

Autodesk Inventor Project – Truck Model Creation

File Creation Summary

As part of the Truck project, students will create the following Autodesk Inventor file types:

- **Part File (.ipt)**

Used to model individual components such as the chassis, cab, tray, wheels, and axles. Each part should be created and saved separately. Ensure correct dimensions and use of extrusion, fillets, and sketch constraints.

- **Assembly File (.iam)**

Used to combine all individual parts. Students will insert and constrain all .ipt files into a single assembly. Apply grounding and proper mate/flush constraints to ensure parts align correctly.

- **Presentation File (.ipn)**

Used to create an exploded view of the assembly. This visually demonstrates how each part fits together. Students will animate the disassembly sequence and use it to support understanding.

- **Drawing File (.idw)**

Used to produce a technical drawing of the completed model. Students will place base views, isometric view, add dimensions, centre marks, annotations, and fill out the title block. Export to PDF for submission if required.

2. Annotated Diagrams

Use the following views when creating your IDW drawing:

- Top View – shows overall shape and wheel positioning
- Front View – shows height of cab and tray
- Side View – shows length and height relationship
- Isometric View – shows a realistic 3D image of the truck

Creating the Truck in Autodesk Inventor

1. Create a New Part File

- Open **Inventor**.
 - Click **New** → **Standard.ipt**.
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2. Create the Base (Chassis)

- Start a **2D Sketch** on the XY Plane.
 - Draw a rectangle: **100 mm (L) × 50 mm (W)**.
 - Use the **Dimension tool** to set exact sizes.
 - Click **Finish Sketch**.
 - Use **Extrude**: Set thickness to **15 mm**.
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3. Create the Cab

- Start a new **Sketch** on the top face of the chassis.
- Offset from front edge to locate cab position.
- Draw a rectangle approx. **30 mm × 40 mm**.
- Finish Sketch and **Extrude** up **30 mm**.
- Use **Fillet** if you want rounded edges.

4. Create the Tray (Rear Box)

- Start a new **Sketch** on top face of chassis (rear side).
 - Draw a rectangle for the tray: approx. **50 mm × 40 mm**.
 - Finish Sketch and **Extrude** up **20 mm**.
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5. Create the Wheels

- Start a **New Part File** for the wheel.
 - Sketch a **circle** (Ø20 mm) on the XY Plane.
 - **Extrude** to **10 mm** thick.
 - Create a **centre hole** (Ø5 mm) for axle using **Hole** or **Sketch and Extrude Cut**.
 - **Save as Wheel.ipt**.
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6. Create the Axle

- New Part File → Sketch a **circle** (Ø5 mm).
- Extrude to **60 mm**.
- Save as **Axle.ipt**.

7. Create the Assembly

- Open a new file: **Standard.iam**.
 - Use **Place** to insert:
 - **Chassis part**
 - **Cab and Tray** (if separate parts)
 - **4 Wheels**
 - **2 Axles**
 - Use **Constrain** to:
 - Lock wheels onto axles
 - Align axles into base
 - Fully ground the base
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8. Create the Drawing (.IDW)

- Open a **new drawing file** (.idw).
- Place **Base View** (Front, Top, Side, and Iso).
- Add **Dimensions, Annotations, and Title Block**.
- Save as **Truck.idw**.