

Rules and Regulations for using X-ray Instruments in FACTS

Equipment Access

- Only official NTU staff with NTU staff card, students and exchange students with NTU matriculation card are allowed to use the X-ray instruments in FACTS.
- X-ray instruments in FACTS are divided into Cluster 1, Cluster 2 and Cluster 3 (please refer to <http://research.ntu.edu.sg/facts/Pages/Charges.aspx> for the instrument in each cluster). The access for undergraduate students is only limited to Cluster 1 XRD (Shimadzu Powder and Thin Film).

X-ray Restricted Room Access

- Only users trained by FACTS staff to use the X-ray instruments in FACTS are allowed to enter the X-ray Restricted Room. Unauthorized personnel should NOT enter this room.
- In the event that a user needs to bring visitors into the X-ray Restricted Room, he/she must first inform and seek approval from FACTS staff. Non-compliance constitutes breaching of the X-ray Safety Regulations in FACTS and will result in penalties (please refer to end of this document).
- All users must wear/return a personal dosimeter and record its equivalent dose reading upon entering/leaving the X-ray Restricted Room. Failure to do so constitutes breaching of the X-ray Safety Regulation in FACTS and corresponding penalties are applicable (please refer to end of document).

Equipment Booking & Usage

- After training, users must use the instrument for at least 3 hours within the first 30 days, otherwise their instrument access will be removed. To regain access, user has to wait until at least one month for retraining and corresponding charges for retraining will be applicable in this case.
- If there is no usage of instrument within 365 days from the last usage date, instrument access will be automatically removed by the FOM server and retraining with charges is applicable in this case.
- Users are encouraged to cancel the instrument booking early if the reserved slots are not needed. Charges will still apply if users cancel the reservation within 24 hours or fail to turn up for usage thereafter.
- Users bear full responsibility for the instrument during their own respective session. If a user uses an instrument booked by a different user, this constitutes an unauthorized usage. Penalties (please refer to end of document) will apply. In the event that a user is keen on transferring his/her slot to another trained user, he/she is advised to request FACTS staff to revise the booking before the start of the slot.

- If there is damage to the equipment and its accessories (holders, detectors, etc), users will have to bear the full cost for the repair or replacement of the damaged part or component. Penalties (please refer to end of document) will also apply for such cases. Examples of damage to equipment due to misuse include, but not limited to, the following:
 - Forcing open the equipment door resulting in possible damage to its interlocking system
 - Using force on the equipment door too hard thus causing it to chip off or crack
 - Pressing the emergency stop button when there is no emergency
 - Shutting down the equipment by turning the lock-out key at the equipment
 - Configuring the X-ray tube to a higher power level higher than the mandated preset power, thus reducing the lifetime of the X-ray tube
 - Running the instrument at a scan range out of the recommended range
- Users are advised to complete their measurement within their booking time. Once their reserved time is up, the next user has the right to stop any existing measurement.
- If a user is found out to exceed their reserved slot by more than 5 min, charges will automatically be applicable for the excess usage. User's access to the instrument will be reviewed if the user is found to exceed their reserved slot by more than 30 min.
- In the event that a user's measurement time is affected by unintended equipment downtime, he/she is advised to report to the respective FACTS staff as soon as possible. The adjustment of the effective measurement time, and hence the usage charges, will follow.
- Users should inform the equipment in charge whenever he/she caused an alarm at the instrument. User's access to the instrument will be reviewed if failed to do so.

After-Office Hour Access

- New XRD users will only be given Office-Hour Access (8am – 6pm).
- Only research staff and research students can apply for After-Office Hour Access (6pm – 8am) and weekends. To apply for After-Office Hour Access, the research staff or research student must accumulate at least 20 hrs of hands-on experience with the equipment. Once the number of hours has been reached, he/she can request the respective FACTS staff for status upgrade.

Special Request

- If a user needs to book an X-ray instrument for an extended period of time to carry out their experiment i.e. lengthy time-dependent X-ray analysis, they can approach FACTS staff to help with the booking. Such a request will be reviewed and granted on

a case-to-case basis. Extra equipment charges might be applicable depending on the nature of the booking request.

Penalties for All X-ray Instrument Users

- 1) If a user violates any one of the rules and regulations, e.g.:
 - bringing unauthorized personnel into the X-ray Restricted Room without prior approval from any of the FACTS staff (Safety Non-Compliance)
 - not wearing/returning a personal dosimeter nor recording its equivalent dose reading upon entering/leaving the XRD Room (Safety Non-Compliance) or
 - allowing other users to operate the instrument during his/her own session
 - causing equipment damage and downtime due to misuse

The following penalties will apply:

1st Offence

- User must submit an incident report to explain the incident/situation
- User will be required to pass an offline ionizing radiation quiz invigilated by FACTS staff
- **Access to all X-ray instruments in FACTS will be revoked for 1 week or until the user has passed the hardcopy ionizing radiation quiz, whichever is longer**
- **Upon regaining instrument access, user will be downgraded to office-hour access for that particular instrument and reassessment will be given before the user's status can be upgraded again.**
- **User will be eligible for upgrading to after office hours, after 30 hours of office hours usage, post offence.**
- **If the offence is a safety non-compliance, MSE HSE will also be informed of the incident.**

2nd Offence

- User must submit an incident report to explain on the incident/situation
- User will be required to pass a hardcopy ionizing radiation quiz invigilated by FACTS staff
- **Access to all X-ray instruments in FACTS will be revoked for 1 month or until the user has passed the hardcopy ionizing radiation quiz, whichever is longer**
- **User will be eligible for upgrading to after office hours, after 40 hours of office hours usage, post offence.**
- **On the following month, user must apply for retraining with full training cost to regain access to that particular instrument. Training is subjected to availability.**
- **If the offence is a safety non-compliance, MSE HSE will also be informed of the incident.**

3rd Offence

- User must submit an incident report to explain the incident/situation
 - **Access to all instruments in FACTS will be revoked for 1 month or until the user has passed the hardcopy ionizing radiation quiz, whichever is longer**
 - **On the following month, user must apply for retraining with full training cost to regain access to that particular instrument. Training is subjected to availability.**
 - **If the offence is a safety non-compliance, MSE HSE will also be informed of the incident.**
- 2) If a user break or lose any of the XRD holders belonging to FACTS, the user has to
 - Submit an incident report to explain the incident/situation
 - Compensate for the cost of the broken or lost holder
 - 3) If a user spoil or lose the personal electronic dosimeters belonging to FACTS, the user has to
 - Submit an incident report to explain the incident
 - Compensate for the cost of the lost dosimeter

Note:

If a user uses an instrument booked under the name by a different user, **this constitutes as unauthorized usage**. Penalties including one month access removal to **ALL FACTS equipment will apply**.

Users are advised to request FACTS staff to change the booking to the correct user, instead of simply allowing access to someone.