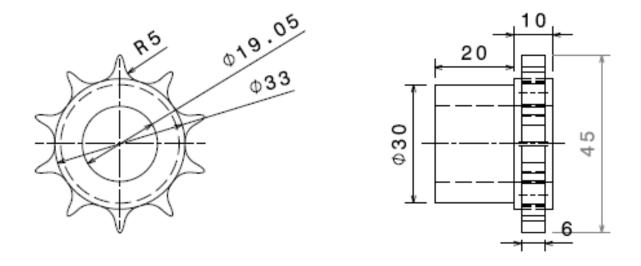## Instructions to develop Minor Project:

- Project is assigned for Mechanical and Sub-branches of Mechanical (Aerospace/Automobile/Production/etc.) domains

- Design an Assimilated Gearbox and Clutch Assembly (AGCA) in Autodesk Inventor Professional tool

- Refer the information and drawings mentioned below

- Create each part of AGCA and save the same in .ipt format and .igs format

- Create main assembly of AGCA and introduce the required fasteners from Content centre and save the same in .iam format and .iam format

- Create drafting of each part with minimum of 2 orthographic views and save the same in .idw format and .pdf format

- Create a drafting of assembled model in one isometric view, two orthographic views and one or more section views

- Define the necessary annotations and assume missing dimensions (need not define GD&T)

- Define Part Drafting in A3 sheet and Assembly Drafting in A2 sheet

- Title Block must include:
  - Designer Name and Date
  - Mentor Name
  - Part Name and Number
  - Assembly Name
  - Organization Name
  - Scale of model
  - Material

- Create a table of Bill of Materials during assembly and should include:
  - Part Number
  - Part Name
  - Component Description
  - Material
  - Quantity

- Save As all the modeling and assembly files in 3D PDF format also

- Achieve all files in one zip file only

Sequence of connection of AGCA Parts from the direction of engine to wheels:

1. Engine Shaft

    Consider the diameter to be 18mm included with key slot and tapered key
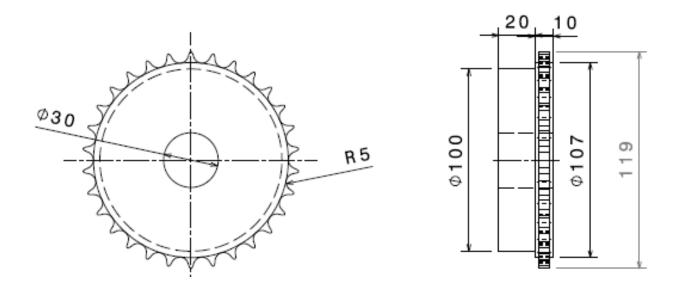
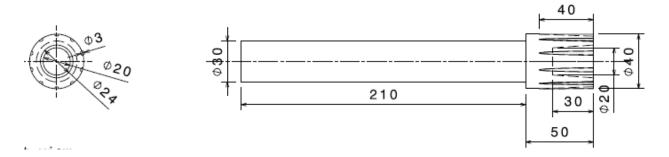2. Smaller Sprocket (Design a standard sprocket teeth profile)

3. Chain

    Refer handbooks and select the suitable chain

4. Larger Sprocket (Design same sprocket teeth profile as that of smaller sprocket)

5. Intermediate Shaft 1 (Taper provided should match Smaller bevel gear)
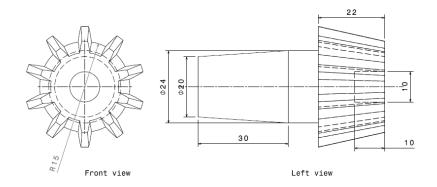
Ø3
Ø20
Ø24

40
Ø30
210
30
50
Ø40
Ø20

6. Bearings for Intermediate Shaft 1 (Import from content centre or create a bearing)

Insert bearing to fit on Intermediate shaft 1 from Content Centre
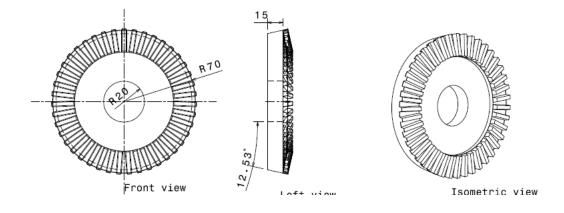
7. Circlips to lock bearing translating motion

Design a 1.6mm thick Circlip suiting Intermediate shaft 1 outer diameter
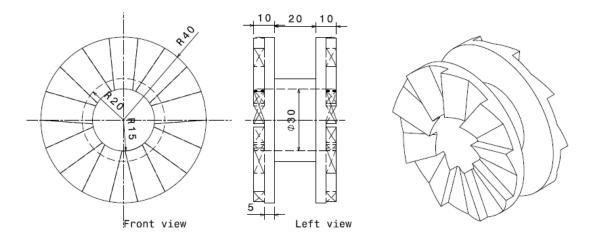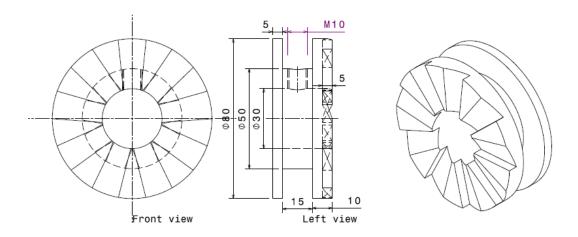
8. Smaller Bevel Gear (Define profile of gear teeth)

22
Ø24
Ø20
Ø10
30
10
R15
Front view   Left view

9. Larger Bevel Gear (Define same gear teeth profile as that of Smaller gear teeth)

15
R70
R20
12.53°
Front view   Left view   Isometric view

10. Intermediate Clutch (Staggered Teeth Clutch: Design a teeth profile)
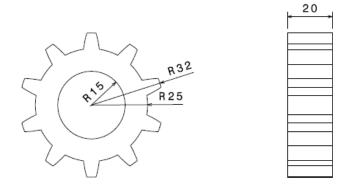
Front view   Left view

11. End Clutch (Staggered Teeth Clutch: Design same teeth profile as that of Clutch 1)
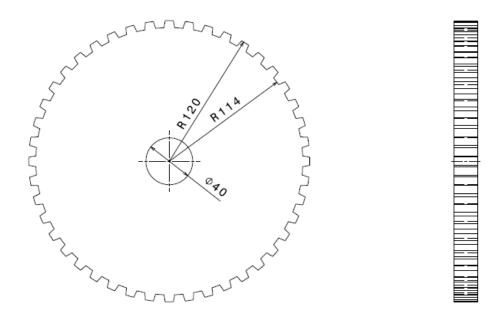
Front view   Left view

12. Clutch Lever

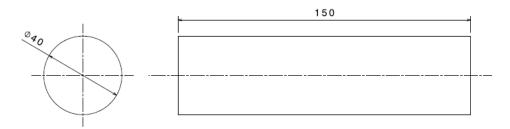Design a cylindrical rod of M10 and should get inserted in Clutch 1
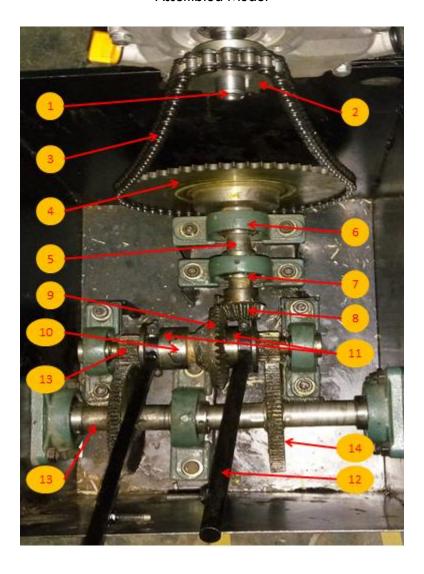
13. Smaller Spur Gear (Define profile of gear teeth)

14. Larger Spur Gear (Define same gear teeth profile as that of Smaller Spur gear teeth)

R120

R114

Ø40

15. Output Shaft

Ø40

150

Assembled Model

Consider all the standard components including fasteners as required