UBC Call Sept. 12

Factors that affect support structures:

- Resin viscosity high viscosity resins require more supports to counteract vacuum forces as the part is separated from the print window
- Green strength of the material Materials with low stiffness in their green state require more supports to resist deflection, this is compounded by the fact that support structures are made of the same flexible material as the object being printed
- Part Geometry and size vacuum forces increase exponentially with cross-sectional area. Vacuum forces are also dependent on part geometry, a circular shape with the same cross sectional area as a star shape will generate more vacuum forces as the resin must travel further to reach the center of the object
- Angle of a part more support structures are required as parts deviate from vertical geometries to counteract gravity
- Platform ascent speed increasing platform movement speed increases vacuum forces
- More support structures = more resin and more post processing! Optimizing support structures will reduce costs, post processing requirements and improve product quality
- Would be beneficial for the students to design simple test models that will show us at which angle support structures are required as well as models with increasing overhangs to determine at which distance form a part support structures are required on overhangs
- Design considerations
 - Test models should not have features to be measured within the first 2mm (vertical), increased power is used in the first layers of printing that could skew results
 - Smaller (within reason) test models are better as they will use less resin and produce results more quickly