MEP 1000
Engineering visualization

LAB SHEET 1

Objective:- The objective of this exercise is to develop and enhance learner's ability to interpret engineering design from textual descriptions and translate them into accurate 3D CAD models using Fusion 360 or similar parametric modeling software.

Visualize, interpret and make 3D models of the following objects from their textual descriptions.

Model 1 - Drink Coaster:

A drink coaster is circular solid cylinder with a diameter of 100 mm and a thickness of 4 mm. Top surface of the coaster features a raised circular rim that runs along its outer edge. This rim is 1 mm high and has a width of 1 mm, forming a narrow band around the top perimeter. The rest of the coaster surface inside the rim is flat.

Model 2 - Soap Dish:

A soap dish is having a rectangular hollow container with overall dimensions of 120 mm in length, 80 mm in width, and 15 mm in height. The walls of the dish have a consistent thickness of 5 mm, forming a recessed inner cavity. All the edges, both on the exterior and interior, are smoothly curved with a radius of 2 mm. On the bottom surface of the dish, there are five rectangular slots. Each slot is 60 mm long and 4 mm wide, aligned across the width of the dish and spaced evenly along its length. These slots are cut completely through the bottom wall.

Model 3 - Smartphone stand:

A smartphone stand consists of a flat rectangular base with dimensions of 100 mm in length, 80 mm in width, and 8 mm in thickness. Positioned centrally along the width of the base is a vertical support plate that stands 90 mm tall and has a uniform thickness of 5 mm. This plate is tilted backward at an angle of 70° from the horizontal base, creating an inclined surface suitable for supporting a phone. At the bottom front edge of the base, there is a rectangular groove. This groove measures 12 mm in width and 5 mm in depth, and it runs parallel to the front edge of the base. The groove is recessed into the base and positioned to align with the lower edge of the inclined support.