



National Vocational Certificate Level 2 in Fine Arts (Ceramist)



Competency Standards



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Date of approval by NCRC:

17th-18th Aug 2015

Date of Notification:

25th Aug 2015, vide notification no F.2-1/2013-DD(VT)

This curriculum has been produced by the National Vocational & Technical Training Commission (NAVTTCC) with the technical assistance of TVET Reform Support Programme, which is funded by the European Union, the Embassy of the Kingdom of the Netherlands, Federal Republic of Germany and the Royal Norwegian Embassy. The Programme has been commissioned by the German Federal Ministry for Economic Cooperation and Development and is being implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

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Competency Standards: CERAMICS

Title A: PREPARE SLIP AND GLAZES

Overview: The competency standard is designed to enable trainee for different processes i.e. crushing and grinding and will also enable learner to operate the equipment used in slip house to prepare slip and glazes of required composition.

Competency Unit	Performance Criteria	Knowledge and Understanding
A1: Perform crushing of raw materials	<p>The trainee will be able to:</p> <p>P1. Differentiate raw materials</p> <p>P2. Feed the crusher properly</p> <p>P3. Operate the crushing equipments</p> <p>P4. Troubleshoot during crushing operation</p>	<p>The trainee will be able to:</p> <p>K1. Understand ceramics and raw materials</p> <p>K2. Identify different crushing equipments</p> <p>K3. Describe feed and product mesh sizes</p>
A2: Perform batching of raw materials for slip and glazes	<p>The trainee will be able to:</p> <p>P1. Operate the weighing balance</p> <p>P2. Perform calculation of different batches of body and glazes.</p> <p>P3. Add water to slip and glazes according to the required composition.</p> <p>P4. Prepare batches of different types of glazes.</p>	<p>The trainee will be able to:</p> <p>K1. understand slip and glazes</p> <p>K2. know fluxes, fillers and clays</p> <p>K3. Define calculations for batching</p> <p>K4. Recognise different pigments used for color glazes</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
A3: Perform grinding and mixing of raw materials	<p>The trainee will be able to:</p> <p>P1. Charge the ball mill with grinding media and batch</p> <p>P2. Calculate the grinding time and RPM(Revolution Per Minute) of ball mill</p> <p>P3. Operate the ball mill</p> <p>P4. Unload the ball mill properly</p>	<p>The trainee will be able to:</p> <p>K1. Recognise the types of grinders</p> <p>K2. Define the working principal of ball mill</p> <p>K3. Classify types of grinding</p> <p>K4. Identify grinding media and liners used in ball mill.</p>
A4: check and adjust the parameters of slip and glazes	<p>The trainee will be able to:</p> <p>P1. Check residue, viscosity, and density of slip and glaze</p> <p>P2. Add suitable amount of water and deflocculates.</p>	<p>The trainee will be able to:</p> <p>K1. Understand the factors effecting quality of slip and glazes</p> <p>K2. Explain density, viscosity and residue of slip and glazes</p>
A5: Perform filtration of the slip	<p>The trainee will be able to:</p> <p>P1. Charge the blunger properly</p> <p>P2. Operate the pump</p> <p>P3. Calculate the mixing time</p> <p>P4. Adjust the filter cloth in the plates a</p> <p>P5. operate the filter press</p> <p>P6. Disassemble the plates and collect cake from press.</p>	<p>The trainee will be able to:</p> <p>K1. Identify the working principle of blunger</p> <p>K2. Define operation and working principal of filter press</p> <p>K3. Describe filtration flow rate and pressure in press</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>A6: Perform vacuum kneading of the filtered cake</p>	<p>The trainee will be able to:</p> <p>P1. Charge the pug mill properly with filter cakes</p> <p>P2. Operate the pug mill</p> <p>P3. check vacuum pressure of Pug mill</p> <p>P4. cut and handle Pugs properly</p>	<p>The trainee will be able to:</p> <p>K1. Explain the working principals of Pug mill</p> <p>K2. Define the functions of vacuum pump in Pug mill</p>

Title B: PREPARE MODEL AND MOULD

Overview: this competency is designed to make learners understand the importance and need of model and mould making for the completion of end product in the field of ceramics. It will also allow them to learn how this process is performed.

Competency Unit	Performance Criteria	Knowledge and Understanding
B1. Make design of the desired product	The trainee will be able to: P1. Identify the size of the product. P2. Draw the design of the structure of the desired product according to the set size(s). P3. Draw the surface design of the desired product.	The trainee will be able to: K1. Understand the technical details of the form of end product.
B2. Make Model of the desired product	The trainee will be able to: P1. Identify and collect the relevant material for making the product. P2. Make a small scale model with desired shape, form and surface design.	The trainee will be able to: K1. Identify the material used for making the model. K2. Explain the method for applying the surface design.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>B3. Make various types of plaster mould</p>	<p>The trainee will be able to: P1. Collect the material for making the mould. P2. Make the mould of desired size.</p>	<p>The trainee will be able to: K1. Understand the importance and use of moulds for the production of several pieces.</p>

Title C: FORM ARTICLES BY APPLYING DIFFERENT TECHNIQUES

Overview: This competency standard is designed to provide basic competencies about the process of forming the ceramics articles using casting, pressing, and jiggering techniques in accordance to the requirement of the industry.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>C1. Make articles by casting techniques</p>	<p>Trainee will be able to :</p> <p>P1. Clean all parts of the moulds</p> <p>P2. Apply dry lubricants to the parts of the moulds.</p> <p>P3. Combine/ fix different parts of the moulds.</p> <p>P4. Level the moulds before filling.</p> <p>P5. Fix the mould on the casting bench</p>	<p>Trainee will be able to :</p> <p>K1. Understand different parts of the mould.</p> <p>K2. Identify the defects of the moulds</p> <p>K3. Identify the quality of the body slip</p> <p>K4. Apply dry lubricants to the parts of the moulds.</p>
<p>C2. Filling of moulds</p>	<p>Trainee will be able to :</p> <p>P1. Fix the mould parts with clamps</p> <p>P2. Make suitable holes for filling and drain of the body slip.</p> <p>P3. Make seamless joints of the moulds.</p> <p>P4. Pour the slip in casting holes</p>	<p>Trainee will be able to :</p> <p>K1. Assess the quality of the body slip for density, viscosity and residue.</p> <p>K2. Apply suitable force to fix the clamps.</p> <p>K3. Explain the leveling of the moulds</p> <p>K4. Identify the speed of the filling of the mould</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
C3. Analyse the casting thickness and time	Trainee will be able to : P1. Check the thickness of the casted article P2. Drain the excess slip from the mould	Trainee will be able to : K1. Assess the quality of the mould. K2. Identify the useful life of the mould. K3. Use the tools for thickness checking K4. Explain the effect of weather on the casting time
C4. Make articles by pressing technique	Trainee will be able to : P1. Make granulate manually P2. Operate manual / hydraulic press P3. Fix die in the press P4. Apply suitable force for pressing	Trainee will be able to : K1. Assess the moisture contents of the granulate K2. Identify the size of the granulate K3. Know the heat requirement of the dies K4. Understand the requirement of aging of the granulate K5. Identify the defects of the pressed wares. K6. Fill the die with required weight of the material
C5. Make articles by jiggering and jollying	Trainee will be able to: P1. Operate the filter press P2. Fix the filter cloth P3. Operate the pug mill P4. Fix the die in the pug mill P5. Adjust the wire cut P6. Operate the jiggering and jollying	Trainee will be able to: K1. Fix the inlet pipes to the filter press. K2. Understand the need of pressure required for filter press K3. Assess the moisture contents of the slip and filter cake. K4. Know the heat requirement of the dies K5. Identify the lubrication of the machine parts K6. Understand the requirement of the storage environment of

Competency Unit	Performance Criteria	Knowledge and Understanding
	<p>P7. Machines</p> <p>P8. Fix the dies in the jiggering and jollying Machines.</p>	<p>the filter cake and cut pieces.</p> <p>K7. Identify the defects of the articles.</p> <p>K8. Understand issues related to the dry and humid atmospheres.</p>

Title D: PERFORM DIFFERENT TECHNIQUES OF DRYING

Overview: This competency standard is designed to enable the learner to identify and apply different processes involved in drying the article(s). It will also enable them to identify the importance of good drying for the accomplishment of further processes.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>D1. Drying in open air and sun.</p>	<p>Trainee will be able to:</p> <p>P1. Handle the article properly after the desired form is achieved.</p> <p>P2. Assemble the articles properly at the designated place in open air/ sun.</p>	<p>Trainee will be able to:</p> <p>K1. Understand the importance of drying.</p> <p>K2. Explain the process and importance of drying.</p> <p>K3. Identify the method through which the articles are dried in open air/ sun.</p>
<p>D2. Perform drying in Conveyor belt dryer</p>	<p>Trainee will be able to:</p> <p>P1. Operate Conveyor belt</p> <p>P2. Dry the articles using conveyer belt.</p>	<p>Trainee will be able to:</p> <p>K1. Identify the process through which articles are transferred to the conveyer belt.</p>
<p>D3. Perform drying in spray dryer</p>	<p>Trainee will be able to:</p> <p>P1. Operate spray dryer.</p> <p>P2. Dry the slip to make granulates using spray dryer.</p>	<p>Trainee will be able to:</p> <p>K1. Explain the process through which spray drying takes place.</p>

Title E: PERFORM FINISHING AND JOINING

Overview: The competency standard is designed to provide basic competence about the finishing & joining operations involved and finalize the final shape per requirements.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>E1. Inspection of the green ware piece</p>	<p>The trainee will be able to:</p> <p>P1. Identify the green ware piece</p> <p>P2. Inspect the defects like war page etc.</p> <p>P3. Check the moisture content in the green ware</p> <p>P4. Operate the wheel</p>	<p>The Trainee will be able to:</p> <p>K1. Describe the defects like war page, cracks & pinhole in the green piece</p> <p>K2. Explain the importance of moisture in green ware</p> <p>K3. Understand the precautions for handling</p> <p>K4. Elaborate the rotating wheel</p>
<p>E2. Perform the finishing of the piece</p>	<p>The Trainee will be able to:</p> <p>P1. Maintain the desired moisture level in the piece</p> <p>P2. Remove the unwanted spare line in the piece</p> <p>P3. Operate the tools properly for the finishing</p> <p>P4. Make the desired shape.</p>	<p>The Trainee will be able to:</p> <p>K1. Explain the importance of finishing</p> <p>K2. Describe the tools & wheel used in the finishing of piece</p> <p>K3. Understand the final shape & spare lines of the greenware.</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
E3. Perform cutting of the piece	The Trainee will be able to: P1. Use the different cutting tools P2. Cut the Piece according to perception drawings P3. Cut the Piece of the required size	The Trainee will be able to: K1. Understand the desired shape of the product K2. Describe the different cutting tools
E4. Perform the joining of the piece	The Trainee will be able to: P1. Identify the pieces to be joined P2. Prepare the paste P3. Apply paste to the joining parts P4. Ensure the proper cleaning after joining	The Trainee will be able to: K1. Explain the different techniques for the joining of the pieces K2. Describes the paste used for joining. K3. Understand the pieces to be joined like kettle etc. K4. Explain the importance of cleaning after joining
E5. Refinishing of the piece	The Trainee will be able to: P1. Clean the piece as per requirements P2. Finalize the product	The Trainee will be able to: K1. Describe the final shape of the article. K2. Explain the process of refinishing

Title F: DECORATE ARTICLES

Overview: The competency standard is designed to enable learners to understand the different decoration techniques e.g. under glaze decoration, engraving, embossing perform over glaze decoration and make engobe decoration

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>F1. Make under glaze decoration</p>	<p>The trainee will be able to:</p> <p>P1. Select the design</p> <p>P2. Sketch the selected design on Green/dry ware</p> <p>P3. Prepare the colour solution</p> <p>P4. Assess the colour solution</p> <p>P5. Apply colour on the ware as required</p>	<p>The trainee will be able to:</p> <p>K1. Identify the different techniques Under glaze decoration</p> <p>K2. Describe Application of design</p> <p>K3. Describe the color properties</p>
<p>F2. Make engraving</p>	<p>The trainee will be able to</p> <p>P1. Use cutting tools appropriately</p> <p>P2. Sketch different engraving patterns on the ware</p> <p>P3. Handle the ware properly</p>	<p>The trainee will be able to</p> <p>K1. Recognise different engraving techniques for ceramics ware</p> <p>K2. Identify various methods of cutting</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
F3. Perform embossing	<p>The trainee will be able to:</p> <p>P1. Select a design for Embossing</p> <p>P2. Transfer selected design on the ware</p> <p>P3. Emboss the design using appropriate tools</p>	<p>The trainee will be able to:</p> <p>K1. Explain different embossing techniques of ceramic ware e.g.</p> <ul style="list-style-type: none"> • Pattern • Tools • Joining, etc
F4. Perform over glaze decoration	<p>The trainee will be able to:</p> <p>P1. Identify various over glaze decoration techniques e.g.</p> <ul style="list-style-type: none"> • Lustre • Sticker • Screen Printing <p>P2. Check luster viscosity and density</p> <p>P3. Decorate the piece using spraygun</p> <p>P4. Operate the screen printing machine accordingly</p>	<p>The trainee will be able to:</p> <p>K1. Explain different Over glaze decoration techniques</p> <p>K2. Recognise luster application tools</p> <p>K3. Define luster viscosity and density</p> <p>K4. Describe spraying techniques</p> <p>K5. Recognise the process of Screen printing</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
F5. Make Engobe decoration	<p>The trainee will be able to:</p> <p>P1. Perform Engobe decoration techniques</p> <p>P2. Apply Engobe methods e.g.</p> <ul style="list-style-type: none"> • Pouring • Spraying <p>P3. Inspect Engobe defects</p>	<p>The trainee will be able to:</p> <p>K1. Identify various Engobe techniques</p> <p>K2. Describe the Engobe application process</p> <p>K3. Describe composition of Engobe</p> <p>K4. Know the cleanliness of the surface of ware</p>

Title G: DEMONSTRATE GLAZE APPLICATION METHODS

Overview: The competency standard is designed to develop a competency for different glazing techniques e.g. spraying, brushing, dipping and pouring.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>G1. Perform glazing by Spraying</p>	<p>The trainee will be able to:</p> <p>P1. Assess the viscosity of glaze for spraying</p> <p>P2. Adjust the spray head</p> <p>P3. Adjust the Spray Gun Nozzle</p> <p>P4. Start the booth Exhaust Fan</p> <p>P5. Place the piece in Spraybooth</p> <p>P6. Glaze by spraying</p> <p>P7. Adjust the glaze thickness</p> <p>P8. Wash tools after Use according to health & safety rules</p>	<p>The trainee will be able to:</p> <p>K1. Explain glazing by the method of spraying</p> <p>K2. Recognise spraying tools</p> <p>K3. Understand the operations of spray booth</p> <p>K4. Define how to check and adjust spray gun nozzle</p> <p>K5. Identify the thickness of glaze</p>
<p>G2. Perform glazing by brushing</p>	<p>The trainee will be able to</p> <p>P1. Adjust the viscosity of glaze for brushing</p> <p>P2. Perform glazing with brushing</p> <p>P3. Check the thickness of glaze</p>	<p>The trainee will be able to</p> <p>K1. Classify the types of brushes</p> <p>K2. Explain the method of glazing with brushing method</p> <p>K3. Identify the defects of brushing method</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
G3. Perform glazing by dipping	Trainee will be able to: P1. Adjust the viscosity of glaze for dipping P2. Apply the glaze P3. Handle the piece properly P4. Perform double dipping	The trainee will be able to K1. Explain the method of glazing with dipping method K2. Recognise the dipping equipments
G4. Perform glazing by Pouring	Trainee will be able to: P1. Adjust the viscosity of glaze for pouring P2. Control the flow rate of glaze P3. Control the speed of conveyer belt P4. Pump back the extra glaze P5. Manage the glaze thickness	The trainee will be able to: K1. Explain glazing by the method of pouring K2. Understand the importance of wetting piece before application of glaze K3. Identify the thickness of glaze
G5. Correct Application of Glaze	Trainee will be able to: P1. Organise the workplace according to the rules of health & Safety P2. Adjust the viscosity/flow rate and density of glaze for application of each technique P3. Check the thickness of glaze	Trainee will be able to: K1. Understand the importance of Safe & clean work area K2. Explain the density, viscosity/flow rate and thickness of glaze

Title H: PERFORM KILN FIRING

Overview: 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.

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

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

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

Title I: PERFORM THE QUALITY CONTROL AND SORTING

Overview: The competency standard is designed to understand the importance of quality control of the raw material and the fired products:

Competency Unit	Performance Criteria	Knowledge and Understanding
I1. Evaluate the Ceramics raw materials	Trainee will be able to: P1. Inspect the raw materials visually P2. Test the Plasticity P3. Check the Mesh size P4. Check the Moisture P5. Inspect the Colour after firing P6. Identify the raw materials	Trainee will be able to: K1. Identify the different raw materials K2. Describe the different physical testing used for raw material like moisture, plasticity, colour and mesh size
I2. Identify the defects on glazed surface	Trainee will be able to: P1. Identify different types of defects P2. Inspect the glaze defects visually e.g. pinhole, crazing, shivering & crawling etc.	The Trainee will be able to: K1. Analyse the different defects in glaze surface
I3. Identify the defects of fired body	The Trainee will be able to: P1. Identify different types of defects P2. Inspect the different defect in body like warpage, crack and dents etc.	The Trainee will be able to: K1. Catagorised the different defects on fired body K2. Explain defects of different types of bodies

Competency Unit	Performance Criteria	Knowledge and Understanding
I4. Perform grading of the products	Trainee will be able to: P1. Make grading on the basis of defects P2. Draw the table for thegrading	Trainee will be able to: K1. Understand the importance of grading

Title J: COMMUNICATE EFFECTIVELY

Overview: The competency standard is designed to make enable the trainee to properly communicate with the related persons in the industry.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>J1. Communicate with senior/joiner</p>	<p>The trainee will be able to:</p> <p>P1: Communicate verbally according to the status of seniors/joiners.</p> <p>P2: Select the suitable channel and communicate in written.</p>	<p>The trainee will be able to:</p> <p>K1: Know the verbal communication.</p> <p>K2: Understand channels of communication.</p> <p>K3: Describe different types of action communication.</p>
<p>J2. Communicate with engineer/supervisor</p>	<p>The trainee will be able to:</p> <p>P1: Communication verbally according to the status of engineer/supervisor.</p> <p>P2: Select suitable channel for communication.</p> <p>P3: Communication in written.</p>	<p>The trainee will be able to:</p> <p>K1: Know the verbal communication.</p> <p>K2: Understand channels of communication.</p> <p>K3: Describe different types of action communication.</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>J3. Communicate with electrical department</p>	<p>The trainee will be able to: P1: Communication verbally/written according to the status of electrical faults.</p>	<p>The trainee will be able to: K1: Know the verbal communication. K2: Understand channels of communication. K3: Describe different types of action communication.</p>

Title K: ENSURE SAFETY AT WORK PLACE

Overview: This competency standard is designed to promote a safe and healthy work environment. It will ensure the safety while handling all the ceramic materials, tools and equipment and dealing with hazards and accidents.

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>K1. Identify the protective procedures.</p>	<p>The trainee will be able to:</p> <p>P1. Use and handle the machinery appropriately</p> <p>P2. Enlist various tools and equipment and their safe use.</p> <p>P3. Identify and wear appropriate clothing at work place.</p> <p>P4. Provide necessary first aid treatment when required.</p>	<p>The trainee will be able to:</p> <p>K1. Memories health and safety measures.</p> <p>K2. Define appropriate clothing at work place.</p> <p>K3. Explain proper handling and maintenance of machinery and equipment.</p>
<p>K2. Ensure the cleaning of the working area.</p>	<p>The trainee will be able to:</p> <p>P1. Maintain the work place properly.</p> <p>P2. Clean and store the tools safely.</p> <p>P3. Provide first aid treatment in case of emergency.</p>	<p>The trainee will be able to:</p> <p>K1. Identify processes involved in the cleaning of furniture and work area after the work is completed.</p> <p>K2. Define areas allocated for the storage of tools.</p>

Competency Unit	Performance Criteria	Knowledge and Understanding
<p>K3. Use of fire extinguisher and safety alarm.</p>	<p>The trainee will be able to:</p> <p>P1. Use fire extinguishers and safety alarms at the time of emergency.</p>	<p>The trainee will be able to:</p> <p>K1. Explain the fire extinguisher and its uses.</p> <p>K2. Describe fire alarms handling.</p> <p>K3. Develop awareness of various controls and procedures in various disciplines of ceramics.</p>

LIST OF TOOLS, MACHINERY & EQUIPMENT

NOMENCLATURE OF EQUIPMENT / TOOLS	QUANTITY
Shuttle kiln with all accessories Volume:- 500 liter Maximum temperature:- 1300 deg C Fuel- Natural gas fired Blower as per specification of the Kiln , Suitable for oxidizing & Reduction firing Equipped with all temp/fuel control system Kiln Furnitures SiC Slabs, Saggars, Pilleretc	1 No. (Imported)
Ball Mill with complete accessories Capacity: 100 kg	1 No
Pug Mill with vacuum	1 No.
Portable Spray Gun	4 No
Modeling Wheel	5 No
Torsion Balance Viscometer	1 No
Magnetic Separator	1 No.
Spray Booth	4 No
Lab Scale Kiln Max Temperature 1200 deg C Volume 20 L	1 No.
Plaster Modeling Wheel	5 No

Plaster Mixing Machine	1 No
Analytical weighting Scale	1 No
Buckets, jugs	10 No
Spoons & whisks	20 No
Wooden Boards	60 No
Plaster Bats	20 No
Plaster's Turning Tools Set	2 No
Scrapers or Metal Kidneys	10 No
Carpenter's Saw	2 No
Surforms Blades	30 No
Forged Steel Tools	20 No
Hacksaw Blades	20 No
Variety of Files, Knives, Gouges, chisels	50 No
Weighing scale	1 No.
Calipers	10 No
Flexi curves	10 No
Compasses	20 No

LIST OF CONSUMABLE SUPPLIES

Consumable Items	Quantity
Green wares like: <ul style="list-style-type: none"> • Plates • Bowls • Dishes • Basins • Commodes • Bricks 	100 each
Pyrometric sager cones	20 set
Insulating Wool	10 set
Kiln furniture like SiC Slabs etc.	20 No
China Clay,	2 Ton
Ball Clay	2 Ton
Pottery Clay	2 Ton
Soda Feldspar	2 Ton
Potash feldspar	2 Ton
Quartz	2 Ton
Lime Stone	1 Ton
Talc	500 Kg
Zironia	300 Kg
Corundum	100 Kg
Beakers 1 L, 500 mL, 100 mL	50 No
Hydrometer	25 No
Porcelain Crucibles 30 ml	40 No
Eraser	100 No
Blades	70 No
Sponges	100 No
Tub 20 L	10 No

- Notebooks
- Photocopy Papers
- Ball pens
- Pencils
- Erasers
- Sharpeners
- Board Markers
- Whiteboard
- Whiteboard Eraser
- Tracing Papers



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