Fab Lab Operations

Fab Labs can operate in different ways, but the two primary formats are:

A) Technician/Teacher Operation
B) Student Operation

Each school needs to experiment with the different formats and determine what works best to support the school's vision for Fab Lab use.

For managing the Engineering[3] classes I like to use the Technician/Teacher format as it resembles operations at many universities and engineering firms (students/engineers submit jobs and the shop produces the parts). This also keeps classroom function and materials management more efficient as student parts can be ready and waiting for them when they get to class rather than students in a queue waiting their turn to use the equipment. Waiting diminishes engagement time.

Fab Lab Workstation
The Fab Lab workstation computer should be the same as the student workstations (i.e. SolidWorks needs to installed/accessible/set up). The Fab Lab workstation will be the place to review student job files and send the jobs to the designated piece of equipment (there will be driver software added to run the laser cutter, 3D printer, CNC, etc.). By having a designated Fab Lab workstation all the equipment drivers can be loaded on one computer rather than on each student workstation.

Job Submission File Format
Jobs can be opened at the Fab Lab Workstation by either:

A) Hard transport of files with a flash drive
B) Loaded from a Network drive

I try to network Engineering[3] Labs (see Engineering3 Workstations and Network document) and set up a folder/file/drive system for parts submissions all students can save to.

Jobs Folders
Laser Jobs (with sub folders Laser Job Queue; Laser Faulty Jobs; Laser Completed Jobs)
Modeler Jobs (with sub folders Modeler Job Queue; Modeler Jobs Building; Modeler Faulty Jobs; Modeler Completed Jobs)

Note: I processed all the jobs at BSM and thus the job folder structure. If students process their own parts this may need a different format.

Jobs Folders (cont.)

I set permissions on these folders so that only the account that created the folder (and administrator) has anything beyond read privileges (keeps students from messing with each other's stuff deliberately or accidentally). Students submit a job to the Job Queue and then I process the job and move it to:

A) Completed Jobs (so students know to pick it up from the Completed Parts Bin)
B) Faulty Jobs (so students know to come ask what is wrong with the part)

For Modeler there is an additional folder:

C) Jobs Building (so students know the part is in process and don't come asking about it)

After students have picked up or checked on their faulty job they must delete their job submission from the appropriate folder. (If they do not delete their existing job it is difficult to know what parts have been produced, they will come asking for parts they've already picked up, etc., so job deletion is important for smooth job flow.)

The procedures outlined in the textbook modules for job submissions align with the above format.