|  |  |
| --- | --- |
| Title | **Kiln firing** |
| Level | **3** | **Credits** | **23** |

|  |  |
| --- | --- |
| Purpose | This competency standard is designed to provide basic competencies about the process of firing of the ceramics articles using natural gas fired kilns in accordance to the requirement of the industry. |

|  |  |
| --- | --- |
| Classification ISCED | 0214 Handicrafts |

|  |  |
| --- | --- |
| Available grade | Competent / Not yet competent |

|  |  |
| --- | --- |
| Modification history | N/A |

|  |  |  |
| --- | --- | --- |
| **Competency Unit** | **Performance Criteria** | **Knowledge and Understanding** |
| **H1. Perform loading and unloading of the kiln** | **Trainee will be able to :****P1.** Store the green wares safely.**P2.** Level the kiln cars**P3.** Distribute uniform load and space onto the Slabs.**P4.** Store the fired products with identification | **Trainee will be able to :****K1.** Understand the loading capacity of the kiln car /slabs**K2.** Assess the moisture contents of the wares.**K3.** Ensure the locking of the kiln cars**K4.** Assess the cleanliness of the slabs before loading**K5.** Use levelling apparatus. |
| **H2. Fire the kiln** | **Trainee will be able to : P1.** Draw firing curve**P2.** Adjust air / gas ratio for the burners **P3.** Adjust the tie rods of kiln as needed **P4.** Ignite the burners**P5.** Maintain different zones of the kiln **P6.** Adjust pushing speed of the cars **P7.** Adjust dampers of the kiln.**P8.** Use appropriate safe technique when pushing and pulling the cars**P9.** Operate standby generators | **Trainee will be able to :****K1.** Explain the firing requirement of the ware (oxidation / reduction)**K2.** Get understanding of required gas pressure**K3.** Explain electric voltage accordingly**K4.** Classify the nature of materials to be fired.**K5.** Assess the color of the flame**K6.** Identify the pressure of the kiln |

|  |  |  |
| --- | --- | --- |
| **Competency Unit** | **Performance Criteria** | **Knowledge and Understanding** |
| **H3. Record kiln data** | **Trainee will be able to : P1.** Check air / gas ratio**P2.** Check kiln pressure, gas pressure**P3.** Maintain the log book**P4.** Check temperature of different zones of the kiln at specified intervals. | **Trainee will be able to :****K1.** Use measuring instruments**K2.** Log the kiln and production data**K3.** Assess any abnormal operation / behavior of the kiln |
| **H4. Perform proper Maintain the kiln** | **Trainee will be able to : P1.** Clean the burners**P2.** Lubricate / grease the moving parts of the kiln.**P3.** Clean the control panels**P4.** Insulate the hot areas**P5.** Replace damaged refractory bricks**P6.** Clean gas and air filters**P7.** Adjust air /gas ratios**P8.** Clean slabs /rollers periodically**P9.** Apply coating to the slabs**P10.** Develop preventive maintenance schedules | **Trainee will be able to :****K1.** Identify lubricants / greases**K2.** Use vacuum cleaning of the electronic parts**K3.** Assess materials for coating of slabs / rollers**K4.** Identify various types of the insulation materials and bricks**K5.** Use different tools**K6.** Identify the need for calibration of thermocouples **K7.** Maintain the required materials for maintenance **K8.** Identify the need for changing the slabs |

|  |  |  |
| --- | --- | --- |
| **Competency Unit** | **Performance Criteria** | **Knowledge and Understanding** |
| **H5. Identify the trouble shooting phenomena in kiln** | **Trainee will be able to:****P1.** Restart the kiln after power shutdown**P2.** Adjust the air / gas ratios**P3.** Purge the kiln before every starting cycle | **Trainee will be able to:****K1.** Understand the kiln alarms**K2.** Understand the kiln operating / maintenance manuals |