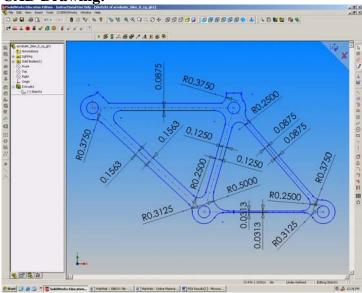
## Acrobatic Bike

The following document includes the design and finite element analysis for a bicycle frame design. A summary of the design methodology is to concentrate on performance and mass, while accepting the cost. The first version of the bicycle frame is shown below:

**CAD Drawing:** 



## **FEA Analysis Results:**

Displacement at Handlebars: 0.21mm (Req. 0.063mm)

Displacement at Seat: 0.014mm (Req 0.01mm)

Frequency (1<sup>st</sup> fundamental mode): 2.41 x 10e2 Hz (360Hz)

Mass: 0.14lbs (Req. 0.16lbs)

Maximum Stress: 80Mpa (Max yield: 275Mpa)



