

Design Challenge – Prosthetic Hand

Scenario

You are working with a team of engineers from a biomedical engineering company that specializes in the design and manufacturing of prosthetic devices. Your team’s challenge is to design a prosthetic hand that can perform ONE function to help improve the quality of life of the amputee who uses the prosthesis.

Example functions to design for:

- holding a pen or pencil
- clasp
- using sign language
- throwing
- brushing teeth
- picking up an object
- holding a utensil
- eating spaghetti

Design Constraints

- **Time:** You will be expected to complete this design challenge from start to finish in a matter of weeks! Therefore, it is important to agree on a design that is functional, yet not overly complex.
- **Materials:** The materials available* to you are listed below:

foam core	balsa wood, Plexiglas
wooden dowels	metal rods
springs, rubber bands	adhesives, such as epoxy, super glue, hot glue
sander, saw, drill	fasteners, such as eye hooks
wire, string	laser cutter (requires SolidWorks application)

**You are permitted (and encouraged!) to use materials not on this list as long as you explain the purpose for doing so. Please see the instructor as the need for additional materials arises.*

- **Project Deliverables:** (for 50% of course grade)

Deliverable	Points Assigned	Assigned Date	Due Date
Background research	150 points		
Preliminary sketches and materials list	100 points		
Progress report	50 points		
Design portfolio	100 points		
Final prototype	150 points		
Class/expo presentations	100 points		

Bee creative! 