CONTACT DETAILS OF AWARDING BODY FOR THE QUALIFICATION FILE

**Name and address of awarding body:**

Indo Danish Tool Room,

M4,Part 6,Tata Kandra Road,Gamharia

Jamshedpur-0657,2201261/62

**Name and contact details of individual dealing with the submission**

**Name:**

MR Anand Dayal

General Manager

Indo Danish Tool Room,

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Jamshedpur-

**Tel number(s):** 0657,2201261/62

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| **Qualification Title :** | **CERTIFICATE COURSE IN MACHINE OPERATION** |
| **Nature and purpose of the**  **Qualification** | Nature of the course is trade **Certificate Course.**  The purpose of the qualification are   * Learners who attend this qualification are competent to work on conventional machine tools in order to produce / Manufacture components as per predefined shape and size. * Qualified learners get employed into work. * People upgrade their skills and knowledge already in work. * People with vocational – professional skill access to the   higher education courses.   * Qualifying learners of this qualification would be able to get opportunity in particular sector to learn new skills to deal with technological change. |
| **Body/bodies which will**  **award the qualification** | **Indo Danish Tool Room ,Jamshedpur** |
| **Body which will accredit**  **providers to offer courses**  **leading to the qualification** | **Indo Danish Tool Room ,Jamshedpur** |
| **Body/bodies which will**  **carry out assessment of**  **learners** | **Indo Danish Tool Room ,Jamshedpur** |
| **Occupation(s) to which the**  **qualification gives access** | Technician / Machine tools operator / Skilled worker in machine tool and manufacturing sectors. |
| **Level of the qualification in**  **the NSQF** | **3** |
| **Anticipated volume of**  **training/learning required to complete the qualification** | **12 Months / 1 Year / 1560 hrs.**   |  |  |  | | --- | --- | --- | | Sr. No | Course Elements (Subject) | Hourly Distribution | | Module-1 | Practical Lab | 1030 hrs. | | Module-2  Module-3  Module-4  Module-5  Module-6 | - Machine shop Theory  - Engineering Metrology  - Engineering Drawing  - Workshop Calculation & Science  - Employability Skill  - Examination | 100 hrs.  50 hrs.  250 hrs.  50 hrs.  50 hrs.  30 hrs. | |  | Total | 1560hrs. | |
| **Entry requirements and/or**  **recommendations** | **Passed 8thclass ,Minimum Age: 15 Years.** |
| **Progression from the**  **qualification** | Qualifying trainee should obtain a NSQF certificate in Machine Operation trade. This qualification shall enable the trainee to find employment on a skilled work in Machining (Machine tools) Industries.Having Scope to access to other qualification at the same level and at the next higher level.After completion of course the trainee can work as a Junior Machinist / Technician / Machine Tools Operator and after that 3 years of experience, the person can work as a Senior Machinist / Technician / Machine Tools Operator. |
| **Planned arrangements for the Recognition of Prior**  **learning (RPL)** | Learner who have passed 8th class & 3 years experience in this field, the qualification certificate can be achieved by the learner through appearing / passing the examination of the qualification modules.  RPL Assessment will done by the assessment body. |
| **International comparability**  **where known** | Not Known |
| **Date of planned review of the qualification.** | After 3 years of recognition. September, 2019 |

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| **Formal structure of the qualification** | | | | | |
| **Title and identification code of component.** | | | **Mandatory/**  **Optional** | **Estimated size**  **(learning hours)** | **Level** |
| **“Certificate Course in Machine Operation”** | | |
| **Sl. No** | **Subject Code** | **Subject Name** |
| 1 | **P1** | **Practical Lab** | Mandatory | **1030 hrs.** | **3** |
| 2 | **T1** | **Machine Shop Theory** | Mandatory | **100 hrs.** | **3** |
| 3 | **T2** | **Engineering Metrology** | Mandatory | **50 hrs.** | **3** |
| 4 | **T3** | **Engineering Drawing** | Mandatory | **250 hrs.** | **3** |
| 5 | **T4** | **Workshop Calculation and Science.** | Mandatory | **50hrs.** | **3** |
| 6 | **T5** | **Employability Skills** | Mandatory | **50 hrs.** | **3** |
| **Examination** | | | Mandatory | **20 hrs.** |  |
| **Total =** | | |  | **1560 hrs.** |  |

**ASSESSMENT**

**Body/Bodies which will carry out assessment: Indo Danish Tool Room, Jamshedpur**

**Will the assessment body be responsible for RPL assessment?**

: Yes**.** Assessment body will be responsible for RPL assessment.

**How will RPL assessment be managed and who will carry it out?**

The Learners who have met the requirements of any Unit Standard that forms part of this qualification may apply for recognition of prior learning (RPL) to the relevant Education body/Institute with proper evidences. The applicant must be assessed against the specific outcomes and with the assessment criteria for the relevant Unit Standards by the Assessment Body of Respective Institute.

**Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.**

The assessment for the Session -based qualification is carried out by conducting formative assessments, and end-of-session examinations for all trainees aspiring for this qualification, as per the guidelines given. The internal assessments for theory subjects and practical are conducted by the concerned instructors for evaluating the knowledge and skill acquired by trainees and the behavioural transformation of the trainees as per the learning outcomes specified the qualification. This assessment is primarily carried out by collecting evidence of competence gained by the trainees by observing them at work, asking questions and initiating formative discussions to assess understanding and by evaluating records and reports, and marks are awarded to them. Theory examinations are conducted in Machine Shop Theory, Engineering Metrology, Workshop Calculation & Science, Engineering Drawing and Employability Skills. The question papers for the theory Examinations contain objective type questions. Trade practical examinations are conducted. Criteria for assessment based on each learning outcomes, will be assigned marks proportional to its importance. The assessment for the theory &practical part is based on knowledge bank of questions created by trainers and approved by Examination cell/Assessment body. The distribution of marks for the qualification are as under:

**ELIGIBILITY TO APPEAR IN THE EXAM:** Minimum 75% class attendance is compulsory for the students to appear for the assessments

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| **Marking Pattern** | | |
| **S. No. / Subject Code** | **Subject for the trade test** | **Maximum marks for the each subject** |
| 1 / P1 | Practical Lab | 400 |
| 2 / T1 | Machine Shop Theory | 200 |
| 3 / T2 | Engineering Metrology | 100 |
| 4 / T3 | Engineering Drawing | 100 |
| 5 / T4 | Workshop Calculation and Science. | 100 |
| 6 / T5 | Employability Skills | 100 |
|  | **Total** | **1000** |

**Minimum pass mark (COMPETENT): 40% for each theory subject and 60% for practical; Fail candidates are entitled three chances to clear the paper. RESULTS AND CERTIFICATION:** Successful trainees will be awarded the Final Mark Sheet and Certificates by **Indo Danish Tool Room, jamshedpur**.

**ASSESSMENT EVIDENCE:**

Assessment evidence comprises the following components document in the form of records:

1. Criteria for assessment for each Qualification Document will be created by IDTR.
2. Each Assessable outcome (AO) will be assigned marks proportional to its importance in Learning Outcome and few performance criteria may be allotted marks in combine.
3. Each Learning Outcome will be assessed both for theoretical knowledge and practical which is being proportionately demonstrated in the table below.
4. The assessment for the theory part will be based on knowledge bank of questions created by IDTR which will contain multiple choice theory questions and Practical question database with mark allotment criteria.
5. To pass the Qualification Document, every trainee should score a minimum of 40 % in Theory and 60% practical Functional and all Generic Learning Outcome’s.
6. In case of successfully passing only certain number of Learning Outcome’s, the trainee is eligible to take Subsequent assessment on the balance Learning Outcome’s to pass the Qualification Document.

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| **EVALUATION PATTERN FOR CERTIFICATE COURSE IN MACHINE OPERATION** | | | | | | | | | |
| **SUBJECTS** | **EVALUATION PATTERN** | | | | | | | | |
| **INTERNAL ASSESSMENT MARKS** | | | | **ANNUAL EXAMINATION MARKS** | | **TOTAL MARKS** | **PASSING** | **PASSING MARKS** |
| **Class Test** | **Assignment , Attendance & Behaviour** | **Practical Exercises & Project** | **Oral (Viva)** | **Theory** | **Practice** |
| **Practical Lab** |  | **20** | **100** | **40** |  | **240** | **400** | **Minimum 40 % for theory and 60% for Practical.** | **240** |
| **Machine Shop Theory** | **40** | **20** |  | **20** | **120** |  | **200** | **80** |
| **Engineering Metrology** | **20** | **10** |  | **10** | **60** |  | **100** | **40** |
| **Engineering Drawing** | **20** | **10** |  | **10** | **60** |  | **100** | **40** |
| **Workshop Calculation & Science** | **20** | **10** |  | **10** | **60** |  | **100** | **40** |
| **Employability Skill** | **20** | **10** |  | **10** | **60** |  | **100** | **40** |
| **TOTAL** |  |  |  |  |  |  | **1000** |  |

**Title of Component: “Certificate Course in Machine Operation”**

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| **Assessable outcomes:** | **Assessment criteria for the outcome** |

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| **LO** | **Assessment Outcome Description** | **Theory** | **Practical** | **Total** | |
| Performance on operating of conventional machines and techniques of various operations on –  Bench Work- filling, layout, sawing , punching , using of tools & instruments , drill machine and performing of drilling operations , tapping using suitable tools, accessories, and measuring instruments | Identify the parts of a file, hammer, chisel, punch, hacksaw, bench vice, and their uses and all features. | 0 | 257 | 257 | |
| Identify the features of a steel rule, try square and its uses. |
| Identify vernier calliper, common gauges and its uses. |
| Select material piece, study the drawing of exercise job. |
| Practice sawing, Filing work etc. |
| Layout and marking of job using surface plate, height gauge, angle plate, vee block, vernier calliper, scriber etc. |
| Marking as per drawing. |
| Identify & select of drill machine, vice or clamp holding devices, Drill chuck, sleeve, etc. |
| Knowing of belt drive and gear drive. |
| Centre punching , setting of job on machine. |
| Setting parameter on machining. |
| Operation of Centre drilling, drilling, counter sinking, Counter boring, reaming, boring , etc. Using coolants. |
| Selection of tap , parameter setting and tapping using lubricating oil. |
| Inspecting of job by measuring tool , gauges. |
| Cleaning of machine and oiling. |
| Performance on operating of Lathe Machine and techniques of various operations on lathe machine for manufacturing a job using suitable tools, accessories, and measuring instruments | Identify and knowing the functions, features and uses of different parts of a lathe machine. | 0 | 257 | | 257 |
| Study the drawing, identify and select material , machine, tools, & measuring instruments. |
| Formation of cutting tool. |
| Setting of job and machining parameter. |
| Setting of cutting tool to the centre height. |
| Operation carried out on facing, centre drilling, drilling, turning, step turning, grooving, knurling thread cutting, taper turning, Parting off, chamfering, boring, etc. |  |  | |  |
| Use of three jaw chuck, four jaw chuck , steady rest, follow rest, face plate, taper turning attachment, lathe carrier, mandrel etc. |
| Inspecting of job by measuring tool , gauges. |
| Cleaning of machine and oiling. |
| Performance on operating of Milling Machine and techniques of various operations on milling machine for manufacturing a job using suitable tools, accessories, and measuring instruments. | Identify and knowing the function and features and uses of different parts of a milling machine. | 0 | 257 | 257 | |
| Study the drawing, identify and select material , machine, tools, & measuring instruments. |
| Selection of different milling cutters for specific operation. |
| Setting and dialling of job and setting of machining parameter, |
| Operation carried out on surface milling, open & close slot milling, angle milling, form milling, vee slot milling, narrow slot milling, ‘T’- slot milling, dovetail milling etc. |
| Use of machine vice ,’T’ bolt clamps, vee block, rotary table, indexing devices, etc. |
| Uses of cutter holding device like arbour, collets, adapters, spring collect etc. |
| Inspecting of job by measuring tool, gauges. |
| Cleaning of machine and oiling. |
| Performance on operating of Grinding Machine and techniques of various operations on grinding machine for manufacturing a job using suitable tools, accessories, and measuring instruments) | Identify and knowing the function and features and uses of different parts of a grinding machine. | 0 | 257 | 257 | |
| Study the drawing, identify machine, tools, & measuring instruments. |
| Selection of different grinding wheel for specific operation. |
| Setting and dialling of job and setting of machining parameter, |
| Operation carried out on surface grinding , slot grinding, angle grinding, form grinding , vee slot grinding , narrow slot grinding, external and internal cylindrical grinding etc. |
| uses of sine table, magnetic vice, stick dresser , sitting dresser, etc. |
| Inspecting of job by measuring tool, gauges. |
| Cleaning of machine and oiling. |
| Practical test in order to access skill and knowledge of trainees on their trade training curriculum by allotting test piece / project | Performing work by identifying and selecting all relevant items in order to complete the job with individual effort with in stipulated time period |  |  |  | |
| Describe Principle function of various machines and machining techniques.  Measuring instruments used | Sessional examination to test the knowledge on conventional machines and machining techniques. Principle function and application of Measuring instruments and gauges. | 00 | 50 | 50 | |
| Use basic health and safety practice at the work place, environment regulation and housekeeping. | Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements and according to site policy. | 50 | 0 | 50 | |
| Recognize and report all unsafe situations according to site policy. |
| Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures. |
| Identify, handle and store / dispose of dangerous goods and substances according to site policy and procedures following safety regulations and requirements. |
| Identify and observe site policies and procedures in regard to illness or accident. |
| Identify safety alarms accurately. |
| Report supervisor/ Competent of authority in the event of accident or sickness of any staff and record accident details correctly according to site accident/injury procedures. |
| Identify and observe site evacuation procedures according to site policy. |
| Identify Personal Productive Equipment (PPE) and use the same as per related working environment. |
| Identify different fire extinguisher and use the same as per requirement. |
| Identify environmental pollution & contribute to the avoidance of instances of environmental pollution. |
| Deploy environmental protection legislation & regulations. |
| Take opportunities to use energy and materials in an environmentally friendly manner. |
| Avoid waste and dispose waste as per procedure. |
| Recognize different components of 5S and apply the same in the working environment. |  |  |  | |
| Work effectively with others Work in a team,  understand and practice soft  skills, technical English to  communicate with required  clarity | Obtain sources of information and recognize information. | 50 | 0 | 50 | |
| Use and draw up technical drawings and documents. |
| Use documents and technical regulations and occupationally related provisions. |
| Conduct appropriate and target oriented discussions with higher authority and within the team. |
| Present facts and circumstances, possible solutions &use English special terminology. |
| Resolve disputes within the team. |
| Conduct written communication. |
| Demonstrate knowledge of concept and principles of basic arithmetic, algebraic, trigonometric, statistics, coordinate system and apply knowledge of specific area to perform practical operations.  Describe Materials used | Sessional examination to test basic skills on arithmetic, algebra, trigonometry and statistics.  Knowledge of different material, properties, applications of materials. | 50 | 0 | 50 | |
| Their applications will also be assessed during execution of assessable outcome and also tested during theory and practical examination. |
| Understand basic maintenance work in the field of study | Sessional examination to test basic skills in the field of study including basic mechanical, electrical and hydraulics & pneumatics. | 250 | 0 | | 250 |
| Their applications will also be assessed during execution of assessable outcome and also tested during theory and practical examination. |
| Read and apply engineering drawing for different application in the field of work. | Sessional examination to test basic skills on engineering drawing. |
| Their applications will also be assessed during execution of assessable outcome and also tested during theory and practical examination. |
| Understand and explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality. | Sessional examination to test the concept in productivity,  quality tools and labour welfare legislation. | 50 | 0 | 0 | |
| Their applications will also be assessed during execution of assessable outcome. |
| Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources. | Sessional examination to test knowledge on energy  conservation, global warming and pollution. | 50 | 0 | 50 | |
| Their applications will also be assessed during execution of assessable outcome. |
| Understand and apply  basic computer working,  basic operating system and  uses internet services to get  accustomed & take benefit  of IT developments in the  industry. | Sessional examination to test knowledge on basic computer working, basic operating system and uses internet services. |
| Their applications will also be assessed during execution of assessable outcome. |

**EVIDENCE OF RECOGNITION AND PROGRESSION**

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| **What steps have been taken in the design of this or other qualifications to ensure that**  **there is a clear path to other qualifications in this sector?**  Relevant information was collected from Industries and allied sector working in this area.  The Automotive Components industries are recruiting people based on the qualification acquired. Maximum  of the industries accept this as qualification for selection/short listing of the individual.  approved by members.  **Vertical Pathway:**  The Occupational Map has been created & attached.  The Technician / Machine tools operator / Skilled worker in machine tool and manufacturing sectors. has a clear pathway  **Horizontal Pathway:**  The individual can migrate within the Automotive Components related industries. |