



**Curriculum
For
Certificate in Ship Breaking
Supervisor
Six Months Duration Course
Code:VJS005
(2013)**

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Curriculum specification for Ship Breaking worker

1. Introduction

The structure of this course

This curriculum comprises 11 modules. The recommended delivery time is 800 hours. Delivery of the course could therefore be full time, 5 days a week, for 6 months. Training providers are at liberty to develop other models of delivery, including part-time and evening delivery.

The full structure of the course is as follow:

Module	Theory¹ Days/ hours	Workplace² Days/ hours	Total hours
Module 1: Introduction Tools and Equipment	16	64	80
Module 2: Safety Precautions	10	24	34
Module 3: Gas Welding Equipment and Accessories	24	92	116
Module 4: Gas Welding and Cutting	24	84	108
Module 5: Design Ship Gate	8	30	38
Module 6: Prepare Deck Platform	8	30	38
Module 7: Disintegrate Larger Pieces	8	30	38
Module 8: Cut Tank	8	60	68
Module 9: Cut Ship Bottom	10	72	82
Module 10: Move Ship by Wench	20	82	102
Module 11: Ensure Safety Precautions	24	72	96

¹ Learning Module hours in training provider premises

² Training workshop, laboratory and on-the-job workplace

The purpose of the Ship Breaking worker course is to engage young people with a programme of development that will provide them with the knowledge, skills and understanding to start career in Pakistan. The course has been developed to address specific issues, such as the national, regional and local cultures, the work force availability within the country, and meeting and exceeding the needs and expectations of their customers.

Central aim of the training provider, trainer or teacher

The aim for the team of staff responsible for delivery of the Ship Breaking curriculum is to develop work related skills through comprehensive action orientation. Action orientation can be understood as the willingness and ability of a student to act in professional, social and private situations appropriate, thoughtfully and in a socially responsible manner.

Teaching staff will support students in developing their willingness and ability, through their technical knowledge and abilities, to solve tasks and problems that are goal-oriented. They will need to use student-centred, practically oriented methods. They will also need to develop a programme of practical assessment that reflects the learning outcomes stated in the curriculum.

Students of the ship breaking curriculum will also develop their willingness and ability as an individual to clarify issues, think through and to assess development opportunities. They will learn to consider requirements and constraints in family, professional and private life and to develop their own talents and future life plans.

Teaching staff will also support students in developing characteristics such as self-reliance, reliability, responsibility, a sense of duty and the willingness and ability to criticize and to accept criticism well and to adapt their future behaviour accordingly.

Teaching also needs to use the Ship Breaking curriculum to address development of social competence. Students need to acquire a willingness and ability to live and shape their own social relationships.

Entry level for Trainees

Middle (Matric Level is recommended).

ALL ENTRANTS SHOULD HOLD A CURRENT MEDICAL CERTIFICATE

Minimum teaching qualification

Teaching staff should have at least G-ii Certificate or three years' experience in the role of Mechanical Supervisor in Ship Breaking yard. They should also hold or be working towards a formal teaching qualification.

Other formal qualifications in the hospitality industry would be useful in addition to the above. Trainers must be competent in Urdu English and numeracy.

Medium of instruction

Instruction will be Urdu and English. It will also be helpful to develop knowledge of Greek terminology for the Shipping industry.

Terminology

This curriculum is for a Ship Breaking. Some organisations may use alternative terms to describe this job role. Training providers should examine the Overview of the Curriculum to determine whether this curriculum meets the needs of potential students.

This curriculum specification also uses the term supervisor to indicate the Ship Breaking's line manager. Organisations are likely to use a range of different terms and this should be interpreted flexibly.

Laws and regulations

- Training providers must ensure they keep up to date with laws, standards and regulations – at both national and regional levels – relating to personal safety, work safety and other relevant issues.
- Factories Act 1934
- West Pakistan Hazardous Occupations Rules 1963
- Provincial Employees Social Security (Occupational Diseases) Regulation 1967
- Workmen Compensation Act 1923 and Rules 1961
- Dock Labourers Act 1934
- Hazard Analysis and Critical Control Points (HACCP)
- Occupational Health and Environmental Safety (OH & ES)

The team of staff responsible for delivery of the Ship Breaking curriculum must familiarise themselves with laws and regulations that relate to their area of teaching and ensure that learners know and understand how to comply with and meet their responsibilities. Learning units will refer to the above list where appropriate.

Suggested distribution of modules

Each module covers a range of learning components. These are intended to provide detailed guidance to teachers (for example the Learning Elements component) and give them additional support for preparing their lessons (for example the Materials Required component). The detail provided by each module will contribute to a standardised approach to teaching, ensuring that training providers in different parts of the country have clear information on what should be taught.

The distribution table is shown overleaf:

Module 1: Introduction Tools and Equipment 80 hours	Module 5: Design Ship Gate 38 hours	Module 10: Move Ship by Winch 102 hours
Module 3: Gas Welding Equipment and Accessories 116 hours	Module 6: Prepare Deck Platform 38 hours	
	Module 8: Cut Tank 68 hours	
	Module 7: Disintegrate larger Pieces 38 hours	
Module 4: Gas Welding and Cutting 108 hours	Module 9: Cut Ship Bottom 82 hours	
Module 2: 96 hours	Safety	Precautions
Module 11: 34 hours	Ensure	Safety Precautions

2. Competency Standard – “SHIP BREAKING”

Definition

Ship Breaking plan, apply, organize, prepare and practice ship breaking. While specific duties vary depending on the type of establishment, it is the ship breaking worker's responsibility to prepare ship pieces and simple cutting that are both guided by supervisor.

Overall objectives of this course

- Know the Ship breaking process
- Selecting tools and equipment used in Ship breaking industry
- Cutting portions and pieces of Ship according to requirement and guided by supervisor
- Checking the pieces size type and quality, during and after breaking process of Ship
- Working safely according to safety rules.
- Transferring and handling of all kinds of fuel oils, lubricants and chemicals.

Competencies gained after completion of the course:

At the end of the course, the Trainee must have attained the following competencies:

- Understand and perform basic mathematical operation and knowledge
- Explain ship breaking process
- Understand layout of ship and breaking process
- Use of tools and equipment of ship breaking yards
- Proficient gas welding and cutting processes and cutting techniques
- Apply personal safety and occupational safety regulations
- Maintain professional standards throughout shift
- Cut larger pieces of ship
- Prepare larger pieces of ship
- Prepare, metal sheets of ship pieces
- Clean workplace and yard equipment and tools
- Identify and pursue new business opportunities in the ship breaking industry
- Knowledge of Ship bunkers, lubricants, chemicals and various stores.

Personal requirements

Ships breaking need the following characteristics:

- A genuine interest in Ship breaking
- A keen sense of vision and smell
- A desire to learn
- Good health
- Hardworking
- Stamina – able to work for long duty and hard work hours in Ship breaking industry
- Able to work as a member of a team

- Willingness to maintain the standard of safety necessary in any workplace environment.

Opportunities for employment and advancement

Ship breaking workers are employed in Ship breaking industry, yards, Ship yard, Steel mills, and institutions. Self-employment by founding an enterprise in this field of activity is possible as well. Some jobs for Ship breaking are seasonal and/or part-time. Experienced Ship breaking may advance through promotions with the same employer or by moving to more advanced positions with other employers. They can become:

- Ground cutter
- Cost cutter
- Ship Cutter
- Ground Supervisor
- Supervisor
- Foreman
- Senior Supervisor
- Ship yard Managers

Some experienced Ship breaking workers achieve a respected level of salaries. There are good prospects for travel both within Pakistan and abroad. The employment outlook in this industry will be influenced by a wide variety of factors including:

- Trends and events affecting overall employment (especially in the Shipping Industry and Breaking yard services industry)
- Employment turnover (work opportunities generated by people leaving existing positions)
- Occupational growth (work opportunities resulting from the creation of new positions that never existed before)
- Size of the industry
- Flexibility of the applicant (concerning location and schedule of work).
- Learn how to coordinate with the ship yard.

3. Teaching and Learning Guide for Ship breaking

The aim of the training is to enable trainee to work independently as well as in team in ship breaking operations.

The trainee will after completion of this programme applies knowledge and demonstrate skills in the practical situation at the work place.

Different methodologies can therefore contribute to achieving this objective. Theory methodologies should be supported by appropriate resources, as indicated in the 'Materials required' column of the Learning Unit specifications. Trainer should also illustrate theory sessions with examples of how the learning could be applied in the workplace. Practical methodologies should be set in an appropriate environment and supported by appropriate resources, also indicated in the 'Materials required' column of the Learning Unit specifications. Methods that directly promote capacity-building for the trainees are essential suitable and therefore should be included appropriately in the teaching approach.

3.1. Module 1: Introduction Tools and Equipment

Objective of the module: The aim of this module is to develop basic knowledge, skills and understanding of tools and equipment to Ship Breaking.

Duration 80 hours **Theory:** 16 hours **Practical:** 64 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU1: Basic Metal Work	The student will be able to: Identify basis metal working tools. Select the suitable tools for the job. Understand basic geometrical shapes. Know measurement of jobs.	Identify, select and use the measuring tools.	2	8	Measuring tool kit	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning: Training workshop OR Access to industry
		Identify, select and use the marking tools.	2	8	Marking tool kit	
		Identify, select and use cutting tools.	4	16	Gas cutter, cutting grinder	
		Identify, selected and use the grinding.	2	8	Abrasive, grinding disc	
		Prepare the selected jobs according to the drawing.	6	24	Drawing tool kit	

3.2. Module 2: Safety Precautions

Objective of the module: The aim of this module is to develop knowledge, skills and understanding of the personal safety, workplace safety and medical first aid.

Duration 96 hours **Theory:** 24 hours **Practical:** 72 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU1: Personal Safety	The student will be able to: Know and explain the personal safety. Apply the personal safety.	Introduction of Personal Safety.	4	10	Gloves, helmet, Goggles, Ear plugs, safety shoes, safety harness belt, hazard sign, first aid, safety precautions, sign marks, fire extinguisher.	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning: Training workshop OR Access to industry
		Know the Personal Safety.	4	10		
		Apply the Personal Safety Rules and Regulations.	2	10		
LU2: Work Safety	The student will be able to: Explain the work safety.	Under the work safety Rules.	4	10	Mention fire category, safety apron, specify type and coding of fire.	
		Explain the safety Rules of Workplace.	4	10		
		Practice the work safety Rules.	2	10		

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU3: Safety Standards	The student will be able to: Explain the safety standard.	Understand the safety standards.	2	4	Safety signs, safety instructions.	
		Explain the safety standards.	1	4		
		Follow the safety standards.	1	4		

3.3. Module 3: Gas Welding Equipment and Accessories

Objective of the module: The aim of this module is to develop knowledge, skills and understanding of the Gas Welding Equipment and Accessories and their proper use..

Duration 116 hours **Theory:** 24 hours **Practical:** 92 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU1: Gas Welding Equipment and Accessories,	The student will be able to: Understand Gas Welding Tools and Equipment Proper use of Gas Welding Tools and Equipment	Understand Gas Welding Tools and Equipment	6	24	Gas Cylinders, Acetylene Generator, Regulators, Hoses with Fittings, Google spark Lighter, Gas Welding and Cutting Torch with nozzles/tips. Oxygen cylinder, electrical welding plant	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning: Training workshop OR Access to industry
		Proper Use of Gas Welding Tools and Equipment	6	24		
		Gas Cylinders and Acetylene Generator, Regulators, Hoses with Fittings, Google spark Lighter, Gas Welding and Cutting Torch with nozzles/tips. Their care and safety rules.	12	44		
		Oxygen cylinder, electrical welding plant				

3.4. Module 4: Gas Welding and Cutting

Objective of the module: The aim of this module is to develop knowledge, skills and understanding of the Gas Welding Equipment and Accessories and their proper use.

Duration 108 hours **Theory:** 24 hours **Practical:** 84 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU1: Gas Welding and Cutting,	The student will be able to: Understand Gas Welding and Cutting. Proper use of Gas Welding and Cutting	Understand Gas Welding and Cutting. Practice of Gas Welding and Cutting	8	28	Gas Cylinders, Acetylene Generator, Regulators, Hoses with Fittings, Google spark Lighter, Gas Welding and Cutting Torch with nozzles/tips. Oxygen cylinder, electrical welding plant, welding and cutting checklist.	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning: Training workshop OR Access to industry
LU2: Welding Joints and Positions	The student will be able to: Explain the Welding Joints and Positions.	Understand Type of Welding Joints. Explain the Welding Joints. Practice the Welding Joints.	8	28	Butt joint, lap joint, T joint, Edge joint, Corner joint	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning:

Learning Unit	Learning Outcomes	Learning Elements	Duration Th Pr		Materials Required	Learning Place
					Training workshop OR Access to industry	
LU3: Welding and Cutting Techniques	The student will be able to: Understand the Welding and Cutting Techniques. Practice the Welding and Cutting Techniques.	Understand the Welding and Cutting Techniques, Fore Hand, Back Hand Welding, Flame Cutting Process, Free Hand Cutting, Guide Bar Cutting, Curve Cutting and Circular Cutting.	8	28	Horizontal welding, vertical welding, flat welding, overhead welding	

3.5. Module 5: Design Ship Gate

Objective of the module: The aim of this module is to develop knowledge, skills and understanding of the Designing of Ship Gate.

Duration 38 hours **Theory:** 8 hours **Practical:** 30 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU1: Understand Work Information	The student will be able to: Understand and Read the Work Information Sheet guided by shift incharge Explain the Work Sheet Information	Understand the Work Information Sheet	1	5	Drawing board, ruler, set square, T scale information sheet, work sheet	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning: Training workshop OR Access to industry
		Proper Use of Work Information Sheet.	1	5		
LU2: Plan the Gate Cutting	The student will be able to: Sketch and Understand the Gate Cutting Drawing guided by shift incharge	Sketch and Understand the Gate Cutting Drawing guided by shift incharge.	2	5	Drawing board, ruler, set square, T scale information sheet, work sheet	
		Select proper Tools and Equipment	1	3		
		Practice the Gate Sketch and Layout.	1	4		

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU3: Cut Gate	The student will be able to: Select the proper tools and equipment for Gate Cutting. Select the proper torch and nozzles for Gate Cutting and Check Gas pressure	Select the proper tools and equipment for Gate Cutting. Select the proper torch and nozzles for Gate Cutting Check Gas pressure	1 1	4 4	Sample gate, welding and cutting equipments, welding checklist, safety equipments, safety checklist	

3.6. Module 6: Prepare Deck Platform

Objective of the module: The aim of this module is to develop knowledge, skills and understanding and preparation of Deck Platform.

Duration 38 hours **Theory:** 8 hours **Practical:** 30 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU1: Draw Layout of Deck Platform	The student will be able to: Understand and Explain the Sketch of Deck Platform Draw the layout of Deck Platform Measurement of Deck Platform Cutting Points Select proper tools and equipment.	Understand and Explain the Sketch of Deck Platform Draw the layout of Deck Platform Measurement of Deck Platform Cutting Points Select proper tools and equipment.	1 1	5 5	Drawing board, ruler, set square, T scale information sheet, work sheet	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning: Training workshop OR Access to industry
LU2: Plan Deck Platform	The student will be able to: Sketch and Understand the Deck Platform Cutting Drawing guided by the Supervisor.	Sketch and Understand the Deck Platform Cutting Drawing guided by the Supervisor. Select proper Tools and Equipment Practice the Deck Platform Sketch and Layout.	2 1 1	5 3 4	Drawing board, ruler, set square, T scale information sheet, work sheet	

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU3: Cut Deck Platform	The student will be able to: Select the proper tools and equipment for Deck Platform Cutting. Select the proper torch and nozzles for Deck Plate for Cutting Check Gas pressure	Select the proper tools and equipment for Deck Platform Cutting. Select the proper torch and nozzles for Deck Platform Cutting Check Gas pressure	1	4	Sample gate, welding and cutting equipments, welding checklist, safety equipments, safety checklist	

3.7. Module 7: Disintegrate Larger Pieces

Objective of the module: The aim of this module is to develop knowledge, skills and understanding the Disintegration Larger Pieces.

Duration 38 hours **Theory:** 8 hours **Practical:** 30 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU1: Identification of Large Pieces	The student will be able to: Understand and Explain the Identification of Large Pieces. Measurement before Cutting Mark Cutting Points Disjoint the Welded Pieces Select proper tools and equipment.	Understand and Explain the Identification of Large Pieces. Measurement of Large Pieces. Cutting Points Perform Cleaning of Pieces. Select proper tools and equipment.	2	6	Ship drawing, drawing tool kit, wire brush. Abrasives, rust removal, chipping hammer, chisels, cleaning liquids	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning: Training workshop OR Access to industry

<p>LU2: Maintain Balance</p>	<p>The student will be able to: Design the Gala guided by shift incharge. Make the Gala guided by shift incharge. Maintain the balance by Wench guided by shift incharge.</p>	<p>Design the Gala guided by shift incharge. Make the Gala guided by shift incharge. Maintain the balance by Wench guided by shift incharge. Safe handling of larger pieces.</p>	<p>2 2 1</p>	<p>8 6 4</p>	<p>Chain block, drawing tool kit, wire ropes, shackles, measurement tool kit, relevant safety checks, relevant lifting gears</p>	
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Module 8: Cut Tank

Objective of the module: The aim of this module is to develop knowledge, skills and understanding of Tank Cutting.

Duration 68 hours **Theory:** 8 hours **Practical:** 60 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU1: Identification of Tank	The student will be able to: Understand and Explain the kinds of Tank. Ensure proper cleaning of Tanks Measurement before Cutting Mark Cutting Points Design Gala Make Gala Perform final Cutting	Understand and Explain the Kinds of Tank. Cutting Points Perform Cleaning of Pieces. Select proper tools and equipment.	4 3 1	24 32 4	Gas detector, self contained breathing apparatus, first aid box, communication devices, marking tools, measuring tools, drawing tools, cleaning apparatus, safety devices, gas cutting equipments.	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning: Training workshop OR Access to industry

3.8. Module 9: Cut Ship Bottom

Objective of the module: The aim of this module is to develop knowledge, skills and understanding the Cut Ship Bottom.

Duration 82 hours **Theory:** 10 hours **Practical:** 72 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU1: Identification of Pieces	The student will be able to: Understand and Explain the Identification of Pieces. Measurement before Cutting Mark Cutting Points Design Gala Make Gala Perform final Cutting	Understand and Explain the Identification of Pieces. Cutting Points Select proper tools and equipment.	4 4 2	40 24 8	Gas detector, self contained breathing apparatus, first aid box, communication devices, marking tools, measuring tools, drawing tools, cleaning apparatus, safety devices, gas cutting equipments.	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning: Training workshop OR Access to industry

3.9. Module 10: Move Ship by Wench

Objective of the module: The aim of this module is to develop knowledge, skills and understanding the Movement of Ship by Wench

Duration 102 hours **Theory:** 20 hours **Practical:** 82 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU1: Take direction of shift incharge.	The student will be able to: Understand the given direction. Follow the direction. Ensure attachments of Winch Maintain Speed Maintain Balance Operate Winch	Understand the direction Proper Use of direction. Maintain Speed Maintain Balance Winch operation	2 4 4 2 8	8 16 16 10 32	Layout drawing, sketches of land marks and important signs, chains sling wires, power sources, relevant safety instructions, brakes, drain tubes, shackles, bottle screw.	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning: Training workshop OR Access to industry

3.10. Module 11: Ensure Safety Precautions

Objective of the module: The aim of this module is to develop knowledge, skills and understanding and Ensure Safety Precautions.

Duration 34 hours **Theory:** 10 hours **Practical:** 24 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration		Materials Required	Learning Place
			Th	Pr		
LU1: Apply Personal Safety	The student will be able to: Know and explain the personal safety. Apply the personal safety. Know and explain work safety. Apply work safety. Explain safety standard	Introduction of Personal Safety.	2	6	Gloves, helmet, Goggles, Ear plugs, safety shoes, safety harness belt, hazard sign, first aid, safety precautions, sign marks, fire extinguisher.	For theoretical learning: Class room with multimedia aid, audio-visual facilities and flip charts For practical learning: Training workshop OR Access to industry
		Knowledge of Personal Safety.	3	6		
		Apply the Personal Safety Rules and Regulations.	2	6		
		Knowledge and understanding of work safety rules.	3	6		
		Application of work safety rules	2	6		
		Knowledge and understanding of safety standards.				
		Application of safety standards	3	6		

4. General assessment guidance for the Ship Breaking Curriculum

Good practice in Pakistan makes use of sessional and final assessments, the basis of which is described below. Good practice by vocational training providers in Pakistan is to use a combination of these sessional and final assessments, combined to produce the final qualification result.

Sessional assessment is going on all the time. Its purpose is to provide feedback on what students are learning:

- to the trainee: to identify achievement and areas for further work
- to the trainer: to evaluate the effectiveness of teaching to date, and to focus future plans.

Assessors need to devise sessional assessments for both theoretical and practical work. Guidance is provided in the assessment strategy

Final assessment is the assessment, usually on completion of a course or module, which says whether the trainee has "passed" or not.

Methods of assessment

For lessons with a high quantity of theory, written or oral tests related to learning outcomes and/ or learning content can be conducted. For workplace lessons, assessment can focus on the quality of planning the related process, the quality of executing the process, the quality of the product and/or evaluation of the process.

Methods include direct assessment, which is the most desirable form of assessment. For this method, evidence is obtained by direct observation of the student's performance.

Indirect assessment is the method used where the performance could not be watched and evidence is gained indirectly.

Indirect assessment should only be a second choice. (In some cases, it may not even be guaranteed that the work products were produced by the person being assessed.)

Planning for assessment

Sessional assessment: assessors need to plan in advance how they will conduct sessional assessments for each module. The tables on the following pages are for assessors to use to insert how many hours of theoretical and practical assessment will be conducted and what the scheduled dates are.

Final assessment: Training providers need to decide ways to combine modules into a cohesive two-day final assessment programme for each group of five trainees. Training providers must agree the jobs for practical assessments in advance.

Tools and equipment

1.

S.No.	Items	Quantity
1	Steel measuring rule 30 cm	
2.	Measuring steel tape 3 m	
3.	Measuring tape 30 m	
4.	Spirit level 12"	
5.	Work bench	
6.	Hammer ball pen 500 mg	
7.	Hammer cross pen 500 mg	
8.	Hammer 1000 mg	
9.	Sledge hammer 8000 mg	
10.	Hand hacksaw	
11.	Outside caliper	
12.	Inside calliper	
13.	File set	
14.	Try square	
15.	Combination pliers 8"	
16.	Open hand spanner set	
17.	Screw driver set	
18.	Adjustable screw wrench 8" 12"	
19.	Anvil with stand	
20.	Allen key set	
21.	Hand share	
22.	Blow lamp kerosene oil	

23.	Chisel set	
24.	Centre punch set	
25.	Twist drill set 25 pieces (3-13mm)	
26.	Hand vice	
27.	Tape and die (6-12mm)	
28.	Line scribe	
29.	Vernier calliper	
30.	Angle plate	
31.	Safety goggle	
32.	Pedestal drill machine	
33.	Hand drill machine	
34.	Power saw	
35.	Bench share	
36.	Hand disc grinder 7"	
37.	Hand disc grinder 4"	
38.	Gas welding working stations	
39.	Cylinder for oxygen	
40.	Cylinder for acetylene	
41.	Regulator oxygen	
42.	Regulator acetylene	
43.	Flash back arrester acetylene	
44.	Flash back arrester oxygen	
45.	Hose pipe oxygen	
46.	Hose pipe acetylene	
47.	Oxy-acetylene welding and	

	cutting set (injector type) complete with tip cleaner needles	
48.	Steel table with fire bricks top	
49.	Spark lighter	
50.	Welding goggles	
51.	Burner pliers	
52.	Welding Tong	
53.	Stool	
54.	Table for gas cutting	
55.	Pneumatic tools	
56.	Chain blocks	
57.	Hydraulic jacks	

Fire, first aid and safety equipment

4 example copy of personal safety guidelines

4 example copy of workplace standards

4 set of fire equipment, including the provision of fire exits, fire doors, fire extinguishers, alarm systems, emergency lighting, fire safety and exit signs

1 set of first aid equipment: personal safety plasters, in a variety of different sizes and shapes; small, medium and large sterile gauze dressings; sterile eye dressings; triangular bandages; crêpe rolled bandages; safety pins; disposable sterile gloves; scissors; alcohol-free cleansing wipes; tape; distilled water, for cleaning wounds and as an eye bath

1 example copy of logbooks for recording accidents and incidents

Uniform (may be purchased by Trainees)

Jeans dress of welders (trousers & shirt combine)

Helmet (

Welder shoes or boots

Welding gloves

Safety Goggles'

5. List of consumable supplies

6. CONTRIBUTIONS FOR DEVELOPMENT OF THIS CURRICULUM

DACUM Working Group

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