School of Mechanical & Manufacturing Engineering (SMME),

National University of Science and Technology (NUST),

Sector H-12, Islamabad

Program: BE-Aerospace Section: AE-01

Session: Spring 2024 Semester: 2nd

Course Title: Engineering Drawing AE-103

Assignment # 1

"Orthographic Projection"

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LAB OBJECTIVE:

- Grasp concepts and techniques of orthographic projection
- Emphasize first angle view method in AutoCAD
- Gain abilities to depict 3D objects precisely in 2D
- Enhance comprehension of projection systems
- Learn technical drawing standards

FEATURES:

- **Orthographic Projection:**

A fundamental technique used in technical drawing to represent the three-dimensional form of an object in two dimensions by projecting its views onto perpendicular planes.

- **First Angle Projection:**

A method of orthographic projection wherein the object is situated in the first quadrant of 3D space, and its views are projected onto planes positioned between the object and the observer.

- **Visible Edges:**

The lines representing the outlines and features of the object that are directly visible in the orthographic projections.

- **Hidden Edges:**

Lines representing features of the object that are obscured from direct view in the given projections but are essential for conveying complete information about the object's geometry.

- **Centre Lines:**

Lines indicating the center of symmetry, rotation, or other significant features of cylindrical or symmetrical parts.

- **Fillet:**

A rounded interior corner where two surfaces meet. Fillets are often used to reduce stress concentrations and improve the appearance of mechanical parts.

- **Dimensioning:**

The process of adding measurements and annotations to a drawing to convey the size and location of features accurately.

- **Section Views:**

Views that show the internal structure of an object by cutting away a portion to reveal interior details.

- **Detail Views:**

Enlarged views of specific areas of interest, providing a closer look at intricate features or complex geometry.

- **Hatching/Section Lines:**

Patterns of lines used to indicate different materials or components in section views, providing clarity and aiding in visual interpretation.

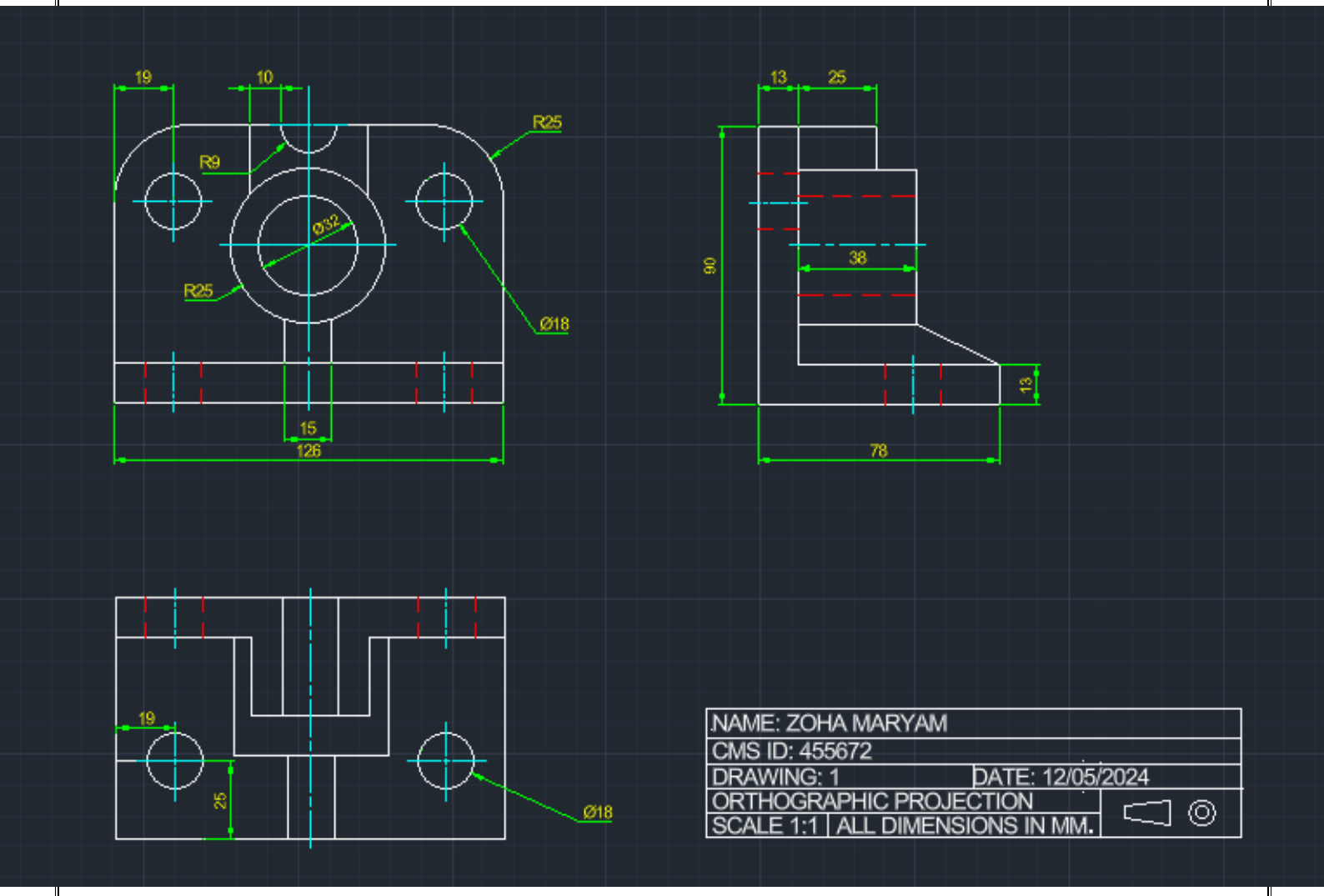
- **Title Block:**

A standardized area on a drawing sheet containing information such as title, scale, date, and authorship, facilitating document control and identification

- **Third Angle Projection:**

In contrast to first angle projection, third angle projection is another method of orthographic projection where the object is situated in the third quadrant of 3D space. The views of the object are projected onto planes positioned behind the object, relative to the observer

- **DRAWING 01:**


19
10
R25
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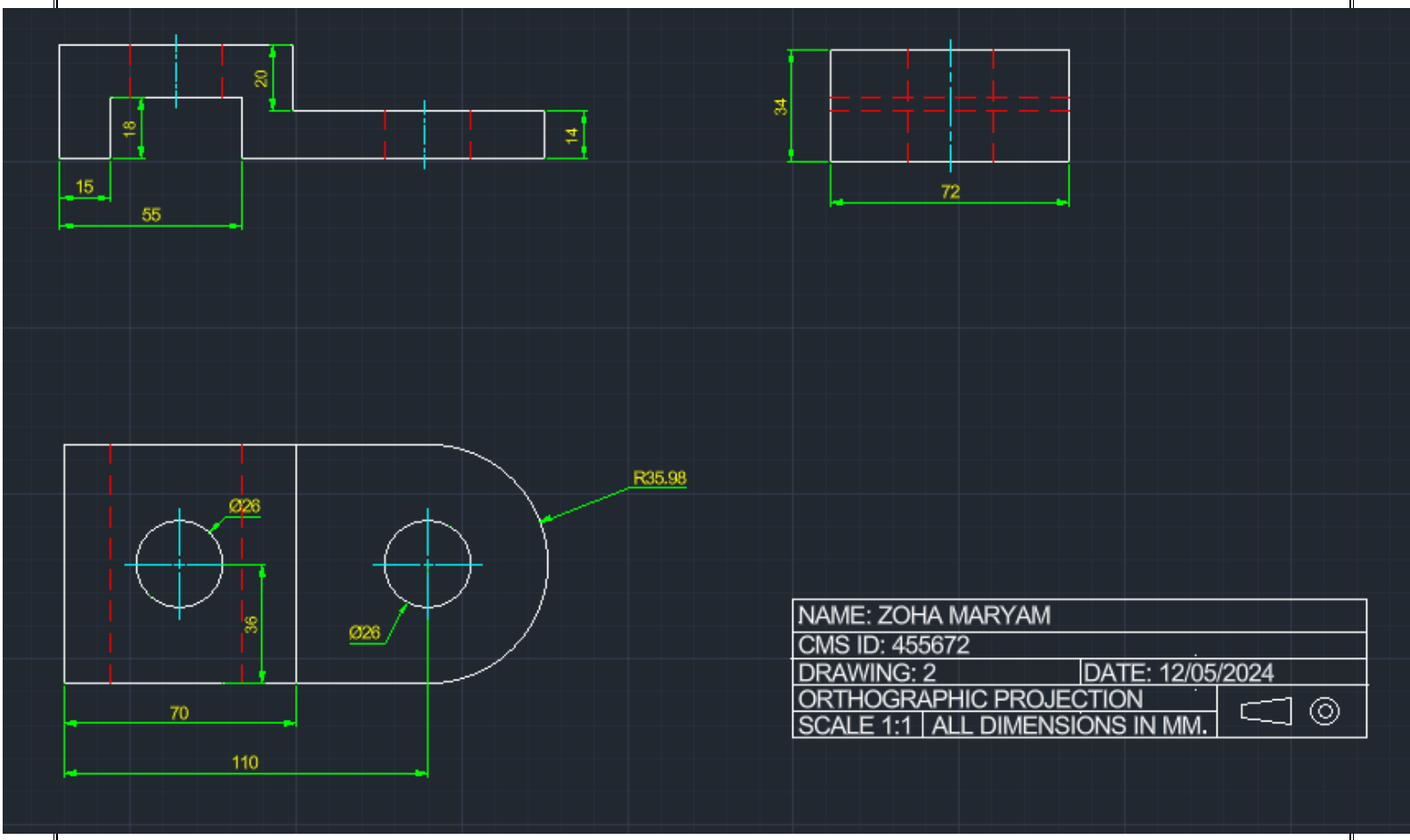
NAME: ZOHA MARYAM
CMS ID: 455672
DRAWING: 1
DATE: 12/05/2024
ORTHOGRAPHIC PROJECTION
SCALE 1:1
ALL DIMENSIONS IN MM.

DRAWING 02:



The two diagrams were made using AutoCAD, showing a 3D object in three different views: front, top, and side. We used all the mentioned features like fillets and chamfers. These diagrams were drawn following the first angle projection method, which is commonly used in technical drawing. They provide important information for manufacturing and assembly

DRAWING 03:

The third diagram was created using AutoCAD, presenting a 3D object in three views: front, top, and side. We utilized various features like fillets and chamfers. This diagram follows the third angle projection method, another common technique in technical drawing. It offers essential details for manufacturing and assembly processes