**CERTIFICATE PROGRAM IN AUTOMOTIVE MANUFACTURING JOB ROLES**

**UNDER**

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

**OF**

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

**FOR**

**CNC Operator/Machining Technician Level 3**

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 CNC Operator/Machining Technician Level 3** |
| **Qualification Code**  | **USP3501** |
| **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- Machine Shop and jobs roles for operating/ handling machines |
| **Entry requirements and / or recommendations** | Minimum Educational Qualification: 10thAge 18 years to 35 years  |

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

The individual should have the ability of operation monitoring i.e., observing gauges, dials etc., maintaining arm steadiness, ability to quickly move hand to grasp and assemble objects (Dexterity), reading, writing and communication skills and sensitivity towards safety for self and equipment

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
* **Domain Training Content-**
1. Different types of products manufactured by the company
2. Type of machines
3. Types of machining processes
4. Machine parameters setting
5. Types of tools used in the machining process with respect to type of process to be conducted
6. Knowledge of usable materials movement to work place/ Line/ Station
7. Knowledge of Loading and unloading of parts in fixtures
8. Type of CNC Controllers
9. CNC machines Programming & Operations
10. Knowledge of metal properties/metallurgy
11. Tools used for lifting objects
12. The application of coolant and lubricants
13. Basic arithmetic and calculation methods
14. **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 :- USP3501****Module :-** BSDM (CNC Operator/ Machining Technician Level 3) |
| **RATIONALE & OBJECTIVE OF THE MODULES**  | The individual should have the ability of operation monitoring i.e., observing gauges, dials etc., maintaining arm steadiness, ability to quickly move hand to grasp and assemble objects (Dexterity), reading, writing and communication skills and sensitivity towards safety for self and equipment |
| **MODULE COMPETENCE** | Machining Technician Level 3 is often called Assistant Machinist, Junior Machinist, Lathe Operator, Apprentice Machinist, Semi-Skilled Operator. This role primarily involves supporting the machine operator in all pre-machining activities, machining of the actual part, ad hoc repair work like in auto service stations, gauging, de-burring and inspection activities. 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** | 8 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** | **CNC/MACHINING PROCESS AND TECHNIQUES** |  |  |
|  |  | 2.1 Understand the right CNC/Machining 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, machining line | 6 DAYS |
|  |  | 3.2 Hazards and safety aspects involved in machining activities and usage of relevant PPEs |
|  |  |  |  |  |
| **4** | **MAN, MATERIAL, MACHINE, METHOD, STANDARDS AND DOCUMENTATIONS** |  |  |
|  |  | 4.1 Team work and inter departmental co-ordinations  | 16 DAYS |
|  |  | 4.2 Understand mechanical, machining and assembly symbols used in the CNC/Machining 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 various 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** | 18 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, Lathe Machine, Milling Machine, Surface Grinder, Drilling Machine, Simulators for CNC, VMC/ CNC Turning Centre with accessories, CNC M/c Tools, Hand Tools (Drilling M/c, Pneumatic Tools, Torque Ranch, Assembly Table, compressor, Brushes, Step Blocks, V- Blocks, C-Clamps, Clamps, Machine Bolt, Vernier Caliper, Micrometer, Bore Gauge, Depth Gauge, Puppy Dial, PPE (Personal Protective Equipment), Cutting Oil, Puppy Dial, 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, 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, Brushes, Hand Towel |