ANSYS 12 - Beam - Step 2

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Step 2: Geometry

At Workbench, in the ***Beam*** cell, right click on ***Geometry***, and select ***Properties***. You will see the properties menu on the right of the Workbench window. Under ***Basic Geometry Options***, select ***Line Bodies***. This is because we are going to create a line geometry.

Properties of Schematic A3: Geometry

	A	B
1	Property	Value
2	General	
3	Cell ID	Geometry 1
4	Geometry Source	
5	Geometry File Name	H:\ANSYS Workbench...
6	CAD Plug-In	DesignMod...
7	Basic Geometry Options	
8	Solid Bodies	☑
9	Surface Bodies	☑
10	Line Bodies	☑
11	Attributes	☐
12	Named Selections	☐
13	Material Properties	☐
14	Advanced Geometry Options	
15	Analysis Type	3D
16	Use Associativity	☑
17	Import Coordinate Systems	☐
18	Import Work Points	☐
19	Reader Mode Saves Updated File	☐
20	Import Using Instances	☑
21	Smart CAD Update	☐
22	Enclosure and Symmetry Processing	☑
23	Mixed Import Resolution	None

In the ***Project Schematic***, double left click on ***Geometry*** to start preparing the geometry.

At this point, a new window, ANSYS Design Modeler will be opened. You will be asked to select desired length unit. Use the default ***meter*** unit and click ***OK***
.

Creating a Sketch

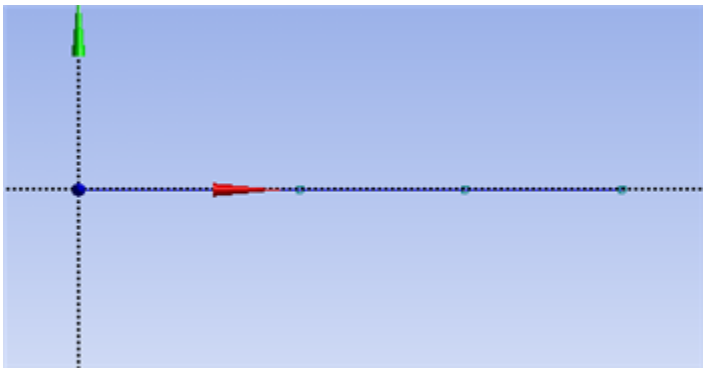
Like any other common CAD modeling practice, we start by creating a sketch.

Start by creating a sketch on the ***XYPlane***. Under ***Tree Outline***, select ***XYPlane***, then click on ***Sketching*** next to ***Modeling*** tab. This will bring up the ***Sketching Toolboxes***.

Note: In sketching mode, there is ***Undo*** features that you can use if you make any mistake. Select Sketching Toolboxes Demo

On the right, there is a ***Graphic*** window. At the lower right hand corner of the Graphic window, click on the ***+Z*** axis to have a normal look of the ***XY Plane***. Select Normal View Demo

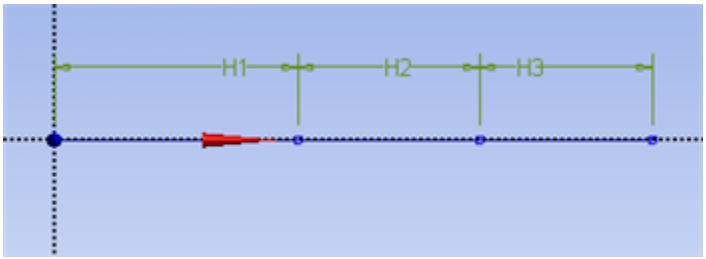
In the ***Sketching Toolboxes***, select ***Line***. In the ***Graphics*** window, create three rough lines from starting from the origin in the positive XY direction (Make sure that you see a letter P at the origin and at each connection between the lines. The letter P the geometry is constrained at the point.)
You should have something like this:



Note: You do not have to worry about dimension for now, we can dimension them properly in the later step.

Dimensions

Under ***Sketching Toolboxes***, select ***Dimensions*** tab, use the default dimensioning tools. Dimension the geometry as shown:



Under ***Details View*** on the lower left corner, input the value for dimension appropriately.
H1: 0.1 m
H2: 0.2 m
H3: 0.1 m

We are done with sketching.

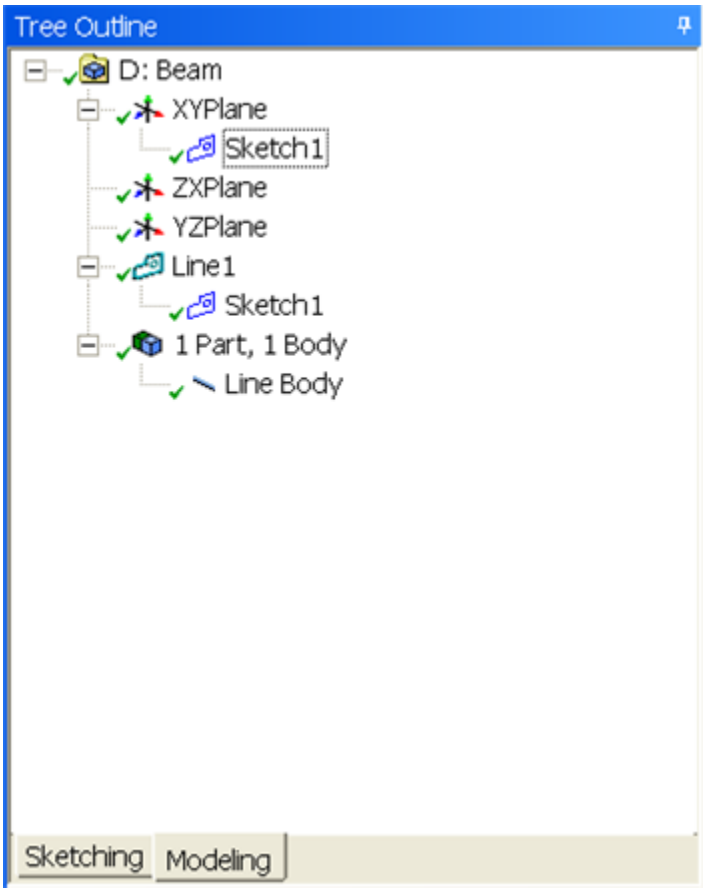
Create Surface

Now that we have the sketch done, we can create a line body for this sketch.

Concept > Lines From Sketches

This will create a new line ***Line1***. Under ***Details View***, select ***Sketch1*** as ***Base Objects*** and click ***Apply***. Finally click ***Generate*** 

to generate the surface. This is what you should see under your ***Tree Outline***.



Create Cross Section

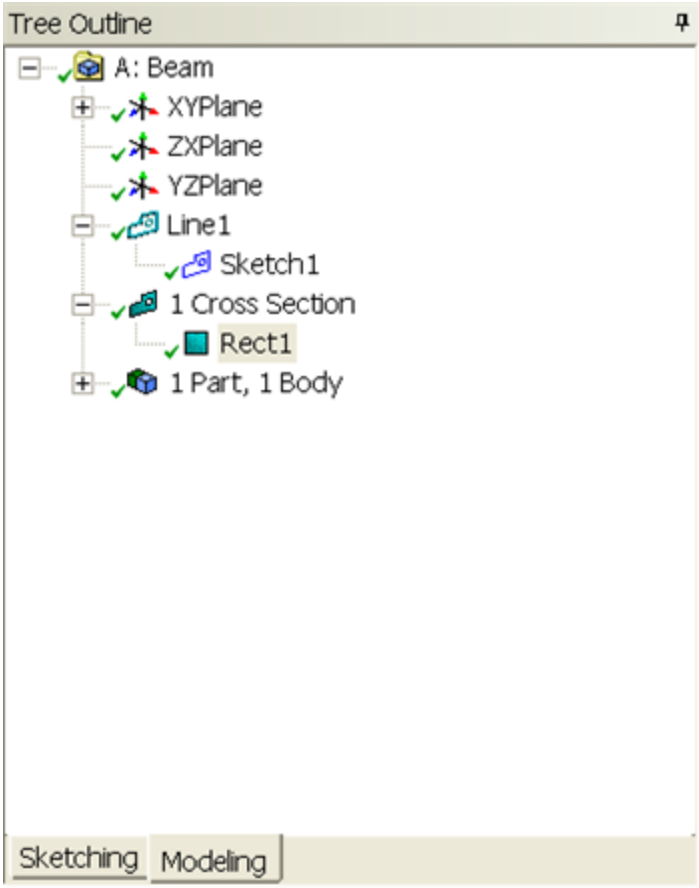
We will now add a cross section to the line body.

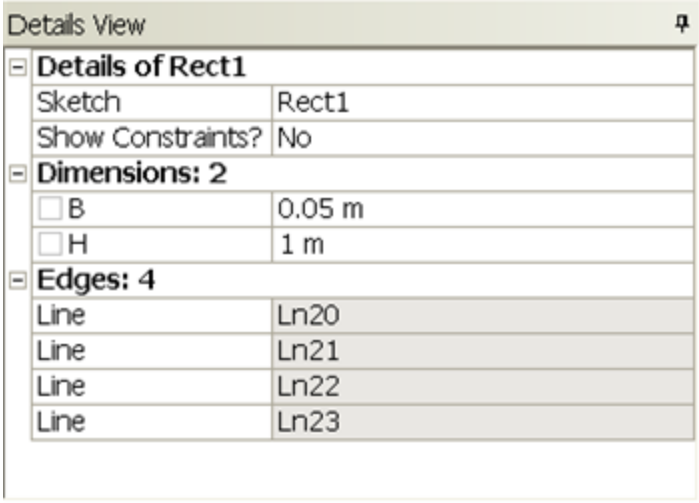
Concept > Cross Section > Rectangular

Under Details View, input value as follow:

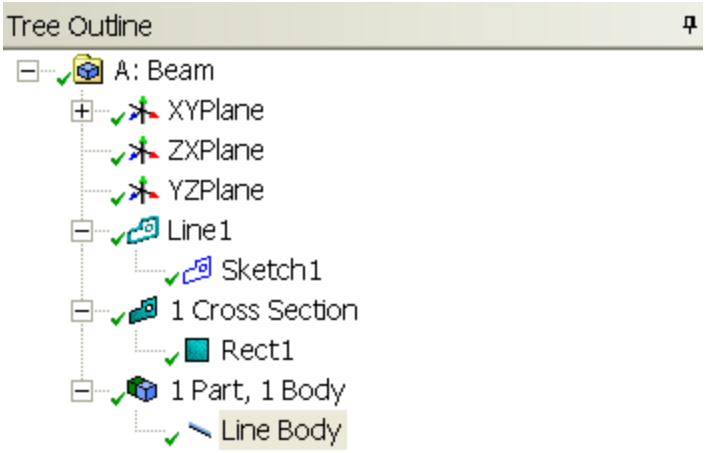
B - 0.05m

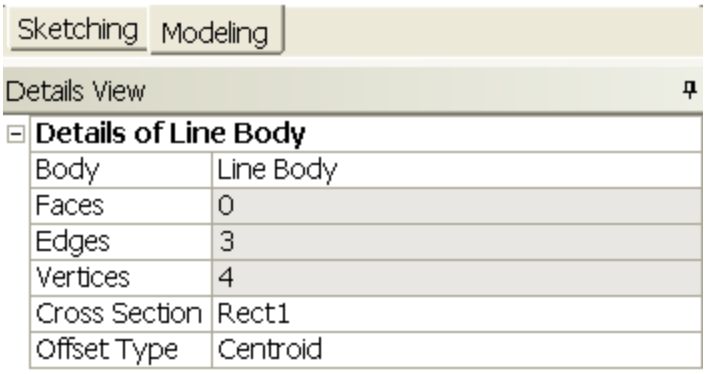
H - 1m





Finally, under expand the Line Body
Outline > 1 Part, 1 Body > Line Body
And attach ***Rect1*** to ***Cross Section*** under ***Details View***.





We are done with geometry. You can close the ***Design Modeler*** and go back to ***Workbench*** (Don't worry, it will auto save).

Go to Step 3: Mesh

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