

FEI F20 TECNAI Training Procedure

Training for TECNAI T/ST is given by MIC for basic operation of the microscope. Basic operation includes loading/unloading samples, user alignment, and acquisition of images.

- For the operation of the advanced TEMs previous experience in electron microscopy is recommended but not required.
- Trainees with no previous experience in transmission electron microscope are required to fill out the TEM questionnaire provided by MIC and submit at the first training session.
- For further reference future users can use the text book for TEM 'Transmission Electron Microscopy' by D. B. Williams and C. B. Carter.
- Trainees need to know there is no fixed period of time for training. Training is aimed only for the basic operation of TECNAI on their own.

Training sessions for basic operation of TECNAI

(Each session lasts about 3 hours)

1st session – explanation about the main structures of TECNAI, demonstration of basic operation of the microscope, and practice of user alignment. The main structures are field emission gun/column/screen/camera with apertures, panels, and softwares.

2nd session – Practice of loading/unloading, user alignment, image collection with aid from staff.

3rd to final sessions - Practice of loading/unloading, user alignment, image collection with or without aid from staff. These sessions repeat until trainees get fully used to the operation.

Operation test – Once trainees feel comfortable with operation of the microscope without any aid from staff they can let staff know and take the operation test. This is to check whether they are capable of safely operating the microscope all by themselves. Normally it takes about 1 hour.

Safety Training – Once checked out new users are required to take safety training unless they are trained for that previously.

EDS Training

For the information of component elements of a sample qualified users can take the EDS training. It lasts 30 min to 2 hours.

STEM/EDS training

For EDS line profiling or maps/STEM imaging qualified users can take the STEM/EDS training. It may take 1 to 6 hours.

Double Tilt Holder training

For crystallography qualified users with enough knowledge about diffraction phenomena can take training for the usage of double tilt holder. It takes 30 min to 1 hour normally. Note that a class for diffraction phenomena is not given by MIC.

CryoTEM training

For cryoTEM training trainees need to be first qualified for basic operation of TECNAI T (room temperature TECNAI T). Then, one or two sessions of cryoTEM demonstration and two more sessions of hands-on practice are essential. The training contains disconnection/connection of the cryoholder, mounting/dismounting a cryoTEM sample onto the cryoholder, loading/unloading the cryoholder into the TEM column, and imaging. After the essential training sessions trainees need to practice a few more sessions until they become accustomed to its operation.

K2 camera training

Users who want to use the K2 camera can take a short training for the basic operation of the camera. For the full operation and maintenance of the camera users are required to contact Dr. Junjie Zhang (email: junjiez@tamu.edu) in the department of biochemistry and biophysics.

Refresh Training

When a qualified user does not use the microscope for about 6 months and needs to refresh his/her memory, refresh training can be given. After no use of the microscope for about 1 year, (s)he is required to take the refresh training.