**DACUM Chart for GRINDING AND FABRICATION ARTISAN Level 4**

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| **DUTIES** |  **TASKS** |
| **BASIC COMPETENCIES** |
| **A****DEMONSTRATE COMMUNICATION SKILLS** | A1Meet communication needs of clients and colleagues | A2Contribute to development of communication strategies | A3Conduct interviews | A4Facilitate group discussion | A5Represent the organization |  |  |
| **B****DEMONSTRATE NUMERACY SKILLS** | B1Identify and use whole numbers and simple fractions, decimals and percentages for work | B2Identify, measure and estimate familiar quantities for work | B3Read and use familiar maps, plans and diagrams for work | B4Identify and describe common 2D and some 3D shapes for work | B5Construct simple tables and graphs for work using familiar data | B6Identify and interpret information in familiar tables, graphs and charts for work |  |
| **C****DEMONSTRATE DIGITAL LITERACY** | C1 Identify appropriate computer software and hardware | C2Apply security measures to data, hardware, software in automat environment  | C3Apply computer software in solving basic tasks | C4Apply internet and email in communication at workplace | C5Apply Desktop publishing in official assignments | C6Prepare presentation packages |  |
| **D****DEMONSTRATE ENTREPRENEURIAL SKILLS** | D1Develop business innovative strategies | D2Develop new product/markets | D3Expand customers and product lines | D4Motivate staff/workers | D4Expand employed capital base | D6Undertake county/regional business |  |
| **E****DEMONSTRATE EMPLOYABILITY SKILLS** | E1Develop self-awareness and understanding of every day demands and challenges in the workplace | E2Demonstrate critical safe work habits for employees in the workplace | E3Lead a workplace team  | E4Plan and organize work  | E5Maintain professional growth and development in the workplace | E6Demonstrate learning, creativity and innovativeness in the workplace |  |
| **F****DEMONSTRATE ENVIRONMENTAL LITERACY** | F1Control environmental hazard  | F2Control environmental Pollution control | F3Demonstrate sustainable resource use | F4 Evaluate current practices in relation to resource usage | F5Identify environmental legislations/conventions for environmental concerns | F6Implement specific environmental programs | F7Monitor activities on environmental protection/programs |
| **G****DEMONSTRATE OCCUPATIONAL SAFETY AND HEALTH PRACTICES** | G1Identify workplace hazards and risk | G2Identify and implement appropriate control measures | G3Implement OSH programs, procedures and policies/ guidelines |  |  |  |  |
| **COMMON COMPETENCIES** |
| **A**INTERPRET BASIC TECHNICAL DRAWINGS | A1Use drawing instrument, and materials | A2Interpret plane geometry drawings | A3Interpret solid geometry drawings | A4Interpret orthographic and pictorial drawings | A5Interpret mechanical drawings |  |  |
| **B** **USE COMMON METALLIC AND NON-METALLIC MATERIALS** | B1Identify properties of engineering materials | B2Identify ore extraction processes of metallic materials | B3Identify methods of producing engineering materials | B4Perform heat treatment | B5 Prevent material corrosion |  |  |
| **C****PERFORM BENCH WORK OPERATIONS** | C1Observe safety rules and regulations | C2Plan work operations | C3Mark out dimensions on work pieces | C4 Set up work pieces on holding devices  | C5Use hand tools  | C6Use bench drill  | C7Assemble metal parts and sub-assemblies |
|  | C8Inspect finished work  | C9Maintain hand tools and equipment | C10Perform housekeeping  |  |  |  |  |
| **CORE COMPETENCIES** |
| **A****FABRICATE SHEEET METAL PARTS** | A1 Observe safety rules and regulations  | A2 Use sheet metal machines, tools and equipment  | A3Plan work operations | A4Mark out work pieces  | A5Set- up sheet metal machine and equipment | A6 Fabricate sheet metal component(s) | A7Assess quality of fabricated component(s) |
|  | A8Maintain sheet metal machines, tools and equipment | A9Perform housekeeping |  |  |  |  |  |
| **B****PERFORM GRINDING OPERATIONS** | B1Observe rules and regulations  | B2Identify machine parts, accessories and their functions  | B3Identify types and features of grinding wheels | B4Prepare work operation plan | B5Set up the grinding machine | B6Perform grinding operations | B7 Assess quality of finished work |
|  | B8Maintain the grinding machine | B9 Perform Housekeeping  |  |  |  |  |  |

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| **General knowledge and skills** | **Worker Behaviour** |
| **Knowledge on*** Occupational Health and Safety Act of Kenya laws 2007 with focus on personal safety, machine safety and workplace
* National Environment Management Authority Act, Kenya 2004
* Equipment manuals
* Basic technical drawing complying to ISO, ANSI & BS standards
* ISO 1101 Geometrical tolerance and where to use the norm
* Work Planning and documentation
* Measuring tools
* Hand tools
* Bench work
* Portable and bench drilling machines
* Inspection and quality control
* Preventive maintenance of machine tools
* Metal cutting technology
* Materials and metallurgy
* WIBA act (2007)
* Report writing
* Sheet metal development
* Transmission systems
* Joining methods (bolts, screws, rivets, seams, soldering, brazing and welding)
* Cutting, bending, and rolling machines
* Drilling,and punching machines,drills and punches
* Use of the Guillotine, bending and rolling machines
* Production of holes in sheet metal
* Safety practices and procedures
* Fasteners
* Joining methods and techniques
* Methods of marking out
* Procedure for safe disposal of waste materials

**Skills in*** Communication skills
* Problem solving
* Data collection and analysis
* Use of tools and equipment
* Basics on mechanical maintenance
* Use of test and measuring instruments
* Organisation
* Interpreting and following information on written job instructions, manufacturer specifications, standard operating procedures, charts, lists, reports and other applicable reference documents
* Interpreting layout drawings and specifications
* Checking and clarifying information
* Reporting – oral/written
* Planning and sequencing tasks
* Measuring to specified tolerances
* Performing numerical operations, geometry and engineering calculations/formulae within unit's scope
* Creativity and innovation
* Use of tools and equipment
* Technical drawing
* Installation and fabrication
* Welding
* Material testing
* Weld inspection
* Weld positions
* Non-destructive testing (NDT)
* Destructive testing (DT)
* Sheet metal development
* Soldering
* Welding
* Seaming
* Riveting
* Bolting
* brazing
* Use of the Guillotine, bending and rolling machines
* Use of hand tools to cut, fold and form sheet metal
* Production of holes in sheet metal
* Using hand tools
* Using portable and bench drilling machines
* Using portable drilling machines
 | * Attentive to detail
* Focused
* Integrity
* Honesty
* Assertive
* Team player
* Creativity
* Time conscious
* Self-motivated
* Work ethics
* Accountability
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| **Future Trends and Concerns:** |
| **Future trends*** Technological advances
* Self-training
* Automation of systems
* Vision 2030
* Robot technology
* Cloud computing
* Mobile computing

**Concerns** * Self-training
* Environmental concerns
* Safety and health concerns
* Disposal concerns
* Technological advances
* Artificial intelligence
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