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MEE312 Assignment

1. **Dry friction** is a force that opposes the relative lateral motion of two solid surfaces in contact. Dry friction is subdivided into static friction between non-moving surfaces, and kinetic friction between moving surfaces. An example of dry friction is when a person is riding a bicycle and presses the brakes, the rough edges on the brake pads rub against the bicycle rim and it ends up slowing down the rim.

**Fluid friction** is the force that resists motion either within the fluid itself or of another medium moving through the fluid. There is internal friction, which is a result of the interactions between molecules of the fluid, and there is external friction, which refers to how a fluid interacts with other matter.

A practical examples is the wind resistance felt by human hand when it is stretched out the window of a moving car.

1. **Wedges:** A wedge is simple machine that consists of two inclined planes, giving it a thin end and thick end, as you can see in the Figure below. A wedge is used to cut or split apart objects. Force is applied to the thick end of the wedge, and the wedge, in turn, applies force to the object along both of its sloping sides. This force causes the object to split apart.

**Square-Threaded Screw:** The square thread form is a common screw thread form, used in high load applications such as lead screws and jackscrews. It gets its name from the square cross-section of the thread. It is the lowest friction and most efficient thread form, but it is difficult to fabricate.

**Journal bearing:** It is a cylindrical shaft in a cylindrical cavity of larger diameter and the space between them contains a liquid lubricant.

The purpose of a bearing is to support a load, typically applied to a shaft, whilst allowing relative motion between two elements of a machine. The two general classes of bearings are journal bearings, also known as sliding or plain [surface bearings](https://www.sciencedirect.com/topics/engineering/bearing-surface), and rolling element bearings, sometimes also called [ball bearings](https://www.sciencedirect.com/topics/engineering/ball-bearings). The aims of this chapter are to describe the range of bearing technology, to outline the identification of which type of bearing to use for a given application, and to introduce journal [bearing design](https://www.sciencedirect.com/topics/engineering/bearing-design) with specific attention to boundary lubricated bearings and full film hydrodynamic bearings.