Westerdals

Design iterations:
Ice cream cup

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The week

- Fyll in doodle om status på itslearning
- Vilka färger vill ni ha? Poll på Onsdag

- Cad support i klassrum
  - Onsdag: 9:15-11:00
  - Torsdag: 9:15-10:00
  - Fredag: 9:15-11:00
- Support in makerspace
  - Onsdag: 11:00-12:00
  - Torsdag: 10:00-12:00
  - Fredag: 11:00-12:00

Product development plan

- *Week1: Learn CAD and 3D print - DONE!*
- **Week2: Design iterations and testing**
- Week3: Produce functional prototype
- Week4: Reporting etc

Design your product for for batch printing.

The final production optimization is not part of the course since that would be done in collaboration with the print farm supplier.

This weeks goals - **Design iterations and testing**

- Establish requirements
  - Client needs
  - End user needs
  - Manufacturing needs
  - Course needs
  - Personal goals
- Generate, develop, review, iterate concepts until you have
- **Tested** that your concept fulfills the requirements
  - Will it print?
  - Function tests?
  - User test?
  - Changes needed?
  - More test needed or Good enough?

Next weeks goals - Produce functional prototype

- Final design tweaks
- Manufacture functional prototype (problems & revisions)
- Make drawings of the final design
- Make renderings

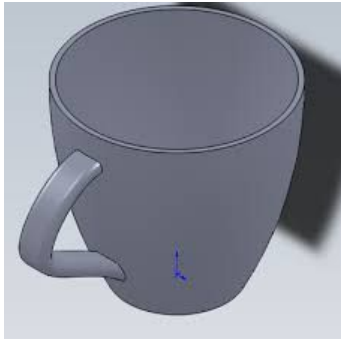
Very limited time to test, redesign and reprint in this week!

Meaning if you test something in this week and don’t like it you will not have time to change it!

Iterations and refinement

- Sketches
- Models
- Prints

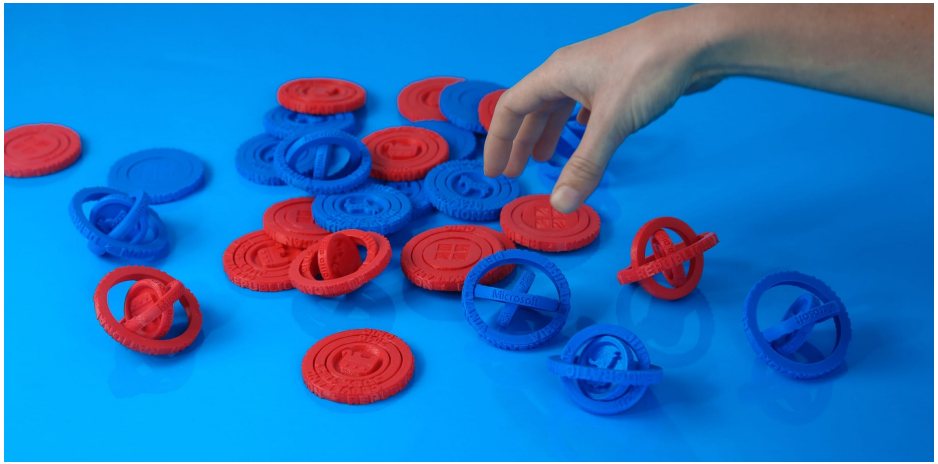
Iterations takes more time but you learn more



Course needs

Design your product to be batch printed

Mass production optimization is not required, functional prototype is the goal.



https://voodoomfg.com/examples/microsoft

Special features, if you want them!

- Moving parts
  - Can be printed as one part (like this 1 print elephant with moving legs)
  - Can be snapped together (like these car wheels)
  - Avoid complex manual assembly, especially using fasteners glue etc.
- Support material
  - Is OK! But you will have to remove it yourself!
  - Worse surface finish
  - In batch production soluble support would be used (Ultimaker PVA example)
  - Consider if rotating the print solves the problem or if you can design around it?

Questions and problems?

- Got SD card?
- Got makerspace access?
- Have setup Cura for both:
  - Ultimaker 2+ Exended (included in Cura)?
  - Type A machines Series 1 2013 (not included in Cura)?
- Other questions?

Printer time use

- Sharing the printers
  - There will be queues
  - Start testing early
  - Share your results
  - Check the expected print time!
- Will it print?
  - Print test parts! You will want to change things.
  - Scale down the model
  - Divide the model
- Strong and nice looking prints
  - 0,15 to 0,2 mm layer height is good for testing
  - Lower layer height improves overhangs but is slow!
  - More than 15% infill is a waste of time, rarely needed