

What is the Graduate Student Portfolio Program?

The graduate student portfolio program is the Center's effort to guide graduate students toward acquiring the knowledge, skills and experiences needed for success in an innovation and technology-driven, global society; meeting the Center's education hypothesis of developing a diverse, adaptive, creative and innovative engineer. Components of the program include identifying accomplishments and training in areas of analytical, business management, communication, leadership and mentoring skills while cultivating global connections in both university research and education. The program also strengthens the understanding of innovation, professionalism and ethical standards in engineering.

How Does A Student Benefit From the Graduate Student Portfolio Program?

Typical graduate students develop core expertise in a very specific field but gain little experience in the broader topic area. As a result, those engineers face a more difficult challenge in integrating their knowledge into working with a real world industry setting. Graduates of the FGSP Program develop a greater sense for the environment that their research will be incorporated into and develop the needed knowledge, skills, and experiences in the areas of renewable energy, energy storage and power semiconductor devices. The Center includes 5 domestic and 2 international partnering universities and over 50 industry members. These partnerships enable graduate students to engage with energy and power systems engineers both domestic and international. These connections can offer greater opportunities in the workforce and academia. In addition, upon graduation, a certificate of completion from the FREEDM Systems Center will be awarded to the student.

Which Students Participate?

- All incoming M.S. thesis and Ph.D. students who are financially supported by FREEDM Systems Center core (NSF, ATEC-NC State only, industry membership) funding beginning Fall 2011.
- Participation is optional for existing M.S. thesis and Ph.D. students who are not financially supported by FREEDM Systems Center core funding or began their program prior to Fall 2011.

What are Components and Requirements of the Graduate Student Portfolio Program?

Component	Requirement
Innovative and Creativity	<ol style="list-style-type: none">1. Participates in two (2) technology transfer seminars2. Completes one (1) workshop in entrepreneurship or technology management3. Participates in the FREEDM Innovation Bootcamp
Team-Based Interdisciplinary and Systemic Constructs	<ol style="list-style-type: none">1. Participates on FREEDM interdisciplinary research or education team employing interdisciplinary (materials science, thermal system, mathematics, linear systems, computer or electrical engineering) and system constructs in R&D projects with strong independence2. Works on FREEDM subsystem, components or system testbed integration3. Attends a minimum of ten (10) FREEDM-led webinars.
Oral, Written, and Virtual Communication	<ol style="list-style-type: none">1. Participates in two (2) workshops on oral/written communication2. Presents at two (2) symposia, professional conferences, or SLC organized events3. Authors one (1) peer-reviewed publication or grant proposal4. Participates in three (3) FREEDM pre-college or public outreach activities5. Participates in one (1) FREEDM elevator pitch contest
Business and Management Principles	<ol style="list-style-type: none">1. Demonstrates ability to manage a project within time, quality and budget constraints2. Participates in one (1) professional development workshop on project management
Leadership and Mentorship	<ol style="list-style-type: none">1. Participates in two (2) FREEDM-led education workshops related to leadership and mentorship3. Mentors a FREEDM summer REU or undergraduate research student, Young Scholar, and RET for a minimum of one (1) semester4. Participates in three (3) FREEDM Expert Classroom Visitor days
Global Connection in University Research and Education	<ol style="list-style-type: none">1. Participate in one (1) FREEDM-led education workshop related to multiculturalism and diversity in research and education2. Participate in two (2) FREEDM-led webinars hosted by FREEDM international partnering universities

Enrollment, Advising and Mentorship of Students in the Graduate Student Portfolio Program

Eligible FREEDM graduate students:

1. Go to the FREEDM intranet and register for a student account (www.freedm.ncsu.edu).
2. If asked to identify a research project, select from the drop-down menu.
3. Select “student portfolio”
4. Enter completed activities that pertain to each portfolio component and click “update”

As needed, with no less often than each semester, the student will meet with their University Education Representative and/or faculty advisor to discuss portfolio progress.

Once the student has completed the required portfolio components, they will notify their University Education Representative who will then notify the Education Program Director.

** NC State University students have the option to enroll in ECE 633 (M.S.) or ECE 833 (Ph.D.) to receive 1 credit/semester for up to 3 semesters to complete the portfolio components. To enroll, contact Dr. Penny Jeffrey at pmshumak@ncsu.edu**

Education Leaders

Dr. Penny S. Jeffrey, Education Program Director, NC State University, pmshumak@ncsu.edu

Dr. Mesut Baran, College Education Program Director, NC State University, baran@ncsu.edu

Dr. Petru Andrei, Education Representative, Florida State University, pandrei@eng.fsu.edu

Dr. Mehdi Ferdowsi, Education Representative, Missouri S&T, ferdowsi@mst.edu

Dr. George Karady, Education Representative, Arizona State University, karady@asu.edu

Dr. Mark Weatherspoon, Education Representative, Florida A&M University, weathers@eng.fsu.edu

