

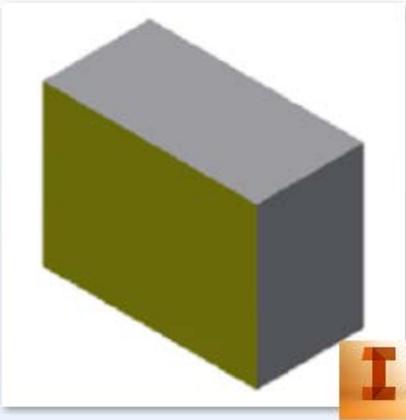


CIM: CNC Operations

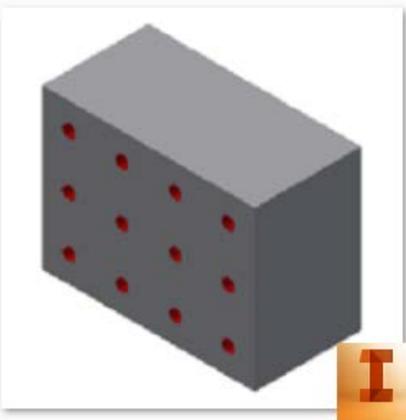
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Definitions:

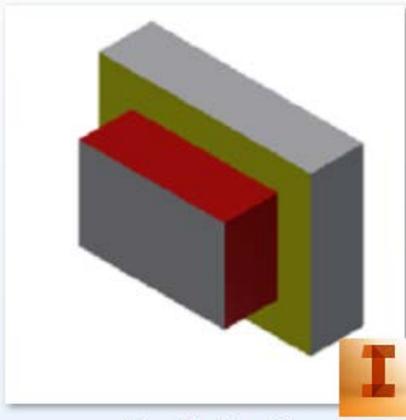
Boss	An edge of a part or piece of stock than can have a machining operation performed on it.
CPL	The Coordinate Plane system used in EdgeCAM. It's the same as PRZ on the milling machine
CAM	Computer Aided Manufacturing software used to perform operations turning rough stock into a finished product.. EdgeCAM is the software we use in the classroom.
Engrave	To perform an operation that cuts or carves text or a design on a part.
Facing	Removing material from the face of a piece of stock to be sure that it is perfectly flat so that other operations can be performed more accurately.
Hole	An operation that is performed in CAM software that can link multiple holes if desired. It is a drilling operation done with a mill in our classroom.
Lead-in, Lead-out	When a profiling operation is done, a tool is led towards the part to be cut from the side. This is done to alleviate stress on the tool and the part as the tool enters the material.. This can be changed in HSM in the linking tab.
Multiple depths	This is used while roughing a deep pocket. This allows you to control the depth of each pass so as not to break a tool. It takes longer to machine and can be found in the "Passes" tab of the 2D pocket operation.
Maximum roughing stepdown	This is the depth at which the tool will cut for each pass of a multiple depth operation. This is usually set to one half the width of the tool, so that a 1/2" tool should have a max roughing stepdown of 0.25".
Pocket	Is a section of material that needs to be removed from a piece of stock. It may be bound on all sides, or may be open
Profile	An operation done on a milling machine where a tool follows a line.
PRZ	Part Reference Zero. The corner of the stock in a milling machine where the coordinates are set to 0,0,0.
Ramping	Stepping into a deep cut slowly, so as not to put too much stress on the tool or the part. This can be changed in HSM in the linking tab.
Roughing	Is an operation where stock is removed from a part quickly.
Step over	The amount of "overlap" when a tool makes a pass while cutting material. The higher the percentage, the more it overlaps.
Stock to leave	In most machining operations in a machine shop where metals are being used, a finishing pass is always made. To be sure there is something there to cut, a pocket operation usually leaves stock for it to machine. This can be founded on the "Passes" tab in HSM, and must be set to 0 when not using a finishing pass. You can also just uncheck the Sock to leave and make it do the same thing.
Surface	In machining, it is an operation that is done, usually with a ball end mill that creates a complex shape. Usually a surface varies in x, y, and z, on every move.
End Mill	Center cutting end mills are flat bottomed, and good for making pockets with flat bottoms. They are sharp on the bottoms, as well as the edges and can perform many operations; especially roughing.
Ball End Mill	Cutting tools with a rounded bottom. Great for making complex surfaces, or fillets in corners. The smaller the tool the smoother the finish!
Engraver	Usually a "V" shaped cutter that engraves decorative things into a workpiece. The width of the cut can be controlled by the depth of cut because of its shape.



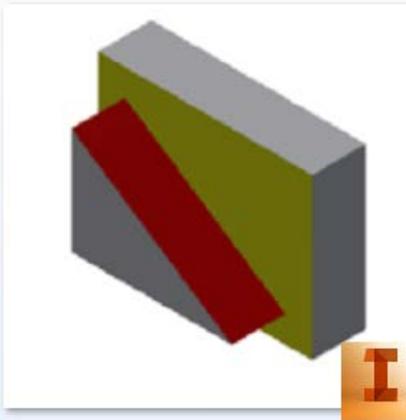
Facing



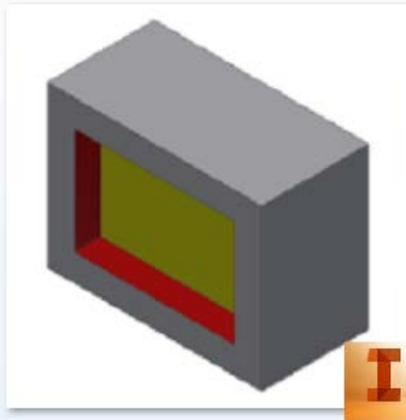
Hole Cycle



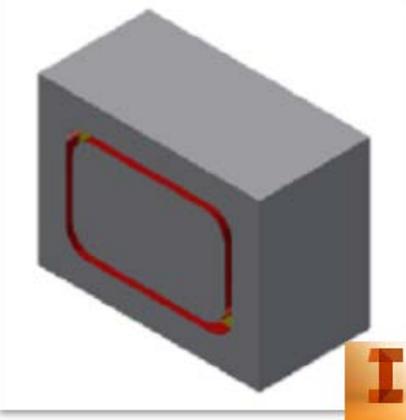
Island Profile



Island Roughing



Pocket Roughing



Profile