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| Title | **Perform basic bench work** |
| Level | **2** | **Credits** | **10** |

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| Purpose | This competency standard identifies the competencies you need to perform basic bench work operations using different tools and equipment, in accordance with approved procedures. You will be expected to perform sawing, filing, threading and reaming using hand tools. You will be required to operate the tools and equipment safely by complying the organizational safety policy and approved procedures. Your underpinning knowledge regarding drilling machine operations will be sufficient to provide you with the basis for your work. |

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| Classification ISCED | 0715 Mechanics and metal trades |

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| Available grade | Competent / Not yet competent |

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| Modification history | N/A |

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| **Unit of Competency** | **Performance Criteria** | **Knowledge and Understanding** | **Tools & Equipment** |
| **A1. Carry out Sawing** | ***You must be able to:*****P1.** Mark the job according to given drawing.**P2.** Select appropriate blade according to job requirement.**P3.** Set the blade in frame of hacksaw as per procedure.**P4.** Ensure the work-piece is clampedfirmly and properly.**P5.** Adapt methods and techniques for sawing that is appropriate to job requirement.**P6.** Follow marked line during sawing to ensure accuracy.**P7.** Observe personal and workplace safety at all times. | ***You must know and understand:*****K1.** Properties of metals.**K2.** Types of Hacksaw blades.**K3.** Procedure of setting blade in hacksaw.**K4.** Interpret basic drawings.**K5.** Methods of measurements.**K6.** Method of marking the work-piece. **K7.** Procedure of clamping the work-piece. **K8.** Methods and techniques of sawing.**K9.** Personal safety precautions. | **T1**. Work bench **T2**. Bench vice **T3**. Tri square **T4**. Scriber**T5**. Hand hack saw with blade**T6**. Steel Rule**T7**. Personal Protective Equipment**T8**. Punching Tools |

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| **Unit of Competency** | **Performance Criteria** | **Knowledge and Understanding** | **Tools & Equipment** |
| **A2. File the work piece according to job requirements** | ***You must be able to:*****P1**. Select file according to the operation.**P2**. Ensure the work-piece is clamped firmly and properly.**P3**. Use file according to required dimension grade and shape.**P4**. Adapt methods and techniques for filing that is appropriate to job requirement.**P5**. Ensure surface and size accuracy of work- piece.**P6**. Observe personal and workplace safety at all times. | ***You must know and understand:*****K1**. Types of files**K2**. Use of measuring tools**K3**. Use of marking tools**K4**. Procedure of clamping the work-piece.**K5**.Methods of filing flat, curved edges and even surfaces**K6**. Personal safety precautions. | **T1**. Work bench with vice**T2**. Files**T3**. Scriber **T4**. Steel rule **T5**. Try square**T6**. Personal Protective Equipment |
| **A3. Produce threads on work piece** | ***You must be able to:*****P1.** Select tap and die according to job requirement.**P2.** Clamp work-piece in the vice properly.**P3.** Ensure alignment of tap and die.**P4.** Use lubricants during threading for smooth cutting. | ***You must know and understand:*****K1**. Types of taps and dies.**K2**. Use of tap set according to safe process.**K3**. Mm and inches system tap set.**K4**. Importance of using lubricants during threading.**K5**. Copying of design and texture on work | **T1**. Bench and bench vice**T2**. Tapset**T3**. Tap handle **T4**. Lubricant **T5**. Tri square |

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| **Unit of Competency** | **Performance Criteria** | **Knowledge and Understanding** | **Tools & Equipment** |
|  | **P5.** Eliminate unwanted engraving and slips.**P6.** Ensure the threads are accurate and dimensionally correct.**P7.** Observe personal and workplace safety at all times. | piece.**K6**. Basic drawing concepts.**K7**. Safety precautions. | **T6**. Thread Gauges |
| **A4. Perform Hand Reaming** | ***You must be able to:*****P1.** Clamp work-piece in the vice properly.**P2.** Select reamer according to hole size and drawing requirements.**P3.** Set reamer in the handle correctly**P4.** Use lubricants during reaming.**P5.** Ensure proper alignment of the reamer during operations.**P6.** Observe personal and workplace safety at all times. | ***You must know and understand:*****K1**. Selecting reamer according to hole size.**K2**. Types of reamers (straight teeth or helical teeth).**K3**. Method of setting reamer in the handle.**K4**. Importance of using lubricants during reaming.**K5**. Importance of alignment of the reamer during operations.**K6**. Safety precautions. | **T1**. Bench vice**T2**. Hand reamer**T3**. Handle of reamer**T4**. Lubricant**T5**. Plug Gauges |