**Computational Methods in Additive Manufacturing**

**MECH-6024, MECH-5124**

**Group Assignment 6 (Group of 2)**

**To be worked in groups of two, include both names on the final report. Do not consult other groups.**

**Please show all steps of the algorithm and calculations**

**Due April 21, 2020 by 3:30 pm**

The STL file of a CAD part is attached on Blackboard (part.stl) along the orientation shown in the figure below. Read the information from STL file. The part is manufactured with a uniform layer thickness of 1 mm. It was decided to change the final build orientation by rotating the part 300 with respect to the X-axis followed by a rotation of 450 with respect to the Y-axis.

Plot the STL file of the rotated part. For the rotated part, calculate the intersection of a slicing planes with the rotated part at Z = 5mm and Z=30 mm. Provide the consecutive values of the vertices and plot the contour of each sliced layer (polygon). Also, calculate the sintering area (slice hatch area) for each slice and the volume of each slice. Please note that the build direction is always the positive z axis.

