

SHIPWRIGHT STEEL

COMPETENCY BASED CURRICULUM

(Duration: 2 Yrs.)

APPRENTICESHIP TRAINING SCHEME (ATS)

NSQF LEVEL- 5



SECTOR – MARINE



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



SHIPWRIGHT STEEL

(Revised in 2018)

APPRENTICESHIP TRAINING SCHEME (ATS)



Skill India
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Developed By

Ministry of Skill Development and Entrepreneurship
Directorate General of Training
CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE
EN-81, Sector-V, Salt Lake City,
Kolkata – 700 091

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Sl. No.	Name & Designation Sh./Mr./Ms.	Organization	Expert Group Designation
1.	Shri V. M. Raghavan, Regional Director,	ATS Madras – 32	Secretary
2.	Shri A Subba Rao, Chief Manager (Training and Safety)	Hindustan Shipyard Ltd., Visakhapatnam,	Member
3.	Shri T.C.B. Peduval, Training Officer	Cochin Shipyard, Ernakulam,	Member
4.	Lt. A. Radhakrishna,	Naval Docyard, Visakhapatnam,	Member
5.	Shri T. R. Kothandaraman, Ex-engineer (Marine Floating Crafts)	Madras Port Trust, Madras – 1	Member
6.	Shri S.M. Natarajan, JDT,	DGE&T, TamilNadu	Member
7.	Shri S.S. Krishnan, Principal,	CTI, Madras	Member
8.	Shri C.R. Verma, JDT,	DGE&T, New Delhi	Member

Sl. No.	Topics	Page No.
1.	Background	1-2
2.	Training System	3-7
3.	Job Role	8
4.	NSQF Level Compliance	9
5.	General Information	10
6.	Learning Outcome	11-13
7.	Learning Outcome with Assessment Criteria	14-16
8.	Syllabus	17-22
9.	Syllabus - Core Skill	23-28
	9.1 Core Skill – Workshop Calculation & Science and Engineering Drawing	
	9.2 Core Skill – Employability Skill	
10.	Details of Competencies (On-Job Training)	29-31
11.	List of Trade Tools & Equipment Basic Training - Annexure I	32-38
12.	Format for Internal Assessment -Annexure II	39

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.



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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.

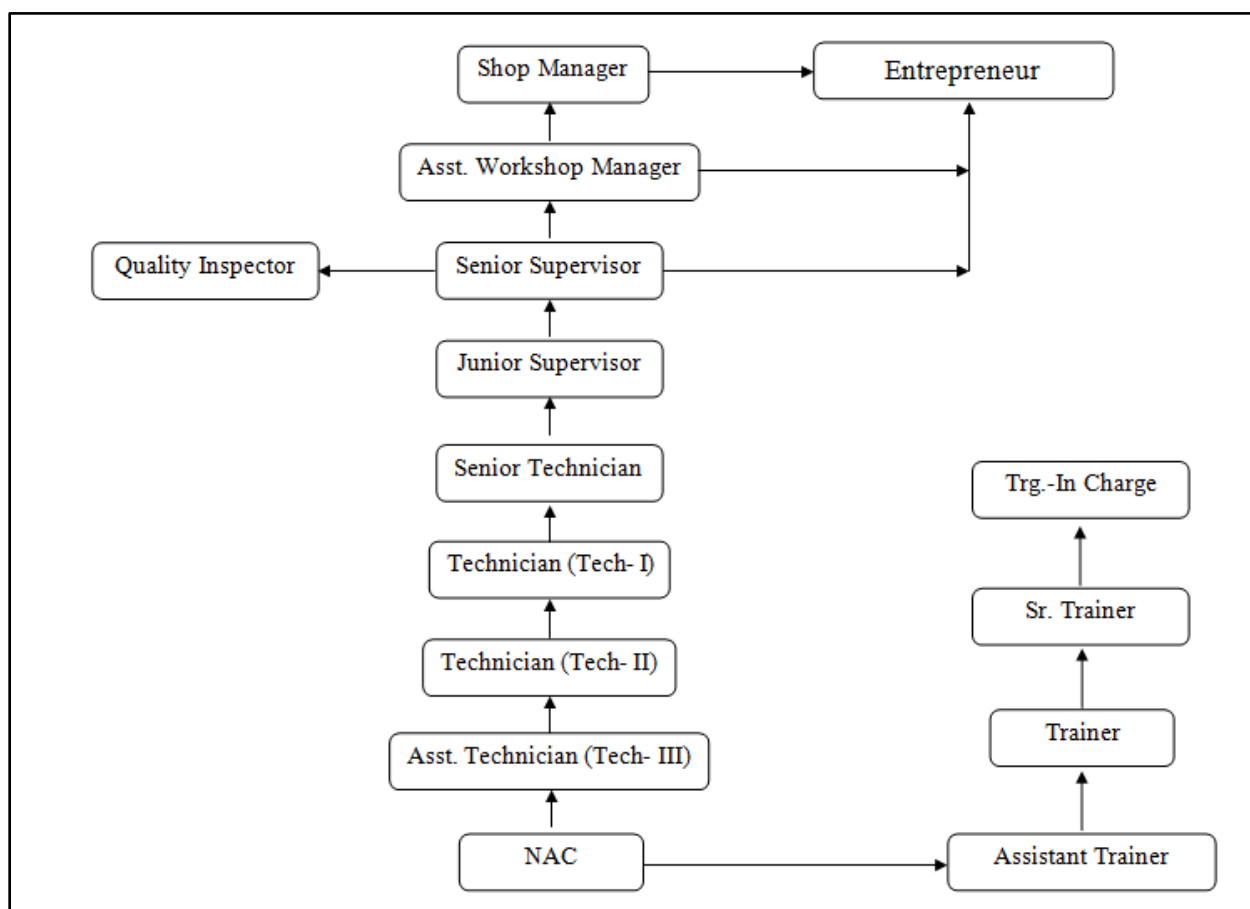
Shipwright Steel trade under ATS is one of the most popular courses delivered nationwide through Electricity Boards. The course is of two years (02 Blocks) duration. It mainly consists of Domain area and Core area. In the Domain area Trade Theory & Practical impart professional - skills and knowledge, 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.
- 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 – I	-----	Block – II	-----
Practical Training (On - job training)	----	Block – I	-----	Block – II

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.)

S 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 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.	• Demonstration of good skill in the use of 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.

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 blueprints. 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 bulk heads 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 prepare entire launching ways to launch a ship. Gets all material and timber salvaged after launching for use in subsequent operation.

Reference NCO 2015: 7115.0700 - Shipwright

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4. NSQF LEVEL COMPLIANCE

NSQF level for Shipwright Steel 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 Steel 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 Steel
NCO-2015	7115.0700
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 under 10+2 system of education or equivalent. Desirable - Passed SSLC with Science (Physics and Chemistry) and Math or its equivalent or passed 10th class examination under 10+2 system with Science & Mathematics as subjects.
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 STEEL Apprenticeship	Fitter

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 Shipwright Steel 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

Perform Welding and Gas Cutting

1. Use of hand tools used in gas welding and cutting.
2. Use of welding torch, regulation of flame.
3. Use of oxygen and acetylene/LPG cylinders.
4. Fusion runs with and without filler rods by gas.
5. Straight line beads on M.S sheets by gas in down hand position.

Shipwright Steel

6. Use of gas cutting torch, regulation of flame.
7. Manual oxy-acetylene/LPG flame cutting.
8. Preparation of joints for welding.
9. Use of hand tools and equipment.
10. Use of electric arc welding machines and regulations of current.
11. Use of different sizes of electrodes for M.S welding.
12. Straight line beads by electric welding on M.S plates in all positions.
13. Joint preparation and track welding techniques.
14. Single and multy run welding techniques.

Carry out Rigging

15. Selection of fires and manila ropes.
16. Use of different types of shackles.
17. Care and maintenances of wire ropes.
18. Use of wire ropes for lifting heavy weights.

Perform Mould-Loft Work

19. Use of carpentry hand tools-hand saw for, chisels, jackplane.
20. Use of hand saw and circular saw for cutting smooth plane tec.
21. Making templates for cutting to size reading drawing/ sketches.
22. Templates for simple ship structures such as brackets, gussets etc.
23. Setting out intersections on the floor.
24. Layout of the "lines plane".
25. Use of intersection points, reference points and reference line.
26. Development of hose pipe, mast, ventilations, trunks.
27. Preparation of mock-ups.
28. Marking of draught marks and paint marks on ship's shell at building berth.
29. Final marking of panels during assembly.

B. BLOCK – II

Perform Marking

30. Checking of surface defects of plates and their rectification.
31. Marking for cutting to shapes using templates and moulds.
32. Preparation of plate edges for welding.
33. Lifting of templates at site and marking accordingly.
34. Marking pipes and intersections.
35. Providing marks to facilitate other operations.
36. Marking curved and bent plates and sections.
37. Allowing rolling and bending tolerances for plates and sections.
38. Checking and inspection.

Carry out Hull Machinery Work Preparation

39. Safety precautions in press work.
40. Care and maintenances of machine.
41. Cutting plates by guillotine shears.
42. Cropping of sections.

Shipwright Steel

- 43. Straightening of plates and sections.
- 44. Descaling of plates and sections.
- 45. Edge planning.
- 46. Bending of plates cold.

Perform Assembly

- 47. Making and use of simple-jigs and fixtures.
- 48. Use of lifting tackles, slings, lifting devices etc.
- 49. Sub-assembly of simple ship structures.
- 50. Assembly welded “T” frames and “I” sections.
- 51. Assembly loose tanks.
- 52. Tacking and welding sequence.
- 53. Sequence of assembly panels.
- 54. Assembling of plane panels.
- 55. Assembling compound panels.
- 56. Assembling mast ventilation trunks etc.
- 57. Prevention of welding distortions.

Work on Building Berth and Outfit

- 58. Preparation of berth for keel laying.
- 59. Arrangement of keel and bilge blocks.
- 60. Use of clamps for assembly.
- 61. Slidding fabricated structures for lifting.
- 62. Erection and aligning of panels.
- 63. Erection and aligning seats and loose tanks.
- 64. Setting ventilation trunks.
- 65. Erection and aligning ship’s structural parts at outfit jetty.
- 66. Preparation of tanks and holds for survey.
- 67. Use care and maintenance of pneumatic chipping and grinding machines.
- 68. Chipping and grinding well bares flush.
- 69. Preparation and arrangement of launching ways.
- 70. Protection of steel work against corrosion.
- 71. Air and water resting of tanks, compartments, bulkheads and shells.

Carry out Ship repair

- 72. Safety precautions in ship repair work.
- 73. Repair and replacement of outside sheal.
- 74. Repair and replacement of hull structure.
- 75. Preparation and laying of wooden blocks.

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 electrical and apply in day to day work.<i>[Different mathematical calculation & science -Work, Power & Energy, Algebra, Geometry & Mensuration, Trigonometry, Heat & Temperature, Levers & Simple machine, graph, Statistics, Centre of gravity, Power transmission, Pressure]</i>	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. 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. <i>[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]</i>	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 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 resources 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 in the competency based curriculum)	
<i>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.</i>	

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

Week No.	Professional Skills (Trade Practical)	Professional Knowledge (Trade Theory)
1.	- Importance of trade training, List of tools & Machinery used in the trade. - Safety attitude development of the trainee by educating them to use Personal Protective Equipment (PPE). - First Aid Method and basic training - Safety signs for Danger, Warning, caution & personal safety message - Preventive measures for electrical accidents & steps to be taken in such accidents. - Use of Fire extinguishers - Identification of tools & equipments as per desired specifications for marking & sawing.	Special safety precautions for ship builder are beside the common safety precautions.
2.	<u>Welding and Gas cutting</u> - Use of hand tools used in gas welding and cutting. - Use of welding torch, regulation of flame. - Straight line beads on M.S sheets by gas in down hand position. - Use of gas cutting torch, regulation of flame. - Manual oxy-acetylene/LPG flame cutting. - Preparation of joints for welding.	Gas cutting and welding tools and accessories-such as pressure regulators, rubber goggles, a spark lighter, hand gloves, spanners, blow pipe cutting torch electrode holder, hand screen, apron, chipping hammer, etc. Their description use and maintenance.
3.	Use of oxygen and acetylene/LPG cylinders. Fusion runs with and without filler rods by gas.	Different forces of welding-oxy-acetylene Electric welding or description and application.
4.	Safety in electric arc welding. Use of electric arc welding machines and regulations of current. Use of hand tools and equipment	Electrodes and their uses, different types of joints used in welding.

5.	Use of different sizes of electrodes for M.S welding. Straight line beads by electric welding on M.S plates in all positions. Joint preparation for welding. Track welding techniques. Single and multy run welding techniques.	Technique of oxy-acetylene/LPG flame cutting. Different types of automatic and semi-automatic machines- such as portable gas cutting machine, and electronically controlled gas cutting machine- its application to ship construction work.
6.	Marking Knowledge regarding tools and equipment.	Carpentry hand tools- such as : Marking gauge, hand sauce chisels, type of chisel-iron jack plane- smoothing plane, claw hammer, mallet, piecer, rasp file etc. their description and use.
7.	Checking of surface defects of plates and their rectification.	Description and use of band saw, circular saw etc.
8.	Reading, Drawing/Sketches and specifications	Different types of templates woods used for ship building work its properties and use.
9.	Allowing rolling and bending tolerances for plates and sections.	Definitions of principal dimensions and other terms. Forms of rolled sections, where each type of generally used.
10.	Marking for cutting to shapes using templates and moulds.	Elements of mould left and service board work-use of half block model-tools and equipment used in mould left such as chalk line tape, trammel, try square, bevel square, soap chalk line, scribe serve knife, banjo taking off battens and penning battens etc. their description's and use
11.	Preparation of plate edges for welding. Lifting of templates at site and marking accordingly. Checking and inspection.	Laying of the sheer draught on the left floor-use of centre line, water line, buttock line, of templates, moulds and mock ups. Use of working points and intersection points. Shell plate development, expansion of stern plating hose pipe, mast ventilators, oblique and tapered trunks.
12.	Marking pipes and intersections. Marking sections. Providing marks to facilitate other operations. Marking curved and bent plates and sections.	Marking out plates and sections for revelling and welding surface defects of plates such as pitting, lamination in their rectification to the extend possible-marking for cutting to shapes with and without using templates or moulds-reparation of plates for welding-marking

		of pipes and intersection-marking of plates for forming- such as flanging, rolling, bending, etc. and fine making after forming.
13	Internal Assessment/Examination 03days	

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.



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

Week No.	Professional Skills (Trade Practical)	Professional Knowledge (Trade Theory)
1.	<u>Hull Machinery Work Preparation</u> Safety precautions in press work. Care and maintenances of machine. Cutting plates by guillotine shears. Cropping of sections.	Hull shop machines- such as rolling, flanging, pressests, punching, drilling, shearing, planning and scraping, frame bending plate straightening(mangling) sections straightening and cambering cropper, guillitin shears and descaling machines-their descriptions and use
2.	Straightening of plates and sections. Descaling of plates and sections. Edge planning. Bending of plates cold. Punching. Press work.	Description and use pneumatic portable grinding, drilling, chipping and riveting machines-safety precautions, care and maintenance
3-6	<u>Assembly</u> 1. Use of clamps for assembly. 2. Making and use of simple-jigs and fixtures. 3. Use of lifting tackles, slings, lifting devices etc. 4. Sub-assembly of simple ship structures. 5. Assembly welded “T” frames and “I” sections. 6. Assembly loose tanks. 7. Tacking and welding sequence. 8. Sequence of assembly panels. 9. Assembling of plane panels. 10. Assembling compound panels. 11. Assembling mast ventilation trunks etc. 12. Assembling engine seats. 13. Prevention of welding distortions. 14. Corrections of errors. 15. Checking and Inspection.	Assembling of ship’s panels of welded structure as bulkheads decks shell, double bottom and compound units such as fore peak, aft, peak light assemblies such as loose tanks, set as and ventilation trunks-skid preparation welding sequence turning and lifting arrangements of completed units/panels, use of clamps and dogs for assembling procedure and precautions to minimising and internal stress. Description and use of levelling instruments such as water levels (“U” tube) spirit level declivity board, plumb board, theodolite and auto level Air and water testing of tanks, compartments bulkheads etc Protection of steel work-need for protection against corrosion and materials and major employed General treatment of launching arrangement
7-10	<u>Work on Building Berth and Outfit</u> 1. Preparation of berth for keel laying. 2. Marking datum lines on building berth.	The building berth-preparation and construction of keel blocks, big blocks and other temporary shores laying off keel, erection and alignment of panels such as double bottom shell, bulk-heads, forespeak,

	3. Arrangement of keel and bilge blocks. 4. Use of clamps for assembly. 5. Sligging fabricated structures for lifting. 6. Lashing and tying of panels after erection at site. 7. Erection and aligning of panels. 8. Erection and aligning seats and loose tanks. 9. Setting loose plate. 10. Setting ventilation trunks. 11. Erection and aligning ship's structural parts at outfit jetty. 12. Preparation of tanks and holds for survey. 13. Checking and inspection. 14. Keel and shaft sighting. 15. Fairing of ship's hull. 16. Use care and maintenance of pneumatic chipping and grinding machines. 17. Chipping and grinding well bares flush. 18. Preparation and arrangement of launching ways. 19. Protection of steel work against correction. 20. Air and water resting of tanks, compartments, bulkheads and shells.	aft peak, decks, seats, loose tanks, on building berth and fitting out jetty. Keel and shaft sighting and various fairing process of ship's hull marking of free-board marks, draught marks and pairing marks on building berth. Structural strains in a ship longitudinal strains hogging and sagging transverse strains. Structural parts of a ship which resist these strains painting stresses, local strains such as due to concentrated load and re-inforcement , docking strains, stress as stream line flow-all openings that have well round corners re-inforcement of planting, hatch may and other openings, edges pressure due to head and effect of water pressure on bulkheads, tank tops etc Transverse, longitudinal and combined construction- types of ships-such as cargo, trankers, or-carriers etc General treatment of hull out fit equipment such as Navigation cargo handling equipment firefighting and extinguishing arrangements lifesaving appliance, domestic and cold cargo spaces, ventilation and air-conditioning, winches, windlasses and anchors
11-12	<u>Rigging</u> Selection of fires and manila ropes. Different types of knots used for lifting heavy materials. Use of different types of shackles. Care and maintenances of wire ropes. Use of wire ropes for lifting heavy weights.	Rigging and shorting arrangements required in ship construction work General idea of propulsion machinery and its seating arrangements shaft, shaft tools and propeller Repair of ships hull, such as repair and replacement of shell plates, parts of the framing, decks, platforms, bulkheads, superstructures and deckhouse and repair of steam and stern frames, fraction analysis <u>Elementary Naval Architecture:</u> Elementary consideration of floating bodies, buoyancy and displacement, stability and

		trim, effect of loading on stability and trim, light weight and deadweight, free board and tonnage, tons per inch immersions and ship form co-effecting.
13	Internal Assessment 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.



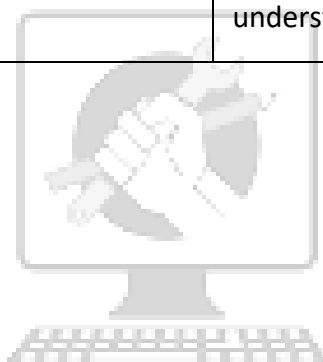
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9.1 WORKSHOP CALCULATION SCIENCE & ENGINEERING DRAWING

Block – I		
Sl. No.	Workshop Calculation and Science (Duration: - 20 hrs.)	Engineering Drawing (Duration: - 30 hrs.)
1.	Trigonometry, sine, cosine and tangents up to 90 degrees and their simple applications.	Further useful properties of a circle- intersecting chords, angles in a semi-circles, angles suspended by a chord at circumference & centre.
2.	Mensuration: Areas and perimeters of plane figures	The application of plane geometry to setting out profile templates.
3.	Mensuration : Simsoin's 1 st rule, areas of ellipse, volumes and weights of regular bodies like, cones, frustum of cone spheres, pyramids, weights of simple, solids, gauge like bars, rounds, plates of various weight of pairs of simple ship's components	True length of a lane, true shape of triangle from a given projection. True shapes of inclined sections of cylinders, cone any pyramid.
4.	Graph use of graphs and bar charts.	Blue print Reading and material lifting of ship building steel drawings
5.		Drawing riveted and welded connections of various ship's (Parts).

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Block – II		
Sl. No.	Workshop Calculation and Science (Duration: - 20 hrs.)	Engineering Drawing (Duration: - 30 hrs.)
1.	Calculation for preparation of estimates of cost, time and materials for various types fabrication work.	Drawing detailed drawing of any part of a ships structure such as tanks, seating's, bulkheads decks.
2.		Drawing of simple parts of connection of ship structure from written instructions.
3.		Code of practice for general engineering drawings as published by Indian Standard Instruction (IS: 696=1960) to be understood and followed.



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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 STEEL TRADE:

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

A. BLOCK – I

Perform Welding and Gas Cutting

1. Use of hand tools used in gas welding and cutting.
2. Use of welding torch, regulation of flame.
3. Use of oxygen and acetylene/LPG cylinders.
4. Fusion runs with and without filler rods by gas.
5. Straight line beads on M.S sheets by gas in down hand position.
6. Use of gas cutting torch, regulation of flame.
7. Manual oxy-acetylene/LPG flame cutting.
8. Preparation of joints for welding.
9. Use of hand tools and equipment.
10. Use of electric arc welding machines and regulations of current.
11. Use of different sizes of electrodes for M.S welding.
12. Straight line beads by electric welding on M.S plates in all positions.
13. Joint preparation and track welding techniques.
14. Single and multy run welding techniques.

Carry out Rigging

15. Selection of fires and manila ropes.
16. Use of different types of shackles.
17. Care and maintenances of wire ropes.
18. Use of wire ropes for lifting heavy weights.

Perform Mould-Loft Work

19. Use of carpentry hand tools-hand saw for chisels, jackplane.
20. Use of hand saw and circular saw for cutting smooth plane tec.
21. Making templates for cutting to size reading drawing/ sketches.
22. Templates for simple ship structures such as brackets, gussets etc.
23. Setting out intersections on the floor.
24. Layout of the “lines plane”.
25. Use of intersection points, reference points and reference line.
26. Development of hose pipe, mast, ventilations, trunks.
27. Preparation of mock-ups.
28. Marking of draught marks and paint marks on ship’s shell at building berth.
29. Final marking of panels during assembly.

B. BLOCK – II

Perform Marking

30. Checking of surface defects of plates and their rectification.
31. Marking for cutting to shapes using templates and moulds.
32. Preparation of plate edges for welding.
33. Lifting of templates at site and marking accordingly.
34. Marking pipes and intersections.
35. Providing marks to facilitate other operations.
36. Marking curved and bent plates and sections.
37. Allowing rolling and bending tolerances for plates and sections.
38. Checking and inspection.

Carry out Hull Machinery Work Preparation

39. Safety precautions in press work.
40. Care and maintenances of machine.
41. Cutting plates by guillotine shears.
42. Cropping of sections.
43. Straightening of plates and sections.
44. Descaling of plates and sections.
45. Edge planning.
46. Bending of plates cold.

Perform Assembly

47. Making and use of simple-jigs and fixtures.
48. Use of lifting tackles, slings, lifting devices etc.
49. Sub-assembly of simple ship structures.
50. Assembly welded “T” frames and “I” sections.
51. Assembly loose tanks.
52. Tacking and welding sequence.
53. Sequence of assembly panels.
54. Assembling of plane panels.
55. Assembling compound panels.
56. Assembling mast ventilation trunks etc.
57. Prevention of welding distortions.

Work on Building Berth and Outfit

58. Preparation of berth for keel laying.
59. Arrangement of keel and bilge blocks.
60. Use of clamps for assembly.
61. Sligging fabricated structures for lifting.
62. Erection and aligning of panels.
63. Erection and aligning seats and loose tanks.
64. Setting ventilation trunks.
65. Erection and aligning ship’s structural parts at outfit jetty.
66. Preparation of tanks and holds for survey.
67. Use care and maintenance of pneumatic chipping and grinding machines.

Shipwright Steel

- 68. Chipping and grinding well bares flush.
- 69. Preparation and arrangement of launching ways.
- 70. Protection of steel work against corrosion.
- 71. Air and water resting of tanks, compartments, bulkheads and shells.

Carry out Ship repair

- 72. Safety precautions in ship repair work.
- 73. Repair and replacement of outside sheal.
- 74. Repair and replacement of hull structure.
- 75. Preparation and laying of wooden blocks.

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.



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INFRASTRUCTURE FOR PROFESSIONAL SKILL & PROFESSIONAL KNOWLEDGE

SHIPWRIGHT STEEL			
LIST OF TOOLS AND EQUIPMENT for Basic Training (For 20 Apprentices)			
A. TRAINEES TOOL KIT (For each additional unit trainees tool kit Sl. 1-18 is required additionally)			
Sl. no.	Name of the Tool & Equipments	Specification	Quantity
1	Steel Rule	15 cm with metric graduation	21 nos.
2	Try Square.	150 mm blade	21 nos.
3	Caliper inside spring type.	150 mm	21 nos.
4	Caliper hermaphrodite spring type	150 mm	21 nos.
5	Caliper outside spring type	150 mm	21 nos.
6	Divider spring type	150 mm	21 nos.
7	Scriber	150 mm	21 nos.
8	Centre Punch	10 mm and Length - 120 mm	21 nos.
9	Screw driver	150mm insulated flat type	21 nos.
10	Chisel cold flat	20 mm X 150 mm High carboon steel	21 nos.
11	Hammer ball peen With handle	450 grams (1 lb)	21 nos.
12	Hammer ball peen With handle.	220 grams (1/2 lb)	21 nos.
13	File flat - second cut	250 mm	21 nos.
14	File flat smooth	250 mm.	21 nos.
15	File half round second cut	150 mm.	21 nos.
16	Hacksaw frame fixed type	300 mm	21 nos.
17	Safety goggles.		21 nos.
18	Dot punch	100 mm	21 nos.
B : INSTRUMENTS & GENERAL SHOP OUTFIT			
19.	Steel Rule	30 cm	4 nos.
20.	Steel Rule	60 cm.	4 nos.
21.	Straight edge	45 cm steel	2 nos.
22.	Surface plate	45 x 45 cm CI / Granite.	1 nos.
23.	Marking table	91 x 91 x 122 cm.	1 no.
24.	Universal scribing block.	22 cm	2 nos.
25.	V-Block pair	7 cm and 15 cm with clamps	2 nos.
26.	Square adjustable	15 cm blade.	2 nos.
27.	Angle plate	10 x 20 cm.	1 nos.
28.	Spirit Level	15 cm metal	1 no.
29.	Punch letter	3 mm set.	1 no.
30.	Punch number set	3 mm.	1 no.
31.	Punch hollow	6 mm to 19 set of 5	2 nos.
32.	Punch round	3mm x 4 mm set of 2	2 nos.

Shipwright Steel

33.	Portable hand drill (Electric)	0 to 6 mm	1 nos.
34.	Drill twist straight shank	1.5 to 12 mm by 0.5 mm	1 Set
35.	Drill twist straight shank	8 mm to 15 mm by ½ mm	1 Set
36.	Taps and dies complete set in box B.A		1 no.
37.	Taps and dies complete set in box with-worth.		1 no.
38.	Taps and dies complete set in box	3-18 mm set of 10	1 no.
39.	File warding	15 cm smooth	4 nos.
40.	File knife edge	15 cm smooth	4 nos.
41.	File cut saw	15 cm smooth	2 nos.
42.	File Rounded edge	15 cm smooth	2 nos.
43.	File triangular	15 cm smooth	2 nos.
44.	File round	20 cm second cut	4 nos.
45.	File square	15 cm second cut	4 nos.
46.	File square	25 cm second cut	4 nos.
47.	Feeler gauge	10 blades	1 set
48.	File triangular.	20 cm second cut	4 nos.
49.	File triangular	15 cm second cut.	4 nos.
50.	File flat	30 cm second cut.	4 nos.
51.	File flat	20 cm bastard	4 nos.
52.	File flat	30 cm bastard.	4 nos.
53.	File half round	25 cm second cut.	4 nos.
54.	File Swiss type needle	set of 12.	2 sets
55.	File round	30 cm bastard.	4 nos.
56.	File hand	15 cm second cut.	8 nos.
57.	Card file.		4 nos.
58.	Oil Stone	15 cm x 5 cm x 2.5 cm	4 nos.
59.	Stone carborandum	15 cm x 5 cm x 5 cm x 4 cm.	2 nos.
60.	Oil Can	0.25 litres.	2 nos.
61.	Pliers combination	15 cm	2 nos.
62.	Soldering Iron	350 gm.	2 nos.
63.	Blow Lamp	0.50 liters.	2 nos.
64.	Spanner D.E.	6 -26 mm set of 10 pcs.	2 set.
65.	Spanner adjustable	15 cm	1 nos.
66.	Interchangeable ratchet socket set	with a 12 mm driver, sized 10-32 mm set of 18 socket & attachments.	1 set
67.	Box spanner set	6-25 mm set of 8 with Tommy bar.	1 set
68.	Glass magnifying	7 cm	1 nos.
69.	Clamp toolmaker	5 cm and 7.5 cm set of 2.	2 nos.
70.	Clamp "C"	5 cm	2 nos.
71.	Clamp "C"	10 cm	2 nos.
72.	Hand Reamer adjustable cover	max 9 ,12,18mm – set of 3	1 set

Shipwright Steel

73.	Hand Reamer taper	4 -9mm set of 6 OR 4 -7 mm set of 4.	1 set
74.	Reamer parallel	12 – 16mm set of 5.	1 no.
75.	Scrapeer flat	15 cm.	4 nos.
76.	Scrapeer triangular	15 cm	2 nos.
77.	Scrapeer half round	15cm	2 nos.
78.	Chisel cold	9 mm cross cut	2nos
79.	Chisel cold	19 mm flat	2 nos.
80.	Chisel cold	9 mm round nose.	2 nos.
81.	Stud Extractor EZY – out		2 nos.
82.	Combination	Set 30 cm.	2 nos.
83.	Micrometer	0 – 25 mm outside.	2 nos.
84.	Micrometer inside 25 – 50 mm with extension rods.		1 no.
85.	Vernier caliper	15 cm	2 no.
86.	Vernier height gauges	30 cm.	1 no.
87.	Vernier bevel protractor.		1 no.
88.	Screw pitch gauge.		1 no.
89.	Wire gauge, metric standard.		1 no.
90.	Drill twist Taper Shank	12 mm to 25 mm x 1.5.	1 no
91.	Drill chuck	12 mm.	1 no.
92.	Pipe wrench	40 cm	1 no.
93.	Pipe vice	100mm	1 no.
94.	Adjustable pipe die set cover	pipe size 15, 20, 25,32,38,50 mm with die stock	1 no.
95.	Wheel dresser (One for 4 units).		1 no
96.	Machine vice	10 cm.	1 no.
97.	Machine vice	15 cm.	1 no.
98.	Sleeve drill Morse	0 – 1, 1 – 2, 2 – 3.	1 Set
99.	Vice bench	12 cm jaws.	20 nos.
100.	Vice leg	10 cm jaw.	2 nos.
101.	Lathe tools H.S.S. tipped set.		2 nos.
102.	Lathe tools bit	6 mm x 75 mm.	2 nos.
103.	Lathe tools bit	8 mm x 75 mm.	2 nos.
104.	Lathe tools bit	10 mm x 85mm.	2 nos.
105.	Arm strong type tool bit holder R.H.		2 nos.
106.	Arm strong type tool bit holder L.H.		2 nos.
107.	Arm strong type tool bit holder straight.		2 nos.
108.	Bench working	240 x 120 x 90 cm.	4 nos.
109.	Almirah	180 x 90 x 45 cm.	2 nos.
110.	Lockers	with 8drawers (standard size).	3 nos.
111.	Metal rack	182 x 182 x 45 cm	1 no.
112.	Instructor Table		1+1 no.

113.	Instructor Chair		1 +1no.
114.	Black board with easel.		1 no.
115.	Fire extinguisher (For 4 Units)		2 nos.
116.	Fire buckets.		2 nos.
117.	Machine vice	100mm.	2 nos.
118.	Wing compass	25.4 cm or 30 cm.	2 nos.
119.	Hand hammer	1 kg. with handle.	2 nos.
120.	Torque wrench	14 to 68 Nm	1 no.
121.	Class room Chair		20 nos
122.	Class Room table		20nos
123.	Computer Chair		4+1
124.	Computer Table		4+1
125.	Desktop computer/Lap top with related MS office software		4+1
126.	Discussion Table	8' x 4' x 2½ '	2
127.	First- aid box		As required
128.	Instructional Material – Ref. books		As required
129.	Internet connection with all accessories		As required
130.	Laser printer		1
131.	LCD projector/ LED /LCD TV (42")		1
C : GENERAL MACHINERY INSTALLATIONS			
132.	SS and SC centre lathe (all geared) with Minimum centre height 6"/150 mm & length 4.5"/ 1400 mm along with 3, 4 jaw chuck, auto feed system, coolant arrangement, lightening lamp, taper turning attachment, safety guard & standard accessories.		2 Nos.
133.	Drilling machine pillar sensitive 0-20 mm cap with swivel table motorized with chuck & key.		1 no.
134.	Drilling machine bench sensitive 0-12 mm cap motorized with chuck and key.		2 nos.
135.	D.E. pedestal Grinding machine with 200mm diameter wheels rough and smooth with twist drill grinding attachment.		1 no.
136.	Transformer welding set 150 amps.-		1set

	continuous welding current, with all accessories and electrode holder		
137.	Oxy -acetylene gas welding set equipment with hoses, regulator and other accessories.		1set



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**INFRASTRUCTURE FOR WORKSHOP CALCULATION & SCIENCE AND ENGINEERING
DRAWING**

TRADE: SHIPWRIGHT STEEL

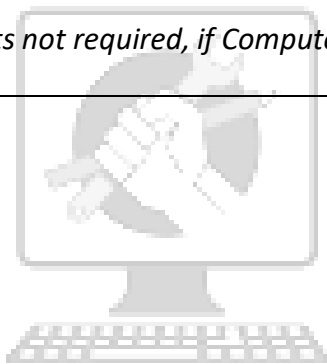
LIST OF TOOLS& EQUIPMENTS FOR -20APPRENTICES

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°	(250 X 1.5 mm)	20+1 set
3.	Set square celluloid 30°-60°	(250 X 1.5 mm)	20+1 set
4.	Mini drafter		20+1 set
5.	Drawing board IS: 1444	(700mm x500 mm)	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.
<i>Note: - Above Tools & Equipments not required, if Computer LAB is available in the institute.</i>		



Skill India
कौशल भारत - कुशल भारत

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													