">Module outcomes: After completion of this module, trainees will be able to
• Follow safety sign and regulations
• Apply personal protective equipment
• Control house-keeping hazards
• Apply First Aid on minor injuries</td><td>Th.
2.5</td><td>Pr.
3.5</td><td>Tot.
6.0</td></tr>
<tr><td></td><td colspan="6"></td></tr>
<tr><td rowspan="3">1.</td><td colspan="2">Task: Follow safety sign and regulations</td><td colspan="2">Terminal Performance Objective (TPO):

Given: Simulated situation

What: Follow safety sign and regulations

How well:
• All safety signs and regulations must be followed in the workplace</td><td>Th.
0.5</td><td>Pr.
0.5</td><td>Tot.
1.0</td></tr>
<tr><td colspan="2">Steps:
1. Collect the safety sign, emergency exit plan and list of rules and regulation
2. Explain the application of safety sign and regulation
3. Follow the emergency exit plan
4. Comply with safety signs and regulations</td><td colspan="4">Enabling objectives:
• Explain about the uses of safety sign and regulation
• Explain how to use the regulation
• Explain what are the safety sign
• List the safety sign and regulation
• Use the all safety items and rules
• Explain the emergency exit way</td></tr>
<tr><td colspan="6">Tools/equipment/materials required: Safety sign, visual aids, danger zone area indicators and regulation charts</td></tr>
<tr><td>2.</td><td colspan="2">Task: Apply personal protective equipment</td><td colspan="2">Terminal Performance Objective (TPO):

Given: Protective equipment

What: Apply personal protective equipment</td><td>Th.
0.5</td><td>Pr.
1.0</td><td>Tot.
1.5</td></tr>
</table>

			How well: • The status of the protective equipment must be checked • Safety goggle, helmet, gloves to be worn at all times during execution of tasks and safety belt must be tightened properly			
	Steps: 1. Collect the personal protective equipment 2. Check the condition of protective equipment 3. Use the protective equipment 4. Maintain the protective equipment 5. Preserve the protective equipment in organized way at safe place		**Enabling objectives:** • Explain about the uses of protective equipment • Explain how to use the protective equipment • Explain what are the protective equipment in hazards works • Use the protective equipment properly • Explain the positive and negative side of uses the protective equipment • List the protective equipment			
	Tools/equipment/materials required: Hamlet, Life Jacket, Safety Googles, Hand Gloves, Safety Belt and Safety shoes/Gumboot.					
3.	**Task:** Control house-keeping hazards		**Terminal Performance Objective (TPO):** **Given:** Simulated situation **What:** Control house-keeping hazards **How well:** • Tools, equipment and safety materials of workplace must be placed in organized way • The periodical maintenance of tools, equipment and safety materials of workplace must be done.	Th. 0.5	Pr. 0.5	Tot. 1.0

	Steps: 1. List the expected hazards exist in workplace 2. Place the tools and equipment in workplace following organized way 3. Follow up the periodic maintenance of tools and equipment 4. Handle the tools/equipment carefully 5. Follow up the maintenance of all the electrical fittings and fixtures 6. Identify the faulty tools/ equipment 7. Dispose the wastage/outdated tools & equipment from workplace		**Enabling objectives:** • Define house-keeping hazards • Identify the types of housekeeping hazards • Explain the necessity of keeping the house neat and clean (including dinning place, washroom/toilets, store and exit path) • Understand safety precautions to be taken for housekeeping hazards • List the expected house-keeping hazards in the workplace			
	Tools/equipment/materials required: Tools and equipment including safety materials.					
4.	**Task:** Apply First Aid on minor injuries		**Terminal Performance Objective (TPO):** **Given:** Dummy of a simulated victim **What:** Apply First Aid on minor injuries **How well:** • Injured person must be isolated from the crowd • Information of accident must be given to the administration	Th. 0.5	Pr. 1.0	Tot. 1.5
	Steps: 1. Isolate the injured person 2. Collect first aid box with necessary medicine, materials and equipment 3. Clean the injured area		**Enabling objectives:** • Define the minor injury • Explain about the first aid treatment • Describe the steps of dressing • List out the first aid medicine, equipment and materials			

	4. Dress the injured portion properly 5. Use the necessary medicine and other materials as per requirement 6. Inform the administration 7. Restore the First Aid Box					
	Tools/equipment/materials required: First Aid Box with required medicine and materials					
5.	**Task:** Control Electrical Fire Hazards		**Terminal Performance Objective (TPO):** **Given:** Work place situation (real/simulation) **What:** Control Electrical Fire Hazards **How well:** • Firefighting aids must be checked periodically • Emergency exit must be followed during evacuation	Th. 0.5	Pr. 0.5	Tot. 1.0
	Steps: 1. Check the availability of fire extinguishers, sands buckets/ reservoir 2. Wear safety device to work closed to the electrification area. 3. Check the fire extinguisher 4. Apply fire extinguisher during small electric fire. 5. Inform the police and fire station for mass electric fire		**Enabling objectives:** • Describe the possible electrical fire hazards in workplace • List the types of electrical hazards			
	Tools/equipment/materials required: Safety materials like fire Extinguisher, Sands, Vacuum cleaner/hand blower etc.					

Module 2: Apply Fundamental Skills of Rod Binding Works

<table>
<tr><th colspan="6">22.2 Module- 2: Apply Fundamental Skills of Rod Binding Works</th></tr>
<tr><td></td><td colspan="3">Description: This module covers basic skills and knowledge about</td><td colspan="2">Hours</td></tr>
<tr><td></td><td colspan="3">Module outcomes: After completion of this module, trainees will be able to:
• Identify tools, equipment and materials for rod binding
• Apply tools and equipment
• Perform Basic measurement
• Interpret working drawing
• Interpret bar schedule</td><td>Th.
2.5</td><td>Pr.
25.5
Tot.
28.0</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>1.</td><td>Task: Identify rod binding tools, equipment and materials</td><td></td><td>Terminal Performance Objective (TPO):

Given: Different types tools, equipment and materials used in rod binding and simulated work place

What: Identify rod binding tools, equipment and materials

How well:
• Tools, equipment and materials are identified
• List out the name of rod binding tools, equipment and materials.</td><td>Th.
0.5</td><td>Pr.
4.0
Tot.
4.5</td></tr>
<tr><td></td><td>Steps:
1. Collect different types of rod binding tools, equipment and materials.
2. Place them separately on the table.
3. Identify each tools, equipment and materials.
4. List out the name of each tools, equipment and materials with label.
5. Clean the workplace.
6. Restore the material, fittings, valves and fixtures.</td><td></td><td colspan="3">Enabling objectives:
• Explain the uses of different tools, equipment and materials.
• List out the required tools, equipment and materials used in rod binding</td></tr>
</table>

	Tools/equipment/materials required: MS rod, 24 gauge GI wire, thread, chalk, red or yellow paint, hammer, rod cutting machine, working bench, measuring tape, plump bob, water level, emery paper, binding key, bar bending key, Table.					
2.	**Task:** Apply tools and equipment		**Terminal Performance Objective (TPO):** **Given:** Simulated work place, various tools and equipment **What:** Apply tools and equipment **How well:** • Safety precaution must be taken while working with power tools • Appropriate tools and equipment must be selected for specific job • Power tools must be switched OFF/ON while it is operated	Th. 0.5	Pr. 04.5	Tot. 5.0
	Steps: 1. Collect tools and equipment. 2. Select specific tools and equipment for specific job. 3. Take safety precaution before works. 4. Perform the use of each tools and equipment. 5. Clean the workplace. 6. Restore tools and equipment.		**Enabling objectives:** • List tools and equipment. • Explain the function and application of tools and equipment. • Explain tools and equipment handling technique. • Explain safety precautions while handling tools and equipment.			
	Tools/equipment/materials required: Hammer, rod cutting machine, measuring tape, plump bob, binding hook, bar bending key (Handle), cold chisel etc.					
3.	**Task:** Perform basic measurement		**Terminal Performance Objective (TPO):** **Given:** Simulated work place, different sizes steel bars and lengths.	Th. 0.5	Pr. 5.0	Tot. 5.5

			What: Perform basic measurement **How well:** • Measurement errors must be kept within ±10 mm for linear measurement of rod • Measurement errors must be kept within ± 2mm for diameter of rod • Measurement errors must be kept within ± 5gm per unit weight of rod			
	Steps: 1. Collect required measuring tool and materials. 2. Measure the length of bar in MKS and FPS system. 3. Measure the diameter of bar in MKS and FPS system. 4. Identify standard weights of different steel bars. 5. Calculate the weight of bar from length in MKS and FPS system. 6. Record all measurement. 7. Restore all tools and materials.		**Enabling objectives:** • Explain different measurement units. • Explain the procedure of linear and diameter measurement. • Explain standard weight and size of steel bar.			
	Tools/equipment/materials required: Measuring tape, MS rod. weighting balance, slide calipers etc.					
4.	**Task:** Interpret working drawing		**Terminal Performance Objective (TPO):** **Given:** Drawing and study table **What:** Interpret working drawing **How well:** • Terms and abbreviation are identified and explained.	Th. 0.5	Pr. 6.0	Tot. 6.5
	Steps: 1. Collect required working drawing.		**Enabling objectives:** • Explain how to identify different position and name of rod			

	2. Interpret dimensions and diameter of rod in the drawing. 3. Identify different types of bars such as main bar, cranked bar, extra top bar, stirrup /tie, hanger bar etc from longitudinal and cross section. 4. Identify sectional elevation and sectional plan. 5. Identify footing, column, beams, slab, stair slab and shear wall structural drawing. 6. Interpret signs and symbols. 7. Restore the drawings in a dry and safe place.		• Identify dimension and diameter of rods • Explain signs and symbols			
	Tools/equipment/materials required: Working drawing, pencil, note book.					
5.	**Task:** Interpret bar schedule		**Terminal Performance Objective (TPO):** **Given:** Bar schedule **What:** Interpret bar schedule **How well:** • Bar schedule of rod binding is interpreted	Th. 0.5	Pr. 6.0	Tot. 6.5
	Steps: 1. Collect required bar schedule. 2. Identify bar schedule. 3. Interpret size and diameter of rod from bar schedule. 4. Interpret different dimension and detail shape of rod. 5. Interpret required number of rod from bar schedule 6. Note or record the different sizes of rod. 7. Restore bar schedule in a dry place.		**Enabling objectives:** • Explain the purpose of bar schedule. • Explain the elements of bar schedule. • Explain different shape of bends and total lengths.			
	Tools/equipment/materials required: Bar schedule, pencil and note book.					

Module 3: Perform Cutting and Bending Reinforcement

22.3 Module- 3: Perform Cutting and Bending Reinforcement					
	Description: This module deals with the measure cut and bend reinforcement e.g. Straighten, cut rod, steel fixing work bench, bend rod and level and plumb objects.		Hours		
	Module outcomes: After completion of this module, trainees will be able to: • Straighten supplied rods • Cut rod as per bar schedule. • Prepare steel fixing work bench. • Bend rods as per bar schedule • Level and plumb objects		**Th. 2.5**	**Pr. 25.5**	**Tot. 28.0**
1.	**Task:** Straighten supplied rods		**Terminal Performance Objective (TPO):** **Given:** Different Tools, workplace & Reinforcement **What:** Straighten supplied rods **How well:** • Supplied rod must be straighten.	Th. 0.5	Pr. 5.5	Tot. 6.0
	Steps: 1. Collect tools, equipment and materials. 2. Separate a single bar/rod from the bundle of rod. 3. Place the bar on the leveled ground with the help of a helper (friend). 4. Unfold the folded part of the bar by holding back with a bending key by a friend and forcing the bar back to unfold with a key. 5. Place the straighten bars laid on leveled ground. 6. Find the small band of the long bar/rod. 7. Straight the small bend once again using bending key.		**Enabling objectives:** 1. List tools, equipment and materials. 2. Explain different diameter of bar. 3. Explain the procedure of straightening folded bar. 4. Explain the use of bending key.			

	8. Clean the work place. 9. Restore tools and other materials.					
	Tools/equipment/materials required: Bender, working bench, Hammer, bundle of bars, work place.					
2.	**Task**: Cut rod as per bar schedule.		**Terminal Performance Objective (TPO):** **Given:** work place**,** Bar schedule, rod cutter, reinforcement, Disk cutter machine, measuring tape. **What:** Cut rod as per bar schedule. **How well:** • Measurement tolerance must be kept within ±10mm	Th. 0.5	Pr. 5.5	Tot. 6.0
	Steps: 1. Collect tools, equipment and materials. 2. Place the straight bar on the top of wooden piece. 3. Mark on the bar as per bar schedule and measurement, i.e. length 3 m. 4. Place hand disk cutter machine blade or disk cutter machine blade on the top of marking straight bar. 5. Cut the straight bar with the help of disk cutter machine. 6. Cut the bar with the help of cold chisel with a fork and hammer to place the bar on rail bit or metal plate (If rod cutter machine is not available). 7. Apply chisel and hammer to cut the bar at marking position with help of co-worker		**Enabling objectives:** • List tools, equipment and materials • Explain cutting techniques using hand Disk cutter machine. • Explain the cutting procedure. • Explain measurement and marking techniques.			

	8. Keep the cut piece at separate space of a same size of the bars. 9. Clean the work place, tools and materials 10. Restore the tools, equipment and other materials.					
	Tools/equipment/materials required: Disk cutter machine, hand disk cutter machine, reinforcement cold chisel, fork and hammer etc.					
3.	**Task:** Prepare steel fixing work bench		**Terminal Performance Objective (TPO):** **Given:** Work place, Tools**,** Timber, Reinforcement and wooden posts. **What:** Prepare steel fixing work bench **How well:** • The level of work bench must be checked	Th. 0.5	Pr. 5.5	Tot. 6.0
	Steps: 1. Collect tools, equipment and materials 2. Select timber members for making posts of work bench. 3. Select a timber for horizontal members for making work bench. 4. Prepare the posts with a tongue on top of them with a sufficient bases. 5. Prepare horizontal member of the work bench by making hole/groove with the help of drill machine to hold the tongues of the posts. 6. Insert two 16mm diameter rod at the top of horizontal bench to make jig (jigs top from bench approximate 50 to 60mm and		**Enabling objectives:** 1. List tools equipment and materials 2. Explain work bench and its components 3. Explain the working bench making procedure.			

	distance between two jig rods is 50 to 75mm). 7. Clear height of working bench from ground up to 900mm. 8. Level the ground on which the working bench posts shall be erected. 9. Dig out two holes into the ground at sufficient depth (600mm) to hold the post strongly. 10. Place the posts into the holes 11. Fill up the hole up to 300mm with mud and the rest 300mm with cement concrete. 12. Put bench member on top of the post inserting the tongues into the holes of the bench member. 13. Fix the bench member with nails also. 14. Insert steel bars at various position to facilitate bending of the steel bars. 15. Maintain the work bench properly as it has to be used for long time till the job finish. 16. Clean the work place. 17. Restore tools, equipment and other materials.					
	Tools/equipment/materials required: Axe, Jumper, shovel, saw, tape, hammer, craw-bar, chisel, drill machine etc.					
4.	**Task:** Bend rods as per bar schedule		**Terminal Performance Objective (TPO):** **Given:** Bar schedule**,** Work bench, tools and materials. **What:** Bend rods as per bar schedule **How well:**	Th. 1.0	Pr. 9.0	Tot. 10.0

			• Bend must be uniform shape and size tolerance is ±5°			
	Steps: 1. Collect tools, equipment and materials. 2. Identify various types of bends used in steel bar. 3. Calculate the lengths of each bends in steel bar used in construction. 4. Make template of the bend with iron props on top of work bench. 5. Measure the length of the bend bar. 6. Mark the points on the steel bars from where bend start or end. 7. Use work bench and iron props on it to bend a steel bar with a helper. 8. Use steel bending key to hold bar from top of it after putting in the iron props to bend to required degrees. 9. Measure the made bend bars with the shape and bar schedule. 10. Clean the work place. 11. Restore tools and other materials.		**Enabling objectives:** 1. List the tools, equipment and materials 2. Explain length calculation procedure of bend bar. 3. Explain various types of bend. 4. Explain bending procedure of bar. 5. Explain the functions of bender key.			
	Tools/equipment/materials required: Template, Bending key, Work bench, steel bar, tape, marking chalk, fairly leveled ground.					

Module 4: Pre-fix Reinforcement for Structural Work

22.4 Module- 4: Pre-fix Reinforcement for Structural Work					
	Description: This module deals with pre fix reinforcement for structural work. It provides making ties, pre fix reinforcement for footing, column and lintel with sunshade.			Hours	
	Module outcomes: After completion of this module, trainees will be able to: • Make different types of ties. • Pre fix reinforcement for base/footing • Pre-fix reinforcement for column • Pre-fix reinforcement for lintel with sunshade			**Th. 3.0**	**Pr. 32.**	**Tot. 35.0**
1.	**Task:** Make different types of ties.		**Terminal Performance Objective (TPO):** **Given:** Measuring tape, drawing specification and materials. **What:** Make different types of ties. **How well:** • Ties must be made as per measurement tolerance ±5mm • Hooks length must be same for each ties.	Th. 1.0	Pr. 14.0	Tot. 15.0
	Steps: 1. Collect tools, equipment and materials. 2. Identify different types of ties. 3. Calculate the total length of ties to be bent from the given bar. 4. Measure the lengths for each tie on the given bar. 5. Mark the length on the bar with a chalk for cutting. 6. Cut the bar for making ties following the marks and measurement. 7. Mark the cut bar for bends to make ties.		**Enabling objectives:** • List the required tools, equipment and materials. • Explain the calculation procedure of ties. • Explain different types of ties • Explain the use of different ties. • Explain ties making procedure.			

	8. Use work bench and bending key to bend the marked bar to make ties. 9. Measure the size and shape of bend up bar as ties. 10. Take bend up bar as a ties in a place. 11. Clean the work place and tools and restore.					
	Tools/equipment/materials required: Work bench, measuring tape, bending key, chalk, reinforcement etc.					
2.	**Task:** Pre-fix reinforcement for base/footing		**Terminal Performance Objective (TPO):** **Given:** Bar schedule, Drawing, workplace and materials. **What:** Pre-fix reinforcement for base/footing **How well:** • Bar spacing must be followed as per drawing. • Measurement tolerance is ±5mm.	Th. 0.5	Pr. 7.5	Tot. 8.0
	Steps: 1. Collect tools equipment and drawing 2. Level the work place with cleaning. 3. Take required steel bar from yard. 4. Place bar on the top of horizontally placed bamboo or wooden piece. 5. Measure the required number of bars as per bar schedule (i.e. length 1500mm width 1200mm). 6. Mark the bars using chalk as per measurement 7. Cut the bars following the marking points using disc cutter machine. 8. Mark the both ends of the cutting bar with chalk for make L hooks.		**Enabling objectives:** • List the required tools, equipment and materials • Explain procedure of footing rod binding.			

	9. Place the marking bar on the working bench. 10. Make 90° bend with jig and bending key. 11. Take bend up bar in a place. 12. Mark the four bars to be placed outside of the footing as per spacing of given drawing and tie the four corner point. 13. Place the long bar in the bottom (1st) and then place short bar at the top of long bar along the marking points. 14. Bind every crossing point with GI wire (24 gage). 15. Check diagonal measurement. 16. Store the finish base bar in a suitable place of the working site. 17. Clean workplace 18. Restore the tools and equipment in safe place.					
	Tools/equipment/materials required: Work bench, measuring tape, bending key, drawing, chalk, reinforcement etc.					
3.	**Task:** Pre-fix reinforcement for column		**Terminal Performance Objective (TPO):** **Given:** Bar schedule, Drawing, worksite and materials **What:** Pre-fix reinforcement for column **How well:** • Ties must be made in regular shape and size. • Measurement tolerance is ±5mm. • Ties must be fixed horizontally levelled.	Th. 0.5	Pr. 5.5	Tot. 6.0
	Steps:		**Enabling objectives:**			

	1. Collect tools, equipment and materials. 2. Put four bamboo posts or 16mm bar into the ground and bind two bar horizontally of two posts to make platform. (In state of bamboo post make two chair with 16mm diameter MS rod which is used for making platform). 3. Measure the required reinforcement as per bar schedule. 4. Mark the reinforcement with chalk. 5. Cut the reinforcement as per measurement. 6. Mark the rod for making L bend in column bar. 7. Make 90° or L bend using working bench. 8. Place the making two bend bar on the platform. 9. Prepare ties for the given column in required numbers. 10. Insert column bar into required number of ties. 11. Mark spacing for ties on the inserted column bars. 12. Fix the column bar with ties using GI wire at mark position. 13. Turn the column and insert another two column bar after binding one side column reinforcement and fix the ties by GI wire at the mark position. 14. Clean the work place and tools and restore.		• List the required tools, equipment and materials. • Explain ties binding procedure. • Explain the procedure of making platform. • Explain column rod bending procedure.			
	Tools/equipment/materials required: Claw bar, Timber/bamboo, measuring tape, binding key, hammer, reinforcement and try-square.					
4.	**Task:** Pre-fix reinforcement for lintel with sunshade		**Terminal Performance Objective (TPO):**	Th. 1.0	Pr. 5.0	Tot. 6.0

			Given: Bar schedule, drawing and materials **What:** Pre-fix reinforcement for lintel with sunshade **How well:** • Main bar of sunshade must be placed on top portion.			
	Steps: 1. Collect tools, equipment and materials. 2. Put four bamboo posts or 16mm bar into the ground and bind two bar horizontally of two posts to make platform (In state of bamboo post make two chair which is used for make platform). 3. Measure the reinforcement as per bar schedule. 4. Mark on the reinforcement with chalk. 5. Cut the reinforcement as per measurement. 6. Use working bench to make hooks for the end of lintel bar. 7. Place two lintel bar on the platform. 8. Prepare pistol ring for the given lintel with sunshade in required numbers. 9. Insert lintel bar into required number of pistol ring (main rod of sunshade portion remain at top). 10. Mark spacing for pistol ring on the inserted lintel bars. 11. Fix the lintel bar with pistol rings by GI wire at mark position. 12. Turn the lintel upward and insert another two lintel bar after binding one side lintel bar		**Enabling objectives:** • List the required tools, equipment and materials. • Explain about pistol stirrup. • Explain the procedure placing pistol stirrup with lintel bar.			

	13. Fix the pistol ring by GI wire at mark position. 14. Place and tie required number of binder at the bottom of sunshade main bar. 15. Clean work place area 16. Restore tools and restore.		
	Tools/equipment/materials required: Claw bar, Timber/bamboo, measuring tape, binding key, hammer, reinforcement.		

Module 5: Fix and Tie Reinforcement

<table>
<tr><th colspan="7">22.5 Module- 5: Fix and Tie Reinforcement</th></tr>
<tr><td></td><td colspan="3">Description: This module covers basic skills and knowledge about</td><td colspan="3">Hours</td></tr>
<tr><td></td><td colspan="3">Module outcomes: After completion of this module, trainees will be able to:
• Erect reinforcement for footing/ base
• Erect reinforcement for shear wall
• Erect reinforcement for column
• Erect reinforcement grade beam
• Erect reinforcement for stair
• Erect reinforcement for one way slab
• Erect reinforcement for two way slab</td><td>Tr.
3.5</td><td>Pr.
80.5</td><td>Tot.
93.5</td></tr>
<tr><td></td><td colspan="3"></td><td></td><td></td><td></td></tr>
<tr><td>1.</td><td>Task: Erect reinforcement for footing/ base</td><td></td><td>Terminal Performance Objective (TPO):

Given: Prepared footing/base cage, tools and simulated work place.

What: Erect reinforcement for footing base

How well:
• Position of footing/base cage are done as per layout.
• Clear cover for footing/base must be kept 75 ± 5 mm from bottom and side.
• Measurement error for center point of the cage must be ± 2mm</td><td>Tr.
0.5</td><td>Pr.
8.5</td><td>Tot.
9.0</td></tr>
<tr><td></td><td>Steps:
1. Collect tools, drawing and prepared footing/base
2. Set the center line of the column by thread putting wooden or bamboo pegs / nails.</td><td></td><td colspan="4">Enabling objectives:
• List tools equipment and materials.
• Explain the Importance of setting out center line for footing base.
• Explain procedure of setting out center line for footing base.
• Explain the procedure of placing of footing base.</td></tr>
</table>

	3. Find the center point of footing using plumb bob from the crossing point of threads. 4. Mark the four points of footing/base as per as per layout and measurement. 5. Place cement concrete blocks to provide sufficient covering at the bottom. 6. Place the prepared footing/base (Inside the shuttering box) as per layout. 7. Tie the footing/base reinforcement with wire if necessary. 8. Adjust footing/base as per layout to maintain equal clear cover around the footing/base (Inside the shuttering box). 9. Check all measurement. 10. Clean the workplace. 11. Restore the tools and materials.					
	Tools/equipment/materials required: Prepared footing/base cage, measuring tape, thread, plumb boob, chalk, binding wire, claw bar, Tri Square.					
2.	**Task:** Erect reinforcement for shear wall		**Terminal Performance Objective (TPO):** **Given:** Reinforcement, GI wire, drawing and bar schedule simulated workplace. **What:** Erect reinforcement for shear wall **How well:** • Reinforcement must be done in straight	Tr. 0.5	Pr. 14.5	Tot. 15.0

			• Horizontal measurement error must be within ± 6mm • Vertical measurement error must be within ± 2 mm			
	Steps: 1. Collect tools and materials. 2. Interpret bar schedule for various types of reinforcement. 3. Straiten the reinforcement. 4. Cut the reinforcement according to the measurement and bar schedule. 5. Bend the reinforcement as per bar schedule. 6. Separate reinforcement for base and wall. 7. Cut GI wire as per requirement to bind the reinforcement. 8. Set the center line of the shear wall by thread putting wooden or bamboo pegs / nails. 9. Find the center point of shear wall using plumb bob from the crossing point of threads. 10. Mark four points of shear wall base as per as per layout and measurement. 11. Place two main reinforcement at bottom along the length of shear wall keeping clear cover. 12. Mark the reinforcement as per spacing mentioned in the working drawing.		**Enabling objectives:** • Explain the bar schedule of shear wall. • Explain how to set out center line of shear wall. • List out the name of different reinforcement used in shear wall. • Explain the procedure of placing reinforcement of shear wall.			

	13. Place reinforcement in short direction top of main bar along marked point. 14. Tie the cross point of main and distribution reinforcement with GI wire. 15. Locate the center line point to construct shear wall. 16. Place two binder along the long direction both side of center line keeping sufficient clear cover. 17. Mark on the binder as per spacing to place vertical reinforcement of shear wall. 18. Place and tie the vertical reinforcement of shear wall (Two layer) with G.I. wire outside of binders providing legs of the vertical bar in the inner direction. 19. Mark vertical reinforcement as per spacing of binder. 20. Place and tie the binder inside the both layer of vertical reinforcement. 21. Place and tie U shape tie as per drawing to separate two layers of vertical reinforcement. 22. Clean the workplace. 23. Restore tools and materials.					
	Tools/equipment/materials required: Reinforcement, wire, thread, plumb bob, claw bar, sledge hammer, handle bar, working bench, disc cutter, chisel, chalk, binding hock, covering block, measuring tape, tri square, plumb bob.					
3.	**Task:** Erect reinforcement for column		**Terminal Performance Objective (TPO):** **Given:** Prepared column, tools and simulated work place.	Tr. 0.5	Pr. 9.5	Tot. 10.0

			What: Erect reinforcement for column **How well:** • Position of footing/base cage is done as per layout. • Clear cover for footing/base must be within 75 ± 5 mm from bottom and side. • Measurement error for center point of the cage must be within ± 2mm			
	Steps: 1. Collect tools, drawing and pre-fabricated column. 2. Set the center line of the column by thread putting wooden or bamboo pegs / nails. 3. Find the center point of column using plumb bob from the crossing point of threads. 4. Take the measurement and mark four points of column as per layout. 5. Place the pre-fabricated column on base of the footing as per marking layout. 6. Tie four corners' legs of column reinforcement diagonally with base reinforcement by GI wire. 7. Tie the rest of the legs of column reinforcement with base reinforcement as required. 8. Check the vertical alignment using plumb bob and push		**Enabling objectives:** • Explain procedure of finding out center line for footing base setting. • Explain the procedure of placing of footing case			

	and pull using claw bar if required. 9. Clean the workplace. 10. Restore tools and materials.					
	Tools/equipment/materials required: Pre-fabricated column, measuring tape, thread, plumb boob, chalk, binding wire and claw bar.					
4.	**Task:** Erect reinforcement of grade beam		**Terminal Performance Objective (TPO):** **Given:** Prefixed grade beam, tools, drawing and simulated work place. **What:** Erect reinforcement grade beam **How well:** • Measurement error for length of reinforcement must be within ± 5mm • Measurement error for spacing of stirrups must be within ± 5mm • Position the stirrup hook must be alternative and vertical. • Clear cover for grade beam must be within 62 ± 2 mm from bottom and side.	Tr. 0.5	Pr. 9.5	Tot. 10.0
	Steps: 1. Collect tools, equipment, drawing and bar schedule. 2. Identify the sizes, number and shape of reinforcement used in bar schedule. 3. Straighten the reinforcement as per requirement. 4. Mark the reinforcement as per bar schedule and measurement.		**Enabling objectives:** • Explain the bar schedule of grade beam. • Explain spacing of stirrup. • List out the name of different reinforcement used in grade beam. • Explain the procedure of placing reinforcement of grade beam.			

	5. Cut the reinforcement as per requirement. 6. Make hook, bend, stirrups as per size and shape mentioned in the bar schedule. 7. Tie two short piece of reinforcement with column reinforcement horizontally by GI wire as hangar. 8. Place two reinforcement on the hanger bar. 9. Mark spacing of stirrup on the hangar bar mentioned in the drawing. 10. Place stirrup such way so that stirrup hock remain alternative. 11. Place and tie main reinforcement at the bottom. 12. Place extra top reinforcement as per drawing. 13. Remove short piece reinforcement. 14. Adjust clear cover by placing required size of cc block. 15. Clean the workplace. 16. Restore tools, equipment and materials.					
	Tools/equipment/materials required: Reinforcement, GI wire, CC block, measuring tape, thread, plumb boob, chalk, sledge hammer, disc cutting machine, claw bar, working bench.					
5.	**Task:** Erect reinforcement for stair		**Terminal Performance Objective (TPO):** **Given:** Working drawing, bar schedule, materials, and simulated work place. **What:** Erect reinforcement for stair	Tr. 0.5	Pr. 9.5	Tot. 10.0

			How well: • Measurement error for length of reinforcement must be within ± 5mm • Measurement error for spacing of binder must be within ± 5mm • Clear cover for stair must be within 20 ± 2 mm from bottom and side.			
	Steps: 1. Collect tools, equipment, drawing and bar schedule. 2. Identify the sizes, number and shape of reinforcement used in bar schedule. 3. Straiten the reinforcement as per requirement of bar schedule. 4. Mark on the reinforcement as per bar schedule and measurement. 5. Cut the reinforcement as per requirement. 6. Make hook, bend, and chair as per size and shape mentioned in the bar schedule. 7. Mark on stair shutter as per possession and spacing of main bar. 8. Place the main reinforcement in alternate crank as per drawing. 9. Make crank using rod bender. 10. Place the binder on the main reinforcement and tie using GI wire.		**Enabling objectives:** • Explain the bar schedule of stair. • Explain spacing of main reinforcement. • List out the name of different reinforcement used in stair. • Explain the procedure of placing reinforcement of stair .			

	11. Place the extra top at support as per drawing. 12. Place binder at bottom of extra top and tie using GI wire. 13. Place required number of chair to separate two layer of reinforcement. 14. Adjust clear cover by placing required size of cc block. 15. Clean the workplace. 16. Restore tools, equipment and materials.					
	Tools/equipment/materials required: Reinforcement, GI wire, CC block, measuring tape, thread, plumb boob, chalk, sledge hammer, disc cutting machine, claw bar, working bench.					
6.	**Task:** Erect reinforcement for one way slab		**Terminal Performance Objective (TPO):** **Given:** working drawing, bar schedule, materials, and simulated work place. **What:** Erect reinforcement for one way slab **How well:** • Measurement error for length of reinforcement must be ± 5mm • Measurement error for spacing of binder must be ± 5mm • Clear cover for one way slab must be 20 ± 2 mm from bottom and side.	Tr. 0.5	Pr. 14.5	Tot. 15.0
	Steps: 1. Collect tools, equipment, drawing and bar schedule. 2. Identify the sizes, number and shape of reinforcement used in bar schedule.		**Enabling objectives:** • Explain the bar schedule of one way slab. • Explain spacing of main reinforcement. • List out the name of different reinforcement used in one way slab.			

	3. Straiten the reinforcement as per requirement of bar schedule. 4. Measure length and mark on the reinforcement as per bar schedule. 5. Cut the reinforcement as per requirement. 6. Make bend, chair and U as per size and shape mentioned in the bar schedule. 7. Mark on slab shutter as per possession and spacing of main reinforcement and binder. 8. Place the main reinforcement in short direction in alternate crank. 9. Make crank using rod bender. 10. Place and tie the binder over the main reinforcement. 11. Place the extra top on top each straight main reinforcement as per drawing. 12. Place and tie the binder over the main reinforcement. 13. Set chair to separate two layer of reinforcement. 14. Adjust clear cover by placing required size of cc block. 15. Clean the workplace. 16. Restore tools, equipment and materials.		• Explain the procedure of placing reinforcement of one way slab.			
	Tools/equipment/materials required: Reinforcement, GI wire, CC block, measuring tape, thread, plumb boob, chalk, sledge hammer, disc cutting machine, claw bar, working bench.					
7.	**Task:** Erect reinforcement for Two way slab		**Terminal Performance Objective (TPO):**	Tr. 0.5	Pr. 14.5	Tot. 15.0

			Given: working drawing, bar schedule, materials, and simulated work place. **What:** Erect reinforcement for two way slab **How well:** • Measurement error for length of reinforcement must be within ± 5mm • Measurement error for spacing of binder must be within ± 5mm • Clear cover for two way slab must be within 20 ± 2 mm from bottom and side.			
	Steps: 1. Collect tools, equipment, and drawing and bar schedule. 2. Identify the sizes, number and shape of reinforcement used in bar schedule. 3. Straighten the reinforcement as per requirement of bar schedule. 4. Mark the reinforcement as per bar schedule and measurement. 5. Cut the reinforcement as per requirement. 6. Make bend, chair and U hook as per size and shape mentioned in the bar schedule. 7. Mark on slab shutter as per possession and spacing of main bar both way. 8. Place and tie the main reinforcement in both		**Enabling objectives:** • Explain the bar schedule of two way slab. • Explain spacing of main reinforcement. • List out the name of different reinforcement used in two way slab. • Explain the procedure of placing reinforcement of two way slab.			

	direction in alternate crank as per drawing. 9. Make crank using rod bender. 10. Place extra top bar as per drawing. 11. Place and tie the binder at bottom of crank at support. 12. Set chair to separate two layer of reinforcement. 13. Adjust clear cover by placing required size of cc block. 14. Clean the workplace. 15. Restore tools, equipment and materials.		
	Tools/equipment/materials required: Reinforcement, GI wire, CC block, measuring tape, thread, plumb boob, chalk, sledge hammer, disc cutting machine, claw bar, working bench.		

22. LIST OF TOOLS, EQUIPMENT & MATERIALS:

Sl No	Name of the items	Specification	QTY.	Unit
Tools and Equipment:				
1.	Ball pin hammer	1 to1.5 lb	20	Pcs
2.	Claw bar	600mm to 800mm	20	Pcs
3.	Hand saw	450 mm	20	Pcs
4.	Cold chisel	200mm	20	Pcs
5.	Plum bob	16 Nos.	20	Pcs
6.	Tri square (150mm x300mm)	150mm x300mm	20	Pcs
7.	Measuring tape	3m	20	Pcs
8.	Working bench	150x200x100 mm	20	Pcs
9.	File	150mm	20	Pcs
10.	Sleeper	150mm x 500mm	2	Pcs
11.	Hand Dies Cutter	Standard (175mm)	3	Pcs
12.	Dies Cutter	Standard(400mm)	2	Pcs
13.	Hack saw	400mm	5	Pcs
14.	Bending Key	750mm to 800mm	20	Pcs
15.	Hook key	200mm	20	Pcs
16.	Wire Cutting Pliers	Standard	10	Pcs
Materials:				
17.	Wood plank	1500mmx150mmx25mm	20	cft
18.	Bamboo (10m long)	100mm-125mm dia.	10	Pcs
19.	Batten (mango) 1800mm long	50mm x 75mm	7	cft
20.	Batten (mango) 1800mm long	25mm x 50mm	3	cft
21.	Nail	50mm , 60mm	10	kg
22.	Thread	22 no.	0.5	kg
23.	Chalk	Standard quality	5	box
24.	Pencil HB	Standard quality	20	Pcs
25.	Jute cotton	40mm	5	kg
26.	Marker	Standard quality	20	Pcs
27.	GI wire	24 gauges	50	kg

23. PHYSICAL FACILITIES FOR 20 TRAINEES:

Sl No	Name of the items	Specification	QTY.	Unit
1.	Working Place/Practical Room	30' X 25'	1	Room
2.	Stool	Plastic (RFL)	20	Pcs
3.	Tool Box	Steel (Standard size)	20	Pcs
4.	Instructor Chair Arm Less (Gorjon Wood)	Size: 18" X 16" X 36"	2	Pcs
5.	Class Room Table (Gorjon Wood)	Size: 24" X 30" X 36"	2	Pcs
6.	White Board	6'X4'X3/4" Surface Cover With White Formica, Border bracing with 3/4 " Aluminum Angle	1	Pcs
7.	Steel Rack	44" X 72" X 15" 20-22 SWG	2	Pcs
8.	First Aid Box with accessories		1	Pcs
9.	Steel Almira	Standard Size , 20-22 SWG	2	Pcs
10.	White Board Marker	Red leaf	5	Doz.
11.	Water Filter	40 Ltr.	1	Pcs
12.	Drinking Glass	Standard Quality	2	Doz.
13.	Safety Googles	Plastic (Transparent)	20	Pcs
14.	Hand Gloves	Skin/ruber type	20	Pair
15.	Safety Shoes	APS	20	Pair
16.	Hamlet	Plastic	20	Pcs
17.	Fire extinguisher	ABC	2	cylinder

24. LIST OF TOOLS IN THE HAND TOOL BOX:

Sl.No		Specification	QTY.	Unit
1.	Ball pin hammer	1 to1.5 lb	1	Pcs
2.	Claw bar	600mm to 800mm	1	Pcs
3.	Hand saw	450 mm	1	Pcs
4.	Cold chisel	200mm	1	Pcs
5.	Bending key	750 to 800mm	1	Pcs
6.	Plum bob	16 Nos.	1	Pcs
7.	Wire cutting pliers	200 mm	1	Pcs
8.	Spirit level	450mm	1	Pcs
9.	Tri square (150mm x300mm)	150mm x300mm	1	Pcs
10.	File	150mm	1	Pcs
11.	Measuring tape	3m	1	Pcs

25. SUGGESTED REFERENCE BOOKS:

- Internet browse
- Construction 1 & 2 BTEB (Class IX and X) by Md. Zillur Rahman Khan and Md. Syedur Rahman

26. CURRICULUM TERMS AND DEFINITION:

Competency	Competency means a cluster of related abilities, commitments, knowledge, and skills that enable a trainees or person to act effectively in a job.
Curriculum Guide	A curriculum guide is a detail resource for trainers/instructors to conduct training programs effectively. The guide intends to add the trainers/instructors in developing lesson plan, handouts/learning materials, training manuals, and evaluation criteria etc, which are basic elements in the teaching learning process.
Curriculum	A plan for providing sets of learning opportunity to achieve broad goal and related specific objectives for the people by a single school center.
DACUM/RJA	Developing A Curriculum / Rapid Job Analysis. DACUM/RJA is a technique that is used to identify the competencies relevant to a particular occupation. Then the competencies of the DACUM/RJA have been formulated in details to build a curriculum guideline
Duty	Duty is an arbitrary clustering of related tasks in to broad functional area or general area of responsibility of trainees.
Enabling Objective	A statement expressing a knowledge, skills or attitudes those will enable the trainee to accomplish a terminal performance objective.
Instructional Guide	Instructional guide is a well-planned and structured document for the instructor to deliver effective instruction so that trainees can attain learning objectives as per training standards.
Module	A module is defined as a specific learning material. Modules are essentially self-contained. Self-instructional packages, with learning paced by each learner according to his/her individual ability and needs. A module covers either a single element of subject matter content or a group of content elements forming a discrete unit of subject matter or area of skills.
Occupational Analysis	Occupational analysis is a process used to identify the duties and tasks those are important to workers in any given occupation. A number of alternative and acceptable approaches to occupational analysis are available.
Program guide	A program guide is a comprehensive resource for trainers/instructors, planners, and top-level management for planning and implementation of any training programs.
Program Objectives	The objectives are set in a broad way to target to achieve mastery learning of the complete occupation.
Skill	The ability to perform on occupational task with the degree of proficiency required for a given occupation

Step	The smallest discrete or observable aspect of a task.
Task Analysis	Task analysis is the process of identifying and writing down the specific skills, knowledge and attitudes that distinguish someone who performs a task competently from someone who cannot perform the task at all.
Task	A unit of work complete in itself that forms a logical part of on occupation. It can be broken down into discrete steps.
Terminal Performance Objective	The objectives set to attain at the end of the training completion. It includes condition, unit of work and standard of teaching and learning.

27. CURRICULUM DEVELOPMENT TEAM:

SL #	Name	Designation	Organization	Contact Number
1	Fakir Mohammad Abdul Mannan	Work shop Super (Civil)	Dhaka Poly technic Institute, Tejgaon, Dhaka-1208	01716759677
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3	Md. Hashmot Ali Biswas	Instructor (Civil)	B_K.TTC,Dhaka	01712-561057
4	Ripon Chandra Dhor,	Site Engineer	MONICO Ltd	01716424145
5	Md. Manzur Ahmad	Site Engineer	Noor View properties Ltd	01914806129
6	Md. Abdus Shobhan	Supervisor	DIENCO Ltd.	01686151733
7	Md. Zakir Hossain	Foreman	MONICO Ltd	01728707781
8	Md. Iftakhar khan	Project Officer	SEP-B	
9	Md. Anisuzzaman	Training Coordinator	SEP-B	01912-153859
10	Mohammad Zulfikar Ali	Secretary	BACI	01911-425077
11	Simon Coetzee	Consultant	SEP-B (Curriculum Design Africa)	

Supervision: Md. Anisuzzaman and Simon Coetzee

Record and Documentation: Md. Anisuzzaman and Simon Coetzee

Overall Supervision: Suresh Mahto, Skills and Employment Director (SEP-B)

28. REFERENCES (FOR DEVELOPING CURRICULUMS):

- Competency Profile developed by SEP-B
- Curriculum Guideline of TITI, Nepal

29. LINKAGES OF SEP-B CURRICULUM WITH BTEB COMPETENCY STANDARDS:

Bangladesh Technical Education Board has not yet published the Competency Standard.

30. SPECIAL NOTE FOR TRAINING PROVIDERS:

Since the technology is moving fast, if there will have any new demand/skills beyond the curriculum guide, please send the comments and suggestions to the address given in the curriculum. The project believes that the development has no boundaries.

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