**CERTIFICATE PROGRAM IN AUTOMOTIVE MANUFACTURING JOB ROLES**

**UNDER**

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

**OF**

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

**FOR**

**Auto Component Assembly Fitter**

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 Auto Component Assembly Fitter** |
| **Qualification Code**  | **USP3701** |
| **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- Assembly Shop and jobs roles for Assembly operator/ handling and operating Assembly Line machines/ Components Fitter |
| **Entry requirements and / or recommendations** | Minimum Educational Qualification: Class 10thAge 18 years to 35 years  |

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

The person should have dexterity in operating machine tools. Dexterity in making, operating and repairing machines, ability to fix the right parts at the right places in the given time, Two hand and eye coordination, sense of time management, quality management and 5S & Safety, Proper vision and no colour blindness.

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. Industrial/Engineering drawing study
7. Practical exposer and real time On-Job-Training (OJT)
8. Motivation, Behavioral and communication skills
9. Inter departmental activities
* **Domain Training Content-**
1. Types of manufacturing processes used
2. Types of assembling processes and component storage process (Kitting)
3. Equipment and components used in the assembly process – bolts, nuts, screws, wires, fasteners, connectors, sealants, adhesive bonding equipment etc. (knowledge of shapes, size and utility)
4. Types of bolting guns/ riveting guns/ hand held/ power drills used in the assembly processes
5. Size for tightening equipment like spanners, screw drivers, wrenches, pliers’ testers
6. Numbering/ identification nomenclature for the various assembly and tightening equipment
7. Reading and interpreting torqueing charts and usage of torque meters
8. Impact of various assembly process like bolting, torqueing, tightening, fitting, greasing, hammering, sealing, clamping on the final component/ vehicle performance
9. Types of defects which may arise due to improper tightening and torqueing.
10. How to operate both in automatic and manual mode
11. Types of color codes and their meaning for electrical wires
12. Drawing and route/ circuit diagram
13. Electrical/ electronic symbols used on the assembly boards
14. Different tools used during electrical assembly – crimpers, fasteners, twisting pliers, testers, screw drivers, bolts, screws etc.
15. Types of wire cover, insulators and sheaths to be used
16. Method of reading and interpreting the various gauges, meters, graphs, dials
17. Computer display and analysis techniques
18. How to visualize the final product output and hence decide on the key steps to be followed
19. Various inspection techniques used for testing of electrical components
20. Impact of various electrical conditions on the performance of the equipment
21. **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 :- USP3701****Module :-**BSDM (Auto Component Assembly Fitter L 4 ) |
| **RATIONALE & OBJECTIVE OF THE MODULES**  | The person should have dexterity in operating machine tools. Dexterity in making, operating and repairing machines, ability to fix the right parts at the right places in the given time, Two hand and eye coordination, sense of time management, quality management and 5S & Safety, Proper vision and no color blindness. |
| **MODULE COMPETENCE** | An auto component assembly fitter is one who is skilled in operating machine tools for conducting assembly and fitment operations of vehicle components and aggregates as per the required assembly norms. The components assembled by the operators will be finally assembled as per the 2wheeler, 3wheeler, 4wheeler and large commercial vehicles for the required assemblies. After completion of training our placement cell will provide job opportunity in 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** | **ASSEMBLY PROCESS AND TECHNIQUES** |  |  |
|  |  | 2.1 Understand the right assembling 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, assembly line | 8 DAYS |
|  |  | 3.2 Hazards and safety aspects involved in assembling activities and usage of relevant PPEs |
|  |  |  |  |  |
| **4** | **MAN, MATERIAL, MACHINE, METHOD, STANDARDS AND DOCUMENTATIONS** |  |  |
|  |  | 4.1 Team work and inter departmental co-ordinations  | 20 DAYS |
|  |  | 4.2 Understand mechanical, electrical and electronic symbols used in the circuits |
|  |  | 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  |  |  |
|  |  |  |  |  |
| **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 (Drilling M/c, Pneumatic Tools, Torque Ranch, Assembly Table, Soldering & Brazing mechanism 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, Ball Peen 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 |