



Digital Design Graphics Technology  
Napa Valley College

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### DDGT130 – 3D Printing Assignment Descriptions

Project 1 – One single part with no movement.  
5% of final grade      DUE 10/15/2018

Project 2 – A simple assembly with moving parts.  
10% of final grade      DUE 11/5/2018

Project 3 – An advanced assembly with moving parts.  
15% of final grade      DUE 12/5/2018

#### Guidelines:

- You are allotted 60 cubic inches of material and support combined between all three projects.
  - You can distribute the 60 cubic inches in any way you wish amongst the three projects.
  - Assume that your first attempt at a part or assembly will have issues and you may need to reprint.
  - Plan on the possibility that the 3d printer could have an error and fail the print (even if your design has no issues).
  - Plan on leaving yourself extra material and support for projects that fail either due to a poor design or a printer error.
  - If you complete all three projects and you still have material available, you may print additional projects for yourself.
- All projects must be approved by the instructor BEFORE YOU BEGIN YOUR DESIGN.
- No designing weapons.
- If you print multiple parts at the same time, be aware you will only be allowed to use one color (this is a limitation of the 3D Printer).
  - If you want separate colors, you will need to print your parts individually and it will need to be assembled afterwards.
- Minimum clearance between parts is .5mm
  - Take scaling into consideration
  - Take post processing into consideration (epoxy addition)
- You are allowed to print “solid” or “hollow”.
  - Be aware that “solid” will be stronger but it will use up additional material.
- All designs must be designed by you using the Autodesk Fusion 360 software.
- All files for 3D Printing must be submitted as an STL file format with your name and project title included in the file name.
- Design considerations:

- Strength – the parts must be strong enough to resist breaking (not too thin anywhere).
  - You may plan on utilizing metal or wooden dowels for increased strength.
- Support material removal – can the liquid bath penetrate all support areas for proper support removal?
- Your assignment(s) must be submitted for printing and grading by the assigned due dates. Assignments submitted after due dates will receive a 15% penalty.
- For every 3D Printed model, you must submit a digital copy of the project as a Fusion 360 file and STL (instructor will assist). You must also submit a digital copy of the Printing Assignment Project Review document.

Note: Due to the class size and the schedule, be aware that not all projects will be printed and returned before the end of the class. If this happens, you can schedule with the instructor on when you can pick up your printed projects.

Note: The color of the plastic and which 3D Printer is used is up to the discretion of the instructor.

Note: Instructor may ask you to give a presentation one or all of your 3D Printing assignments to the class. If your project has not been printed yet, you may use the digital model for visual aids. Refer to the “3D Printing Project Review” for discussion points.

You will be graded on how well you present the materials. Make sure your presentation is clear and interesting.

You will be graded on the following criteria:

- Design complexity
  - Designs that are too simple will be marked down.
  - Designs that are too complex may set yourself up for failure.
- Creativity
  - Did you just copy someone else’s design online or did you come up with something original?
- Projects / Material Use
  - You will be graded on how well you used your material allotment.
  - Those who print simple, basic projects at large sizes will be marked down.
- Presentation
  - Did you fully describe your project?