

OBJECTIVE

To enable the students to have a sound knowledge about the whiteware and heavy clayware products and their manufacturing processes, their properties and quality control.

OUTCOME

On completion of the course the students are expected to

- Have a basic knowledge about whiteware and heavy clayware, their classification and formulation.
- Be capable of classifying the various whiteware products and know the body formulation and properties.
- Have learnt in detail about the manufacturing process of various whiteware products.
- Have a better understanding about the heavy clayware products and their applications.
- Have learnt about the properties and the various properties methods.

UNIT I INTRODUCTION

History – definition – whiteware – heavy clayware – classification – raw materials, batch calculation, mixing, forming, drying, firing, glazing, decoration.

UNIT II BODY FORMULATIONS

Body composition – porcelain, earthenware, bone china, sanitary ware, hotel china, terracotta, majolica, steatite bodies, cordierite bodies, rutile bodies, titanate bodies, zircon bodies, lava bodies.

UNIT III WHITEWARE PRODUCTS

Manufacturing process & properties – whitewares at home – tableware, kitchenware, flame resistant ware, art ware, containers, construction – floor tile, wall tiles, sanitary ware, electrical – low tension insulators, high tension insulators, high frequency low loss insulators, industrial use – abrasion resistance, chemical resistance, heat resistance.

UNIT IV HEAVY CLAYWARE PRODUCTS

Introduction – classification- body composition – properties and applications of heavy clayware products – face bricks, paving bricks, hollow bricks, roofing tiles, sewer pipes, stoneware pipes, floor tiles, vitrified tiles.

UNIT V PROPERTIES & TESTING

Strength – tensile, flexural, impact – absorption & porosity – moisture expansion – thermal expansion – thermal shock resistance – heat conductivity – abrasion resistance – chipping resistance – chemical durability – electrical properties – dielectric strength, dielectric constant, power & loss factor, volume resistivity.

TEXT BOOKS

1. Alen Dinsdale, Pottery Science : Materials, Processes and Products, Ellis Horwood Ltd, 1986.
2. Sudhir Sen, Ceramic Whitewares : Production, Testing and Quality Control, Pergamon Press, 1987.

REFERENCES

1. F.Singer & S.Singer, Industrial Ceramics, Oxford & IBH Publishing Co, 1991.
2. Mohamed N.Rahaman, Ceramic Processing, Taylor & Francis, 2007.
3. Rexford Newcomb Jr, Ceramic Whitewares : History, Technology and Applications, Pitman Publishing Corporation, 1947.