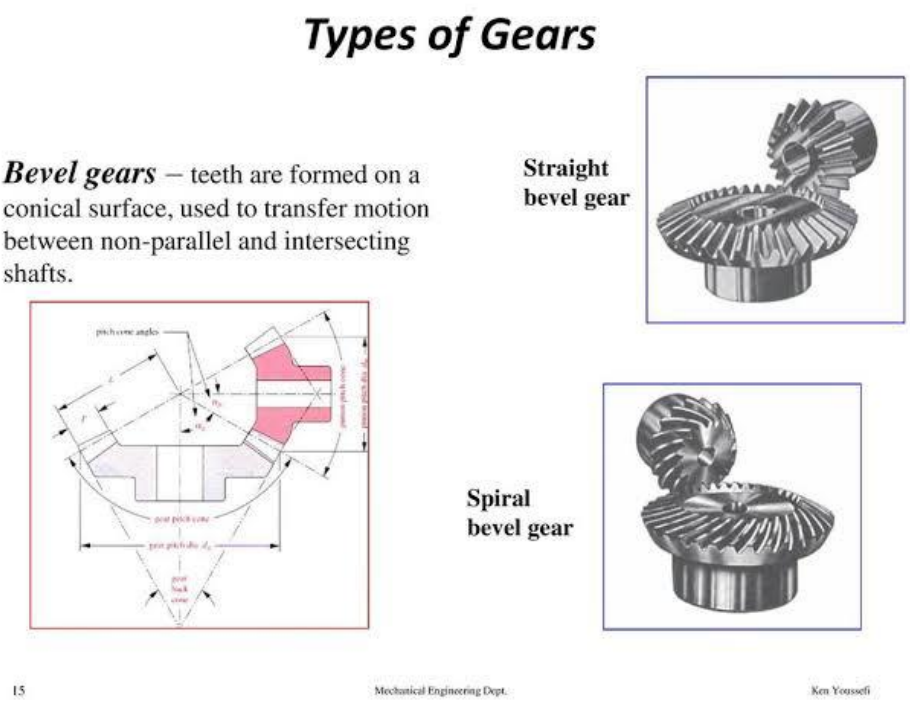
Experiment-8

AIM: To create Bevel Gear

SOFTWARE USED: Solid works 2020

THEORY:

Bevel gears are gears where the axes of the two shafts intersect and the tooth-bearing faces of the gears themselves are conically shaped. Bevel gears are most often mounted on shafts that are 90 degrees apart, but can be designed to work at other angles as well. The pitch surface of bevel gears is a cone.



Bevel gears are classified in different types according to geometry:

Straight bevel gears have conical pitch surface and teeth are straight and tapering towards apex.

Spiral bevel gears have curved teeth at an angle allowing tooth contact to be gradual and smooth.

The applications of bevel gear are:

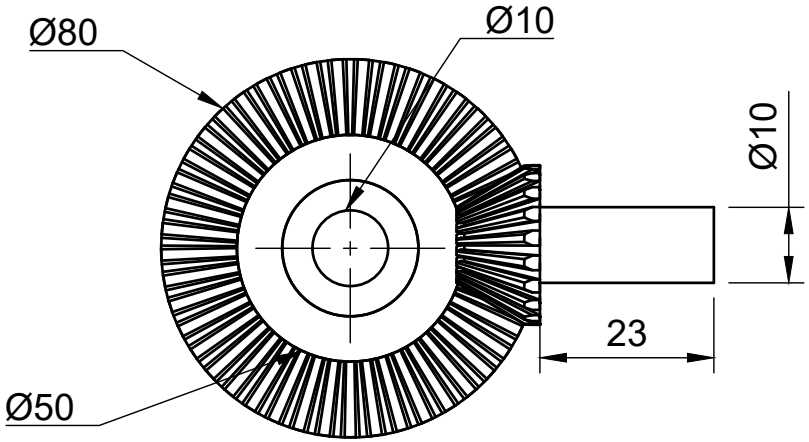
The bevel gear has many diverse applications such as locomotives, marine applications, automobiles, printing presses, cooling towers, power plants, steel plants, railway track inspection machines, etc. … Bevel gears are used as the main mechanism for a hand drill.

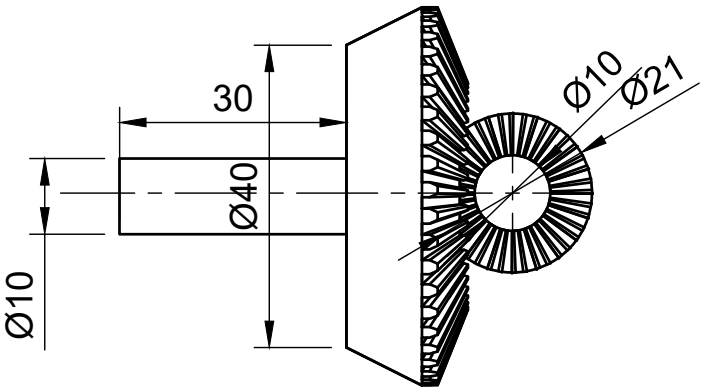
COMMANDS USED:

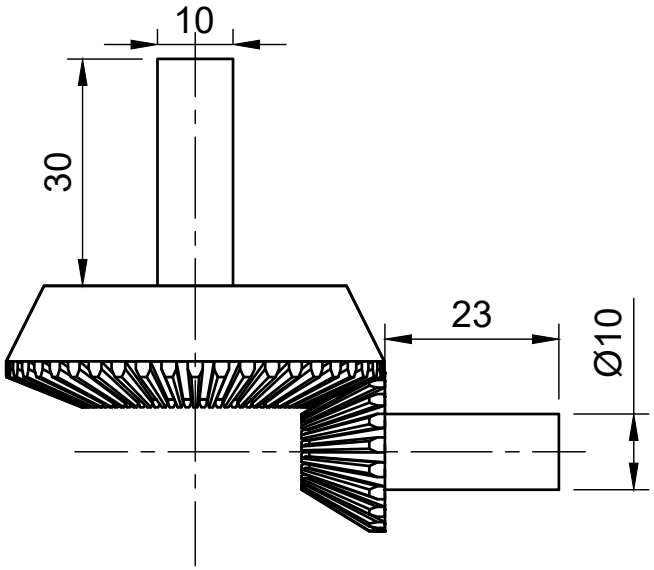
1. Sketch
2. Trim
3. Mirror
4. Boss extrude
5. Circular Pattern
6. Boss cut extrude
7. Fillet
8. Copy
9. Loft

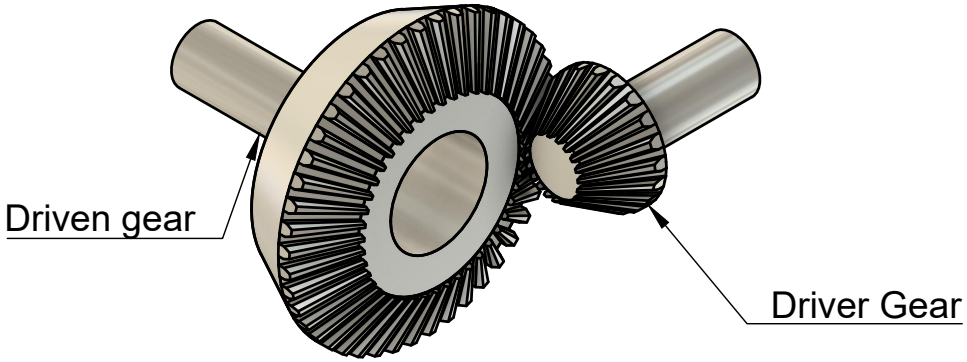
PROCEDURE:

1. Create 2 circles on planes offset at distance of 16mm.
2. Sketch 3 lines on the edge of both the circles according to the given dimensions.
3. Now extrude the circle to the height 23 mm.
4. For the teeth construction loft the created sketch lines forming a tooth.
5. Use command circular pattern selecting tooth as objects.
6. Now make a circle inside it forming a shaft extrude it accordingly.
7. Mirror the gear and according to the given gear ratio scale the other gear smaller
8. Use fillet command in the edge of shaft and gear.
9. Adjust both the gears using mate command connected to each other.
10. Bevel gear is ready.









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