SOLIDWORKS: Lesson 03 - Basics and Modeling Fundamentals

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Solid Works

- Solid Works is a 3D solid modeling package which allows users to develop full solid models in a simulated environment for both design and analysis.

- In Solid Works, you sketch ideas and experiment with different designs to create 3D models.

SolidWorks

- SolidWorks is used by students, designers, engineers, and other professionals to produce simple and complex parts, assemblies, and drawings.

- Designing in a modeling package such as SolidWorks is beneficial because it saves time, effort, and money that would otherwise be spent prototyping the design.

SolidWorks Components - PARTS

Before we begin looking at the software, it is important to understand the different components that make up a SolidWorks model.

- The first, and most basic element of a SolidWorks model is a Part.
- Parts consist of primitive geometry and features such as extrudes, revolutions, lofts, sweeps, etc.
- Parts will be the building blocks for all of the models that you will create

SolidWorks Components - Assemblies

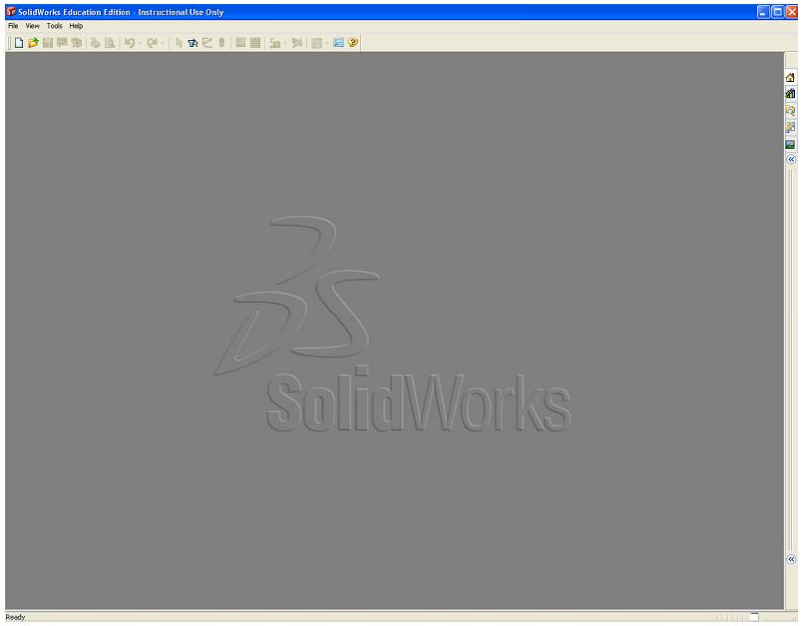
- The second component is the assembly. Assemblies are collections of parts which are assembled in a particular fashion using mates (constraints).

- Any complex model will usually consist of one, or many assemblies.

SolidWorks Components - DRAWINGS

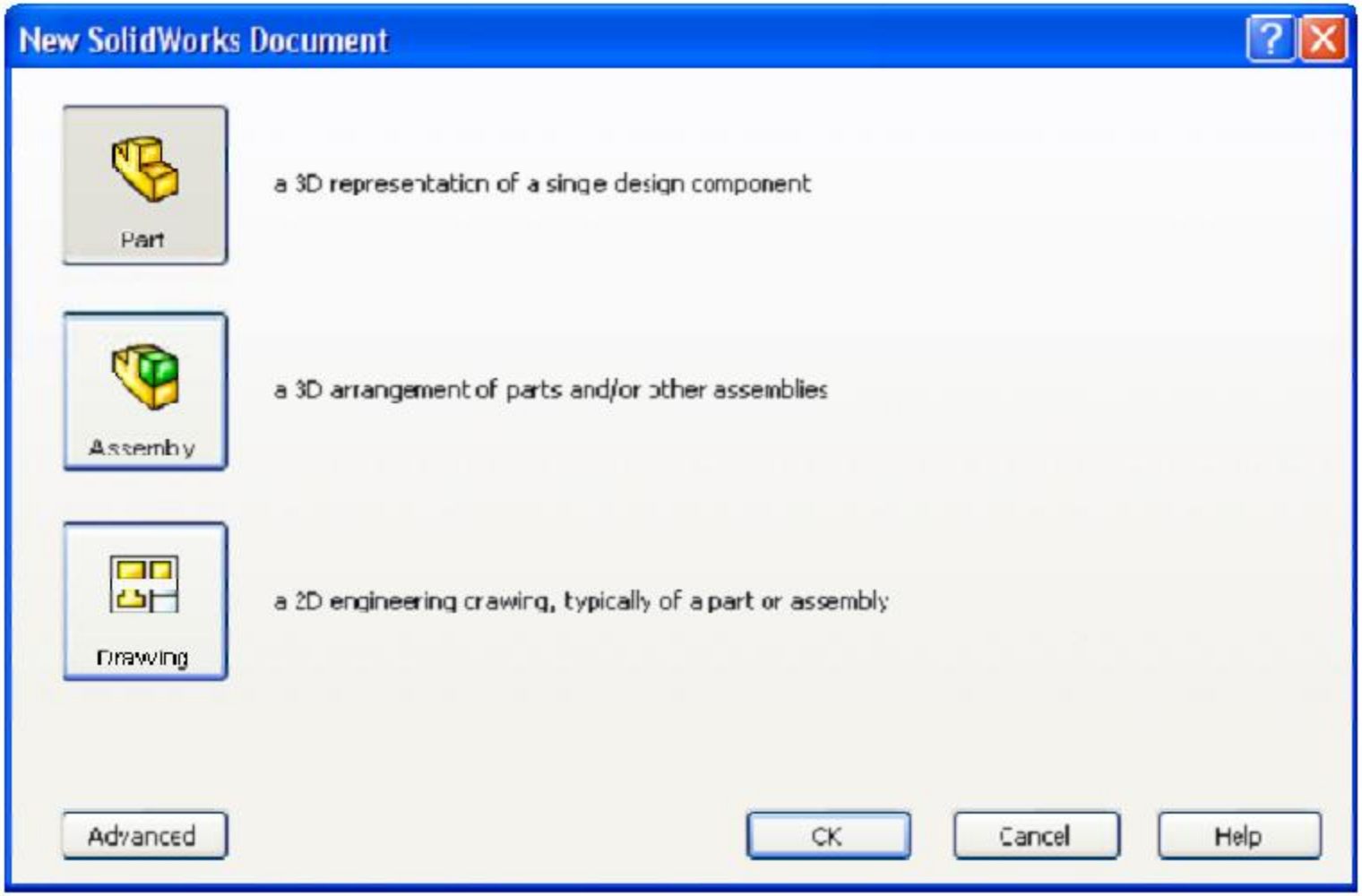
- The third, and final component in SolidWorks is the Drawing.
- A drawing is the typical way to represent a 3D model such that any engineer (or manufacturer) can recreate your part.
- Drawings are important because they provide a standard way of sharing your design.

SolidWorks – Let's Begin

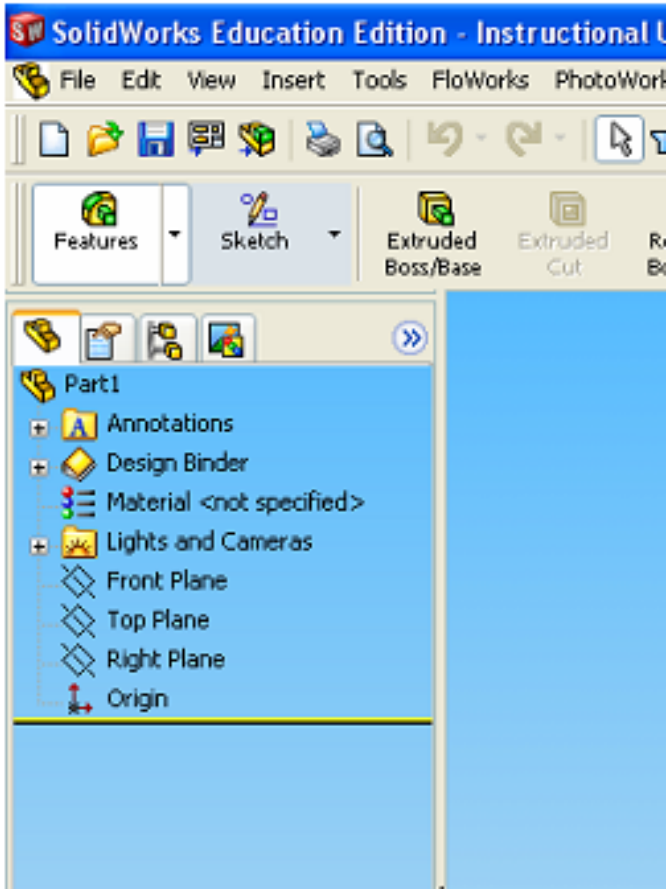


- By default, no file is opened automatically when you start the program.
- To create a new file, click on File > New or click the New File icon in the main toolbar.
- This will open the New SolidWorks Document wizard.

SolidWorks Tour

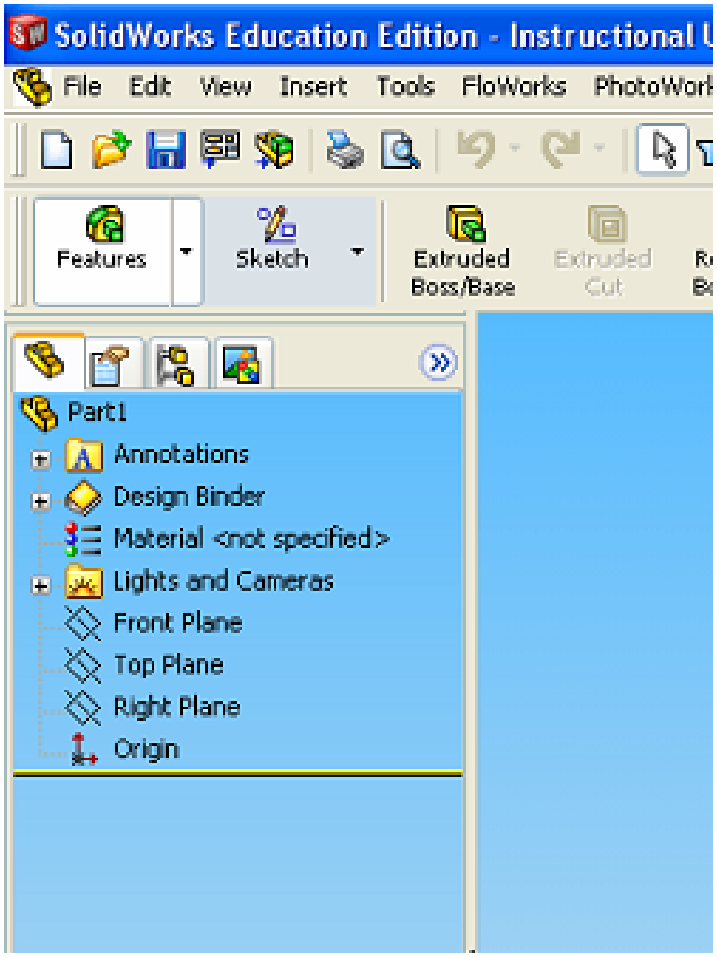


SolidWorks Tour



- Let's begin by creating a new part. To do this, click on Part, then OK
- Once you do this, you will be brought into the modeling view which should open several toolbars and panes

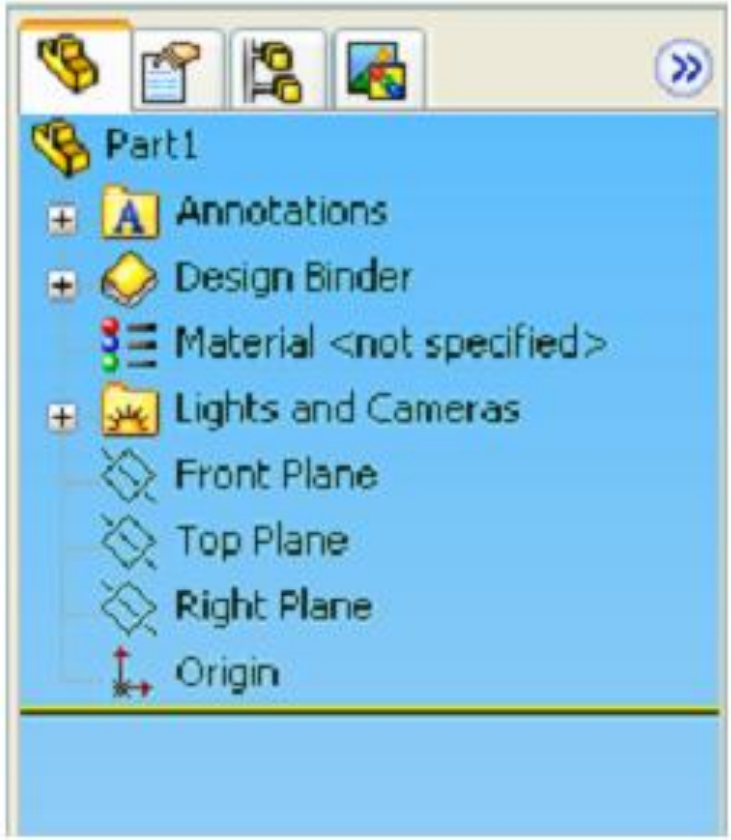
SolidWorks Tour



There are several important parts of the screen that needs to be identified before we continue.

First, the left side of the screen consists of several tabbed panes that provide very important information regarding your model.

SolidWorks Tour



- The first tab, called the Feature Manager, lists all features that have been created within your model.
- This tab is extremely important as it will be from here that you select and change features once they have been created.

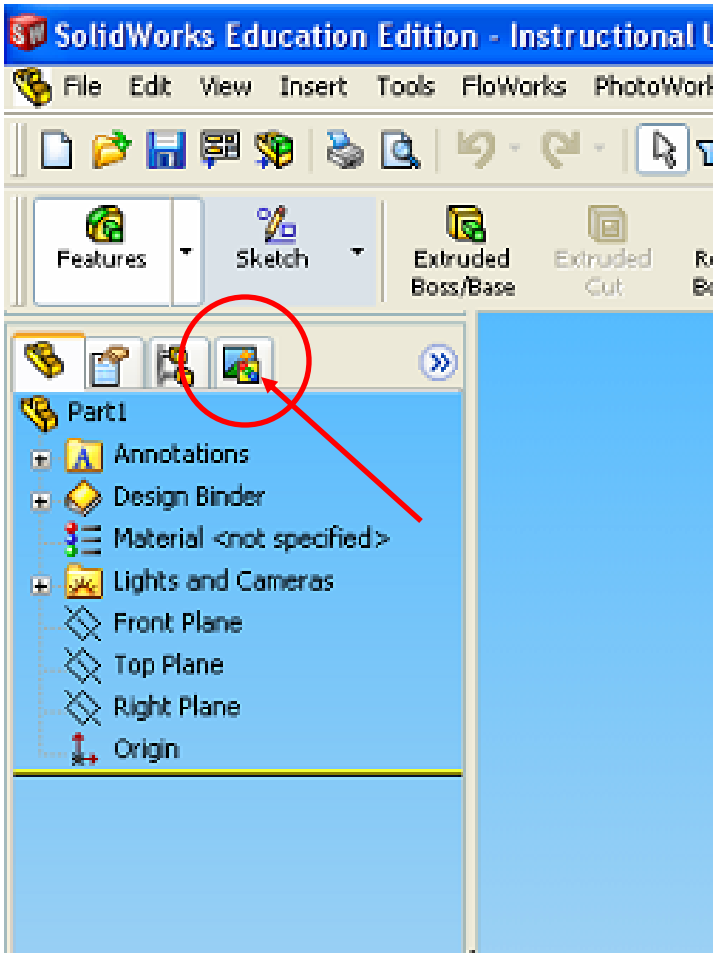
SolidWorks Tour

- The second tab, called the Property Manager, allows you to adjust the properties of various entities either during construction, or once it has been created.
- Note that generally you will not need to manually change the tab on the manager window

SolidWorks Tour

- The third tab is called the Configuration Manager and is used to set up different view configurations such as exploded views or 3D section views.
- Usually this will be used once the part has been created and you wish to set up specific configurations for visualization.

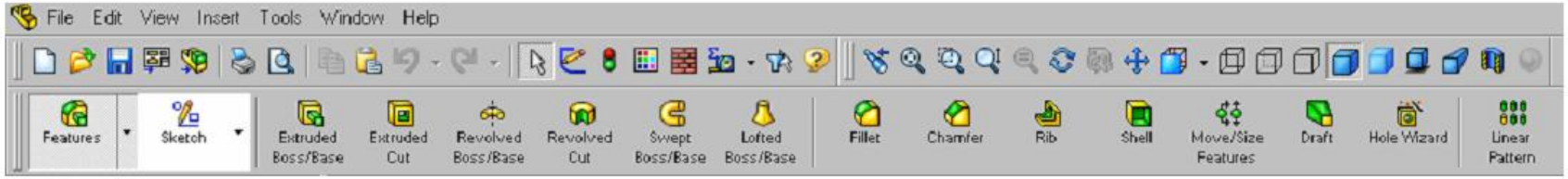
SolidWorks Tour



- There may also be other tabs visible in the manager window.
- Generally any time you load an additional SolidWorks module (such as PhotoWorks, COSMOS Motion, COSMOS Works, etc.) it will create a new tab in this window.

SolidWorks Tour

- The next important feature of the interface is the dynamic Toolbar



- The dynamic Toolbar provides access to the most relevant, and frequently use commands in SolidWorks

SolidWorks Tour

- The last part of the interface which should be noted is the Task Pane on the right side of the screen.
- Using the Task Pane you can view content specific tasks such as importing standard geometry, file explorer, view palette, as well as any plug-in specific information.

SolidWorks Tour

- The last thing that needs to be shown is how to open the SolidWorks tutorials.
- They can be accessed by going to Help > SolidWorks Tutorials.
- The tutorials are very helpful and cover from the most basic features to more advanced analysis and assemblies