



Digital Design Graphics Technology  
Napa Valley College – Napa Learns

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### DDGT130 – 3D Printing Assignment Descriptions

Project 1 – One single part with no movement.  
5% of final grade      To Be Announced

Project 2 – A simple assembly with moving parts.  
10% of final grade      To Be Announced

Project 3 – An advanced assembly with moving parts.  
15% of final grade      To Be Announced

#### 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.
- All designs must be designed by you using the Autodesk Fusion 360 software.
- 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 .7mm. Maximum clearance between parts is 1mm.
  - 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 files for 3D Printing must be submitted as an STL file format with your name and project title included in the file name. Instructor will assist.

- 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 10% penalty.
- For every 3D Printed model, you must submit a project review digitally to the instructor (instructor will provide 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 and you may not receive your project until the beginning of the next semester. If this happens, the instructor will schedule with you for pick up.

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

You will be graded on the following criteria:

Projects 1 and 2

- 10% - Project Review Handout
- 10% - Did you meet your scheduled deadline?
- 20% - Originality / Creativity
  - Did you just copy someone else's design online or did you come up with something original?
  - Was your project interesting and a good use of material or did you just come up with something randomly with no real thought to fulfill the assignment?
- 50% - Design complexity
  - Designs that are too simple will be marked down.
  - Designs that are too complex may set yourself up for failure.
  - How long did it take you or should have taken you?
  - How challenging was it?
- 5% - Review of 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.
  - How many revisions were needed? Were there obvious mistakes such as intersection parts when there should not have been?
- 5% - Was your part printed successful? (If you turn this in late, and I do not have the time to print and test, you will get marked down.)

### Project 3

- 10% - Project Review Handout
- 10% - Did you meet your scheduled deadline?
- 20% - Originality / Creativity
  - Did you just copy someone else's design online or did you come up with something original?
  - Was your project interesting and a good use of material or did you just come up with something randomly with no real thought to fulfill the assignment?
- 50% - Design complexity
  - Designs that are too simple will be marked down.
  - Designs that are too complex may set yourself up for failure.
  - How long did it take you or should have taken you?
  - How challenging was it?
- 10% - Review of 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.
  - How many revisions were needed? Were there obvious mistakes such as intersection parts when there should not have been?

*Revised 9/1/2020 gs*