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**ENTRY NO.** – 2022MEB1316
**PROBLEM STATEMENT** – In order to do experiments related to optics we need a special structure, design a special structure using which we can do such experiments easily.

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## REPORT - OPTICAL BENCH

**Objective:**

1. To design and draw all parts of optical bench.
2. Make assembly of all parts and draw this on MD sheet.

The primary objective of the Optical Bench in this machine drawing project is to serve as a versatile tool for conducting optics experiments and providing a stable and adjustable framework for positioning various optical components.

**Theory**: An optical bench is a fundamental apparatus in optics used for experimental studies and demonstrations. Typically consisting of a long, rigid platform with a straight, graduated scale, it provides a stable foundation for the precise positioning of optical components. These components can include lenses, mirrors, slits, screens, and filters. The graduated scale allows for accurate measurements of distances between optical elements, enabling the study of light behavior, reflection, refraction, and other optical phenomena.

## Key components of an optical bench include:

Light Source Holder: It holds the origin of the light that is used in experiments. Light source could be a lamp, laser, or other light-emitting device, in our case it is a pin.

Lenses and Mirrors: Various lenses and mirrors can be mounted on the optical bench to manipulate and focus the light. These components are often used to demonstrate principles of reflection, refraction, and image formation.

Lens Holders and Mounts: Adjustable mounts are used to secure lenses and other optical elements at specific positions along the bench. These mounts often allow for precise adjustments to the height and angle of the optical components.

Filters: Optical filters can be inserted into the light path to modify the properties of the light, such as its color or polarization.

**Conclusion:** The theory underlying the Optical Bench in this machine drawing project emphasizes a careful balance between stability, precision, and versatility. By incorporating adjustable mounts, a graduated scale, and accommodating various optical elements, the design aims to meet the diverse needs of users engaged in optics experiments. This project contributes to the advancement of optical science by providing a reliable and user-friendly platform for hands-on exploration and understanding of optical principles.