1. Logging in:
Check the status from last user. Write down on the logbook the current date, your name, sample substrate, recipe, and process time. If you use an edited recipe, please write down the details of it: all gases and their flow rates, pressure, and power.

On Oxford PC4500 software, click the round button on top left, then go to User Log In under Utilities.

Enter your username and password and click Verify. If you are successfully logged in, you will see your username under Current User. Click OK to go back.
2. Chamber venting:
Click the top left button, go to System -> Pumping. You will see the status of all the pumps and valves, the pumping/venting status bar, and three control buttons: Evacuate, Stop and Vent.

Press Stop, current pumping will stop, then press Vent to start venting. The status bar will show “Turbo backing delay”, then “Purging” and finally “Venting to atmosphere”. Wait for all the countdowns to finish (about 4 min).

3. Sample loading:
On the machine, switch Lid Control to Open. Press and hold BOTH Start buttons until the lid is completely open (the lid will go up and then rotate to the side). Load your sample onto the stage. If it slides around, you can attach CLEAN glass slides with Kapton tape onto the stage to secure it. Make sure the sealing ring area and the stage is clean before closing the lid. If not, clean it with DRY wipe or nitrogen gun. Use IPA or water only when necessary.
4. Chamber pumping:
After loading, switch Lid Control to Close. Press and hold BOTH Start buttons until the lid closes completely. Go to System->Pumping. Press Stop -> Evacuate. Enter a wafer name to tell the system there's wafer in the chamber, or press cancel if there's none.
At first the bypass valve will open to start pumping slowly, then it will close and the main valve will open for faster pumping. At last the main valve will close and the chamber will be pumped by the Turbo pump. When pumping is finished, you will see “Base pressure reached” at the status bar. The whole pumping process will take about 4 min.
5. Recipe loading and editing:

Go to Processing -> Recipes. Press Load and choose the recipe you would like to load.

Right now, there are four default recipes available:

1. **OPT - Chamber Clean**: O2 cleaning of the chamber. Run at least 10 min every time you are done with all your processes.
2. **OPT – Chamber Clean - EP**: Cleaning the chamber with end point detection.
3. **OPT-SiNx ETCH**: to etch silicon nitride;
4. **OPT-SiO2 ETCH**: to etch silicon dioxide.

Click Yes in the pop-up window to confirm you want to overwrite current recipe.
To edit the recipe, **left click the step** you want to edit in the step list, then click **Edit Step** to edit the process. You can edit a process temporarily, but **you are NOT allowed to permanently save the change by clicking “Save” in the recipe loading screen.**

At the Process Step Edit screen, you can change **gas and flow rate, step time, pressure** and **power.** Don’t change chiller temperature and other settings. **Please keep a single process run within 30 min and allow 10 min cool-down between long runs.** After finishing editing, press **Enter** on keyboard or click **Save in the Process Step Edit screen** (not the recipe loading screen) to confirm change and go back to recipe loading screen.
6. Recipe running:
After double-checking all recipe parameters, click Run Now in the recipe loading screen to start your process. Once process starts, you will be able to see the plasma through the viewing window on the chamber.

Monitor the status of your process by going to Processing-> Process Chamber. You can stop/pause your process by pressing the corresponding buttons. You can use button to switch between the Pumping screen and the Process Chamber screen.

When process is finished, there will be a Yellow alert on top. Click it and choose Accept.
If you have more processes to do, simply repeat **step 5 and 6** to load and run recipes until you finish. Click **Yes** on the pop-up window to confirm you have a second process to run on the same wafer.

7. **Sample unloading and chamber pumping:**
To unload sample, repeat **step 2 and 3**. If all your processes are done, do **step 4 to bring the chamber back to vacuum**. When asked for the wafer name, click **Cancel** to indicate no wafer is in the chamber. After pumping down, **run a Chamber Clean recipe for AT LEAST 10 min (required)**.

8. **Logging out:**
Go to **System->User Log In**, and click **Verify**, the status will become **View Only**. Do not exit the software. Log out on the logbook. If you encounter any problems, please notify Donghai or Superuser immediately and write it down on the logbook.