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**UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA**

LESSON PLAN

**SESSION: 2022-2023**

**DEPARTMENT OF CERAMIC TECHNOLOGY**

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**SUBJECT CODE:** TH-2

**NAME OF THE SUBJECT:** GLASS TECHNOLOGY

**BRANCH:** CERAMIC TECHNOLOGY

**SEMESTER:** DIPLOMA 3RD SEM

**NUMBER OF CLASS ALLOTED PER WEEK:** 4

**TOTAL PERIODS ALLOTED TO THE SUBJECT ACCORDING TO STEVT:**60

**NAME OF THE FACULTY**: KRUSHNA PRASAD DASH

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| **Week/Date** | **Lecture** | **Topic to be covered** | **Remarks** |
| 1st week15/09/2022To17/09/2022 | 1st | **Chapter-1:Raw material and batch composition** 1.1: Define glass and glassy state. |  |
| 2nd  | 1.2: Historical background of glass. |
| 3rd  | 1.3: Glass industries in india and the present status. |
| 2nd week19/09/2022To24/09/2022 | 1st | 1.4: Describe the major ingredients for glass making. |  |
| 2nd | 1.5: describe the minor ingredients used for glaa making. |
| 3rd  | 1.6: Define cullet and its use in glass making. |
| 4th  | 1.7: Describe selection of glass making. |
| 3rd week26/09/31To01/10/2022 | 1st  | 1.8: Properties of glass sand for glass making. |  |
| 2nd  | 1.9: Impurities in glass raw materials and their influence in glass making. |
| 3rd | **2.0: Glass melting process: Explain the following in brief**.2.1: Calculation of batch of raw materials for making glass. |
| 4th  | 2.2: Process of glass formation. |
| 4th week03/10/22To08/10/22 | 1st  | 2.3: Refining of glass. |  |
| 2nd  | 2.4: Decolorization of glass. |
| 3rd  | 2.5: Role of viscosity in glass melting. |
| 4th  | 2.6: Glass melting furnace. |
| 5th week010/10/22To15/10/22 | 1st  | 2.7: Glass tank furnace and glass pot furnace. |  |
| 2nd  | 2.8: De-vitrification of glass. |
| 3rd  | **3.0: MANUFACTURING & FORMATION OF GLASSWARE.**3.1: Various methods used for making glass products. |
| 4th  | 3.2: Manufacture of glass by blowing process. |
| 6th week17/10/22To22/10/22 | 1st  | 3.3: Float process. |  |
| 2nd  | 3.4: Various moulds for glass making. |
| 3rd  | 3.5: Manufacturing of glass bottle, sheet glass, thermo flask, electric bulb. |
| 4th  | 3.6: Manufacturing of fiber glass, glass wool. |
| 7th week24/10/22To29/10/22 | 1st | 3.7: Layout of modern glass plant. |  |
| 2nd | **4.0: ANNEALING & TOUGHENING OF GLASS.**4.1: Define annealing & toughening of glass & Aim of annealing. |
| 3rd | 4.2: Describe the process of annealing in details. |
| 4th | 4.3: Explain tempering of glass by various methods. |
| 8th week31/10/22To05/11/22 | 1st | 4.4: State and explain chemical and mechanical toughening of glass. |  |
| 2nd | **5.0: Properties of glass.**5.1:Describe the following properties of glass in details.01.Viscosity. |
| 3rd | 02: Thermal expansion. |
| 4th  | 03: Density. |
| 9th week07/11/22To12/11/22 | 1st  | 04: Optical properties. |  |
| 2nd | 05: Chemical durability. |
| 3rd | **6.0: TESTING OF GLASS.(Describe in brief)**6.1: Testing of defect of glass by visual observation. |
| 4th | 6.2: Blistering, cords, stones in glass.  |
| 10th week14/11/22To19/11/22 | 1st  | 6.3: Determination and observation of strain in glass. |  |
| 2nd  | 6.4: Measurement of thermal shock resistance of glass.  |
| 3rd  | 6.5: Testing of viscosity of glass. |
| 11th week21/11/22To26/11/22 | 1st  | 6.6: Testing of density of glass. |  |
| 2nd  | 6.7: Testing of strength of glass. |
| 3rd  | 6.8: Durability of glass. |
| 4th  | **7.0: GLASS DECORATION.**7.1: Describe the following methods of glass decoration in brief.A: Polishing. |
| 12th week28/11/22To03/12/22 | 1st | B: Grinding.C: Etching. |  |
| 2nd | D: Sand blasting. |
| 3rd | E: Engraving. |
| 4th  | F: Cutting. |
| 05/12/22To10/12/22 | 1st | G: Staining. |  |
| 2nd | H: Enameling. |
| 3rd  | **8.0: SPECIAL GLASSES.**8.1: Define special glass. |
| 12/12/22To17/12/22 | 1st  | **8.2: Describe the characteristics and application of the following glasses**A: Borosilicate glass. |  |
| 2nd  | B: Pyrex glass. |
| 3rd  | C: Heat resisting glass. |
| 19/12/22To23/12/22 | 1st  | D: Coloured glass. |  |
| 2nd  | E: Ruby glass. |
| 3rd  | F: Laminated glass. |