CURRICULUM

FOR THE TRADE OF

SHIPWRIGHT (WOOD)

UNDER

APPRENTICESHIP TRAINING SCHEME

2017

सत्यमेव जयते
Government of India

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

CONTENTS

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1. ……
2. ……..
3. ……..
4. ……
5. ……

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Co-ordinator for the course: ……..

SI. No.	Name & Designation Sh./Mr./Ms.	Organization	Expert group designation
1.	NirmalyaNath, Astt. Director of Trg.	Central Staff Training & Research Institute	Expert
2.	R.N.Manna, Training Officer	Central Staff Training & Research Institute	Expert
3.	PrasoonGhosh	Central Staff Training & Research Institute	Expert
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5.			Expert
6.			Expert
7.			Expert
8.			Expert
9.			Expert
10.			Expert

2. BACKGROUND

2.1 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.

2.2 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.

2.3 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.

3. RATIONALE

[Need for Apprenticeship in SHIPWRIGHT (WOOD)Trade]

4. JOB ROLES: REFERENCE NCO

Brief description of Job roles:

Shipwright 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 tospecifications 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 correctalignment of hull, frame and fittings. Levelsground ways, runners wooden blocks etc.,erects props, fastens standing ways by wireropes, fits launching triggers and performsrelated tasks to make up and prepare entirelaunching ways to launch ship. Gets allmaterial and timber salvaged after launchingfor use in subsequent operation.

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

Reference NCO:7124.45/7124.70

5. GENERAL INFORMATION

1. **Name of the Trade** **: SHIPWRIGHT(WOOD)**
2. **N.C.O. Code No.** **:**7124.45/7124.70
3. **Duration of Apprenticeship Training (Basic Training + Practical Training):** 2years

3.1 **For Fresher's:-Duration of Basic Training**: -

a) Block –I : 3 months

b) Block – II : 3 months

Total duration of Basic Training: 6 months

Duration of Practical Training (On -job Training): -

a) Block–I: 9 months

b) Block–II : 9 months

Total duration of Practical Training: 18 months

3.2 **For ITI Passed: - Duration of Basic Training**: - NIL

Duration of Practical Training (On -job Training): 12 months

4. **Entry Qualification** : Passed 10th Class under 10+2 System of Education or its equivalent

5. **Selection of Apprentices** **:** The apprentices will be selected as per Apprenticeship Act amended time to time.

6. **Rebate for ITI passed trainees** : 1 Year for Carpenter trade under CTS

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.

6. COURSE STRUCTURE

Training duration details: -

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

Components of Training	Duration of Training in Months →																							
↓	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Basic Training Block - I																								
Practical Training Block - I																								
Basic Training Block - II																								
Practical Training Block - II																								

7. SYLLABUS

7.1 BASIC TRAINING (BLOCK – I & II)
DURATION: 06 MONTHS

GENERAL INFORMATION

1) **Name of the Trade** :**SHIPWRIGHT (WOOD)**
2) **Hours of Instruction** : 1000 Hrs. (500 hrs. in each block)
3) **Batch size** : 20
4) **Power Norms** : 5 KW
5) **Space Norms** : 100 sq. mtr.
6) **Examination** : The internal assessment will be held on completion of each Block.
7) **Instructor Qualification** :

a) B.E./B. Tech in Electronics/Electornics & Telecommunication/Electronics & Communication with one year expreience in the relevent field.

OR

b) Diploma in Elctronics/Electronics & telecomunication/Electronics & Communication from recognized board of technical education with two years experience in the relevent field.

OR

c) NTC/NAC in the trade with three years' experience respective in the relevent field.

8) **Tools, Equipments& Machinery required** : - As per Annexure – I

7.1.1 DETAIL SYLLABUS OF CORE SKILL

A. Block– I
Basic Training

Topic No.	a) Engineering Drawing	Duration (in hours)	b) Workshop Science & Calculation	Duration (in hours)
		30		**20**
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		**Unit**: Systems of unit- FPS, CGS, MKS/SI unit, unit of length, Mass and time, Conversion of units	
2	**Drawing Instruments : their 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.		**Fractions**: Fractions, Decimal fraction, Addition, Subtraction, Multiplication and Division of Fractions and Decimals, conversion of Fraction to Decimal and vice versa. Simple problems using Calculator.	
3	**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		**Properties of Material** : 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 Alloys.	
4	**Drawing of Geometrical Figures:**Drawing practice on: - Angle: Measurement and its		**Average: Problems** of Average. **Ratio &Proportion**: Simple calculation on related problems.	

	types, method of bisecting. - Triangle -different types - Rectangle, Square, Rhombus, Parallelogram. - Circle and its elements.		**Mass, Weight and Density**: Mass, Unit of Mass, Weight, difference between mass and weight, Density, unit of density.	
5	**Dimensioning:** - Definition, types and methods of dimensioning (functional, non-functional and auxiliary) - Types of arrowhead - Leader Line with text			
6	**Free hand drawing of** - Lines, polygons, ellipse, etc. - geometrical figures and blocks with dimension - Transferring measurement from the given object to the free hand sketches.			
7	**Method of presentation of Engineering Drawing** - Pictorial View - Orthogonal View - Isometric view		**Percentage**: Introduction, Simple calculation. Changing percentage to decimal and fraction and vice-versa.	
8	**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		- Forces definition. - Definition and example of compressive, tensile, shear forces, axial and tangential forces. Stress, strain, ultimate strength, factor of safety for MS. **Speed and Velocity**: Rest and motion, speed, velocity, difference between speed and velocity, acceleration, retardation.	
9	**Dimensioning practice:** - Position of dimensioning (unidirectional, aligned, oblique as per BIS SP:46-2003) - Symbols preceding the value of dimension and dimensional tolerance.		**Mensuration:** Area and perimeter of square, rectangle, parallelogram, triangle, circle, semi circle. Volume of solids – cube, cuboids, cylinder and Sphere. Surface area of solids – cube, cuboids, cylinder and Sphere.	

			- Area of cut-out regular surfaces: circle and segment and sector of circle. - Volume of cut-out solids: hollow cylinders, frustum of cone, block section. - Volume of simple solid blocks.	
10	**Construction of Geometrical Drawing Figures:** - Polygons and their values of included angles. Conic Sections (Ellipse)		**Algebra** : Addition, Subtraction, Multiplication, Division, Algebraic formula, Linear equations (with two variables). - Circular Motion: Relation between circular motion and Linear motion, Centrifugal force, Centripetal force.	
11	**Projections:** - Concept of axes plane and quadrant. - Orthographic projections - Method of first angle and third angle projections (definition and difference) - Symbol of 1^{st} angle and 3^{rd} angle projection as per IS specification. Drawing of Orthographic projection from isometric/3D view of blocks		**Work, Power and Energy**: work, unit of work, power, unit of power, Horse power, mechanical efficiency, energy, use of energy, potential and kinetic energy, examples of potential energy and kinetic energy.	

B. Block- II
Basic Training

Topic No.	a) Engineering Drawing	Duration (in hours)	b) Workshop Science & Calculation	Duration (in hours)
1	- Machined components; concept of fillet & chamfer; surface finish symbols.	**30**	**Trigonometry:** Trigonometric ratios, Trigonometric tables. - Finding the value of unknown sides and angles of a triangle by Trigonometrical method. - Finding height and distance by trigonometry.	**20**
			Friction and its application in Workshop practice.	
2	- Screw thread, their standard forms as per BIS, external and internal thread, conventions on the features for drawing as per BIS.		**Heat & Temperature**: Heat and temperature, their units, difference between heat and temperature, boiling point, melting point, scale of temperature, relation between different scale of temperature, Thermometer, pyrometer, transmission of heat, conduction, convection, radiation.	
3	- Reading & interpretation of assembly drawing and detailing.		**Basic Electricity**: Introduction, use of electricity, Types of current_ AC, DC, their comparison, voltage, resistance, their units. Conductor, insulator, Types of connections – series, parallel, electric power, Horse power, energy, unit of electrical energy. Concept of earthing.	
			Heat treatment – Necessity, different common types of Heat treatment.	

			<u>Graph:</u> - Read images, graphs, diagrams – bar chart, pie chart. - Graphs: abscissa and ordinates, graphs of straight line, related to two sets of varying quantities.	
4	- Free sketching in good proportion of simple ship components as applicable to the trade. - Free sketching of nuts, bolts, screws, brackets, hings, etc. - Isometric drawings of simple object as applicable to the trade		**Transmission of power:** By belt, pulleys & gear drive.	
5	- Simple exercises related to trade related symbols. - Solution of NCVT test papers.		**Concept of pressure** – units of pressure, atmospheric pressure, gauge pressure – gauges used for measuring pressure. **Introduction to pneumatics & hydraulics systems.** Solution of NCVT test papers	

7.1.2 DETAIL SYLLABUS OF PROFESSIONAL SKILLS & PROFESSIONAL KNOWLEDGE

A. Block –I
Basic Training

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 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.	**Different types of Plane:** description, types, sizes, setting, sharpening, uses, etc. **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	**Assessment / Examination (03 days)**	

B. Block –II
Basic Training

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 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.	**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 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)**	

7.1.3 EMPLOYABILITY SKILLS

GENERAL INFORMATION

1)	**Name of the subject**	**:**	**EMPLOYABILITY SKILLS**
2)	**Applicability**	**:**	ATS- Mandatory for fresher only
3)	**Hours of Instruction**	**:**	**110 Hrs. (55 hrs. in each block)**
4)	**Examination**	**:**	The examination will be held at the end of two years Training by NCVT.
5)	**Instructor Qualification**	**:**	

i) MBA/BBA with two years experience or graduate in sociology/social welfare/Economics with two years experience and trained in Employability skill from DGET Institute.

And

Must have studied in English/Communication Skill and Basic Computer at 12th /diploma level

OR

ii) Existing Social Study Instructor duly trained in Employability Skill from DGET Institute.

7.1.3.1 SYLLABUS OF EMPLOYABILITY SKILLS

A. Block – I
Basic Training

Topic No.	Topic	Duration (in hours)
	English Literacy	**15**
1	**Pronunciation :** Accentuation (mode of pronunciation) on simple words, Diction (use of word and speech)	
2	**Functional Grammar** Transformation of sentences, Voice change, Change of tense, Spellings.	
3	**Reading** Reading and understanding simple sentences about self, work and environment	
4	**Writing** Construction of simple sentences Writing simple English	
5	**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.	
	I.T. Literacy	**15**
1	**Basics of Computer** Introduction, Computer and its applications, Hardware and peripherals, Switching on-Starting and shutting down of computer.	
2	**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.	
3	**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	
4	**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.	
	Communication Skill	**25**
1	**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. Case study/Exercise	
2	**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.	
3	**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. Case study/Exercise	
4	**Facing Interviews** Manners, Etiquettes, Dress code for an interview Do's & Don'ts for an interview	

5	**Behavioral Skills** Organizational Behavior Problem Solving Confidence Building Attitude Decision making Case study/Exercise	

B. Block– II
Basic Training

Topic No.	Topic	Duration (in hours)
	Entrepreneurship skill	**15**
1	**Concept of Entrepreneurship** **Entrepreneurship-** 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.	
2	**Project Preparation & Marketing analysis** Qualities of a good Entrepreneur, SWOT and Risk Analysis. Concept & application of Product Life Cycle (PLC), Sales & distribution Management. Different Between Small Scale & Large Scale Business, Market Survey, Method of marketing, Publicity and advertisement, Marketing Mix.	
3	**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.	
4	**Investment Procurement** Project formation, Feasibility, Legal formalities i.e., Shop Act, Estimation & Costing, Investment procedure - Loan procurement - Banking Processes.	
	Productivity	**10**
1	**Productivity** Definition, Necessity, Meaning of GDP.	
2	**Affecting Factors** Skills, Working Aids, Automation, Environment, Motivation How improves or slows down.	
3	**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.	
4	**Personal Finance Management** Banking processes, Handling ATM, KYC registration, safe cash handling, Personal risk and Insurance.	
	Occupational Safety, Health & Environment Education	**15**
1	**Safety & Health** Introduction to Occupational Safety and Health importance of safety and health at workplace.	

2	**Occupational Hazards** Basic Hazards, Chemical Hazards, Vibro-acoustic Hazards, Mechanical Hazards, Electrical Hazards, Thermal Hazards. Occupational health, Occupational hygienic, Occupational Diseases/ Disorders & its prevention.	
3	**Accident & safety** Basic principles for protective equipment. Accident Prevention techniques - control of accidents and safety measures.	
4	**First Aid** Care of injured & Sick at the workplaces, First-Aid & Transportation of sick person	
5	**Basic Provisions** Idea of basic provision of safety, health, welfare under legislation of India.	
6	**Ecosystem** Introduction to Environment. Relationship between Society and Environment, Ecosystem and Factors causing imbalance.	
7	**Pollution** Pollution and pollutants including liquid, gaseous, solid and hazardous waste.	
8	**Energy Conservation** Conservation of Energy, re-use and recycle.	
9	**Global warming** Global warming, climate change and Ozone layer depletion.	
10	**Ground Water** Hydrological cycle, ground and surface water, Conservation and Harvesting of water	
11	**Environment** Right attitude towards environment, Maintenance of in -house environment	
	Labour Welfare Legislation	**5**
1	**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.	
	Quality Tools	**10**
1	**Quality Consciousness :** Meaning of quality, Quality Characteristic	
2	**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.	
3	**Quality Management System :** Idea of ISO 9000 and BIS systems and its importance in maintaining qualities.	

4	**House Keeping :** Purpose of Housekeeping, Practice of good Housekeeping.	
5	**Quality Tools** Basic quality tools with a few examples	

7.2 PRACTICAL TRAINING (ON-JOB TRAINING)
(BLOCK – I & II)

DURATION: 18 MONTHS (9 months in each block)

GENERAL INFORMATION

1) **Name of the Trade** :**SHIPWRIGHT (WOOD)**

2) **Batch size** : : a) Apprentice selection as per Apprenticeship Guidelines

b) Maximum 20 candidates in a group

3) **Examination** : i) The internal assessment will be held on completion of each block

ii) NCVT exam will be conducted at the end of 2nd year.

4) **Instructor Qualification** :

a) B.E./B. Tech in Electronics/Electornics & Telecommunication/Electronics & Communication with one year expreience in the relevent field.

OR

b) Diploma in Elctronics/Electronics & telecomunication/Electronics & Communication from recognized board of technical education with two years experience in the relevent field.

OR

c) NTC/NAC in the trade with three years' experience respective in the relevent field.

5) **Infrastructure for On Job Training** : - As per Annexure – II

7.2.1 BROAD SKILL COMPONENT TO BE COVERED DURING ON-JOB TRAINING

A. BLOCK – I

1. **Safety and best practices (5S, KAIZEN etc.)**
2. **Record keeping and documentation**
3. **Repair & Maintenance work**

DURATION: 09 MONTHS (39 WEEKS)	
SL NO	**LIST OF OPERATIONS/SKILLS TO BE COVERED DURING INDUSTRIAL TRAINING**
1	Practice in making various geometrical patterns for making templates and other wooden elements such as ventilators, block ,chocks, beam knees.
2	Practice in identification of different types of wood.
3	Observation of the operations of caissons and dock gates.
4	Building, repairing and direction of keel blocks, cradles shorting, gripping and other structures used for supporting in dry docks.
5	Estimating material requirements and laying various types of deck coverings onboard ships.
6	Making of lamination and bending of wood using different types of glues.
7	Manufacture of catamarans, pontoons, booms masts, spans ladders etc.
8	Repairing of wooden hulls.
9	Erecting staging around ships.
10	Making up of a mock up, developing ships and making their templates.
11	Body plan scrievingon ply wood.
12	Full scale making on ships.
13	Fairing lines and uses of checking.
14	Development of shell by jig method.
15	Marking position of major fittings & developing of corrugated bulkhead and bridge front.
16	Developing important parts by full scale margin building growth transom etc.
17	Lofting work for steel structures like cranes, Pontoons and drilling platforms.
18	Leveling of ground ways runners and wooden blocks.

B. BLOCK – II

1. **Safety and best practices (5S, KAIZEN etc.)**
2. **Store procedure, Record keeping, inventory management and documentation**
3. **Repair & Maintenance work**

DURATION: 09 MONTHS (39 WEEKS)	
SL NO	**LIST OF OPERATIONS/SKILLS TO BE COVERED DURING INDUSTRIAL TRAINING**
1	Erection process and fastening standing wise by wire ropes.
2	Fitting launching triggers.
3	Performing related tasks to make up and prepare entire launching ways to launch ships.
4	Securing of material and timber – salvaged after launching for use in subsequent operation.
5	Beaching, slipping and unslipping of various crafts & vessels.
6	Laying out a plain on the mould loft floor as per drawing.
7	Making templates either from drawing or from offsets obtained from the mould loft floor.
8	Fixing copper sheathing on wooden hulls.
9	Preparing & applying different types of polishes & varnishes.
10	Constructing, installing and repairing wooden furniture, paneling, doors, windows, benches, cup-boards, portable wooden fittings either onboard ships or on ship floor independently.
11	Repairing and renewing hinge posts, miter posts, skill bearers and platform of dock gates.
12	Caulking of gates for weight tightness.
13	Repairing and renewing of wooden buses, pads, chocks, racks, battens, on board ships and crafts.
14	Checking independently and marking draught marks and water lines of ships and crafts.
15	Laying wooden deck, planking and caulking tools and materials used and maintaining caulking tools.

8. ASSESSMENT STANDARD

8.1 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 to be given while assessing for team work, avoidance/reduction of scrape/wastage and disposal of scarp/wastage as per procedure, behavioral attitude and regularity in training.

The following marking pattern to be adopted while assessing:

a) Weightage in the range of 60-75% to be allotted during assessment under following performance level:

For this grade, the 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.

In this work there is evidence of:

- Good skill levels in the use of hand tools, machine tools and workshop equipment
- Many tolerances while undertaking different work are in line with those demanded by the component/job.
- 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 under following performance level:

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.

In this work there is evidence of:

- Good skill levels in the use of hand tools, machine tools and workshop equipment
- The majority of tolerances while undertaking different work are in line with those demanded by the component/job.
- 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 under following performance level:

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.

In this work there is evidence of:

- High skill levels in the use of hand tools, machine tools and workshop equipment
- Tolerances while undertaking different work being substantially in line with those demanded by the component/job.
- A high level of neatness and consistency in the finish.
- Minimal or no support in completing the project

8.2 FINAL ASSESSMENT- ALL INDIA TRADE TEST (SUMMATIVE ASSESSMENT)

SUBJECTS	Marks	Sessional Marks	Full Marks	Pass Marks	Duration of Exam.
Practical	300	100	400	240	**08 hrs.**
Trade Theory	100	20	120	48	3 hrs.
Workshop Cal. & Sc.	50	10	60	24	3 hrs.
Engineering Drawing	50	20	70	28	4 hrs.
Employability Skill	50		50	17	2 hrs.
Grand Total	**550**	**150**	**700**	**-**	

Note: - The candidate pass in each subject conducted under all India trade test.

9. FURTHER LEARNING PATHWAYS

On successful completion of the course,

- The trainees will be employed in reputed Industries / Organizations.
- On successful completion of the course trainees can opt for Diploma course (lateral entry). {Applicable for candidates only who undergone ATS after CTS}
- They can also undergo CITS course in the relevant trade to become instructor in the ITI's

Employment opportunities:

On successful completion of this course, the candidates shall be gainfully employed in the following industries:

1. Production & Manufacturing industries of aviation, navigational equipments, instruments.
2. Defence organisations
3. In public sector industries like HAL, NAVAL DOCKYARD etc and private industries in India & abroad.

ANNEXURE – I

TOOLS & EQUIPMENT FOR BASIC TRAINING

INFRASTRUCTURE FOR PROFESSIONAL SKILL & PROFESSIONAL KNOWLEDGE

TRADE: SHIPWRIGHT(WOOD)
LIST OF TOOLS & EQUIPMENTS FOR 20 APPRENTICES

Sl. No.	Description	Quantity
1.	Foot rule (two ft. Four fold)/ steel rule	20
2.	Marking knife, 200 mm. Length	20
3.	Carpenter square 200 mm	20
4.	Square, bevel 50 mm.	20
5.	Carpenter making gauge	20
6.	Carpenter mortice gauge	20
7.	Saw hand 450 mm.	20
8.	Saw tenon 300 mm.	20
9.	Plane, jack metal 335 mm. X 50 mm cutter	20
10.	Plane smoothing, metal 200 mm. X 50 mm cutter.	20
11.	Chisel, firmer (bevel) edge 6 mm. 10, 15, 20 and 25 mm width (5 nos.)	20
12.	Chisel, mortice, 06, 10,15 mm. (3 nos.)	20
13.	Screw driver 300 mm. (cabinet maker)	20
14.	Mallet medium size	20
15.	Claw hammer 500 gr.	20
16.	Oilstone(carborundum) Universal silicon carbide Combinationrough and fine 200x 50x25 mm	20
17.	Hand brush for bench cleaning 450 mm.	20
18.	Computer with LCD projector	01
19.	Measuring tape 3 meter	01
20.	Construction scale 1 meter	04
21.	Spring caliper inside 150 mm	04
22.	Spring caliper out side	04
23.	Wing compass 300 mm.	02
24.	Trammel	02 pair
25.	Sprit level 300 mm.	02
26.	Rip saw 600 mm.	04
27.	Cross cut saw mm	02
28.	Key hole saw 250 mm.	02
29.	Fret saw frame 150 mm.	02
30.	Compass saw 350 mm.	04

31.	Adze 15 kg.	04
32.	Trying plane metal 450 mm. X 60 mm. Cutter	02
33.	Plane ravvet adjustable 250 mm. X meters x 9 mm. Cutters.	04
34.	Plough plane with set of 8 cutter up to 12 mm. Width	04
35.	Spoke shaves 50 mm. Cutter	08
36.	Plane adjustable circular 250 mm	04
37.	Router plane	04
38.	Moulding plane set	04
39.	Cabinet scraper 100 mm.	04
40.	Gauge chisel, firmer, 6,10,12,16,20,mm	08 sets.
41.	Gauge chisel, scribing 6,10,12,16,20,mm.	08 sets.
42.	Ball pin hammer 600 grs.	04
43.	Cross pin hammer 600 grs	04
44.	Screw driver 450 mm.	04
45.	Screw driver 250 mm.	04
46.	Screw driver 150 mm.	04
47.	Pincer 50 mm.	04
48.	File half round 2nd cut 250 mm.	08
49.	File slim taper 100 mm	12
50.	File slim taper 150 mm.	12
51.	Card file (steel) wire brush for file	04
52.	Hands drill 6 mm. Capacities	08
53.	Country drill with bow (ball bearing type)	04
54.	Hand auger 10,12,14,16,18,20,22,25 Mm.	02 sets.
55.	Centre bits 6,8,10,12.	02 sets.
56.	Expansion bit sets.	02 sets.
57.	Twist drill bits 6,8,10,12, mm	02 sets.
58.	Counter sink bit rose type 12 mm.	04
59.	Breast drill 6 mm capacity	02
60.	Centre punch 5	04
61.	Snip straight 200 mm.	04
62.	Oil cans combination side cutting pliers.	02
63.	Plunger saw set / pistol grip type.	02
64.	Number punch 12 mm.	02 sets.
65.	Slip stone 100 mm.	08
66.	Round crow bar with chisel and claw end 1070 x 25 mm.	02
67.	' G' clamp 100.	08
68.	'G' clamp 150 mm.	08
69.	'G' clamp 250 mm.	04
70.	'T' bar cramp 0.6 meter.	08

71.	'T' bar cramp 1.25 meter.	04
72.	'T' bar cramp 1.75 meter.	02
73.	Carpenter vice 250 mm jaws.	16
74.	Saw sharpwining vice 250 mm jaws.	02
75.	Carving tools set.	04 sets.
76.	Goggles pair.	02
77.	Glass cutter.	02
78.	Nail punch.	04
79.	Surface plate 600x 600 mm.	01
80.	Carpenter's work bench 2400x920x800 mm. Height	08
81.	Oil can.	04
82.	Steel lockers, 8Compartments, with individual locks. 1980 x 910 x 480 mmDepth.	02
83.	Steel almirah with shelves 1980 x 910 x 480 mm depth	02
84.	Instructor table (half secretariat)	01
85.	Instructor chair.	02
86.	Stool.	01
87.	Chalk board with easel.	
88.	Material rack.	01
89.	Portable circular saw machine	02
90.	Portable planning machine	02
91.	Power drill machine	02
92.	Portable sander Machine	01
93.	Portable jig saw machine	02
94.	Portable router machine	01
95.	Power screw driver	02
96.	Circular saw machine 3.00 mm.dia.	01
97.	'Lathe, wood turning.' 150 mm height of centres 1.75-meter bed, motorised complete with a set of turning tools.	03
98.	Set ofturning tools for above lathe machine	03 sets
99.	Tenoning machine (single ended)	01
100.	Mortising machine (combine hollow chisel and chain)	01
101.	Bench grinder 200 mm whole d.e. Pedestal	01
102.	Drill machine 12 mm. Capacity	01
103.	Portable electric drill 6 Mm. Capacity (woif type)	01
104.	Drills chuck 12 mm capacities.	01
105.	Portable discsander 200 mm. dia	01
106.	Adjustable saw sharpener	01
107.	Electric heater 1000/1500 w 1 nos.102. Electric blower	01

	(portable)	
108.	Moisture meter	01
109.	Grease gun.	01
110.	Spanner double ended set of 14	01 no. of set
111.	Universal wood working machine	01
112.	Electrical drying oven (small type).	01
113.	Band saw machine with provision.	01

Note: In case of basic training setup by the industry the tools, equipment and machinery available in the industry may also be used for imparting basic training.

INFRASTRUCTURE FOR WORKSHOP CALCULATION & SCIENCE AND ENGINEERING DRAWING

TRADE: SHIPWRIGHT (WOOD)
LIST OF TOOLS & EQUIPMENTS FOR 20 APPRENTICES

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

A: TRAINEES TOOL KIT:-

Sl. No.	Name of the items	Quantity (indicative)
1.	Draughtsman drawing instrument box	20 Nos.
2.	Set square celluloid 45^0 (250 X 1.5 mm)	20 Nos.
3.	Set square celluloid 30^0-60^0 (250 X 1.5 mm)	20 Nos.
4.	Mini drafter	20 Nos.
5.	Drawing board (700mm x500 mm) IS: 1444	20 Nos.

B: FURNITURE REQUIRED

Sl. No.	Name of the items	Quantity (indicative)
1	Drawing Board	20 Nos.
2	Models : Solid & cut section	as required
3	Drawing Table for trainees	as required
4	Stool for trainees	as required
5	Cupboard (big)	1 No.
6	White Board (size: 8ft. x 4ft.)	1 No.
7	Trainer's Table	1 No.
8	Trainer's Chair	1 No.

ANNEXURE – II

INFRASTRUCTURE FOR ON JOB TRAINING

TRADE: -SHIPWRIGHT (WOOD)

For Batch of 20 APPRENTICES

Actual training will depend on the existing facilities available in the establishments. However, the industry should ensure that the broad skills defined against On-Job Training part (i.e. 9 months + 9 months) are imparted. In case of any short fall the concern industry may impart the training in cluster mode/ any other industry/ at ITI.

ANNEXURE-III

GUIDELINES FOR INSTRUCTORS AND PAPER SETTERS

1.Due care to be taken for proper & inclusive delivery among the batch. Some of the following some method of delivery may be adopted:

A) LECTURE
B) LESSON
C) DEMONSTRATION
D) PRACTICE
E) GROUP DISCUSSION
F) DISCUSSION WITH PEER GROUP
G) PROJECT WORK
H) INDUSTRIAL VISIT

2. Maximum utilization of latest form of training viz., audio visual aids, integration of IT, etc. may be adopted.

3. The total hours to be devoted against each topic may be decided with due diligence to safety & with prioritizing transfer of required skills.