Program for Design of Helical Gear, Problem 1.

Problem Statement:A pair of parallel helical gears consists of a 20 teeth pinion mesing with a 40 teeth gear. THe helix angle is 25 degrees and the normal pressure angle is 20 degrees. THe normal module is 3mm. Calculate:

a. The transverse module

b. The transverse pressure angel

c. The axial pitch

d. The pitch circle diameters of the pinion and the gear

e. The centre distance

f. The addendum and dedendum circle diameterds of the pinion

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clc;

clear all;

Intializing the given data:

z\_p = 20

z\_g = 40

m\_n = 3

beta = 25

alpha\_n = 20

The transverse module in mm using Equation 12.19 ( c ):

[m] = Eqn\_12\_19\_c(m\_n,beta)

The transverse pressure angle in degree using Equation 12.22 (b):

[alpha] = Eqn\_12\_22\_b(alpha\_n,beta)

Finding the axial pitch:

p = pi\*m

p\_a = p/tand(beta)

Pitch circle diameter of the pinion gear:

d\_p = Eqn\_12\_19\_e(z\_p,m\_n,beta)

Pitch circle diameter of the gear :

d\_g = Eqn\_12\_19\_e(z\_g,m\_n,beta)

Finding the center distance :

a = Eqn\_12\_20(z\_p,z\_g,m\_n,beta)

Finding the addendm circle diameter of the pinion:

d\_ap = m\_n\*((z\_p/cosd(beta))+2)

Finding the dendendum circle diameter of the pinion:

d\_dp = m\_n\*((z\_p/cosd(beta))-2.5)