

NanoEngineering Research Core Facility

Policies and Procedures

NERCF

College of Engineering

University of Nebraska-Lincoln

Version 1.0

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NanoEngineering Research Core Facility

Overview, Mission and Goals

The Nano Engineering Research Core Facility (NERCF) at the College of Engineering at the University of Nebraska-Lincoln (UNL) was completed in Spring 2016. The goal of the NERCF is to create a centralized, shared-user core facility that houses state-of-the-art research instrumentation necessary to position the UNL researchers at the forefront of global research efforts focused on advanced manufacturing of materials, nanostructures and nanodevices.

The NERCF enhances research capacity and quality by providing in-house nanofabrication and nanocharacterization instruments open to use by faculty across the University of Nebraska system. Further, it is the intent of this facility to become a regional hub for nano-engineering. The equipment and operations are funded in part by the Nebraska Research Initiative and the UNL Office of Research and Economic Development. The mission of the NERCF is to advance materials manufacturing efforts within the university and the state of Nebraska.

Collectively, NERCF supports the following primary research capabilities: 1) Nanomanufacturing and characterization of engineered devices, and 2) Characterization of bio-functional materials, including polymers, cells and bacteria etc. One unique aspect of the NERCF is its ability to conduct three-dimensional (3D) characterization of materials or manufactured parts. The 3D evaluation of materials is critical to understand material behavior fully and represents a rapidly growing research area.

For any corrections or questions on this brochure, please contact with NERCF through <http://engineering.unl.edu/nercf/>.

Joseph Turner
Director/Professor, NERCF

Policy Statement

The specific aims of the NERCF are to: perform and publish world-class research; educate students in the relevant scientific and engineering disciplines; promote interdisciplinary group and single-investigator grants to improve the university's national research competitiveness; and to contribute to the economic development of Nebraska through industrial collaborations. The operation shall be conducted in compliance with University of Nebraska regulations, applicable federal, state, local regulations, and University health and safety requirements and standards. User fees are charged to all users to offset the costs incurred in providing scientific equipment and technical expertise.

Reason for Policy

The NERCF provides its core instruments with consistent operational practices to ensure compliance with applicable federal, state, local regulations, University health and safety requirements and standards.

Who Should Read This Policy

NERCF Staff and Administrators

NERCF Users

Related Documents

- UNL Environmental Policy
<http://ehs.unl.edu/policystatements/EnvironmentalPolicy.pdf>
- Board of Regents Safety Policy <http://ehs.unl.edu/documents/safetypolicy.pdf>
- UNL Policy on Distribution of F&A Cost at UNL
<http://research.unl.edu/sp1/policies.shtml>
- UNL Conflict of Interest in Research Policy
<http://research.unl.edu/orr/docs/UNL%20Conflict%20of%20Interest%20in%20Research%20Policy.pdf>
- University of Nebraska Board of Regents Policies
<http://nebraska.edu/docs/board/RegentPolicies.pdf#page=1>

Use of the Core Instruments

The NERCF is open to all qualified researchers at UNL, other universities and at industrial or other laboratories with an expectation of payment for equipment use.

All users are required to obtain appropriate training and instruction specific for each instrument from the Instrument Manager. Users must demonstrate sufficient proficiency before and during equipment usage for training to be completed. Most instruments require reservation in advance of use. In the unlikely event that equipment is simultaneously needed by more than one researcher, members of the UNL community receive priority.

All users are required to take all appropriate safety training from the University Environmental Health and Safety (EHS). The EHS requires basic Laboratory Safety training consisting of a Core Safety Orientation, [Core - Injury and Illness Prevention Plan \(IIPP\)](#), and [Core - Emergency Preparedness Training](#).

In general, the NERCF is open at all times to qualified users. Access to the facility outside standard business hours is limited to trained and experienced users only and is at the discretion of the Facility Manager and Instrument Manager. In the event of a temporary closure, the Facility Manager will provide timely notification whenever possible.

UNL and NERCF policy requires users to acknowledge support from NERCF in publications. An example of such an acknowledgement is as follows “Manufacturing and characterization analysis was performed at the NanoEngineering Research Core Facility (NERCF), University of Nebraska-Lincoln.”

Commercial Use of NERCF

UNL and NERCF policy supports and encourages the collaboration between universities, industrial and manufacturing sectors. These collaborations should promote a more rapid development of research and the dissemination of knowledge and will contribute to Nebraska’s economic development through the development of new products and devices, spin-offs, and tech transfer to companies. The university and NERCF encourages its researchers to forge interdisciplinary partnerships with industry.

The facility must conform to the requirements stated in the relevant policies from UNL:

1. Commercial use of the facility must not interfere with the research mission of the NERCF.
2. Appropriate fees must be charged to recover full costs.

User Fees

- All users shall pay user fees.
- Fees charged to academic users are based on a cost-recovery principle.
- For-profit enterprises must pay the full cost of using facility resources. In addition, facility may not directly compete with services provided by private companies in a manner that is prohibited by OMB Circular A- 110.
- Facility staff labor charges only cover direct services such as specimen preparation, instrument or equipment set-up, training of new users, and data gathering and analysis.
- Routine maintenance of instruments is not a direct service. Minor consultation on experimental techniques or simple instruction on the use of equipment is also not considered to be a direct service.
- Materials consumed during the normal operation of NERCF instruments are normally included in user fees and not billed separately. In order to keep hourly charge rates low in some cases, users are charged and billed at cost for supplies (e.g., AFM tips).
- On request, estimates can be made by an instrument manager for a project based on prior experience with the understanding that the quotation is subject to inaccuracy. The NERCF will not be held responsible for any unforeseen circumstances that does not permit the work to be completed within the estimated cost or time schedule. All work is subject to equipment availability.
- Current rates shall be posted on the NERCF website.
- User fees in each facility shall be reviewed bi-annually or more frequently if required.

Reserving Time on Facility Equipment

Most of the facility equipment requires a reservation to be made in advance. Users who have completed training will be given a user account for the Facility Online Management server. The Online Instrument Sign-up Calendar website can be reached at: <http://fom-nercf.unl.edu>

Reservations are on first-come first-serve basis. Users are expected to reserve only the time they need and to be respectful of needs of other users. In addition, users are responsible for the time they have reserved and can be charged for unused time if they fail to cancel at least 12 hours in advance of the scheduled time.

The facility manager reserves the right to reschedule or cancel reservations.

Environmental Health and Safety

A priority of the NERCF is to maintain a safe working environment. All NERCF staff and users shall conduct operations in compliance with all applicable federal, state, local regulations, and university policies including all University health and safety requirements and standards. All

NERCF staff and users shall obtain and maintain all required EHS safety training. The facility strives to maintain a safe working environment by keeping all the equipment and work places well kept. Users are expected to clean up after themselves. All staff and users shall conduct safety self-audits to identify non-compliance items and take corrective measures.

Training of Specific Instrument

NERCF provides one-on-one in-depth training on the theory and operation with different levels, range from basic training to advanced techniques to meet your individual needs. First of all, users should register a new account through facility online manager (FOM) system. After that, instrument supervisor would schedule the training time with user. Different instrument has different training sessions, and all the training decisions would be made by instrument supervisor. Any new user is required to finish all the training sessions, and must pass the test which is normally scheduled three days later. For experienced user, instrument supervisor may simplify the training sessions.

NERCF Management

The overall management of the NERCF is the responsibility of the NERCF Director. Facility manager needs to manage the daily operation and report to the NERCF Director. Also each core instrument has at least one instrument manager appointed by the NERCF Director.

Duties of NERCF Director

1. Supervise the general operations of the NERCF core instruments.
2. Establish suitable policies for the NERCF and to ensure those policies comply with university, state and federal governmental policies.
3. Hire and supervise facility manager.
4. Conduct periodic reviews of facility operations, activities and financial status.
5. Manage the approval of special requests and waivers.

Duties of Facility Manager

1. Manage the day-to-day operation of facility and maintain the core instruments.
2. Train and supervise facility users.
3. Coordinate and provide expert technical input on the acquisition and installation of new instrumentation.
4. Remain current on research that utilizes techniques provided by the facility.
5. Establish safety practices and policies for the facility.

Duties of Faculty Advisory Committee

1. Support the acquisition process of new equipment by collaborating on the preparation and submission of internal and external proposals.
2. Provide technical advice regarding facility operation and resources.
3. Provide expert advice in the annual update of the facility.