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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 week  15/09/2022  To  17/09/2022 | 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 week  19/09/2022  To  24/09/2022 | 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 week  26/09/31  To  01/10/2022 | 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 week  03/10/22  To  08/10/22 | 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 week  010/10/22  To  15/10/22 | 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 week  17/10/22  To  22/10/22 | 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 week  24/10/22  To  29/10/22 | 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 week  31/10/22  To  05/11/22 | 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 week  07/11/22  To  12/11/22 | 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 week  14/11/22  To  19/11/22 | 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 week  21/11/22  To  26/11/22 | 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 week  28/11/22  To  03/12/22 | 1st | B: Grinding.  C: Etching. |  |
| 2nd | D: Sand blasting. |
| 3rd | E: Engraving. |
| 4th | F: Cutting. |
| 05/12/22  To  10/12/22 | 1st | G: Staining. |  |
| 2nd | H: Enameling. |
| 3rd | **8.0: SPECIAL GLASSES.**  8.1: Define special glass. |
| 12/12/22  To  17/12/22 | 1st | **8.2: Describe the characteristics and application of the following glasses**  A: Borosilicate glass. |  |
| 2nd | B: Pyrex glass. |
| 3rd | C: Heat resisting glass. |
| 19/12/22  To  23/12/22 | 1st | D: Coloured glass. |  |
| 2nd | E: Ruby glass. |
| 3rd | F: Laminated glass. |