

## Submitting Files for Rapid Prototyping And Part Finishing

### FORM INSTRUCTIONS:

1. Download the latest "[Student RP Request Form](#)". This form has two sheets the 1st sheet labeled "Student Request" is for each student to complete (**Do not fill out the second Page "CCS Staff Only", this is for internal use only.**)
2. Fill out course and contact information. List each stl file to be rapid prototyped under the column "File Name."
3. **No** files will be accepted or reviewed without a completed "Student RP Request Form". **All filenames** must follow naming instructions (keep names as short as possible)
4. Bring your stl files and completed form on disc or flash drive to the model shop (11th Floor Taubman Building).
5. All Files must be stitched and water tight.
6. Rapid Prototype machines will only accept files saved in .STL FORMAT. (stereolithography)
7. **One .stl part per file only** do not put multiple parts in one part file.

**All \*\*\* .stl files must contain the students full name, how many and located within a folder on the disc or flash drive to be accepted for rapid prototyping. After full student name keep file name as short as possible! The shop will not look at your files unless this format is followed!**

**File structure/name conventions** – example for submitting rapid prototype file.

#### **Must**

Create Folder Use student's first and last name **only**.

Create STL file(s) John-Doe-frt-whl-(how many: 1pc, 2pc, etc.) .stl

Stl. files must be saved in created folder as stated.

Include current RP Request Form in folder.

## Example of format for submitting files to be rapid prototyped



Create a folder –**your name only!**

Everything you are submitting goes into this folder.

Add your name to the RP Request form in place of Student (see below) do not change or shorten file name. You must get a new form for each semester with correct semester date.

	John Doe RR STL-2pc	10/31/2016 4:18 PM	STL File	18,623 KB
	John Doe Stand-1PC	11/3/2016 4:17 PM	STL File	11,023 KB
	John Doe Wheel-4PC	11/3/2016 4:17 PM	STL File	11,023 KB
	John Doe-RP-Request-Form-FALL2016	11/3/2016 4:40 PM	Microsoft Excel 97-...	53 KB

Your form should look like this, fill out the form and save into folder. You must have your name and contact information. Use only first page of form.

College for Creative Studies										RP Build Request				
Date			10/31/2016			Credit to Account #			1-4207-4410					
Instructor Name			B WILLIAMS			Debit Account #								
Phone #														
Course #			ABC Studio						<i>Files will not be accepted after 11/7/2016</i>					
Student Name			John Doe			Special Instructions			2 pieces					
E-Mail Address			JDoe@YAHOO.COM			Z-Corp								
Phone			313-906-5555			Stratasys								
Student ID #			508829			Objet								
<b>FOR CCS OFFICE USE ONLY</b>														
<b>FILE NAME</b>		Ultra-3SP		Fdm		Objet		Price/each	Qty.	Total				
		Material	Binder	Material	Support	Material	Support							
1	John Doe RR STL-2pc	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	1	\$0.00				
2	John Doe-2PC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	1	\$0.00				
3	John Doe Stand-1PC	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	1	\$0.00				
4		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	1	\$0.00				
5		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	1	\$0.00				
6		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		\$0.00				
7		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		\$0.00				
8		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		\$0.00				
9		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00		\$0.00				

## Tips for Building Files

1. Build all files to theoretical unless you are confident in your modeling skills. Poor surface development from incorporating fillets and radiuses are the main cause for gaps when attempting to stitch files.
2. When creating files (parts that will be assembled) remember to include design clearances. If you create your files line for line they will not fit together. For items that will require painting about .010-.012" per side should be sufficient. If pieces will be assembled with light sanding only approximately .005-.008" design clearance will be required.
3. When using any of the printers, .060"/1.5mm is the thinnest cross section recommended if priming and painting are required. The size of the part being created is directly related to wall thickness. Be sure that the integrity of the part will not be affected by thin cross sections supporting heavier areas
4. Build sizes for each machine are as follows:

Plastic Machine 1	10" x 10" x 12"
Plastic Machine 2	10" x 10" x 12"
Objet Machine	13.5" x 13.5" x 8"

If your part does not fit completely with clearance (4mm) within any of these working envelopes it must be split up into smaller pieces which can be glued together later. When splitting parts try to provide split lines with maximum surface area to provide good glue surfaces.

5. When creating part geometry small details will be filled during painting.  
(Lettering) Design these areas/letters to allow for paint buildup to maintain the desired finished appearance. In other words, make them deeper or bigger.
6. All extra geometry must be removed (double surfaces and construction geometry, blanked entities).

7. Some parts may have a large cross section because of size. The FDM printers can create a semi hollow interior which reduces cost and weight of a large part. If the Objet printer is used it cannot create this type of part interior. The best way to reduce cost and weight is to design the part if possible using a surface offset and an access hole which will enable you to clean out most of the support material from inside the part.
8. **We do not mirror, scale or fix major part problems this is your responsibility. Remember one part per file.**
9. **Make sure your part is the correct scale!**

### **Finishing of Rapid Prototype Parts**

1. In general parts can be sanded with 100-240 grit sandpaper prior to typical priming.
2. Parts created in the Objet printer will need to be cleaned of any leftover support material and surface residue before priming or painting. The procedure for this is to clean all surfaces with the power washer, then alcohol and a stiff brush or cloth depending on how fragile the part. After this step a light sanding with 120 grit sandpaper is normally all that is required to prep surfaces for priming.
3. Parts created in the FDM printers will require sanding with 100 grit sandpaper prior to priming.
4. Normally at least two coats of primer and sanding in between coats will be required to provide a good surface finish for painting.