

Introductory Transmission Electron Microscopy Training

Policy Statement

- **Main policy:**

Each user must take the Introductory Transmission Electron Microscopy (ITEM) course at CharFac in order to independently use the facility's non-field emission TEMs: JEOL 1200 EX, JEOL 1210 and Tecnai T12.

- **How do you initiate the training for Transmission Electron Microscopy (TEM)?**

- Each user should fill out the TEM training application form (on the following page) with the contact information, research statement, choice of microscope¹ and signature from the advisor (students and post-docs only).
- Each user is encouraged to discuss with Ozan Ugurlu (ozan@umn.edu) or Bob Hafner (hafne030@umn.edu) for a recommendation on which microscope to start with. The users with biological samples are also encouraged to discuss with Fang Zhou (zhoux341@umn.edu) or Wei Zhang (zhangwei@umn.edu) on your plan.
- After completion of the registration form, please submit the form to the front office (12 Shepherd Labs; charfac@umn.edu) to schedule a course.

- **What is the training procedure?**

- The "ITEM Primer" must be studied prior to the hands-on training. The primer is available in the "Education" section of the CharFac website (<http://www.charfac.umn.edu>).
- The ITEM course has a maximum of 3 students. The course consists of one 4-hour group session and one 3-hour session of individualized instruction. Additional instruction, if necessary, will be charged based on the instrument and staff time.

- **What do you expect at the end of the course?**

- For after hours access (weekdays after 6:00 pm and weekends), the users must use the instrument for at least 30hrs² before they can sign up for an after hours drivers test. Some critical issues and worst case scenarios will be discussed after the drivers test.
- To be qualified for training on the Field Emission Microscopes, the user will be asked to show exceptional TEM skills including imaging at Angstrom levels with T12. Please practice on the T12 as much as you can before taking this test. Moving on to Field Emission microscopes depend solely on the instructor test results are not sufficient if the instructor doesn't approve you.

¹ See the table below

² Depends on previous TEM experience

Jeol 1200	Jeol 1210	FEI T12
<ul style="list-style-type: none"> • 3.4A point resolution • Bright/dark field imaging • Diffraction • Double-tilt holder • Open schedule, book maybe a day in advance 	<ul style="list-style-type: none"> • 3.6A point resolution • Bright/dark field imaging • Diffraction • Cryo • Medium booked, book about a week in advance 	<ul style="list-style-type: none"> • 3.4A point resolution • Bright/dark field imaging • Diffraction • EDS • Cryo • Heating stage • Double-tilt holder • In-situ indentation • Heavily booked, book at least 2 weeks in advance

INSTITUTE OF TECHNOLOGY CHARACTERIZATION FACILITY

TEM TRAINING

NAME _____

TEM Focused Research Statement:

I would like training on the following instruments: _____

I hereby agree that any damage to the instrument caused by my student/post-doc will be paid from the user's research account number or I will provide another account number.

Advisor/P.I.: _____

Advisor/P.I. : _____
Signature

Do not fill this area.

Suggested TEM: _____ Initials of the staff member: _____