JOB SPECIFICATON

AND

SKILL TEST

JOB TITLE : **Structural Fabricator, L-2 (2G, 3G & 2F, 3F)**

SECTOR : **Mechanical Engineering**

SUB-SECTOR : **Fabricating/Welding**

COUNCIL FOR TECHNICAL EDUCATION AND VOCATIONAL TRAINING

NATIONAL SKILL TESTING BOARD

MADHYAPUR THIMI -17, SANOTHIMI, BHAKTAPUR, NEPAL

2002 (2058/059)

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Approved by the Tripartite National Skill Testing Board.

2002 (2058/059)

JOB SPECIFICATION	
1	**JOB TITLE : Structural Fabricator** **LEVEL** : 2
2	**<u>JOB DESCRIPTION</u>:** Ascertains job requirements, sequence and procedure for preparation of materials, tools, equipment and production of welds from drawing/other specifications for structural unit less than one tone. Selects and operates appropriate fabricating equipment such as cutting torch, portable arc equipment and acetylene/oxygen welding torch. Cuts trims and shape material using electrical/manual cutting/shaping tools. Positions and secures parts to be welded, using jigs and fixtures as necessary performs flat and vertical ascending and descending welding process. Performs thread cutting, cleans and smooth welds and examines visually.
3	**LIST OF TASKS:** 1. Preparing materials, tools and equipment. 2. Marking and measuring for cutting, drilling, grinding, welding and forming. 3. Cutting structural steel by gas flame. 4. Drilling structural steel. 5. Grinding structural steel for edge preparation. 6. Laying/positioning the components for joining processes. 7. Welding structural steel including vertical ascending and descending and horizontal welding process. 8. Fastening the components. 9. Finishing the product quality assurance.
4	**QUALIFYING NOTES (entry requirement etc.)** **PHISICAL REQUIREMENTS:** Normal Health. **EDUCATIONAL REQUIREMENTS:** Understand specifications and interprets manufacturer’s or workshop manual.

	TASK SPECIFICATION
5	**TASK NO: 1** **. Preparing materials, tools and equipment** **JOB TITTLE:: Structural Fabricator, L-2**
6	**TASK ELEMENTS:** 1.1 Receives instructions and interprets accordingly. 1.2 Uses protective clothing. 1.3 Selects/uses measuring and marking tools and instruments. 1.4 Selects materials for fabrication. 1.5 Measures, marks out and cuts off stock. 1.6 Carries out correcting activities. 1.7 Pre-sets and clamps materials for future operation. 1.8 Cleans used tools and working area.

	TASK SPECIFICATION
7	**TASK PERFORMANCE REQUIREMENTS** Complete drawing/instruction, measuring tape, steel ruler 300m, set square, scriber, pieces of chalk, various structural steel section including angle iron, channels, round bars (section thickness 3mm and above) mild steel pipes of various diameters and thickness (Plain and galvanized), working bench, vice, stock, anvil, centre punch, chisel, pliers, C-clamp, power hacksaw, oxy-acetylene gas cutting equipment set, bench shear, hacksaw, pipe cutter, power shear, arc welding machine for arc cutting, bevel protractor, square, inside and outside calliper, bench hammer, various sizes/types of tongs.
8	**TASK PERFORMANCE STANDARDS** Fabricator dressed in appropriate safety clothing. Measuring and marking instruments selected and used without damage. Specified materials selected (damaged material rejected) Measured, marked out and cut off from the stock specified within ± 1mm. Material straightened/file/ground as required. Materials securely clamped and positioned for further operation that is, marking, punching etc. Used tools and working area cleaned and returned to specified place.

9	10	TASK TRAINING DATA			
TASK NO:	**T. E. No.**	**TECHNICAL KNOWLEDGE**	**APPLIED CALCULATION**	**GRAPHIC INFORMATION**	**SAFETY & HYGENE**
1	1 2 3 4 5	Knowledge and use of measuring and marking instruments such as measuring tape, steel ruler, set square, scriber etc. Knowledge of achieving dimensions, symbols and other requirements specified on drawings (Orthographic three view/prospective). Knowledge of weldable materials: Mild steel, cast iron, stainless steel. Knowledge of marking out methods. Knowledge and use of drawing tools such as pencil, compass, ruler, set square, sketching, drawing for given work piece. Knowledge of pre setting and clamping materials procedures for further operation.	Use of 1/10 mm, cm, and meter system. Calculates material quantities. Multiplication, addition, subtraction and division.	Read drawing to determine and select materials.	First aid practicing and reporting. Safety rules and regulation concerning the placement and observation of safety signs.

	TASK PERFORMANCE TEST (SKILL ASSESSMENT)		
11	**TASK TITLE : Preparing materials, tools and equipment** **TASK NO : 1**		**LO1CATION OF TEST :** **CANDIDATE'S NAME :** **EVALUATORS NAMES:**
12	**TEST FACTORS AND ITEMS**	**STANDARD MET**	**STANDARD NOT MET (Comments)**
	DID THE CANDIDATE ? 1.1 Dress in appropriate safely clothing. 1.2 Select/use measuring and marking out tools and instruments without damage. 1.3 Select the materials as specified. 1.4 Reject the damaged materials. 1.5 Measure, mark out and cut off from the stock as specified within+- mm. 1.6 Straighten, file, ground material as required. 1.7 Clamp and position materials securely for further operation i.e. marking, punching etc. 1.8 Clean used tools, working area and return tools to the specified place. 1.9 Complete the test within specified time.		

TASK SPECIFICATION	
5	**TASK NO: 2** **Marking and measuring for cutting, drilling, grinding, welding and forming** **JOB TITTLE: Structural Fabricator, L-2**
6	**TASK ELEMENTS:** 1 Receives instructions and interprets accordingly. 2 Dons protective clothing. 3 Selects/uses measuring and marking instruments. 4 Measures and marks out materials for cutting operation. 5 Measures and marks out materials for drilling operation. 6 Measures and marks out materials for grinding operation. 7 Measures and marks out materials for forming and welding operation. 8 Cleans uses instruments.

	Task Specification
7	**TASK PERFORMANCE REQUIREMENTS** **Drawing/instructions, measuring tape, steel ruler 300mm, set square, scriber, pieces of chalk, various structural steel section, protractor, centre punch, adjustable bevel protractor, vernier calliper, surface plate, surface gauge, divider.**
8	**TASK PERFORMANCE STANDARDS** **Fabricator dressed in appropriate safety clothing. Measuring and marking instruments selected and used without damage. Materials for drilling operation measured and marked our as specified within ± 0.5 mm. Materials for cutting, grinding, forming and welding operation measured and marked out as specified within +- 1mm. Used instruments cleaned and returned to specified place.**

9	10	TASK TRAINING DATA			
TASK NO:	**T. E. No.**	**TECHNICAL KNOWLEDGE**	**APPLIED CALCULATION**	**GRAPHIC INFORMATION**	**SAFETY & HYGENE**
1	1	Knowledge and use of measuring and marking out instruments such as measuring tape, steel ruler, set square, scriber, protractor, adjustable bevel protractor, vernier calliper, surface gauge, surface plate, centre punch etc.	Use of 1/10 mm, cm, and meter system.	Reading drawing to determine and select materials.	First aid practicing and reporting. Hazard involved in sharp scriber.
	2	Knowledge and methods of measuring and marking out materials for cuttig operation.			
	3	Knowledge and methods of measuring and marking out materials for drilling operation.			
	4	Knowledge and methods of measuring and marking out materials for grinding operation.			
	5	Knowledge and methods of measuring and marking out materials for forming and welding operation.			
	6	Knowledge of cleaning methods for used instruments.			

	TASK PERFORMANCE TEST (SKILL ASSESSMENT)		
11	**Marking and measuring for cutting, drilling, grinding, welding and forming.** **TASK NO : 2**		**LOCATION OF TEST :** **CANDIDATE'S NAME :** **EVALUATORS NAMES:**
12	**TEST FACTORS AND ITEMS**	**STANDARD MET**	**STANDARD NOT MET (Comments)**
	DID THE CANDIDATE ? 1 Dress in appropriate safety clothing. 2 Select/use appropriate measuring and marking out instruments without damage. 3 Measure and mark out materials for drilling, operation as specified within ±0.5 mm. 4 Measure and mark out materials for cutting, grinding, welding and forming operation as specified within ± 1 mm. 5 Clean used tools, working area and return tools to the specified place. 6 Complete the test within specified time.		

TASK SPECIFICATION	
5	**TASK NO: 3** Cutting structural steel by gas flame **JOB TITTLE: Structural Fabricator, L- 2**
6	**TASK ELEMENTS:** 1 Receives verbal/written instructions. 2 Dons protective clothing. 3 Selects and checks gas flame cutting equipment. 4 Assembles gas flame cutting equipment. 5 Prepares and adjusts gas flame cutting equipment. 6 Mounts and adjusts guide on cutting nozzle. 7 Sets up work. 8 Adjusts cutting gas flame. 9 Performs cutting operation. 10 Cools the cutting nozzle during operation. 11 Closes the gases. 12 Cleans used instruments.

	TASK SPECIFICATION
7	**TASK PERFORMANCE REQUIREMENTS** Drawing/sketch, one set of gas cutting equipment, (incl. regulator, hoses, hose, clamps, back fire valves, spark lighter), acetylene oxygen wagon, cutting handle/nozzle, screwdriver, adjustable slide wrench, gas welding goggles, welding table, steel ruler, measuring tape 2000mm, leather apron, blacksmiths tongs, mild steel, vice, C-clamp, wire brush, bench hammer, chisel, cutting guides (circular and linear), nozzle tip cleaner.
8	**TASK PERFORMANCE STANDARDS** Fabricator dressed in appropriate safety clothing. Flame cutting equipment selected and checked as specified. Damaged items rejected. All items attached. Clamped and tightened with appropriate torque to corresponding parts. Appropriate working pressure adjusted. Required guides installed and adjusted. Work clamped to allow the flame cutting operation. Appropriate valve controls manipulated in correct sequence. Cutting flame adjusted as required. Cutting operation performed as specified. Cutting nozzle cooled during cutting operation. Gases closed and shut down procedures followed. Tolerance: ❖ Make cuts within an accuracy of ± 2mm of the scribed line. ❖ Flame to metal distance: 1.5 mm maintained. ❖ Surface tolerance after cutting; sharp edge tapered, bottom edge with square to the face, smooth surface with slight drag lines only, oxide removed ❖ Other tolerance, cutting angle and speed as given.

9	10	TASK TRAINING DATA			
TASK NO:	**T. E. No.**	**TECHNICAL KNOWLEDGE**	**APPLIED CALCULATION**	**GRAPHIC INFORMATION**	**SAFETY & HYGENE**
1	1 2 3 4 5 6 7 8 9 10	Knowledge and use of gas flame cutting equipment. Knowledge of assembling gas flame cutting equipment. Knowledge of function and types of cutting nozzle. Knowledge of types of flame. Knowledge of assembling procedures of gas flame cutting equipment. Knowledge of adjusting flame. Knowledge of mounting and adjusting guide on cutting nozzle. Knowledge of cooling cutting nozzle. Knowledge of closing the gases. Knowledge of cleaning methods for used instruments.		Reading drawing to determine and select materials.	First aid practicing and reporting. Action in case of back fire. Hazards involved in cutting gas flame.

	TASK PERFORMANCE TEST (SKILL ASSESSMENT)		
11	**TASK TITLE : Cutting structural steel by gas flame.** **TASK NO : 3**		**LOCATION OF TEST :** **CANDIDATE'S NAME :** **EVALUATORS NAMES:**
12	**TEST FACTORS AND ITEMS**	**STANDARD MET**	**STANDARD NOT MET (Comments)**
	DID THE CANDIDATE ? 1 Dress in appropriate safety clothing. 2 Select/check the gas flame cutting equipment as specified. 3 Reject the damaged materials. 4 Attach, clamp and tighten with appropriate torque all items to corresponding parts. 5 Adjust appropriate working pressure. 6 Adjust/install the required guide. 7 Clamp the work as required to allow gas flame cutting operation. 8 Manipulating the valve control in correct sequence. 9 Adjust the flame as required. 10 Perform cutting within an accuracy of ± 2mm of the scribed line. 11 Maintain tip to metal distance 1.5 mm. 12 Cool the cutting nozzle during cutting operation. 13 Close the gases. 14 Produce the work with sharp edge tapered, button edge with square to the face, smooth surface with slight drag lines and oxideless. 15 Complete the test within specified time. 16 Clean used tools, working area and return tools to the specified place. 17 Complete the test within specified time.		

TASK SPECIFICATION

5	**TASK NO: 4** Drilling structural steel. **JOB TITTLE: Structural Fabricator, L-2**
6	**TASK ELEMENTS:** 1 Receives verbal/written instructions. 2 Dons protective clothing. 3 Selects, prepares, measures, and marks the materials to be drilled. 4 Selects and clamp the drills. 5 Selects and sets speed. 6 Adjusts working table, guide, stops safety guards. 7 Ensures for adequate and appropriate coolant 8 Clamps, fastens and positions the work for drilling operation. 9 Operates control to feed drill, adds coolant on drills. 10 Checks accuracy of drilling. 11 Repositions materials, changes drills and resets speeds. 12 Deburrs and cleans drilled work.

	TASK SPECIFICATION
7	**TASK PERFORMANCE REQUIREMENTS** Drawing/sketch, electrical pillar/bench drilling machine with adjustable/radial arm drilling machine, chuck key, chalk up to 10mm bits capacity, one set of HSS drill bit (3 – 10mm), table vice, G- clamp, coolant fluid (unmixed), vernier calliper, steel ruler, one pair of safety goggles, marking gauge and surface plate, files medium range 10", Material as specified.
8	**TASK PERFORMANCE STANDARDS** Fabricator dressed in appropriate safety clothing. Specified materials selected, deburred and sharp edge removed. Measured and marked within ± 0.5mm. Appropriate drill selected and clamped. Appropriate speed selected and set. Working table, guide, stops, safety guards adjusted to appropriate level. Coolant mixed in correct ratio and applied to prevent over heating. Work for drilling operation clamped, fastened and positioned as specified. Correct selected and operated of controls. Coolant directed on drills. Drilled work measured. Speed and drills reset and changed as required without damage. All drilled holes deburred. Drilled work cleaned and returned tools and equipment to specified place. ➢ Drilled holes within tolerance of 1mm position ➢ Size as specified.

9	10	TASK TRAINING DATA			
TASK NO:	**T. E. No.**	**TECHNICAL KNOWLEDGE**	**APPLIED CALCULATION**	**GRAPHIC INFORMATION**	**SAFETY & HYGENE**
1	1 2 3 4 5 6 7 8 9 10	Knowledge and use of tools and equipments. Knowledge and methods of selecting, preparing, measuring and marking out for drilling operation. Knowledge of types of drill bits and selecting and clamping drill bits. Knowledge of setting speed. Knowledge of adjusting procedure of working table, guide, stops and safety guards. Knowledge of types and function of coolants. Knowledge of clamping fastening and positioning the work for drilling operation. Knowledge of operating controls to feed drill. Knowledge of drburring of drilled work Knowledge of maintenance (following manufacturer's manual.)	Use of 1/10 mm, cm, and meter system.	Reading drawing to determine and select materials.	First aid practicing and reporting. Hazard involved in sharp scriber.

	TASK PERFORMANCE TEST (SKILL ASSESSMENT)		
11	**TASK TITLE : Drilling structural steel** **TASK NO : 4**		**LOCATION OF TEST :** **CANDIDATE'S NAME :** **EVALUATORS NAMES:**
12	**TEST FACTORS AND ITEMS**	**STANDARD MET**	**STANDARD NOT MET (Comments)**
	DID THE CANDIDATE ? 1 Dress in appropriate safety clothing. 2 Select the specified materials. 3 Deburr and remove sharp edges. 4 Measure and mark within ± 0.5mm. 5 Select and clamp the appropriate drill as required. 6 Select and set the appropriate speed, drill according to specification. 7 Adjust working table, guide, stops, and safety guards to appropriate level. 8 Apply adequate coolant to prevent over heating. 9 Clamp, fasten, and position the work for drilling operation as specified. 10 Drill holes within ± 1mm of located point. 11 Add coolant to drill. 12 Measure drilled work. 13 Reset and change speed and drill as required. 14 Deburr all drilled holes. 15 Clean the drilled work and return tools and equipment to specified place. 16 Complete the test within specified time.		

TASK SPECIFICATION

5	**TASK NO: 5** Grinding structural steel for edge preparation. **JOB TITTLE: Structural Fabricator, L-2**
6	**TASK ELEMENTS:** 1 Receives verbal/written instructions. 2 Dons protective clothing. 3 Selects, prepares. measures, and marks the materials to be grinded. 4 Adjusts tool rest and safety guards. 5 Ensures for adequate coolant. 6 Performs required grinding operation. 7 Checks accuracy of grinding.

	TASK SPECIFICATION
7	**TASK PERFORMANCE REQUIREMENTS** Drawing/sketch, electrical pedestal grinding machine with tool rest, adjustable spanner, steel ruler, one container for coolant water, one pair of safety goggles, set square, one adjustable bevel protractor, materials as specified.
8	**TASK PERFORMANCE STANDARDS** Fabricator dressed in appropriate safety clothing. Tool rest adjusted to 2mm distance between rest and stone. Container filled with coolant water. Work did not overheat specified grinding. Eye protective used. <u>Note:</u> In case of using portable grinder, work piece clamped securely, appropriate grinding disk selected and tightened, related safety precaution observed.

9	10	TASK TRAINING DATA			
TASK NO:	**T. E. No.**	**TECHNICAL KNOWLEDGE**	**APPLIED CALCULATION**	**GRAPHIC INFORMATION**	**SAFETY & HYGENE**
5	1 2 3 4	Knowledge of adjusting tool rest to proper limits, including use of stone wheel, dresser tool, change of grinding stone, their build up and coarseness. Knowledge of precaution for not overheating i.e. cutting/hardened tools while grinding. Knowledge and use of measuring tools and bevel protractor. Knowledge and use of portable grinding machine/angular grinding machine.	Reading and computation of units for linear and angular measurement.		First aid practicing and reporting. Hazards involved in using electrical grinding machine, pedestal or portable. Use of safety goggles. Hazards if spark hit personal and inflammable materials.

	TASK PERFORMANCE TEST (SKILL ASSESSMENT)		
11	**TASK TITLE : Grinding structural steel for edge preparation.** **TASK NO : 5**		**LOCATION OF TEST :** **CANDIDATE'S NAME :** **EVALUATORS NAMES:**
12	**TEST FACTORS AND ITEMS**	**STANDARD MET**	**STANDARD NOT MET (Comments)**
	DID THE CANDIDATE ? 1 Dress in appropriate safety clothing. 2 Select the specified materials. 3 Select, prepare, measure and mark materials to be grinding. 4 Adjust the tool rest making the distance between tool rest and grinding wheel 2mm. 5 Fill the container with coolant water. 6 Prevent overheating. 7 Perform specified grinding. 8 Use eye protective equipment provided. 9 Complete the test within specified time.		

TASK SPECIFICATION	
5	**TASK NO: 6** Laying/positioning the components for joining processes. **JOB TITTLE: Structural Fabricator, L-2**
6	**TASK ELEMENTS:** 1. Receives verbal/written instructions. 2. Dons protective clothing. 3. Prepares laying diagram (paper, floor). 4. Prepares fastening components on the super structure. 5. Transports the components and positions for joining.

	TASK SPECIFICATION
7	**TASK PERFORMANCE REQUIREMENTS** Try square, chalk, measuring tape, taps and dies, sprit level, protractor, flat files, lifting machine, rope and slings.
8	**TASK PERFORMANCE STANDARDS** Fabricator dressed in appropriate safety clothing. Diagram drawn on the floor as specified. Working sketches made on the proper as specified. The fastening component on the super structure threaded or flange prepared for welding as specified. The component carried or lifted to the position safely. The component positioned to the super structure as specified.

9	10	TASK TRAINING DATA			
TASK NO:	**T. E. No.**	**TECHNICAL KNOWLEDGE**	**APPLIED CALCULATION**	**GRAPHIC INFORMATION**	**SAFETY & HYGENE**
6	1 2 3 4	Knowledge for importance laying diagram. Importance and use of working sketches. Knowledge of kinds of binding components on the super structure. Preparing threads and flanges for joining processes in super structure. Knowledge of lifting heavy components and positioning. Knowledge of importance of alignment horizontally and vertically. Knowledge of methods of alignment.		Knowledge of interpretation of orthographic drawing of structural components. Knowledge of developing sketches and layouts.	First aid practicing and reporting. Importance of using safety clothing. Hazards involved in lifting heavy objects.

	TASK PERFORMANCE TEST (SKILL ASSESSMENT)		
11	**TASK TITLE : Laying/positioning the components for joining process.** **TASK NO : 6**		**LOCATION OF TEST :** **CANDIDATE'S NAME :** **EVALUATORS NAMES:**
12	**TEST FACTORS AND ITEMS**	**STANDARD MET**	**STANDARD NOT MET (Comments)**
	DID THE CANDIDATE ? 1. Dress in appropriate safety clothing. 2. Draw the diagram on the floor as specified. 3. Draw the working sketch as specified. 4. Thread component of super structure or make the flange as specified. 5. Carry/lift the component as specified. 6. Position the component as specified.		

TASK SPECIFICATION	
5	**TASK NO: 7** Welding structural steel including vertical ascending and descending and horizontal welding processes.(2G, 3G and 2F,3F). **JOB TITTLE: Structural Fabricator, L-2**
6	**TASK ELEMENTS:** 1. Receives verbal/written instructions. 2. Dons protective clothing. 3. Selects appropriate arc welding equipment. 4. Sets appropriate amps. 5. Connects and clamps earth and welding cables. 6. Selects and clamps appropriate electrodes. 7. Prepares joints for welding. 8. Pre-sets work and tack welds. 9. Clamps, fastens and positions the work for vertical ascending and descending and horizontal welding operation performs welding(2G, 3G and 2F, 3F) 10. Cleans and checks welded works. 11. Switches off arc welding machine and cleans welding work areas. 12. Prepares welding equipment for oxy-acetylene gas welding. 13. Mounts gas welding equipment. 14. Selects appropriate filler materials. 15. Performs gas welding.

	TASK SPECIFICATION
7	**TASK PERFORMANCE REQUIREMENTS** Welding transformer, chipping hammer, wire brush, hammer, helmet, welding goggles, mask, leather apron, hand gloves, leg guards, oxy-acetylene gas welding equipment set, igniters, skulls, G-clamp, welding table, pedestal/bench grinder machine, steel ruler, welding gauge, protractor, chalk, MS plate and pipes, GI pipes of different sizes, standard structural steel section.
8	**TASK PERFORMANCE STANDARDS** Fabricator dressed in appropriate safety clothing. Appropriate amps, materials, tools, electrode and filler rod selected as specified. **Visual inspection of welds conforms to the following standard where applicable for arc welder:** • All slag, fume spray and droplets removed. • Amount of beads as required and specified. • Profile of weld uniform. • Butt join weld fully penetrated. • Reinceforcement of butt welds blended smoothly with parent metal. • Under cut maximum 0.5 mm in case of fillet weld, 30% of total length. • Under cut maximum 0.25mm in case of butt weld, 30% of total length. • Surface of weld free from cracks, cavities, porosity and trapped slag. • Joint where weld has been stopped and restarted showing no pronounced crater of hump on welded surface. • **For oxy-acetylene gas welding:** • Weld must be cleaned completely. • Welded profile smooth without forming valleys. • Weld without crack and lack of fusion. • Joints welded through completely. • Welding profile/hill not higher than 50% total length. • Profile slightly convex. • Welding fully penetrated.

9	10	TASK TRAINING DATA			
TASK NO:	**T. E. No.**	**TECHNICAL KNOWLEDGE**	**APPLIED CALCULATION**	**GRAPHIC INFORMATION**	**SAFETY & HYGENE**
7	1	Knowledge of various arc welding machine, their basic maintenance, capacity and use of welding mild steel section and pipes.		Determines required welding operations.	First aid practicing and reporting.
	2	Knowledge of selecting appropriate amps according to types and sizes of materials and electrodes.	Calculating AMP setting and types of electrodes.		Hazards involved in using electrical arc welding machine.
	3	Knowledge of making good contact with earth clamp.			
	4	Knowledge of where and how to use different types and sizes of electrodes and their storage. -welding errors and their remedy.			Hazards in welding near inflammable materials. -fire fighting.
	5	Knowledge of preparing joints.			Hazards involved in neck eyes or skin exposed to light of arc welding.
	6	Knowledge of starting welding procedure and appropriate tack welding for various pre set work.	Measure distortion of work to be welded.		
	7	Knowledge and use of oxy acetylene gas welding equipment.			

	TASK PERFORMANCE TEST (SKILL ASSESSMENT)		
11	**TASK TITLE : Welding structural steel including vertical ascending and descending and horizontal welding processes (2G, 3G and 2F, 3F).** **TASK NO : 7**		**LOCATION OF TEST :** **CANDIDATE'S NAME :** **EVALUATORS NAMES:**
12	**TEST FACTORS AND ITEMS**	**STANDARD MET**	**STANDARD NOT MET (Comments)**
	DID THE CANDIDATE ? 1. Dress in appropriate safety clothing. 2. Select appropriate amps, materials, tools, electrode and filler rod as specified. 3. Remove all slag, fume spray and droplets. 4. Perform the following operations: • Amount of beads as required and specified. • Profile of weld uniform. • Butt join weld fully penetrated. • Reinceforcement of butt welds blended smoothly with parent metal. • Under cut maximum 0.5mm in case of fillet weld, 30% of total length. • Under cut maximum 0.25mm in case of butt weld, 30% of total length. • Surface of weld free from cracks, cavities, porosity and trapped slag. • Joint where weld has been stopped and restarted showing no pronounced crater or hump on welded surface. **For oxy acetylene gas welding:** • Weld must be cleaned completely. • Welded profile smooth without forming valleys. • Weld without crack, and lack of fusion. • Joints welded through completely. • Welding profile/hill not higher than 50% of total length. • Profile slightly convex. • Welding fully penetrate.		

TASK SPECIFICATION	
5	**TASK NO: 8** **Fastening the components**. **JOB TITTLE: Structural Fabricator, L-2**
6	**TASK ELEMENTS:** 1. Receives verbal/written instructions. 2. Dons protective clothing. 3. Makes threads of holes for riveting/joining component. 4. Selects nuts, bolts/rivets and related components. 5. Positions fixes and tighten/rivets the components. 6. Measures/adjusts for accuracy of fastening work. 7. Cleans the worksite and used tools.

	TASK SPECIFICATION
7	**TASK PERFORMANCE REQUIREMENTS** Drawing, work bench, one set of metric taps/dies from 4 – 12.5mm, one set of B.S.W. taps/dies from 3/16" -1/2", oil can with cutting oil, set of wrenches for taps and dies, set of round/flat files, vernier calliper, metal as specified, try square, rivets and rivet heads, furnace for heating rivets, sledge hammer.
8	**TASK PERFORMANCE STANDARDS** ➢ Fabricator dressed in appropriate safety clothing. ➢ Thread for joining components as specified without damage. ➢ Nuts/bolts and related components selected as specified. ➢ The components positioned/fixed and tightened as specified without damage. ➢ Accuracy of fastening work measured and adjusted as specified procedure without damage. ➢ Worksite and used tools cleaned. **Tolerance** ➢ Thread cut linear with hole. ➢ Cut to specified depth within ± 2mm. ➢ Size of thread hole as specified. ➢ Cut thread un-broken. ➢ Size and profile of thread as specified. ➢ Riveting performed as specified.

9	10	TASK TRAINING DATA			
TASK NO:	**T. E. No.**	**TECHNICAL KNOWLEDGE**	**APPLIED CALCULATION**	**GRAPHIC INFORMATION**	**SAFETY & HYGENE**
8	1	Knowledge of materials applicable for thread cutting and preparation.		Determines types of threads.	First aid practicing and reporting.
	2	Knowledge and use of various types of imperial and metric threads, various types of nuts and bolts, related tools and lubrication (hand operate), use of thread file.			Hazards involved in using cutting tools.
	3	Knowledge of thread cutting errors removals of nuts, bolts repair of thread hole.			
	4	Knowledge of positioning, fixing and tightening the components.			
	5	Knowledge of the use of thread gauge.			
	6	Knowledge of riveting cold and hot. Kinds of riveting and its application.	Interpretation and computation of imperial and metric units for linear measurement.	Determines types of rivets from the drawing.	
	7	Knowledge of cleaning used tools and worksite.			

	TASK PERFORMANCE TEST (SKILL ASSESSMENT)		
11	**TASK TITLE : Fastening the components.** **TASK NO : 8**		**LOCATION OF TEST :** **CANDIDATE'S NAME :** **EVALUATORS NAMES:**
12	**TEST FACTORS AND ITEMS**	**STANDARD MET**	**STANDARD NOT MET (Comments)**
	DID THE CANDIDATE ? 1. Dress in appropriate safety clothing. 2. Make threads for joining components as specified without damage and following tolerance: ➢ Thread cut linear with hole. ➢ Cut to specified depth with ± 2mm. ➢ Size of thread hole as specified. ➢ Cut thread unbroken. ➢ Size and profile of thread as specified. ➢ Perform riveting as specified. 3 Select nut/bolts and related components as specified. 4 Position, fix and tighten the components as specified without damage. 5 Measure and adjust accuracy of fastening work as specified procedure without damage. 6 Clean worksite and used tools.		

TASK SPECIFICATION	
5	**TASK NO: 9** Finishing the product quality assurance. **JOB TITTLE: Structural Fabricator, L-2**
6	**TASK ELEMENTS:** 1 Receives verbal/written instructions. 2 Dons protective clothing. 3 Selects cleaning materials. 4 Cleans using appropriate methods. 5 Applies surface protection. 6 Applies enamel.

	TASK SPECIFICATION
7	**TASK PERFORMANCE REQUIREMENTS** Kerosene, emery paper, putty, grease, mobile oil, red oxide, various types of enamel.
8	**TASK PERFORMANCE STANDARDS** Fabricator dressed in appropriate safety clothing. Cleaning materials selected as required. Cleaned using appropriate methods. Surface protection applied as specified. Enamel applied as specified.

9	10	TASK TRAINING DATA			
TASK NO:	**T. E. No.**	**TECHNICAL KNOWLEDGE**	**APPLIED CALCULATION**	**GRAPHIC INFORMATION**	**SAFETY & HYGENE**
9	1 2 3	Knowledge of use of cleaning materials. Knowledge of cleaning methods. Knowledge of importance of surface protection and applying procedure of surface protect. Knowledge of use and types of enamel and applying procedure of enamel.			

	TASK PERFORMANCE TEST (SKILL ASSESSMENT)		
11	**TASK TITLE : Finishing the product quality assurance.** **TASK NO : 9**		**LOCATION OF TEST :** **CANDIDATE'S NAME :** **EVALUATORS NAMES:**
12	**TEST FACTORS AND ITEMS**	**STANDARD MET**	**STANDARD NOT MET (Comments)**
	DID THE CANDIDATE ? 1. Dress in appropriate safely clothing. 2. Select cleaning materials as required. 3. Clean using appropriate methods. 4. Apply surface protection as specified. 5. Clean un wanted area of applying enamel/surface protection.		