**CERTIFICATE PROGRAM IN AUTOMOTIVE MANUFACTURING JOB ROLES**

**UNDER**

**RECRUIT-TRAIN- DEPLOY (RTD) MODEL SCHEME**

**OF**

**BIHAR SKILL DEVELOPMENT MISSION (2018-22)**

**FOR**

**Welding Supervisor Level 5**

It’s Objective, learning outcomes, Modules, assessments and material list

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| Submitted to **:-**  **BIHAR SKILL DEVELOPMENT MISSION (BSDM)** | Submitted By **:-**  **UDYAMI SAHYOG PARISHAD**  **(IN CONSORTIUM WITH VGR ENGINEERING SERVICES PVT. LTD AND EAKTA ENTERPRISES)** |
| Session: FY 2018-19 |

**CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE**

**Name and address of submitting body:**

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**SUMMARY**

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| **Qualification Title** | **Certificate in Welding Supervisor Level 5** |
| **Qualification Code** | **USP3104** |
| **Duration of the Course** | **3 Months** |
| **Nature and purpose of the qualification** | **Nature**  Technical Training  **Purpose**  To prepare Skilled Industrial workforce through Skill Development Program and Livelihood generation for youths |
| **Body/bodies which will award the qualification** | BSDM, Udyami Sahyog Parishad and Employer Jointly |
| **Occupation(s) to which the qualification gives access** | Automotive Manufacturing- Welding Shop and jobs roles for operating and supervising of all kind of welding machines and handling, supervising the welding lines and operators activities, parts/ component manufacturing processes activities |
| **Entry requirements and / or recommendations** | Minimum Educational Qualification: ITI – Mechanical/ Welding Technology  Age 18 years to 35 years |

1. **OBJECTIVE OF THE COURSE: -**

Technical knowledge of welding/soldering/brazing and metallurgy, Reading, writing and communication skills, ability to plan and prioritize, quality consciousness, sensitivity to problem solving, quick decision making, safety orientation, dexterity and high precision, ability to use internal ERP systems (if existing), managing teams, grievance management, listening skills, ability to train team members.

1. **LEARNING OUTCOMES :-**

* **Industrial System Mandatory Training Content-**

1. Industrial Working environment awareness and knowledge
2. Job role & responsibility
3. System, machine, mechanism knowledge
4. IMTE (Inspection, measuring and test equipment) knowledge
5. Health Safety Environment (HSE)- 5S, PPE, Fire & Safety and First- Aid Knowledge
6. Lean Manufacturing Technology (Poka-Yoke, Kaizen)
7. Engineering/Industrial documentation and standards (SPC, FMEA, APQP, PPAP,7QC)
8. Industrial/Engineering drawing study
9. Motivation, Behavioral and communication skills
10. Inter departmental activities
11. Practical exposer and real time On-Job-Training (OJT)

* **Domain Training Content-**

1. Types of manufacturing processes used
2. Types of welding processes in Resistance Welding and Gas Discharge Welding techniques and associated equipment
3. Types of joints used in welding
4. Requirement of raw materials used in the process
5. About tools, jigs and fixtures, their usage and maintenance methods
6. How to operate the machine in both, automatic/robotic and manual mode
7. Basic arithmetic and calculation methods
8. Types of soldering and brazing process and equipment associated with soldering and brazing
9. Cleaning methods for electrodes, metal surfaces etc.
10. Various National and International welding standards used in automotive sector in India
11. How to visually represent the final product output and hence decide on the key steps to be followed for welding
12. Types of defects in welding/soldering/ brazing and their impact on the overall product
13. Metallurgical properties of material and work pieces used in welding, brazing and soldering
14. Basic chemical properties of material used for electrodes, flux, welding gases etc.
15. Basic knowledge of electrical laws and working of welding transformers, capacitors etc.
16. Knowledge of shift roster norms and guidelines
17. Resource &information systems like SAP, ERP etc.
18. Usage of various business correspondence tools like email, MS office tools (word, excel, power point) etc
19. **MODULE- THREE MONTHS (CERTIFICATE PROGRAM IN MANUFACTURING JOB ROLES)**

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| **DURATION :- THREE MONTHS**  **CERTFICATE PROGRAM IN MANUFACTURING JOB ROLES** | | | | | | |
| **MODULE CODE & NAMES** | | **Code :- USP3104**  **Module :-** BSDM (WELDING SUPERVISOR L5) | | | | |
| **RATIONALE & OBJECTIVE OF THE MODULES** | | Technical knowledge of welding/soldering/brazing and metallurgy, Reading, writing and communication skills, ability to plan and prioritize, quality consciousness, sensitivity to problem solving, quick decision making, safety orientation, dexterity and high precision, ability to use internal ERP systems (if existing), managing teams, grievance management, listening skills, ability to train team members. | | | | |
| **MODULE COMPETENCE** | | This role is responsible for supervising the various material joining processes like welding, soldering and brazing for joining various types of metallic frames, structures, jigs, plates, sheets etc., maintaining process parameters, conducting quality checks on output product, deploying manpower as per requirement, guiding operatives and technicians to complete the assigned task, maintaining a safe & healthy working environment on the shop floor and maintaining records related to production, rejections, material movement and manpower productivity for a line/shift. After completion of training our placement cell will provide job opportunity in Corporate/Manufacturing Company/Unit. | | | | |
| **MODE OF DELIVERY** | | Theory, Practical & OJT | | | | |
| **Sr. N.** | **ELEMENTS/TOPICS** | | | **PERIOD** | **DAYS** |
| **1** | **AWARENESS OF INDUSTRIAL CULTURE/ SYSTEMS, JOB ROLES AND RESPONSIBILITIES** | | | 10 DAYS | |
|  |  | | 1.1 Types of Industries |
|  |  | | 1.2 Types of industrial workings |  |  |
|  |  | | 1.3 Industrial working Hierarchy |  |  |
|  |  | | 1.4 Job Roles, Behavior and Motivation |  |  |
|  |  | | 1.5 Job Responsibilities |  |  |
|  |  | | 1.5 Career selection, Livelihood generation |  |  |
|  |  | | 1.6 Career Growth through Loyalty, Hard work |  |  |
|  |  | |  |  |  |
| **2** | **WELDINGPROCESS AND TECHNIQUES** | | |  |  |
|  |  | | 2.1 Understand the right welding methodology and process | 20 DAYS | |
|  |  | | 2.2 Understand the material required and the equipment availability |
|  |  | | 2.3 Clearly understanding the does and don’ts of the manufacturing process |  |  |
|  |  | | 2.4 SOPs/ Work Instructions |  |  |
|  |  | |  |  |  |
| **3** | **5-S, ENVIRONMENT, HEALTH AND SAFETY AWARENESS** | | |  |  |
|  |  | | 3.1 Understand 5 S and Safety related aspects related to the work station, welding line | 8 DAYS | |
|  |  | | 3.2 Hazards and safety aspects involved in welding activities and usage of relevant PPEs |
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| **4** | **MAN, MATERIAL, MACHINE, METHOD, STANDARDS AND DOCUMENTATIONS** | | |  |  |
|  |  | | 4.1 Team work and inter departmental co-ordinations | 20 DAYS | |
|  |  | | 4.2 Understand mechanical, welding and drawing symbols used in the welding process |
|  |  | | 4.3 Plan and organize the design/ process/quality documents received from internal customers |  |  |
|  |  | | 4.4 Sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/ work instructions |  |  |
|  |  | | 4.5 Understanding of machines, systems behavior and working principles with knowledge of parts |  |  |
|  |  | | 4.6 Quality check points |  |  |
|  |  | | 4.7 Equipment manuals and process documents to understand the equipment and processes better |  |  |
|  |  | | 4.8 Material knowledge and behavior |  |  |
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| **5** | **INSPECTION, MEASURING, TESTING EQUIPMENTS KNOWLEDGE AND USES** | | | 20 DAYS | |
|  |  | | 5.1 The method of reading and interpreting the various gauges |
|  |  | | 5.2 Concerned quality instruments use, observations on parts and recording of readings |  |  |
|  |  | | 5.3 Preparing inspection sheet |  |  |
|  |  | | 5.4 Defect observations |  |  |
|  |  | | 5.5 Poka-Yoke and Kaizens |  |  |
|  |  | | 5.6 Drawing study and readings |  |  |
|  |  | | 5.7 Limit samples |  |  |
|  |  | | 5.8 Finishing operations and final packing |  |  |
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| **6** | **ASSESSMENT/ TESTS, ASSIGNMENTS/ PROJECT** | | |  |  |
|  |  | | 6.1 Weekly test on theory contents | 12 DAYS | |
|  |  | | 6.2 Weekly Assignments/Projects |
|  |  | | 6.3 Workshop during each day Practical |  |  |
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1. **ASSESSMENT / EXAMINATION**

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| **1** | **BASIC/INTERNAL ASSESSMENT** | (During Training period stages) | **P/T** | **MARKS** |
|  |  | 1. Assignment to make an assembly as per spec. by various given child parts | P |  |
|  |  | 1. Internal assessment test as per theory contents learned | T |  |
| **2** | **FINAL PROJECT PRESENTATION** | (Final stage of completion of session) |  |  |
|  |  | 1. Display & Submission of Assignments | P |  |
|  |  | 1. Final test on complete Assembly techniques | T |  |

1. **Material List**

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| **TEACHING & TRAINING AIDES/ INSTRUMENTS/ MACHINES etc.** | Laptop, White Board, Marker, Projector, Stationary, Hand Tools, Welding M/C with accessories (MIG Welding, Projection Welding, Spot Welding), Receiving Gauge, Penetration Testing Set (Cutter, Polishing, Penetration Instrument), Pneumatic Tools, Torque Ranch, Assembly Table, Soldering & Brazing Rod with accessories, Vernier Caliper, Micrometer, PPE (Personal Protective Equipments), First Aid Kit, Fire Extinguishers, Operating Manuals, Work Instruction SOP's, Jigs & Fixtures, Grinding Machine, Bench Vice, V-Block, Clamps, Try Square, Combination Square, Dividers, Bevel Protector, Surface Plate, Hacksaw Frame Adjustable, Files Collets, Drills and Taps, End Mills, Chisel, Hammer, Adjustable Wrench, Screw Driver Set, Pliers, Cutters, Allen Key, Spanner Set, Spindle Key, Drill Vice, Machinist Vice, Hand Vice, Vice Grip, Pliers, Leather Safety Gloves, Leather Aprons, Safety Glasses, safety helmets, Ear Plug, Safety Shoes, Cleaning Agents, Cleaning Cloth, Waste Container, Dust Pan, Brush Set, Liquid Soap, Hand Towel |