SHIPWRIGHT (WOOD)

COMPETENCY BASED CURRICULUM

(Duration: 2 Yrs.)

APPRENTICESHIP TRAINING SCHEME (ATS)

NSQF LEVEL- 5

SECTOR – PRODUCTION & MANUFACTURING

सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
DIRECTORATE GENERAL OF TRAINING

Directorate General of Training

Skill India
कौशल भारत-कुशल भारत

SHIPWRIGHT (WOOD)

(Revised in 2018)

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NSQF LEVEL - 5

Developed By

Ministry of Skill Development and Entrepreneurship
Directorate General of Training
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Special acknowledgement is extended by DGT to the following expert members who had contributed immensely in this curriculum.

Co-ordinator for the course: Sh. N. Nath, ADT, CSTARI- Kolkata

Sl. No.	Name & Designation Shri/Mr./Ms.	Organization	Mentor Council Designation
Expert group on restructuring of Apprenticeship Training Modules			
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CONTENTS

1. BACKGROUND

1.1 Apprenticeship Training Scheme under Apprentice Act 1961

The Apprentices Act, 1961 was enacted with the objective of regulating the programme of training of apprentices in the industry by utilizing the facilities available therein for imparting on-the-job training. The Act makes it obligatory for employers in specified industries to engage apprentices in designated trades to impart Apprenticeship Training on the job in industry to school leavers and person having National Trade Certificate(ITI pass-outs) issued by National Council for Vocational Training (NCVT) to develop skilled manpower for the industry**.** There are four categories of apprentices namely**; trade apprentice, graduate, technician and technician (vocational) apprentices.**

Qualifications and period of apprenticeship training of **trade apprentices** vary from trade to trade. The apprenticeship training for trade apprentices consists of basic training followed by practical training. At the end of the training, the apprentices are required to appear in a trade test conducted by NCVT and those successful in the trade tests are awarded the National Apprenticeship Certificate.

The period of apprenticeship training for graduate (engineers), technician (diploma holders and technician (vocational) apprentices is one year. Certificates are awarded on completion of training by the Department of Education, Ministry of Human Resource Development.

1.2 Changes in Industrial Scenario

Recently we have seen huge changes in the Indian industry. The Indian Industry registered an impressive growth during the last decade and half. The number of industries in India have increased manifold in the last fifteen years especially in services and manufacturing sectors. It has been realized that India would become a prosperous and a modern state by raising skill levels, including by engaging a larger proportion of apprentices, will be critical to success; as will stronger collaboration between industry and the trainees to ensure the supply of skilled workforce and drive development through employment. Various initiatives to build up an adequate infrastructure for rapid industrialization and improve the industrial scenario in India have been taken.

1.3 Reformation

The Apprentices Act, 1961 has been amended and brought into effect from 22nd December, 2014 to make it more responsive to industry and youth. Key amendments are as given below:

- Prescription of number of apprentices to be engaged at establishment level instead of trade-wise.
- Establishment can also engage apprentices in optional trades which are not designated, with the discretion of entry level qualification and syllabus.
- Scope has been extended also to non-engineering occupations.
- Establishments have been permitted to outsource basic training in an institute of their choice.
- The burden of compliance on industry has been reduced significantly.

2. TRAINING SYSTEM

2.1 GENERAL

Directorate General of Training (DGT) under Ministry of Skill Development & Entrepreneurship offers range of vocational training courses catering to the need of different sectors of economy/ Labour market. The vocational training programmes are delivered under aegis of National Council of Vocational Training (NCVT). Craftsman Training Scheme (CTS) and Apprenticeship Training Scheme (ATS) are two pioneer programmes of NCVT for propagating vocational training.

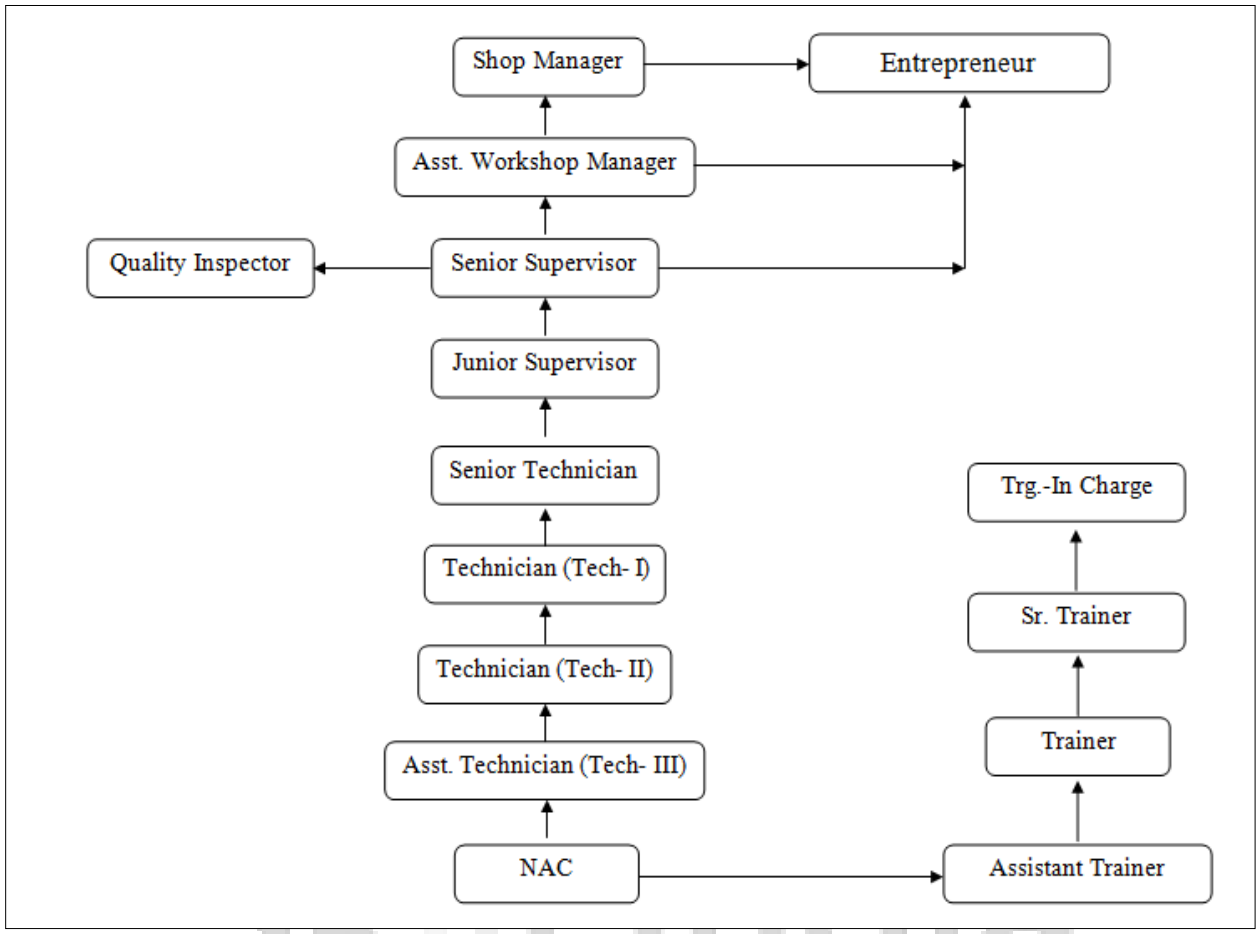
Shipwright (Wood) trade under ATS is one of the courses delivered nationwide through different industries. The course is of two years (02 Blocks) duration. It mainly consists of Domain area and Core area. In the Domain area Trade Theory & Practical impart professional - skills and knowledge, while Core area - Workshop Calculation and science, Engineering Drawing and Employability Skills imparts requisite core skills & knowledge and life skills. After passing out the training programme, the trainee is being awarded National Apprenticeship Certificate (NAC) by NCVT having worldwide recognition.

Broadly candidates need to demonstrate that they are able to:

- Read & interpret technical parameters/document, plan and organize work processes, identify necessary materials and tools;
- Perform task with due consideration to safety rules, accident prevention regulations and environmental protection stipulations;
- Apply professional skill, knowledge, core skills & employability skills while performing jobs and solve problem during execution.
- Check the job/assembly as per drawing for functioning, identify and rectify errors in job/assembly.
- Document the technical parameters related to the task undertaken.

2.2 CAREER PROGRESSION PATHWAYS:

- Indicative pathways for vertical mobility.



2.3 COURSE STRUCTURE:

Table below depicts the distribution of training hours across various course elements during a period of two years (*Basic Training and On-Job Training*): -

Total training duration details: -

Time (in months)	1-3	4-12	13-15	16-24
Basic Training	**Block– II**	**-----**	**Block – II**	**------**
Practical Training (On - job training)	**----**	**Block – II**	**------**	**Block – II**

Shipwright (Wood)

A. Basic Training

For 02 yrs. course (Engg.) :-(**Total 06 months:** 03 months in 1st yr. + 03 months in 2nd yr.)

For 01 yr. course (Engg.) :-(**Total 03 months:** 03 months in 1st yr.)

Sl. No.	Course Element	Total Notional Training Hours	
		For 02 Yrs. course	**For 01 Yr. course**
1.	Professional Skill (Trade Practical)	550	275
2.	Professional Knowledge (Trade Theory)	240	120
3.	Workshop Calculation & Science	40	20
4.	Engineering Drawing	60	30
5.	Employability Skills	110	55
	Total (Including internal assessment)	**1000**	**500**

B. On-Job Training:-

For 02 yrs. Course (Engg.) :-(**Total 18 months:** 09 months in 1st yr. + 09 months in 2nd yr.)

Notional Training Hours for On-Job Training: 3120 Hrs.

For 01 yr. course (Engg.) :-(**Total 12 months**)

Notional Training Hours for On-Job Training: 2080 Hrs.

C. Total training hours:-

Duration	Basic Training	On-Job Training	Total
For 02 yrs. course (Engg.)	1000 hrs.	3120 hrs.	4120 hrs.
For 01 yr. course (Engg.)	500 hrs.	2080 hrs.	2580 hrs.

2.4 ASSESSMENT & CERTIFICATION:

The trainee will be tested for his skill, knowledge and attitude during the period of course and at the end of the training programme as notified by Govt of India from time to time. The Employability skills will be tested in first two semesters only.

a) The **Internal assessment** during the period of training will be done by **Formative assessment method** by testing for assessment criteria listed against learning outcomes. The training

institute have to maintain individual trainee portfolio as detailed in assessment guideline (section-2.4.2). The marks of internal assessment will be as per the template (Annexure – II).

b) The final assessment will be in the form of summative assessment method. The All India Trade Test for awarding NAC will be conducted by NCVT on completion of course as per guideline of Govt of India. The pattern and marking structure is being notified by govt of India from time to time. **The learning outcome and assessment criteria will be basis for setting question papers for final assessment. The examiner during final examination will also check** individual trainee's profile as detailed in assessment guideline (section-2.4.2) before giving marks for practical examination.

2.4.1 PASS REGULATION

The minimum pass percent for Practical is 60% & minimum pass percent for Theory subjects 40%. The candidate pass in each subject conducted under all India trade test.

2.4.2 ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking assessment. Due consideration should be given while assessing for team work, avoidance/reduction of scrap/wastage and disposal of scarp/wastage as per procedure, behavioral attitude, sensitivity to environment and regularity in training. The sensitivity towards OSHE and self-learning attitude are to be considered while assessing competency.

Assessment will be evidence based comprising the following:

- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet of assessment
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment
- Project work

Evidences of internal assessments are to be preserved until forthcoming semester examination for audit and verification by examination body. The following marking pattern to be adopted while assessing:

Performance Level	Evidence
(a) Weightage in the range of 60 -75% to be allotted during assessment	
For performance in this grade, the	• Demonstration of good skill in the use of

candidate with occasional guidance and showing due regard for safety procedures and practices, has produced work which demonstrates attainment of an acceptable standard of craftsmanship.	hand tools, machine tools and workshop equipment • Below 70% tolerance dimension/accuracy achieved while undertaking different work with those demanded by the component/job/set standards. • A fairly good level of neatness and consistency in the finish • Occasional support in completing the project/job.
(b) Weightage in the range of above75% - 90% to be allotted during assessment	
For this grade, the candidate, with little guidance and showing due regard for safety procedures and practices, has produced work which demonstrates attainment of a reasonable standard of craftsmanship.	• Good skill levels in the use of hand tools, machine tools and workshop equipment • 70-80% tolerance dimension/accuracy achieved while undertaking different work with those demanded by the component/job/set standards. • A good level of neatness and consistency in the finish • Little support in completing the project/job
(c) Weightage in the range of above 90% to be allotted during assessment	
For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has produced work which demonstrates attainment of a high standard of craftsmanship.	• High skill levels in the use of hand tools, machine tools and workshop equipment • Above 80% tolerance dimension/accuracy achieved while undertaking different work with those demanded by the component/job/set standards. • A high level of neatness and consistency in the finish. • Minimal or no support in completing the project.

3. JOB ROLE

Brief description of Job roles:

Shipwright (Wood) identifies erects props and temporary structures to stabilize and support ship during, construction and repairs in shore. Aligns ship structure according to designed centre line and angle of declivity and plots and marks reference points and lines on building dock or way to maintain alignment of vessel during construction or repairs, using transit, plumb bob, tapes and levels. Builds keel blocks, bilge blocks, cradles and shoring for supporting slip in dry dock, building docks etc. using power and hand wood-working tools. Positions and secures blocking and other structures on dock platform according to ship's blue-prints. Aligns vessel over blocks and establishes reference points and lines on ship's hull for locating machinery and other equipment in accordance with ship's alignment and shape. Fabricates and installs furring pieces (timber strips of constant width but varying depth), aprons, uprights and other wood framing in ship according to specifications and shapes and finishes them. Nails or bolts metal fittings, plates and bulkheads to wooden parts of ship using brace, drill bits, augers, spanners etc. and ensures correct alignment of hull, frame and fittings. Levels ground ways, runners wooden blocks etc., erects props, fastens standing ways by wire ropes, fits launching triggers and performs related tasks to make up and prepare entire launching ways to launch ship. Gets all material and timber salvaged after launching for use in subsequent operation.

Carpenter, Boat Building, another job role, constructs and repairs boats, launches dredgers, barges etc. according to prescribed specifications by various carpentry processes. Lays keel on wooden fixtures and fits stem, stern and templates as to keel with bolts and nuts. Places cut planks on skeleton of boat, to ascertain suitability; and remodels their shape, if required, with hand tools. Seasons planks and ribs (wooden reapers) either with steam in masonry steam box (gutter) or by applying oil over articles, heating them on fire and bending them lightly with hand as required. Fixes planks on templates with brass screws, nails ribs on bull with copper nails and rivets planks and ribs together as specified. Fits wooden clamps, mounts and fixes stringers (thick wooden planks) knee (wooden block between wooden clamps and built joints inside hull) etc. as required. Removes templates from completed boat. Bores holes over required part of hull, fixes engine foundation, lowers engine on foundation by chain block and secures it in position with bolts and nuts. Determines propeller shaft alignment and bolts shaft to engine coupling. Hoists and fixes decks, chains, mast, booms etc. on boat as per requirements. Fits copper sheeting over outer portion of hull with copper nails and fixes rudder, rudder-shoe, exhaust pipe and such other accessories on boat as specified. Performs all wood work repairs to boats, larges etc. under guidance of Carpenter Mistry, Boat

Building. May construct wooden accessories for boats such as engine foundation, templates, ribs etc.

Plan and organize assigned work and detect & resolve issues during execution. Demonstrate possible solutions and agree tasks within the team. Communicate with required clarity and understand technical English. Sensitive to environment, self-learning and productivity.

Perform TPM (Total Production Management), TQM (Total Quality Management) and record keeping system.

Reference NCO - 2015:

i) 7115.0700 -Shipwright
ii) 7115.1200 - Carpenter, Boat Building

4. NSQF LEVEL COMPLIANCE

NSQF level for Shipwright (Wood) trade under ATS: **Level 5**

As per notification issued by Govt. of India dated- 27.12.2013 on National Skill Qualification Framework total 10 (Ten) Levels are defined.

Each level of the NSQF is associated with a set of descriptors made up of five outcome statements, which describe in general terms, the minimum knowledge, skills and attributes that a learner needs to acquire in order to be certified for that level.

Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are:

a) Process
b) professional knowledge,
c) professional skill,
d) core skill and
e) Responsibility.

The Broad Learning outcome of Shipwright (Wood) trade under ATS mostly matches with the Level descriptor at Level- 5.

The NSQF level-5 descriptor is given below:

Level	Process Required	Professional Knowledge	Professional Skill	Core Skill	Responsibility
Level 5	Job that requires well developed skill, with clear choice of procedures in familiar context.	Knowledge of facts, principles, processes and general concepts, in a field of work or study	A range of cognitive and practical skills required to accomplish tasks and solve problem by selecting and applying basic methods, tools, materials and information.	Desired mathematical skill, understanding of social, political and some skill of collecting and organizing information, communication.	Responsibility for own work and Learning and some responsibility for other's works and learning.

5. GENERAL INFORMATION

Name of the Trade	SHIPWRIGHT(WOOD)
NCO-2015	7115.0700 7115.1200
NSQF Level	Level – 5
Duration of Apprenticeship Training (Basic Training + On-Job Training)	Two years (02 Blocks each of one year duration).
Duration of Basic Training	a) Block –I : 3 months b) Block – II : 3 months **Total duration of Basic Training: 6 months**
Duration of On-Job Training	a) Block–I: 9 months b) Block–II : 9 months **Total duration of Practical Training: 18 months**
Entry Qualification	Passed 10th Class with Science and Mathematics under 10+2 system of Education or its equivalent
Selection of Apprentices	The apprentices will be selected as per Apprenticeship Act amended time to time.
Instructors Qualification for Basic Training	As per ITI instructors qualifications as amended time to time for the specific trade.
Infrastructure for Basic Training	As per related trade of ITI
Examination	The internal examination/ assessment will be held on completion of each block. Final examination for all subjects will be held at the end of course and same will be conducted by NCVT.
Rebate to Ex-ITI Trainees	01 year
CTS trades eligible for Shipwright (Wood) Apprenticeship	NA

Note:

- *Industry may impart training as per above time schedule for different block, however this is not fixed. The industry may adjust the duration of training considering the fact that all the components under the syllabus must be covered. However the flexibility should be given keeping in view that no safety aspects is compromised.*
- *For imparting Basic Training the industry to tie-up with ITIs having such specific trade and affiliated to NCVT.*

6. LEARNING OUTCOME

6.1 GENERIC LEARNING OUTCOME

The following are minimum broad Common Occupational Skills/ Generic Learning Outcome after completion of the Fitter (Steel Plant) course of 02 years duration under ATS.

Block I & II:-

1. Recognize & comply safe working practices, environment regulation and housekeeping.
2. Understand and explain different mathematical calculation & science in the field of study including basic electrical. *[Different mathematical calculation & science -Work, Power & Energy, Algebra, Geometry & Mensuration, Trigonometry, Heat & Temperature, Levers & Simple machine, graph, Statistics, Centre of gravity, Power transmission, Pressure]*
3. Interpret specifications, different engineering drawing and apply for different application in the field of work. *[Different engineering drawing-Geometrical construction, Dimensioning, Layout, Method of representation, Symbol, scales, Different Projections, Machined components & different thread forms, Assembly drawing, Sectional views, Estimation of material, Electrical & electronic symbol]*
4. Select and ascertain measuring instrument and measure dimension of components and record data.
5. Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality.
6. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.
7. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.
8. Plan and organize the work related to the occupation.

6.2 SPECIFIC LEARNING OUTCOME

Block – I

1. Familiarize with workshop and wood working sections
2. Identify the tools and equipments
3. Practice using measuring tools
4. Practice using marking tools
5. Practice using testing tools
6. Practice sawing using different types of saws

7. Practice on hand saws and power saws
8. Practice planning (Plane)
9. Test accuracy, flatness and level of twist of plane finished jobs.
10. Perform chiseling with different types across various surfaces
11. Perform holding tools utilities
12. Perform different types of joints making and framing
13. Make wooden furniture and products
14. Manufacture wall units
15. Practice wood carving
16. Perform surface finishing and Varnishing
17. Perform polishing of wooden furniture

Block – II

1. Identify and select wood working machine
2. Practice working on Band saw machine
3. Practice working on Circular Saw
4. Practice working on Planning Machine
5. Practice working on Wood Turning lathe
6. Practice working on Drilling machine
7. Practice working on Grinding Machines
8. Practice working on Mortiser
9. Practice working on Universal wood working Machine
10. Perform simple fitting works
11. Perform Sheet metal work
12. Perform Carpentry building work
13. Make panel doors
14. Make window frames
15. Make window shutters
16. Make roof trusses

NOTE: *Learning outcomes are reflection of total competencies of a trainee and assessment will be carried out as per assessment criteria.*

7. LEARNING OUTCOME WITH ASSESSMENT CRITERIA

GENERIC LEARNING OUTCOME	
LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
1. Recognize & comply safe working practices, environment regulation and housekeeping.	1. 1. Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements.
	1. 2. Recognize and report all unsafe situations according to site policy.
	1. 3. Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.
	1. 4. Identify, handle and store / dispose off dangerous/unsalvageable goods and substances according to site policy and procedures following safety regulations and requirements.
	1. 5. Identify and observe site policies and procedures in regard to illness or accident.
	1. 6. Identify safety alarms accurately.
	1. 7. Report supervisor/ Competent of authority in the event of accident or sickness of any staff and record accident details correctly according to site accident/injury procedures.
	1. 8. Identify and observe site evacuation procedures according to site policy.
	1. 9. Identify Personal Productive Equipment (PPE) and use the same as per related working environment.
	1. 10. Identify basic first aid and use them under different circumstances.
	1. 11. Identify different fire extinguisher and use the same as per requirement.
	1. 12. Identify environmental pollution & contribute to avoidance of same.
	1. 13. Take opportunities to use energy and materials in an environmentally friendly manner
	1. 14. Avoid waste and dispose waste as per procedure
	1. 15. Recognize different components of 5S and apply the same in the working environment.
2. Understand, explain different mathematical calculation & science in the field of study including basic	2.1 Explain concept of basic science related to the field such as Material science, Mass, weight, density, speed, velocity, heat & temperature, force, motion, pressure, heat treatment, centre of gravity, friction.

electrical and	
apply in day to day work.*[Different mathematical calculation & science -Work, Power & Energy, Algebra, Geometry & Mensuration, Trigonometry, Heat & Temperature, Levers & Simple machine, graph, Statistics, Centre of gravity, Power transmission, Pressure]*	2.2 Measure dimensions as per drawing
	2.3 Use scale/ tapes to measure for fitting to specification.
	2.4 Comply given tolerance.
	2.5 Prepare list of appropriate materials by interpreting detail drawings and determine quantities of such materials.
	2.6 Ensure dimensional accuracy of assembly by using different instruments/gauges.
	2.7 Explain basic electricity, insulation &earthing.
3. Interpret specifications, different engineering drawing and apply for different application in the field of work. *[Different engineering drawing-Geometrical construction, Dimensioning, Layout, Method of representation, Symbol, scales, Different Projections, Machined components & different thread forms, Assembly drawing, Sectional views, Estimation of material, Electrical & electronic symbol]*	3. 1. Read & interpret the information on drawings and apply in executing practical work.
	3. 2. Read & analyse the specification to ascertain the material requirement, tools, and machining /assembly /maintenance parameters.
	3. 3. Encounter drawings with missing/unspecified key information and make own calculations to fill in missing dimension/parameters to carry out the work.
4. Select and ascertain measuring instrument and measure dimension of components and record data.	4.1 Select appropriate measuring instruments such as micrometers, vernier calipers, dial gauge, bevel protector and height gauge (as per tool list).
	4.2 Ascertain the functionality & correctness of the instrument.
	4.3 Measure dimension of the components & record data to analyse the with given drawing/measurement.
5. Explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality.	5.1 Explain the concept of productivity and quality tools and apply during execution of job.
	5.2 Understand the basic concept of labour welfare legislation and adhere to responsibilities and remain sensitive towards such laws.
	5.3 Knows benefits guaranteed under various acts

6. Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	6.1 Explain the concept of energy conservation, global warming, pollution and utilize the available recourses optimally & remain sensitive to avoid environment pollution.
	6.2 Dispose waste following standard procedure.
7. Explain personnel finance, entrepreneurship and manage/organize related task in day to day work for personal & societal growth.	7. 1. Explain personnel finance and entrepreneurship.
	7. 2. Explain role of Various Schemes and Institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non financing support agencies to familiarizes with the Policies /Programmes & procedure & the available scheme.
	7. 3. Prepare Project report to become an entrepreneur for submission to financial institutions.
8. Plan and organize the work related to the occupation.	8. 1. Use documents, drawings and recognize hazards in the work site.
	8. 2. Plan workplace/ assembly location with due consideration to operational stipulation
	8. 3. Communicate effectively with others and plan project tasks
	8. 4. Assign roles and responsibilities of the co-trainees for execution of the task effectively and monitor the same.
SPECIFIC OUTCOME	
Block- I & II (Section:10)	
*Assessment Criteria i.e. the standard of performance, for each specific learning outcome mentioned under **block – I & II** (section: 10) must ensure that the trainee achieves well developed skill with clear choice of procedure in familiar context. Assessment criteria should broadly cover the aspect of **Planning** (Identify, ascertain, estimate etc.); **Execution** (perform, illustration, demonstration etc. by applying 1) a range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information 2) Knowledge of facts, principles, processes, and general concepts, in a field of work or study 3)Desired Mathematical Skills and some skill of collecting and organizing information, communication) and **Checking/ Testing** to ensure functionality during the assessment of each outcome. The assessments parameters must also ascertain that the candidate is responsible for own work and learning and some responsibility for other's work and learning.*	

8. SYLLABUS

BASIC TRAINING (Block – I)
Duration: (03) Three Months

Week No.	Professional Skills	Professional Knowledge
1.	**Familiarization with the workshop:** Sections and the general places. Wood working sections and wood working machine shop. show different exercises / jobs done by the trainees in the previous year batches etc. show different audio – visual aids, library, show room etc.	**Safety precautions:** Importance of the trade in the industrial development of the country. Introduction to the general safety causes of accident and avoidance. Give some instruction related with the duties of the trainees, discipline recreational, medical facilities and other extracurricular activities of the institute.
2.	**Identification and Familiarization** of hand tools. Demonstration and use of measuring, marking and testing tools.	Safety precaution of the carpentry hand tools. Workshop discipline and safety first aid etc. Introduction to the trade and to carpentry hand tools, their classification, names and the uses. Measuring, marking and testing tools, types, sizes, uses, etc **Introduction to timber:** growth of a trees, cross-section of an exogenous tree trunk, parts, formation. Parts of a tree. Functions and identification of timber and defects , diseases of timber VIZ. Knots , shakes, grains etc
3.	**Sawing practice:** - use of different types of the saws Ripping, cross cutting, curve cutting, oblique sawing etc.; Use of the bench hook, bench vice, bench stop etc. Sharpening and the setting of the different types of the saws. **Hand Tools and portable power tools - curve cutting saws: compass** saw, coping saw, bow saw, fret saw etc. - description, types, size, use, care and maintenance. Sharpening and setting of saws. Portable circular saw and its uses.	**Saw and the Plane:** description, types, sizes, setting, sharpening, uses, etc. **Special saws** - Compass saw, coping saw, Bow saw, fret saw portable circular saw.
4.	**Planning practice** Demonstration and uses of the	**Different types of Plane:** description, types, sizes, setting, sharpening, uses, etc.

	planes. Setting of the plane holding, Planning techniques. Planning face side, face edge, use of marking gauge etc. Testing of the accuracy, flatness and twistness of the surface. Use of straight edge, bench stop, try square, winding strips, cross planning, edge planning etc. Grinding and sharpening of the plane blades.	**Special planes: -**Compass plane Moulding plane, Rebate plane, Grooving plane etc. - description, type, size, use, care and maintenance. Portable power planer machine and its uses.
5.	**Chiseling Practice** **And multiple chiseling practice:** Demonstration and use of different types of chisels. Chiseling along the grain, across the grain of the vertical, horizontal etc. Grinding, sharpening and honing of chisel. **Holding tools** - Clamps, 'G' or 'C' clamp or cramp, sash /'T' bar cramps , saw sharpening vice, carpentry vice etc.	**Hand tools (paringtools):** Different types of The chisels, description, sizes, uses. Grinding, sharpening & honing etc. **Striking tools** - Hammers, mallets etc. **Workshop appliances** : work bench, bench vice, bench hook, bench stop shooting board, MITRE board etc. - types, sizes , uses etc.
6.	**Joint practice: - Demonstration and making framing joints: -** Halving joints, trenching and housing joints, Mortise and tenon joints, plain hunched tenon and mortise, MITRE tenon and mortise joint, stub tenon, bare faced tenon, bridle joints etc.	Classification and grading of timbers as per ISI. Types of the grains. Joineries: Classification of joint (framing, Angle broadening and the lengthening) **Framing Joints: -**Halving, Mortise and tenon joints, Briddle joints- description, types and uses.
7.	**A frame of using different type of joints -** Small article involving above joints may be made. **Simple wooden furniture making work:** Demonstration and practice on - Making a small wall bracket. Prepare chalk box. Tea tray or office Tray.	**Preservation of timber:** Chemical treatment of timber - types, process etc. and preservatives used. **Files**: Types, grades, uses, care and maintenance. Uses of electrical portable jig saw , portable disc sander, portable electrical drill machine

8.	Demonstration and make layout of different furniture. Making notice board or display board. Use of hard board, ply wood and insulation board. Making a small rack/modern wall unit.	Description of timbers used in furniture making work: - Teak, Sal, Deodar and other wood as available in the local market. **Conversion of timber :** Parallel sawing, radial sawing, quarter sawing, tangential sawing etc. Design of Furniture's for different purpose: - Bed room, dining Hall, Library, Office, Work-shop, Class room.
9.	Wood carving exercises and use of carving tools and their sharpening.	Tools required for carving ornamental works. Properties of wood. Preparation of bill of materials and simple estimation
10.	Preparation of surface - use Smoothing plane for knotty or interlocked cross grained timber by scraping, sand papering and portable sander application on finished surface. Varnishing on finished surface.	Method of preparation of surface for staining, tools and equipment required. **Sand paper** - types, grades, size & uses. Portable sander machine and uses. Preparation of putty and use. **Staining**:- Type, process, methods and staining materials. Different staining methods applied for different timber.
11-12	**Furniture polishing**:- Demonstration on how to make French polish, use of French polish and wax polish. Remove the polish and Re-polishing old furniture.	Description ofFrench polish, wax polish, types and uses. Estimation of timber
13	**Revision & Internal Assessment**	

Note: - *More emphasis to be given on video/real-life pictures during theoretical classes. Some real-life pictures/videos of related industry operations may be shown to the trainees to give a feel of Industry and their future assignment.*

BASIC TRAINING (Block – II)
Duration: (03) Three Months

Week No.	Professional Skills	Professional Knowledge
1 – 4	**Introduction &demonstration**, operational techniques of wood working machines. Uses of:- A) Band saw: - remove and refit of band saw blades setting and grinding and different Operation: - Ripping. Cross-cutting, curve cutting, beveling, chamfering etc. B) Circular Saw: - Ripping, cross cutting, rebating, grooving etc. C) Planning Machine :- Surfacing, thicknessing, chamfering, edging beveling etc, D) Wood Turning lathe: - Use of turning tools, plain turning, taper turning and Turning different articles- Chisel handles, table lamp stand etc. Use of face plate, chuck etc.	**Wood working machines**: Description, types, sizes, parts, functions, operations. Safety precautions, care and maintenance. Oiling, greasing etc. of the following machines: A) Band Saw B) Circular saw C) Planning machine D) Wood Turning Lathe with Turning tools. Market form of timber. Conversion of timber method, advantages, disadvantages.
5	**Demonstration and use of following-** A) Drilling Machine: Use of straight shank drills, taper shank drills, counter sinking bits etc. B) Grinding Machines: - Grinding of different types of tools, cutters, materials for jobs. C) Mortiser Machine. D) Universal wood working Machine.	**Description, types, sizes, parts, functions, operations, safety precautions, care and maintenance etc. of the following machines-** A) Drilling Machine. B) Grinding Machine. C) Mortiser Machine. D) Universal wood working Machine. Calculation of timber – weight, area, volume etc
6 – 7	**Allied Training :** 1) **SIMPLE FITTING WORK** – Safety precaution to be observed while using marking tools: Steel rule, Square, Scriber, divider, calipers, punch, hammer, marking table, marking block etc. Use of hand tools: Hack saw, cold chisels, different types of file. **Skills:** Filing, drilling, counter sinking, - taping, dieing practice. Grinding of cold	**General safety in fitting shop.** Marking tools: Types, specification, use, care and maintenance of tools: Steel rule, squares, scriber, divider, calipers, and other tools. Marking table, marking block etc. description, specification, uses etc. Use of bench vice and clamps. Types of drill bits, counter sinking tool, counter boring tool, taps and dies used in

	chisels, punch, drill bits etc. Marking and making hanging plate, corner plate, name plate, different types of clamps and angle plate use for wooden furniture. Use of nuts, bolts, washers, machine screws etc.	fitting work. Types of nuts, bolts, washers, machine screws etc.
8-10	2) **SHEET METAL WORK** - Use of common hand tools and related with sheet metal work: Steel rule square, snips, sheet metal mallets, punch, hammer stakes etc. Development from drawing and able to make layout of simple pattern a) Parallel line method. b)Radial line method	**Common Sheet Metal Tools**: Description, types, use etc. Development of simple job viz. Square, cylinder, cone etc. Marking making templates for pattern making and carpentry work. Concept of shearing, punching, folding, bending etc.
11	**CARPENTRY BUILDING WORK** Revision of basics joints related with carpentry building work. Marking and making door frame and door shutter. Making panel door, glazed shutter and fitting mouldings after fitting glass. Fitting produce used in door construction.	Introduction about carpentry work involved in building construction. Types of doorframes, door shutters- description, sizes, uses, advantages and disadvantages etc. Fittings used in door. Types of panels used in panel shutter, glazed shutter. **Familiarization with the materials which is use in industries as substitute of wood.** Characteristics of material, Mechanical properties, durability, Applications, etc.
12	Marking and making window frame and window shutters, use of protection bars. Exercises on roof trusses – Lay out marking roof trusses in reduced scale (Model types)- king post ,queen post etc.	Types of window frame and window shutters. Protection bars: types and uses. Roof trusses: King post, queen post etc. related terms, sizes construction etc.
13	**Assessment / Examination (03 days)**	

Note: - *More emphasis to be given on video/real-life pictures during theoretical classes. Some real-life pictures/videos of related industry operations may be shown to the trainees to give a feel of Industry and their future assignment.*

9.1 WORKSHOP CALCULATION SCIENCE & ENGINEERING DRAWING

Block- I

Topic No.	Engineering Drawing (Duration: 30 Hrs.)	Workshop Science & Calculation (Duration: 20 Hrs.)
1	**Engineering Drawing:** Introduction and its importance -Viewing of engineering drawing sheets. Method of Folding of printed Drawing Sheet as per BIS SP:46-2003 Drawing Instruments : their Standard and uses - Drawing board, T-Square, Drafter (Drafting M/c), Set Squares, Protractor, Drawing Instrument Box (Compass, Dividers, Scale, Diagonal Scales etc.), Pencils of different Grades, Drawing pins / Clips.	**Unit**: Systems of unit- FPS, CGS, MKS/SI unit, unit of length, Mass and time, Conversion of units.
2	**Lines :** - Definition, types and applications in Drawing as per BIS SP:46-2003 - Classification of lines (Hidden, centre, construction, Extension, Dimension, Section) - Drawing lines of given length (Straight, curved) - Drawing of parallel lines, perpendicular line - Methods of Division of line segment	**Fractions & Simplification**: Fractions, Decimal fraction, Multiplication and Division of Fractions and Decimals, conversion of Fraction to Decimal and vice versa. Simple problems Simplification using BODMAS.
3	**Drawing of Geometrical Figures**: Definition, nomenclature and practice of - Angle: Measurement and its types, method of bisecting. - Triangle -different types - Rectangle, Square, Rhombus, Parallelogram. - Circle and its elements.	**Square Root** : Square and Square Root, method of finding out square roots, Simple problem using calculator
4	**Lettering and Numbering** as per BIS SP46-2003: - Single Stroke, Double Stroke, inclined,	**Ratio &Proportion:** Simple calculation on related problems.

	Upper case and Lower case.	
5	**Free Hand sketch:** Hand tools and measuring instruments used in electronics mechanics Trades	**Percentage:** Introduction, Simple calculation. Changing percentage to decimal and fraction and vice-versa.
6	**Free hand drawing :** - Lines, polygons, ellipse, etc. - Geometrical figures and blocks with dimension. -Transferring measurement from the given object to the free hand sketches.	**Material Science** : Properties -Physical & Mechanical, Types –Ferrous & Non-Ferrous, difference between Ferrous and Non-Ferrous metals, introduction of Iron, Cast Iron, Wrought Iron, Steel, difference between Iron and Steel, Alloy steel, carbon steel, stainless steel, Non-Ferrous metals, Non-Ferrous Alloys.

B. Block- II

Topic No.	Engineering Drawing (Duration: 30 Hrs.)	Workshop Science & Calculation (Duration: 20 Hrs.)
1	**Symbolic Representation** (as per BIS SP:46-2003) of : - Fastener (Rivets, Bolts and Nuts) - Bars and profile sections - Weld, brazed and soldered joints. - Electrical and electronics element - Piping joints and fittings	**Mass ,Weight and Density** : Mass, Unit of Mass, Weight, difference between mass and weight, Density, unit of density, specific gravity of metals
2	**Construction of Scales and diagonal scale**	**Work, Power and Energy**: work, unit of work, power, unit of power, Horse power of engines, mechanical efficiency, energy, use of energy, potential and kinetic energy, examples of potential energy and kinetic energy.
3	LED, IRLED, photo diode, photo transistor, opto-coupler symbols symbol of Logic gates	
4	Half adder, full adder, multiplexer and de-multiplexer	**Algebra:** Addition, Subtraction, Multiplication, Division, Algebraic formula, Linear equations (with two variables).
5	UJT, FET, MOSFET, DIAC, TRIC, SCR, IGBT symbols and circuits of FET Amplifier, SCR using UJT triggering, snubber circuit, light dimmer circuit using TRIAC, UJT based free running oscillator.	**Mensuration:** Area and perimeter of square, rectangle, parallelogram, triangle, circle, semi circle. Volume of solids – cube, cuboid, cylinder and Sphere. Surface area of solids – cube, cuboid, cylinder and Sphere.
		Trigonometry: Trigonometrical ratios, measurement of angles. Trigonometric tables. Finding height and distance by trigonometry.

9.2 EMPLOYABILITY SKILLS

(DURATION: - 110 HRS.)

Block – I (Duration – 55 hrs.)	
1. English Literacy Duration : 20 Hrs.	Marks : 09
Pronunciation	Accentuation (mode of pronunciation) on simple words, Diction (use of word and speech)
Functional Grammar	Transformation of sentences, Voice change, Change of tense, Spellings.
Reading	Reading and understanding simple sentences about self, work and environment
Writing	Construction of simple sentences Writing simple English
Speaking / Spoken English	Speaking with preparation on self, on family, on friends/ classmates, on know, picture reading gain confidence through role-playing and discussions on current happening job description, asking about someone's job habitual actions. Cardinal (fundamental) numbers ordinal numbers. Taking messages, passing messages on and filling in message forms Greeting and introductions office hospitality, Resumes or curriculum vita essential parts, letters of application reference to previous communication.
2. I.T. Literacy Duration : 20 Hrs.	Marks : 09
Basics of Computer	Introduction, Computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down of computer.
Computer Operating System	Basics of Operating System, WINDOWS, The user interface of Windows OS, Create, Copy, Move and delete Files and Folders, Use of External memory like pen drive, CD, DVD etc, Use of Common applications.
Word processing and Worksheet	Basic operating of Word Processing, Creating, opening and closing Documents, use of shortcuts, Creating and Editing of Text, Formatting the Text, Insertion & creation of Tables. Printing document. Basics of Excel worksheet, understanding basic commands, creating simple worksheets, understanding sample worksheets, use of simple formulas and functions, Printing of simple excel sheets.
Computer Networking and Internet	Basic of computer Networks (using real life examples), Definitions of Local Area Network (LAN), Wide Area Network (WAN), Internet, Concept of Internet (Network of Networks),

	Meaning of World Wide Web (WWW), Web Browser, Web Site, Web page and Search Engines. Accessing the Internet using Web Browser, Downloading and Printing Web Pages, Opening an email account and use of email. Social media sites and its implication. Information Security and antivirus tools, Do's and Don'ts in Information Security, Awareness of IT - ACT, types of cyber crimes.
3. Communication Skills Duration : 15 Hrs. Marks : 07	
Introduction to Communication Skills	Communication and its importance Principles of Effective communication Types of communication - verbal, non verbal, written, email, talking on phone. Non verbal communication -characteristics, components-Para-language Body language Barriers to communication and dealing with barriers. Handling nervousness/ discomfort.
Listening Skills	Listening-hearing and listening, effective listening, barriers to effective listening guidelines for effective listening. Triple- A Listening - Attitude, Attention & Adjustment. Active Listening Skills.
Motivational Training	Characteristics Essential to Achieving Success. The Power of Positive Attitude. Self awareness Importance of Commitment Ethics and Values Ways to Motivate Oneself Personal Goal setting and Employability Planning.
Facing Interviews	Manners, Etiquettes, Dress code for an interview Do's & Don'ts for an interview.
Behavioral Skills	Problem Solving Confidence Building Attitude
Block – II **Duration – 55 hrs.**	
4. Entrepreneurship Skills Duration : 15 Hrs. Marks : 06	
Concept of Entrepreneurship	Entrepreneur - Entrepreneurship - Enterprises:-Conceptual issue Entrepreneurship vs. Management, Entrepreneurial motivation. Performance & Record, Role & Function of entrepreneurs in relation to

	the enterprise & relation to the economy, Source of business ideas, Entrepreneurial opportunities, The process of setting up a business.
Project Preparation & Marketing analysis	Qualities of a good Entrepreneur, SWOT and Risk Analysis. Concept & application of PLC, Sales & distribution Management. Different Between Small Scale & Large Scale Business, Market Survey, Method of marketing, Publicity and advertisement, Marketing Mix.
Institutions Support	Preparation of Project. Role of Various Schemes and Institutes for self-employment i.e. DIC, SIDA, SISI, NSIC, SIDO, Idea for financing/ non financing support agencies to familiarizes with the Policies /Programmes & procedure & the available scheme.
Investment Procurement	Project formation, Feasibility, Legal formalities i.e., Shop Act, Estimation & Costing, Investment procedure - Loan procurement - Banking Processes.
5. Productivity Duration : 10 Hrs. Marks : 05	
Benefits	Personal / Workman - Incentive, Production linked Bonus, Improvement in living standard.
Affecting Factors	Skills, Working Aids, Automation, Environment, Motivation - How improves or slows down.
Comparison with developed countries	Comparative productivity in developed countries (viz. Germany, Japan and Australia) in selected industries e.g. Manufacturing, Steel, Mining, Construction etc. Living standards of those countries, wages.
Personal Finance Management	Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and Insurance.
6. Occupational Safety, Health and Environment Education Duration : 15 Hrs. Marks : 06	
Safety & Health	Introduction to Occupational Safety and Health importance of safety and health at workplace.
Occupational Hazards	Basic Hazards, Chemical Hazards, Vibroacoustic Hazards, Mechanical Hazards, Electrical Hazards, Thermal Hazards. Occupational health, Occupational hygienic, Occupational Diseases/ Disorders & its prevention.
Accident & safety	Basic principles for protective equipment. Accident Prevention techniques - control of accidents and safety measures.
First Aid	Care of injured & Sick at the workplaces, First-Aid & Transportation of

	sick person.
Basic Provisions	Idea of basic provision legislation of India. safety, health, welfare under legislative of India.
Ecosystem	Introduction to Environment. Relationship between Society and Environment, Ecosystem and Factors causing imbalance.
Pollution	Pollution and pollutants including liquid, gaseous, solid and hazardous waste.
Energy Conservation	Conservation of Energy, re-use and recycle.
Global warming	Global warming, climate change and Ozone layer depletion.
Ground Water	Hydrological cycle, ground and surface water, Conservation and Harvesting of water.
Environment	Right attitude towards environment, Maintenance of in -house environment.
7. Labour Welfare Legislation Duration : 05 Hrs. Marks : 03	
Welfare Acts	Benefits guaranteed under various acts- Factories Act, Apprenticeship Act, Employees State Insurance Act (ESI), Payment Wages Act, Employees Provident Fund Act, The Workmen's compensation Act.
8. Quality Tools Duration : 10 Hrs. Marks : 05	
Quality Consciousness	Meaning of quality, Quality characteristic.
Quality Circles	Definition, Advantage of small group activity, objectives of quality Circle, Roles and function of Quality Circles in Organization, Operation of Quality circle. Approaches to starting Quality Circles, Steps for continuation Quality Circles.
Quality Management System	Idea of ISO 9000 and BIS systems and its importance in maintaining qualities.
House Keeping	Purpose of House-keeping, Practice of good Housekeeping.
Quality Tools	Basic quality tools with a few examples.

10. DETAILS OF COMPETENCIES (ON-JOB TRAINING)

BROAD LEARNING TO BE COVERED IN INDUSTRY FOR SHIPWRIGHT (WOOD) TRADE:

1. Safety and best practices /Basic Industrial Culture (5S, KAIZEN, etc.)
2. Record keeping and documentation
3. Fitting components using different metal fitting procedure and perform testing of the assembly.
4. Assembling of different components as per requirement and check functionality.
5. Carryout maintenance of different systems .
6. *Note: Actual training will depend on the existing facilities available in the establishments.*

The **competencies/ specific outcomes** on completion of On-Job Training are detailed below: -

Block – I

1. Familiarize with workshop and wood working sections
2. Identify the tools and equipments
3. Practice using measuring tools
4. Practice using marking tools
5. Practice using testing tools
6. Practice sawing using different types of saws
7. Practice on hand saws and power saws
8. Practice planning (Plane)
9. Test accuracy, flatness and level of twist of plane finished jobs.
10. Perform chiseling with different types across various surfaces
11. Perform holding tools utilities
12. Perform different types of joints making and framing
13. Make wooden furniture and products
14. Manufacture wall units
15. Practice wood carving
16. Perform surface finishing and Varnishing
17. Perform polishing of wooden furniture

Block – II

1. Identify and select wood working machine
2. Practice working on Band saw machine
3. Practice working on Circular Saw
4. Practice working on Planning Machine
5. Practice working on Wood Turning lathe

6. Practice working on Drilling machine
7. Practice working on Grinding Machines
8. Practice working on Mortiser
9. Practice working on Universal wood working Machine
10. Perform simple fitting works
11. Perform Sheet metal work
12. Perform Carpentry building work
13. Make panel doors
14. Make window frames
15. Make window shutters
16. Make roof trusses

Note:

1. Industry must ensure that above mentioned competencies are achieved by the trainees during their on job training.
2. In addition to above competencies/ outcomes industry may impart additional training relevant to the specific industry.

ANNEXURE – I

INFRASTRUCTURE FOR PROFESSIONAL SKILL & PROFESSIONAL KNOWLEDGE

SHIPWRIGHT WOOD		
LIST OF TOOLS AND EQUIPMENT for Basic Training (For 20 Apprentices)		
Sl. No.	**Item**	**Qty**
1.	Foot rule (two ft. Four fold)/ steel rule	As required.
2.	Marking knife, 200 mm. Length	
3.	Carpenter square 200 mm	
4.	Square, bevel 50 mm.	
5.	Carpenter making gauge	
6.	Carpenter mortice gauge	
7.	Saw hand 450 mm.	
8.	Saw tenon 300 mm.	
9.	Plane, jack metal 335 mm. X 50 mm cutter	
10.	Plane smoothing, metal 200 mm. X 50 mm cutter.	
11.	Chisel, firmer (bevel) edge 6 mm. 10, 15, 20 and 25 mm width (5 nos.)	
12.	Chisel, mortice, 06, 10,15 mm. (3 nos.)	
13.	Screw driver 300 mm. (cabinet maker)	
14.	Mallet medium size	
15.	Claw hammer 500 gr.	
16.	Oilstone(carborundum) Universal silicon carbide Combinationrough and fine 200x 50x25 mm	
17.	Hand brush for bench cleaning 450 mm.	
18.	Computer with LCD projector	
19.	Measuring tape 3 meter	
20.	Construction scale 1 meter	
21.	Spring caliper inside 150 mm	
22.	Spring caliper out side	
23.	Wing compass 300 mm.	
24.	Trammel	
25.	Sprit level 300 mm.	
26.	Rip saw 600 mm.	
27.	Cross cut saw mm	

28.	Key hole saw 250 mm.	
29.	Fret saw frame 150 mm.	
30.	Compass saw 350 mm.	
31.	Adze 15 kg.	
32.	Trying plane metal 450 mm. X 60 mm. Cutter	
33.	Plane ravvet adjustable 250 mm. X meters x 9 mm. Cutters.	
34.	Plough plane with set of 8 cutter up to 12 mm. Width	
35.	Spoke shaves 50 mm. Cutter	
36.	Plane adjustable circular 250 mm	
37.	Router plane	
38.	Moulding plane set	
39.	Cabinet scraper 100 mm.	
40.	Gauge chisel, firmer, 6,10,12,16,20,mm	
41.	Gauge chisel, scribing 6,10,12,16,20,mm.	
42.	Ball pin hammer 600 grs.	
43.	Cross pin hammer 600 grs	
44.	Screw driver 450 mm.	
45.	Screw driver 250 mm.	
46.	Screw driver 150 mm.	
47.	Pincer 50 mm.	
48.	File half round 2nd cut 250 mm.	
49.	File slim taper 100 mm	
50.	File slim taper 150 mm.	
51.	Card file (steel) wire brush for file	
52.	Hands drill 6 mm. Capacities	
53.	Country drill with bow (ball bearing type)	
54.	Hand auger 10,12,14,16,18,20,22,25 Mm.	
55.	Centre bits 6,8,10,12.	
56.	Expansion bit sets.	
57.	Twist drill bits 6,8,10,12, mm	
58.	Counter sink bit rose type 12 mm.	
59.	Breast drill 6 mm capacity	
60.	Centre punch 5	
61.	Snip straight 200 mm.	
62.	Oil cans combination side cutting pliers.	
63.	Plunger saw set / pistol grip type.	

64.	Number punch 12 mm.	
65.	Slip stone 100 mm.	
66.	Round crow bar with chisel and claw end 1070 x 25 mm.	
67.	' G' clamp 100.	
68.	'G' clamp 150 mm.	
69.	'G' clamp 250 mm.	
70.	'T' bar cramp 0.6 meter.	
71.	'T' bar cramp 1.25 meter.	
72.	'T' bar cramp 1.75 meter.	
73.	Carpenter vice 250 mm jaws.	
74.	Saw sharpwining vice 250 mm jaws.	
75.	Carving tools set.	
76.	Goggles pair.	
77.	Glass cutter.	
78.	Nail punch.	
79.	Surface plate 600x 600 mm.	
80.	Carpenter's work bench 2400x920x800 mm. Height	
81.	Oil can.	
82.	Steel lockers, 8Compartments, with individual locks. 1980 x 910 x 480 mmDepth.	
83.	Steel almirah with shelves 1980 x 910 x 480 mm depth	
84.	Instructor table (half secretariat)	
85.	Instructor chair.	
86.	Stool.	
87.	Chalk board with easel.	
88.	Material rack.	
89.	Portable circular saw machine	
90.	Portable planning machine	
91.	Power drill machine	
92.	Portable sander Machine	
93.	Portable jig saw machine	
94.	Portable router machine	
95.	Power screw driver	
96.	Circular saw machine 3.00 mm.dia.	
97.	'Lathe, wood turning.' 150 mm height of centres 1.75-meter bed, motorised complete with a set of turning tools.	

98.	Set ofturning tools for above lathe machine	
99.	Tenoning machine (single ended)	
100.	Mortising machine (combine hollow chisel and chain)	
101.	Bench grinder 200 mm whole d.e. Pedestal	
102.	Drill machine 12 mm. Capacity	
103.	Portable electric drill 6 Mm. Capacity (woif type)	
104.	Drills chuck 12 mm capacities.	
105.	Portable discsander 200 mm. dia	
106.	Adjustable saw sharpener	
107.	Electric heater 1000/1500 w 1 nos.102. Electric blower (portable)	
108.	Moisture meter	
109.	Grease gun.	
110.	Spanner double ended set of 14	
111.	Universal wood working machine	
112.	Electrical drying oven (small type).	
113.	Band saw machine with provision.	

The specifications of the items in the above list have been given in Metric Units. The items which are available in the market nearest of the specification as mentioned above, if not available as prescribed should be procured Measuring instruments such as steel rule which are graduated both English and Metric Units may be procured, if available.

General Machinery Installation

1. Drilling machine pillar sensitive 0-20 mm cap with chuck & key
2. Drilling machine pillar sensitive 0-12 mm cap motorized with chuck and key.
3. Grinding machine (general purpose) D.E. pedestal with 20 cm dia. wheels rough and smooth with twist drill grinding- attachment.

INFRASTRUCTURE FOR WORKSHOP CALCULATION & SCIENCE AND ENGINEERING DRAWING

TRADE: SHIPWRIGHT WOOD

LIST OF TOOLS& EQUIPMENTS FOR -20APPRENTICES

1) **Space Norms** : 45 Sq. m.(For Engineering Drawing)

2) Infrastructure:

A : TRAINEES TOOL KIT:-			
Sl. No.	**Name of the items**	**Specification**	**Quantity**
1.	Draughtsman drawing instrument box		20+1 set
2.	Set square celluloid 45^o (250 X 1.5 mm)		20+1 set
3.	Set square celluloid 30^o-60^o (250 X 1.5 mm)		20+1 set
4.	Mini drafter		20+1 set
5.	Drawing board (700mm x500 mm) IS: 1444		20+1 set
B : Furniture Required			
Sl. No.	**Name of the items**	**Specification**	**Quantity**
1	Drawing Board		20
2	Models : Solid & cut section		as required
3	Drawing Table for trainees		as required
4	Stool for trainees		as required
5	Cupboard (big)		01
6	White Board (size: 8ft. x 4ft.)		01
7	Trainer's Table		01
8	Trainer's Chair		01

TOOLS & EQUIPMENTS FOR EMPLOYABILITY SKILLS		
Sl. No.	**Name of the Equipment**	**Quantity**
1.	Computer (PC) with latest configurations and Internet connection with standard operating system and standard word processor and worksheet software	10 Nos.
2.	UPS - 500VA	10 Nos.
3.	Scanner cum Printer	1 No.
4.	Computer Tables	10 Nos.
5.	Computer Chairs	20 Nos.
6.	LCD Projector	1 No.
7.	White Board 1200mm x 900mm	1 No.
Note: - Above Tools & Equipments not required, if Computer LAB is available in the institute.		

FORMAT FOR INTERNAL ASSESSMENT

Name & Address of the Assessor :													**Year of Enrollment :**		
Name & Address of ITI (Govt./Pvt.) :													**Date of Assessment :**		
Name & Address of the Industry :													**Assessment location: Industry / ITI**		
Trade Name :		**Semester:**											**Duration of the Trade/course:**		
Learning Outcome:															
Sl. No	**Maximum Marks (Total 100 Marks)**		**15**	**5**	**10**	**5**	**10**	**10**	**5**	**10**	**15**	**15**	**Total internal assessment Marks**	**Result (Y/N)**
	Candidate Name	**Father's/Mother's Name**	Safety consciousness	Workplace hygiene	Attendance/ Punctuality	Ability to follow Manuals/ Written instructions	Application of Knowledge	Skills to handle tools & equipment	Economical use of materials	Speed in doing work	Quality in workmanship	VIVA		
1														
2														