Objet 30 Users Outline and SOP

Last edited: Furst (8/28/20)

Instructor:

Date:

Attendees:

	Trainee Names, First Last	Group or Company	Initial
1			
2			
3			
4			
5			
6			

Location:

The Objet 30 Pro printer is located in 3430 Elings Hall

Safety Issues:

Gloves should be worn when working with the print resins and when cleaning the print heads.

Overview of the printer and software

The printer comprises the following main components:

- Print heads that travel in a raster scanning pattern over a print platform that moves vertically.
- A drawer with a reservoir of print material, support material and a waste container
- A tower computer **running Objet Studio software**, and also running a **Remote Desktop connection to an embedded PC inside the printer running Objet software**. There are two computers and two separate software packages running together to operate the printer.
- A waterjet cleaning station.

The printer has two print heads – one prints the structural material for parts, and the other prints a support material. Parts are built on a layer of the support material. Matt finish parts are surrounded in support, and overhanging features are supported with support material during printing. The support material is removed in the water jet station.
Training: New users should read the operators manual, and go through the Operator Training Course – both documents are linked on the lab website.

Sequence of operation:

Start of run

1. Save CAD file in .STL format, bring to printer on a thumb drive.
2. In **Objet Studio insert the file** – you should see the part on the image of the print platform.
3. **Validate** the design
4. Select **matt or glossy finish** for each part
5. Run the **estimator** to determine the print materials required and the print time
6. Enter this information in the log book
7. Press **build**
8. Open the remote desktop connection to the printer
9. **In the printer window click on the red circle** – turning it green to start the job. At this point you should hear the cooling fans on the printer turn on. The print job should start after the heads warm up (~15 minutes if the printer hasn't been running for a while).

After run is complete

1. Remove parts using putty knife in drawer below printer.
2. Scrape any support material remaining on the bed off with the razor scraper in the drawer beneath the printer. Take care to collect the debris, don't dump it into the gap between the print bed and the printer.
3. Clean the print bed using a paper towel wetted with water.
4. **Run the head cleaning wizard – the print heads cost ~ $5k and will be ruined if not cleaned after the run!**
5. Clean your parts in the water jet cleaner

Objet 30 Quick Review

Tool Lead:

Contact: andrewfurst@ucsb.edu

Safety Concerns

- Gloves should be worn any time resin is handeled or the printer is being cleaned
- The printer lid should be closed at all times when the printer is running
- Many components of the printer remain hot long after part is complete, use caution when cleaning the print heads and roller

Safe Operating Procedures Review

- Save CAD file in .STL format, bring to printer on a thumb drive.

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2. **Validate** the design
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4. Run the **estimator** to determine the print materials required and the print time
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Post Processing

- Remove parts using putty knife in drawer below printer.

1. Scrape any support material remaining on the bed off with the razor scraper in the drawer beneath the printer. Take care to collect the debris, don't dump it into the gap between the print bed and the printer.
2. Clean the print bed using a paper towel wetted with water.
3. **Run the head cleaning wizard – the print heads cost ~ $5k and will be ruined if not cleaned after the run!**
4. Clean your parts in the water jet cleaner

Maintenance

- Print heads and roller should be cleaned after EVERY print
- Build tray should be scraped free of debrets and wiped with wet paper towel after EVERY print
- Printer should be restarted once every week or whenever printer is misbehaving.
- Head alignment and patterning should be done every month or so to insure printer accuracy
- Waste resin container should be sealed, placed in hazardous chemical waste, and replaced as necessary