Model Curriculum

Assistant Shuttering Carpenter

SECTOR: Construction
SUB-SECTOR: Real Estate and Infrastructure Construction
OCCUPATION: Shuttering Carpentry
REF ID: CON/Q0302, Version 2.0
NSQF LEVEL: 3
Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

CONSTRUCTION SKILL DEVELOPMENT COUNCIL OF INDIA

for the

MODEL CURRICULUM

Complying to National Occupational Standards of

Job Role/Qualification Pack: 'Assistant Shuttering Carpenter' OP No. 'CON/Q 0302, V2.0 NSOF Level 1'

Date of Issuance: August 16th, 2019
Valid up to: July 24th, 2023*

*Valid up to the next review date of the Qualification Pack

Authorized Signatory
(Construction Skill Development Council of India)
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Assistant Shuttering Carpenter

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Assistant Shuttering Carpenter”, in the “Construction” Sector/Industry and aims at building the following key competencies amongst the learner

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Assistant Shuttering Carpenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualification Pack Name &amp; Reference ID</td>
<td>CON/Q0302, Version 2.0</td>
</tr>
<tr>
<td>Version No.</td>
<td>Version Update Date</td>
</tr>
<tr>
<td>2.0</td>
<td>24/09/2019</td>
</tr>
</tbody>
</table>

Pre-requisites to Training

NIL

Training Outcomes

After completing this programme, participants will be able to:

- Operate tools and equipment relevant to shuttering carpentry work
- Make wooden shutter boards used in shuttering carpentry works
- Provide assistance in assembling and dismantling conventional formwork for R.C.C structures
- Provide assistance in assembling and dismantling system formwork for R.C.C structures
- Erect and dismantle temporary scaffold up to 3.6 m height
- Interact and communicate effectively with co-workers, superiors and subordinates across different teams
- Follow safety norms as defined by organization, adopt healthy and safe work practices.
This course encompasses 6 out of 6 National Occupational Standards (NOS) of “Assistant Shuttering Carpenter” Qualification Pack issued by “Construction SSC”.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Module</th>
<th>Key Learning Outcomes</th>
<th>Equipment Required</th>
</tr>
</thead>
</table>
| 1       | Introduction to shuttering carpentry occupation | • Describe the role and responsibilities of the assistant shuttering carpenter  
  • Explain the expected personal attributes for the job role  
  • Recall the basic terms used in the occupation of shuttering carpentry  
  • Discuss the future possible progression and career options for assistant shuttering carpenter |  
  • Claw Hammer  
  • Ball Pin Hammer  
  • Handsaw  
  • Tenon saw  
  • Wooden Jack Planner  
  • Iron Jack Planner  
  • Wooden Marking Gauge  
  • Wooden Mortise Gauge  
  • Auger  
  • Farmer Chisel  
  • Mortise Chisel  
  • Cutting Player  
  • Screw Driver  
  • Star Screw Driver  
  • Marking Knife / Scribe  
  • Wooden Mallet  
  • Oil Stone (Rough / Smooth)  
  • Cutting Chisel  
  • Center Punch  
  • Bench Vice  
  • Hacksaw Frame with blade  
  • Triangle file  
  • Drill Bit  
  • Ring Spanner  
  • Double End Spanner |
| 2       | Operate tools and equipment relevant to shuttering carpentry work | • List the different types of hand and power tools used in shuttering works along with their storing and stacking technique  
  • Describe the process adopted for care and maintenance of hand and power tools used in shuttering carpentry works  
  • Demonstrate operation of hand tools for cutting, planning and drilling of timber/plywood.  
  • Demonstrate operation of power tools for cutting, planning and drilling of timber/plywood.  
  • List the different types of woods used in shuttering carpentry works  
  • Explain the common defects in wood  
  • Identify common defects in wood visually  
  • List the different types of plywood and their thickness  
  • Describe the various type of slings, shackles and lifting belts  
  • Demonstrate by using slings, shackles and lifting belt for lifting operation of shuttering components.  
  • Demonstrate by  
  • Explain the standard procedure adopted for shifting and stacking of various shuttering carpentry and scaffolding materials  
  • Describe ways to optimize use of consumables  
  • Recognize importance of housekeeping and various procedures involved in it |  
  • Claw Hammer  
  • Ball Pin Hammer  
  • Handsaw  
  • Tenon saw  
  • Wooden Jack Planner  
  • Iron Jack Planner  
  • Wooden Marking Gauge  
  • Wooden Mortise Gauge  
  • Auger  
  • Farmer Chisel  
  • Mortise Chisel  
  • Cutting Player  
  • Screw Driver  
  • Star Screw Driver  
  • Marking Knife / Scribe  
  • Wooden Mallet  
  • Oil Stone (Rough / Smooth)  
  • Cutting Chisel  
  • Center Punch  
  • Bench Vice  
  • Hacksaw Frame with blade  
  • Triangle file  
  • Drill Bit  
  • Ring Spanner  
  • Double End Spanner |
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</table>
| 3      | Make wooden shutter boards used in shuttering carpentry works | • Demonstrate marking and measurement on shutter board, cutting to the specified size, planning and drilling of holes of required diameter.  
• Operate hand and power tools used for making shutter boards applying safe work practices  
• Describe the procedure for making shuttering boards  
• Describe different types of timber joints and their areas of applications  
• Explain the process and importance of wood seasoning  
• Demonstrate use of table mounted saw for cutting shutter boards.  
• Demonstrate the use of planing machine for planning shutter boards.  
• Demonstrate making of lap joint, mortis and tenon, dovetail and housing joints. | • Flat File  
• Half Round File  
• hand held circular saw  
• hand held zig saw  
• hand drill machine  
• table mounted saw  
• planing machine  
• power drilling machine  
• Masking tape  
• Nylon line thread  
• Nails  
• Spirit Level  
• Steel Measuring Tape  
• Plumb Bob  
• water level tube  
• Tri-Square  
• hand held circular saw  
• hand held zig saw  
• hand drill machine  
• table mounted saw  
• planing machine  
• Claw Hammer  
• Ball Pin Hammer  
• Handsaw  
• Tenon saw  
• Wooden Jack Planner  
• Iron Jack Planner  
• Wooden Marking Gauge  
• Farmer Chisel  
• Mortise Chisel  
• Marking Knife / Scribe  
• Wooden Mallet  
• Cutting Chisel  
• Bench Vice  
• Hacksaw Frame with blade  
• Flat File |
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</table>
| 4       | Assist in assembling and dismantling conventional formwork for RCC structures | • Apply the basic knowledge of units, measurement and arithmetic calculation relevant to shuttering work  
• Describe standard procedure for assembling and dismantling conventional formwork  
• Describe the procedure to provide staging support in shuttering works using bamboo, balls, wooden channels, wedge, base plate etc.  
• Explain procedure for erection and dismantling of conventional formwork  
• Explain the checks required for line, level and alignment  
• Explain the various ties used in conventional shuttering  
• Demonstrate transfer of level from reference point  
• Demonstrate erection of staging for conventional shuttering  
• Demonstrate aligning and supporting of shutter boards as per instruction  
• Demonstrate erection of aluminium and steel formwork as per instructions.  
• Demonstrate the various checks conducted in erection and dismantling of conventional formwork  
• Demonstrate tying of different types of knots  
• Describe the corrective actions required for maintaining line, level and alignment  
• Demonstrate shifting of materials and tools required for assembling conventional scaffolding  
• Demonstrate safe de-shuttering of shuttering boards and other components as per instruction. | • Half Round File  
• Spirit Level  
• Steel Measuring Tape  
• Plumb Bob  
• Tri-Square |
| 5       | Assist in assembling and dismantling | • Describe standard procedure for assembling and dismantling system formwork | • Claw Hammer  
• Ball Pin Hammer  
• Handsaw  
• Tenon saw  
• Wooden Jack Planner  
• Iron Jack Planner  
• Wooden Marking Gauge  
• Wooden Mortise Gauge  
• Auger  
• Farmer Chisel  
• Mortise Chisel  
• Cutting Player  
• Screw Driver  
• Star Screw Driver  
• Marking Knife / Scribe  
• Wooden Mallet  
• Oil Stone (Rough / Smooth)  
• Cutting Chisel  
• Center Punch  
• Bench Vice  
• Hacksaw Frame with blade  
• Triangle file  
• Drill Bit  
• Ring Spanner  
• Double End Spanner  
• Flat File  
• Half Round File  
• Spirit Level  
• Steel Measuring Tape  
• Plumb Bob  
• water level tube  
• Tri-Square |
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Module</th>
<th>Key Learning Outcomes</th>
<th>Equipment Required</th>
</tr>
</thead>
</table>
|        | system formwork for RCC structures | • Describe the procedure to provide support in shuttering works  
• Explain procedure for erection and dismantling of system formwork  
• Explain the checks required for line, level and alignment.  
• Demonstrate erection of staging/shuttering for system form works as per instruction.  
• Demonstrate the various checks conducted in erection and dismantling of system formwork  
• Describe the corrective actions required for maintaining line, level and alignment  
• Demonstrate safe de-shuttering of shutter boards and components as per instruction  
• Demonstrate shifting of materials and tools required for assembling system scaffolding | • Handsaw  
• Tenon saw  
• Wooden Jack Planner  
• Iron Jack Planner  
• Wooden Marking Gauge  
• Wooden Mortise Gauge  
• Auger  
• Farmer Chisel  
• Mortise Chisel  
• Cutting Player  
• Screw Driver  
• Star Screw Driver  
• Marking Knife / Scribe  
• Wooden Mallet  
• Oil Stone (Rough / Smooth)  
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• Center Punch  
• Bench Vice  
• Hacksaw Frame with blade  
• Triangle file  
• Drill Bit  
• Ring Spanner  
• Double End Spanner  
• Flat File  
• Half Round File  
• Spirit Level  
• Steel Measuring Tape  
• Plumb Bob  
• water level tube  
• Tri-Square |
|        | **Theory Duration** (hh:mm) 20:00 |  |  |
|        | **Practical Duration** (hh:mm) 47:00 |  |  |
|        | **Corresponding NOS Code** CON/N0314 |  |  |
| 6      | Erect and dismantle temporary scaffold up to 3.6-meter height | • Explain scaffolding and its purpose  
• List the common materials and tools used for erection of scaffolding (pipe, cup lock (vertical and ledgers), H-frames, bamboo and balli  
• List the functions of different hand tools like hammer, spanner, pulleys, hooks, ropes, etc., used for erection/dismantling of scaffolds  
• List the visual checks to be carried out on the scaffolding components to ascertain their usability  
• Identify different components of a temporary scaffolding such as base, toe board, guard rails, platform, walkways, ladder and so on | • Hammer  
• Spanner (set)  
• Wrench  
• Pulley  
• Rope  
• Nuts and bolts  
• Measuring tape  
• Spirit level  
• Plumb-bob  
• Mason’s line  
• Helmet  
• Safety shoes |
<p>|        | <strong>Theory Duration</strong> (hh:mm) 16:00 |  |  |
|        | <strong>Practical Duration</strong> (hh:mm) |  |  |</p>
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Module</th>
<th>Key Learning Outcomes</th>
<th>Equipment Required</th>
</tr>
</thead>
</table>
| 32:00  | Corresponding NOS Code CON/N0101 | • Explain the functions of materials, components and accessories used in scaffolding  
• Demonstrate preparation of scaffolding base  
• Explain the methods adopted for the erection of the scaffold to ensure its safety  
• Demonstrate erection of a scaffold up to 3.6 m height using pipes and couplers/ cup lock system/ H frame employing appropriate hand tools  
• Explain various checks to be done on completion of erection of scaffolds, such as verticality check, stability check etc.  
• Demonstrate the checks required for verticality, rigidity and stability during erection of scaffold.  
• Explain the sequence and standard procedure of dismantling and stacking of scaffold  
• Demonstrate the dismantling of the erected scaffold.  
• Demonstrate the stacking of material, components, tools and accessories during erection and after dismantling. | • Safety belt  
• Cotton hand gloves  
• Goggles  
• Reflective jackets |
| 7      | Describe the benefits of working effectively in a team to deliver desired results at the workplace | • Demonstrate effective communication skills while interacting with co-workers, trade seniors and others during the assigned task.  
• Interpret work sketches, formats, permits, protocols, checklists and other work-related requirements which are to be conveyed to other team members  
• Demonstrate effective reporting to seniors as per applicable organisational norms.  
• Explain effects and benefits of timely actions relevant to bar bending works with examples  
• Explain importance of team work and its effects relevant to bar bending works with examples  
• Demonstrate team work skills during assigned task. | |
| 8      | Work according to personal health, safety and environment protocol at construction site | • Explain the types of hazards at the construction sites  
• Identify the hazards specific to the shuttering work  
• Recall the safety control measures and actions to be taken under emergency situation  
• Explain the classes of fire and types of fire extinguishers  
• Demonstrate the operation of fire extinguisher.  
• Demonstrate different methods involved in providing first aid to the affected person.  
• Explain the importance of worker participation in safety/mock drills  
• Demonstrate the use of all Personal Protective Equipment (PPE) like helmet, safety shoe, safety belt, safe jackets and other safety equipment relevant to shuttering work. | • Safety PPE  
• Safety shoes  
• Safety Goggles  
• Safety Helmet  
• Cotton Hand - Gloves  
• Tools Bag  
• Safety Belt  
• Face Mask  
• Operator – Leather Apron  
• Safety Shoes (Assorted Size)  
• Ear Muff  
• Reflective jackets  
• Safety message boards |
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Module</th>
<th>Key Learning Outcomes</th>
<th>Equipment Required</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• Explain the reporting procedure adopted in case of emergency situations</td>
<td>Fire extinguishers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Describe the standard procedure for handling, storing and stacking of material, tools, equipment and accessories</td>
<td>Sand buckets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Explain different types of wastes produced at a construction site including their disposal method</td>
<td></td>
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<td></td>
<td></td>
<td>• Explain the purpose and importance of vertigo test at construction site</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Demonstrate vertigo test</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• List out basic medical tests required for working at construction site</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Explain the types of ergonomic principles adopted while carrying out specific task at the construction site</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Explain the benefits of basic ergonomic principles used at construction sites.</td>
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<tr>
<td></td>
<td></td>
<td>• Explain the importance of housekeeping</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Demonstrate housekeeping practice followed after shuttering works.</td>
<td></td>
</tr>
</tbody>
</table>

**Total Duration**

**Theory Duration**
104:00 hours

**Practical Duration**
246:00 hours

**Unique Equipment Required:**

**Hand Tools**

**Power Tool**
hand held circular saw, hand held zig saw, hand drill machine, table mounted saw, planing machine, power drilling machine

**Consumables**
Masking tape, Nylon line thread, Nails,

**Levelling and measuring Tools**
Spirit Level, Steel Measuring Tape, Plumb Bob, water level tube

**Personal Protective equipment**

**Classroom Aid for 30 students**
Black/White board, Projector/LED Monitor, Chalk, Computer
Trade specific charts and other teaching aids

Grand Total Course Duration: 350 Hours, 0 Minutes

(This syllabus/curriculum has been approved by Construction Skill Development Council of India)
Trainer Prerequisites for Job role: “Assistant Shuttering Carpenter” mapped to Qualification Pack: “CON/Q0302, Version 2.0”

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Area</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description</td>
<td>To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “CON/Q0302 Version 2.0”.</td>
</tr>
<tr>
<td>2</td>
<td>Personal Attributes</td>
<td>Aptitude for conducting training, and pre/post work to ensure competent, employable candidates at the end of the training. Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused, eager to learn and keep oneself updated with the latest in the mentioned field</td>
</tr>
<tr>
<td>3</td>
<td>Minimum Educational Qualifications</td>
<td>ITI/12th</td>
</tr>
<tr>
<td>4a</td>
<td>Domain Certification</td>
<td>Certified for the job role “Assistant Shuttering Carpenter” mapped to QP: “CON/Q0302 Version 2.0”. Minimum accepted score is 80%</td>
</tr>
<tr>
<td>4b</td>
<td>Platform Certification</td>
<td>Certified for the job role “Trainer” mapped to QP: “MEP/Q2601” Minimum accepted score is 80%</td>
</tr>
<tr>
<td>5</td>
<td>Experience</td>
<td>i. Technical Degree holder with minimum three years of Field experience and preferably two years of teaching experience or,</td>
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<tr>
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<td></td>
<td>ii. In case of a Diploma Holder five years of field experience and preferably two years of teaching experience or,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii. In case of ITI/12th pass minimum eight years of field experience and preferably two years of teaching Experience.</td>
</tr>
</tbody>
</table>

Note: For the Assessment Criteria please refer to the QP PDF