

MAE 3195, Credit Sheet 14

Mechanical Connections and Animations

For this homework, you will create an animation showing the kinematics of a reciprocating saw. Download the files that are in the attached zipped folder on Blackboard. One of the files is a 4-second mpeg movie. The objective of this assignment is to reproduce this movie. The ProE files on Blackboard are the different rigid bodies constituting the reciprocating saw. Each asm file is a subassembly file containing a skeleton and a part. To connect and animate the whole mechanism, you will have to assemble these subassemblies.

1. Identify the mechanical connections between the different bodies.
2. How many degrees of freedom does the mechanism have? Prove it by using Gruebler's equation in 3 dimensions.
3. In your "HW14" folder, create a new empty assembly called "***-saw.asm". In this assembly, connect the five subassemblies you have downloaded from Blackboard to reproduce the reciprocating saw mechanism. You may have to add some datum features (axes, planes, points) in the subassemblies to create the connections.
4. Animate the mechanism with the "Animation" application of Pro/E.
5. Create a short mpeg movie from your assembly. You should show at least one cycle.