FIU | Engineering & Computing

School of Universal Computing, Construction and Engineering Education

Graduate Program in Engineering and Computing Education

2020-2021 Ph.D. Student Handbook

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Introduction

Welcome from the Graduate Program Director

August 20th, 2020

Hello! Welcome!

I cannot adequately express my excitement to welcome you officially into the School of Universal Computing, Construction, and Engineering Education (SUCCEED).

Each of you are members of the inaugural cohort of students in the Engineering and Computing Education (ECED) doctoral program! Your pathways echo those diverse pathways of engineering and computer education pioneers. You found your way to engineering and computing education and to this program because of your passion and dedication to creating educational systems that are inclusive, transformative, and equitable for ALL. I, along with all members of the SUCCEED community, am thrilled to support you on your journey through this doctoral program and in your career post-graduation.

You are beginning your doctoral journey at a challenging time. All of us in SUCCEED recognize that the last several months have made salient the long-standing inequities of our education system and realities of systemic racism. Our community is dedicated to addressing issues of equity, diversity, and inclusion in engineering and computing education. Through our research and teaching, we will continue to raise awareness of inequities, injustice, and racism, to critically reflect on our own actions as educators, mentors, and leaders, and to combat these systemic issues one day at a time. There is a lot of work to be done and we need your diverse perspectives, passion, and drive to make a significant impact on the education system.

Over your time at FIU, you will develop as a leader, an independent scholar, a collaborator, and an educator. During this development, you will experience challenges internally and externally. Graduate school is not easy. Nevertheless, in SUCCEED, we seek to be a community of learners who support one another through all of the ups and downs of research, educational change projects, and personal development. The development of this community starts with this handbook, which serves as a travel guide to your experience with us. Today, it may appear overwhelming, but as each semester goes by, revisit the handbook – read the sections that are most appropriate for your planning that semester and that academic year. Come back to it if you feel lost or unsure about your next steps. And add to it/propose revisions as needed. Part of your role as the inaugural cohort is to help us build this program and this community. We need your input and support, just as you may need ours.

I will close by asking you to take stock of where you are today – of your goals, dreams, concerns, and excitement. If you find a moment, you may even consider writing a letter to yourself to be opened on the day after you defend your dissertation. Your journey starts now

and we cannot wait to see the paths you will take and the change you will inspire and lead along the way.

As always, I, along with all of the faculty and staff within SUCCEED, are here for you.

Cheers,

Dr. Alexandra Coso Strong
Assistant Professor of Engineering Education
ECED Graduate Program Director

Purpose & Usage of Handbook

The Engineering and Computing Education Graduate Handbook provides a detailed description of the requirements for the Ph.D. in Engineering and Computing Education. This Graduate Handbook is intended to familiarize you, a graduate student in ECED, with the requirements, policies and procedures involved throughout your graduate and research experience. The rules and regulations provided in this handbook govern our academic programs and describe the duties and responsibilities of graduate students in the School of Universal Computing, Construction and Engineering Education (SUCCEED). We encourage you to utilize the information and resources included in this handbook to ease and enhance your experience in the program. There is an expectation that each student will be familiar with the contents of this handbook.

These rules and requirements are in addition to and subordinate to those described in the University Graduate School (UGS) requirements and policies that can be found at the Florida International University (FIU) website. Any inconsistencies within this handbook or between this handbook and the University Graduate School should be brought to the attention of the Graduate Program Director (GPD).

Any doubt regarding the interpretation of any procedure or requirement in this handbook, or if there are questions about the graduate program involving matters not covered in this handbook, please consult with the GPD.

This handbook is a living document that may change each academic year. Students may choose to follow the handbook of the first term of enrollment, or they may request the Graduate Program Committee to consider them under a more recent handbook if changes made are favorable to the student. Any changes made to the Graduate handbook will be communicated to the graduate students by the beginning of the academic year (August). This document will reside on the SUCCEED website.

SUCCEED & STEM TI

> *Discipline-based education research (DBER) is a term that has emerged in the last few decades to describe research that 'investigates learning and teaching in a discipline using a range of methods with deep grounding in the discipline's priorities, worldview, knowledge, and practices. It is informed by and complementary to more general research on human learning and cognition' (National Research Council [NRC], 2012, p. 9). DBER seeks to develop evidence-based knowledge and practices that improve teaching and learning in the science, technology, engineering, and mathematics (STEM) disciplines… An important feature of DBER is the strong role that the discipline plays in setting the priorities for the research, and in making sure it is relevant and focused on improving what is most important in moving undergraduates towards expertise in the discipline. Each discipline has bodies of disciplinary content, a culture that shapes how members of the discipline think about and approach their work, and established research methods and tools that practitioners use. Each DBER field combines these discipline-based perspectives with theoretical frameworks and research methodologies from education research.*[1]

In 2018, SUCCEED was established through a collaboration between FIU's STEM Transformation Institute, Dr. Mark Weiss and others within the College of Engineering and Computing. Since then, SUCCEED has been one of two major units within FIU whose main focus is discipline-based education research (DBER). SUCCEED is modeled after other engineering education departments and programs within the United States with three critical exceptions: (1) This is the first Ph.D. program in Engineering and Computing Education at a Minority-Serving Institution, (2) This is the first doctoral program to explicitly integrate engineering and computing education, and (3) SUCCEED's relationship with STEM Transformation Institute creates a strong DBER community across many departments and colleges. One of the challenges for many DBER researchers is finding community on their campuses. The "lone wolf" experience is not uncommon and has even become the subject of many research studies. At FIU, however, DBER researchers and graduate students arrive to campus with a community already in place.

In particular, the STEM Transformation Institute (STEM TI) was founded to support, expand, and conduct research on the improvement of STEM teaching across the K-20 spectrum. STEM TI is comprised of a diverse group of researchers, instructors, post-doctoral fellows, graduate and undergraduate researchers, and staff. This team comes from a variety of STEM disciplines (e.g., engineering, math, physics, geoscience, biology, computing) and as the quote suggests, brings cross-disciplinary perspectives and ideas. Through STEM TI, DBER community members are able to work across disciplines to impact change within their own disciplines as well as within K-12, undergraduate, and graduate STEM education systems. The close relationship between STEM TI and SUCCEED enables cross-disciplinary learning, fosters a strong support network for students, faculty, and staff, and encourages creativity in research and change projects. As part of SUCCEED, you are now part of this DBER community and STEM TI.

The opening quote from Henderson and colleagues (2017) calls for a DBER alliance as an approach to integrating ideas, frameworks, and research findings for the benefit of all disciplines. Within STEM TI, we have that alliance here at FIU. As SUCCEED graduate students and members of STEM TI, you have an opportunity to learn from many talented researchers inside and outside engineering and computing. We highly recommend that you engage in the STEM TI community during your time at FIU – please explore the STEM TI section of the handbook for more information and particular opportunities for engagement.

[1]Henderson, C., Connolly, M., Dolan, E., Finkelstein, N., Franklin, S., Malcom, S., Rasmussen, C., Redd, K., and St. John, K. (2017). "Towards the STEM DBER Alliance: Why We Need a Discipline-Based STEM Education Research Community." *Journal of Engineering Education.* 106:3, 349-355.

Program Overview

The graduate program in Engineering and Computing Education in the School of Universal Computing, Construction, and Engineering Education (SUCCEED) at Florida International University (FIU) was developed in 2018 as the first Engineering and Computing Education department at a Minority-Serving Institution. The program provides an enriching academic environment to students seeking to address the critical issues facing engineering and computing education, particularly in areas involving educational equity, diversity, and inclusion.

SUCCEED was created in alignment with FIU's vision to be a "leading urban public research university focused on student learning, innovation, and collaboration." SUCCEED faculty, along with the students and staff, seek to connect research and innovation with student learning through collaboration with other members of the engineering and computing college and the FIU community.

Vision

SUCCEED's vision is to be an internationally recognized leader in engineering and computing education research and design, enhancing the experiences of engineering and computing students from all backgrounds and at all levels.

Mission

SUCCEED's mission is to serve our diverse student population, engage with the engineering and computing industry, and support our international community of researchers:

- ✓ We consider equity, diversity, and inclusion as core values and principles of our research, teaching, and community engagement work.
- ✓ We develop our students as leaders, capable of collaborating across disciplines, following diverse career trajectories, and changing the way we think about and approach local, national, and global challenges.
- ✓ We collaborate with the engineering and computing industry through research and curricular projects in K-12 and at the college level, preparing graduates to become leaders at global, regional, and local corporations.
- ✓ We engage the engineering and computing education community through innovative research and the use of evidence-based approaches in our teaching. This work supports our faculty's intellectual growth, develops future independent scholars and leaders, and improves the educational success of all current and future engineering and computer science students at FIU and beyond.

About the Doctoral Program

Engineering education research and computing education research primarily focus on understanding how people learn engineering and computing respectively and how to improve instruction. Both are species of discipline-based education research (DBER), like chemistry education research and physics education research. There is also a significant research area that focuses on broadening participation in engineering and computing, fields that have long exhibited underrepresentation and marginalization of populations due to gender, race, ethnicity, and socio-economic status. Through the continual development of scholars and change agents in engineering and computing education, SUCCEED hopes to strengthen the quality and reputation of the teaching of graduate and undergraduate engineering and computer science.

This degree program merges two existing strengths: those of the STEM TI, whose researchers conduct nationally impactful research in STEM Education primarily in physics, biology, chemistry, and mathematics, and the strength of FIU's College of Engineering and Computing, which in 2017-18 produced $25M of externally funded research and hosts one of the largest undergraduate programs in the nation. Students are offered an intense, rigorous learning experience in a supportive academic community, celebrating the intellectual energy that flows from an extremely diverse student population.

By the end of the program, engineering and computing education doctoral students will have developed and strengthened their abilities to: (1) conduct and direct research in engineering or computing education, (2) design equitable and inclusive educational experiences, and (3) address critical issues facing engineering and computing education, especially in equity, diversity, and inclusion. Additionally, this program seeks to develop students for a diverse set of professional trajectories both inside and outside a university/college setting.

Administration & Contact Information

The Graduate Program Director and the Graduate Program Committee develop all requirements, policies, and procedures for the ECED Graduate program with input from students, staff, and faculty. The Graduate Program Committee leads the admissions process and assists with the monitoring of current graduate students, oversees graduate-level curriculum matters related to the graduate courses offered by the department, and implements all graduate program, college, and university graduate school policies. The GPD is the chair of the Graduate Program Committee and the graduate program is led by those faculty members in the department that hold Graduate Faculty Status with UGS along with the Senior Program Coordinator.

The Senior Program Coordinator serves as the administrative support to the Graduate Program Director, which entails the maintenance of all files for the graduate program, and is the source of information on the graduate program including but not limited to: , course registration, application for admission, fellowships, scholarships and financial assistance, and other routine paperwork relating to the graduate program. Additionally, the Senior Program Coordinator works on marketing for the department.

The administrative staff of the graduate program of SUCCEED includes:

Director of SUCCEED:	Dr. Mark Weiss 305-348-2036 weiss@fiu.edu
Graduate Program Director:	Dr. Alexandra Coso Strong 305-348-3608 astrong@fiu.edu
Senior Program Coordinator:	Mrs. Ileana Lindsay 305-348-9995 ilindsay@fiu.edu

Submitting Forms for Approval

It is the student's responsibility to ensure that forms that require approval are received on time and that all deadlines are met. Students should submit forms well before the deadline to allow sufficient time for approval and signature. Below are points of contact and approval workflow for most of the required graduate program forms:

SUCCEED Director and Graduate Program Director

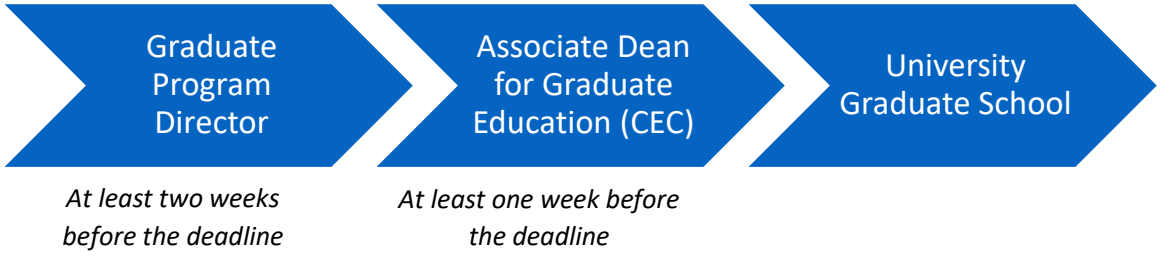
All forms requiring the signatures of both the Director of SUCCEED and the Graduate Program Director need to be submitted to the Senior Program Coordinator. The Senior Program Coordinator will notify students when the form has been approved, signed, and ready to be picked up.

Associate Dean for Graduate Education or Dean of the College

All forms requiring the signature of the Associate Dean for Graduate Education need to be submitted to the following person:

Laura Gimenez
305-348-1869
gimenezl@fiu.edu

Students will be notified when the form has been approved, signed, and ready to be picked up. Please be sure to confirm the deadline, especially when submitting forms for the graduate school. Below is the typical process flow for submitting and approving forms.



Getting Started

Admission Requirements and Application Process

The admission process begins with the completion and submission of the application, through the EngineeringCAS system, which can be found here: http://engineeringcas.liaisoncas.org/apply/

Your application must meet the following requirements for admissions consideration:

1. Have a bachelor's degree in engineering or computing or a closely related field.
2. Have an upper division GPA of at least 3.0 in the bachelor's degree, measured by the last 60 credits earned.
3. Complete a Graduate Record Exam (GRE) within the prior five years.
4. Have three letters of recommendation, a copy of the transcript, and a copy of the university graduate application.
5. Have an essay that explains how the program would help them achieve their career goals.
6. Foreign students whose native language is not English must obtain a score of 80 or higher on the TOEFL iBT (this corresponds to 550 on the old TOEFL test) or 6.5 overall on the IELTS. The UGS has a list of countries that are exempt from this requirement.

Application Deadlines

The priority application deadline is January 15th of the same year for Fall semester admission. The Graduate Program Committee will continue to review and consider applications after this deadline.

Please note, for international students, additional time is required to process visa applications. Therefore, although the committee will review applications after January 15th, the committee cannot guarantee an international student, if admitted, will be able to enroll the following fall semester due to the necessary visa processing time.

The Graduate Program Committee will also consider applications for spring enrollment. Please reach out to either the Graduate Program Director and/or the Senior Program Coordinator if you are interested in spring enrollment. Deadlines will be posted on the SUCCEED website as appropriate.

International Admission & Funding

In addition to the requirements mentioned above, international applicants must:

- ✓ Demonstrate proficiency in English by achieving a minimum score of 80 on the TOEFL iBT, or 6.5 overall on the IELTS.
- ✓ Must complete a declaration and certification of financial ability to support themselves while a student (contact the FIU International Students Office for further information): https://internationaladmissions.fiu.edu/submit-documents/#what
- ✓ Must have their transcripts translated and certified; information on translation service companies is available on the University Graduate School website at the bottom of the Admissions page: https://internationaladmissions.fiu.edu/

Funding

SUCCEED offers financial assistance for qualified graduate students in the forms of Graduate Assistantships (GA), Research Assistantships (RA), and Teaching Assistantships (TA). Students are assigned this funding at the time of their admission. Additional fellowships are also available through the University Graduate School, which are awarded on a case by case basis dependent on the department submitting nominations. The stipend amounts for GAs/RAs/TAs vary depending on the nature of the assistantship. All assistantships provide a tuition waiver and health insurance is subsidized by the graduate school.

For students who are not employed at FIU or outside of FIU, you are eligible for a graduate assistantship at 10 hours per week or 20 hours per week.

For those who currently have other employment, there are a few options for receiving additional funding and tuition support. For example, please speak with your Major Advisor about opportunities to conduct research at an hourly rate (see HR for pay ranges). Hours cannot exceed 20 hours per week. We HIGHLY recommend all prospective and current students regularly explore doctoral fellowships (e.g., through the Ph.D. project, ProFellow).

Funding decisions are made at the discretion of the Major Advisor and the Graduate Program Director, and are based on a variety of factors, including budget constraints, graduate positions available, student academic standing, progress, timeline to degree, and more. The different types of funding opportunities are explained in detail below.

Costs & Fees (UGS)

For a detailed breakdown of the current tuition and fees provided by the university graduate school, click here. These amounts are updated annually and will be provided to graduate students at the start of each academic year.

Tuition waivers are issued to graduate students who hold an employment with FIU holding an appointment of 20 hours per week (0.5 FTE) and are matriculated at a full-term status (9 graduate credits in Fall and Spring; 6 graduate credits in Summer). Tuition waivers are also issued to current full-time (1 FTE) FIU employees, by way of the 'employee tuition waiver benefit' program. We encourage FIU employees to explore the program to learn more about their options. If you are not an FIU employee, we recommend speaking with your current employer to see if they offer tuition support for graduate programs. Students who are not employed either with FIU or outside of FIU are eligible for graduate assistantships. Graduate assistantships provide graduate students with both a tuition waiver and optional subsidized health insurance. Graduate students with a tuition waiver are responsible for paying the per credit fees along with the standard semester fees. Laboratory, on-line, and other special fees are also the responsibility of the employee.

Assistantships

Research Assistantships (RA)

A Graduate Research Assistant is a degree-seeking graduate student who performs research duties related to their academic program. The RA will perform general duties related to research, documentation, experimentation, interviews, and other activities that support the academic endeavor of their Major Advisor. The funding for an RA position comes directly from their Major Advisor and may vary depending on the project. The RA position may be for a single semester or academic year and is renewable based on the availability of funding and at the discretion of the Major Advisor. Graduate students working as an RA are responsible for supporting the research agenda established by the Principal Investigator (PI)/Co-PI on the grant.

While the specific requirements of an RA on a grant will be determined by the PI/Co-PI for the project, RAs on a research project are typically responsible for at least the following:

- ✓ Making progress on research tasks (i.e., literature reviews, data collection, IRB submissions, data analysis, writing) in conjunction with guidelines specified by the project's PI/Co-PI.
- ✓ Preparing for and attending research group (and individual) meetings.
- ✓ Meeting research deadlines or communicating the reasons for deadlines that are not (or will not be) met.
- ✓ Seeking out publication opportunities for both conferences and journals in conjunction with the PI/Co-PI on the project.

Teaching Assistantships (TA)

A Graduate Teaching Assistant is a degree-seeking graduate student who assists a faculty member with a teaching assignment. The duties may include, but are not limited to, preparing lectures, grading assignments, researching class topics, and substituting for Faculty of Record on select class days. A Graduate Teaching Assistant who is the Instructor of Record must have completed 18 graduate credit hours in the subject area and perform teaching duties related to their academic program.

Graduate Assistantships (GA)

Graduate Assistants are degree-seeking graduate students who assist in the teaching and/or research function, but do not have primary responsibility for teaching and/or research. The duties may include those outlined in either the teaching or research classifications as well as other duties assigned that relate to his or her academic program.

External Funding

Whether students are supported by an assistantship or are seeking funding sources to support their research, considering other options for external funding is always encouraged. The University Graduate School provides a list of available external funding opportunities to students, both domestic and international. Click here to learn more about external funding opportunities.

Funding Academic Eligibility

To maintain academic eligibility, a student must maintain a cumulative GPA of 3.0 or higher for all courses taken while in the doctoral program. Both SUCCEED and the University Graduate School continuously monitor the progress of each graduate student. Annual reviews are conducted at the end of the spring semester in addition to the meetings graduate students are expected to have with their Major Advisor throughout the academic year. Students who fall below a cumulative GPA below 3.0 for their prior semester of graduate work or whose review materials are found deficient will be automatically placed on academic warning and may be required to appear before the Graduate Program Director and/or Graduate Committee. During this time, the Graduate Program Director, Major Advisor, and/or Graduate Committee will work with the student to identify the difficulties related to the unsatisfactory progress and to outline adjustments to assist the student with improvement. Failure to maintain good academic standing will result in placement on academic warning, probation, or dismissal.

Students who receive an "incomplete" grade must make up the missing work within two academic terms or it will automatically default to an F grade. According to official university policy, there is no extension of the two terms deadline, which includes the summer term. Students must consult with the instructor who will define the remaining requirements for successful course completion.

Change of Funding

A student who has been offered and accepted an assistantship contract for a given semester or academic year can switch their funding for the following reasons:

- ✓ Major Advisor has informed student and department that a change of funding is available based on current or new grant projects.
- ✓ Department has supplementary assistantships available.
- ✓ Student has requested to transition from full-time enrollment to part-time enrollment.
- ✓ Student has been awarded a university graduate school fellowship (DYF, DEA, and any other FIU fellowships available) or obtained external funding in the form of a fellowship on their own.

Prior to the start of each term, the GPD will notify faculty that there is an open call for submission of change of contracts (funding) for graduate students. Consideration in this decision made by Major Advisors is based on the availability of funding. Students will be

notified by the Senior Program Coordinator to complete any required paperwork and submission of documents.

Health Insurance

FIU provides subsidized health insurance to all graduate assistants holding a full-term appointment for 20 hours per week. All graduate assistants are required to participate in this health insurance plan unless their insurance company will certify equivalent coverage. Graduate assistants are responsible for 25% of the health insurance premium which will be deducted from their paycheck throughout the semester. University Graduate School automatically enrolls graduate students in their health insurance and coverage information will communicated directly to the student. The option to opt-out of the plan is available to graduate students each year. Communication to opt-out will be sent from the University Graduate School.

International students on an F-1 or J-1 student visa who wish to opt-out of the University's health insurance plan must complete the International Health Insurance Compliance Form provided by FIU's Student Health Services.

For more information regarding the GA insurance, please visit https://www.gallagherstudent.com/FIU .

Course Registration

Prior to the start of the semester, graduate students should meet with their Major Advisor to review their plan of study and determine selection of courses. Students are required to register for courses and/or dissertation credits each semester (as per their plan of study) until the Dissertation is concluded, unless a formal Leave of Absence is requested. Registration deadlines are sent out prior to the start of each term. It is the responsibility of the student to register by the deadline to avoid incurring a late registration fee.

Registration codes and/or authorization for courses that require departmental approval can be obtained directly with the instructor or the Senior Program Coordinator. Students are not allowed to exceed the semester credit hour limit unless approved to do so by the Dean of the College. Graduate students supported on an assistantship must be enrolled in nine credit hours during the fall and spring semesters, and six credit hours during in the summer semester, to be considered in full-time status. The only exception to this is for post-candidacy students who register for dissertation credits, in which case the minimum requirement is three credit hours per semester, including the summer term. Graduate students cannot enroll in more than **15 credit hours per semester** without the Dean's approval.

Students considering dropping a course must discuss the implications of this option with their Major Advisor prior to finalizing their decision, as it may incur changes to their plan of study, or their full-time status. Students who fail to notify their Major Advisor may jeopardize their progression in the graduate program.

Registration is conducted entirely online through the my.fiu.edu web portal. The OneStop office provides information on how to access courses, add courses, and any additional steps that need to be taken in the registration process. For more information, visit https://onestop.fiu.edu/classes/register-for-classes/.

Housing Information

FIU occasionally offers housing to graduate students based on available space, after the assignment of all continuing students and freshmen is completed. For more information on on-campus housing, please visit https://studentaffairs.fiu.edu/campus-services/housing-and-residential-life/apply/index.php. Here you will find more information on applying for housing, deadlines, and costs.

FIU also offers students a variety of off-campus housing options in a wide range of prices and distance. The Off-Campus Housing Service website assists students with finding both housing and roommates within a radius of all FIU campuses. To access the Off-Campus Housing, click here.

Be sure to consult a local realtor for options and more information. Some apartments may not include utilities (electric, water, phone, or cable) as part of their lease agreement. There may be a need to make further arrangements to have certain services connected through the utility companies directly. Either a property manager or landlord should be able to provide the appropriate contact information.

Transportation

FIU's Parking and Transportation has a variety of transportation services available to students. Services include access to free shuttles between campuses and around campus, discounted rates for Miami-Dade Transit services, and the use of Zipcars. The most used service for College of Engineering and Computing students is the CATS Shuttle. The CATS shuttle travels between Modesto A. Maidique Campus and the Engineering Center. The free service operates two shuttles running continuously from 6:00 AM to 11:00 PM. Shuttles stop at the following locations:

- ✓ Lot 3
- ✓ East of PG5 109 Tower
- ✓ Identity Miami
- ✓ 4th Street Commons
- ✓ Engineering Center (EC)
- ✓ Lot 5 (Miami-Dade transit hub located at 107th Ave and 17th street)

For more information about the different transportation services offered by Parking and Transportation, visit their website: https://parking.fiu.edu/campus-transport/

Orientation

Prior to the start of Fall and Spring semester, there is a mandatory orientation conducted by the ECED graduate program for all new incoming graduate students. This orientation provides new students with an overview of the graduate program requirements, procedures for fulfilling those requirements, graduate student academic responsibilities, and information related to STEM TI. In addition, SUCCEED faculty and the Senior Program Coordinator will be available to answer any questions or concerns regarding the graduate program and department. For students serving as teaching assistants, additional University training will be required. An additional graduate student orientation session will be offered by the University Graduate School. Communications regarding the orientation will be sent directly by the Senior Program Coordinator.

Information for International Students

ISSS Orientation

All students at FIU in F1 or J1 student status are required to attend a MANDATORY Immigration Orientation conducted by the Office of International Student & Scholar Services (ISSS). This is a separate orientation from other academic, departmental, or university-wide orientations and it will cover information specific to international students that you MUST be aware of. This orientation is offered at both the Biscayne Bay Campus and the Modesto Maidique Campus every semester.

During the fall semester only, the ISSS Immigration Orientation will be offered in combination with the Graduate Student Orientation offered by the University Graduate School at the Modesto Maidique Campus. If you are not a graduate student or if you do not attend this orientation, you will be expected to attend a separate ISSS Immigration Orientation offered for all new international students. If you are unable to attend an ISSS Immigration Orientation before the semester begins, you must schedule an appointment with an ISSS advisor at your earliest convenience to receive counseling related to your immigration status. For more information, please visit: http://isss.fiu.edu

Degree Requirements

The Engineering and Computing Education (ECED) doctoral program aims to prepare students:

- ✓ To conduct and direct research in engineering or computing education,
- ✓ To design and assess inclusive, innovative, and effective educational experiences in engineering, computing, and/or engineering and computing education,
- ✓ To address critical issues in equity, diversity, and inclusion within engineering and computing education, and
- ✓ For a diverse set of professional trajectories both inside and outside the classroom.

These learning outcomes are achieved and assessed through coursework, teaching and service experiences, a comprehensive exam, and independent research in the form of a doctoral dissertation. The subsequent sections outline the degree requirements in detail as well as various resources for students. For additional information on the Ph.D. milestones, please see the *Ph.D. Milestones and Benchmarks* section.

Curriculum

The doctoral curriculum is designed to expose ECED students to a breadth of engineering and computing education research topics, methods, and theories, as well as broader educational and social science methods and theories. In addition, students will develop their knowledge and skills within an engineering or computing discipline to prepare them for teaching and mentoring experiences. Lastly, doctoral students will explore an engineering and computing education specialization of their choosing, in collaboration with their Major Advisor, to prepare them for their dissertation research and/or for a particular career trajectory.

Overall, an ECED Ph.D. requires a minimum of 75 credit hours, which include

- **Engineering and Computing Education Core Courses** (9 courses, 20 Credits)
  - 4 Foundational Courses (11 credits)
  - Seminar on STEM Education Research (0 credits)
  - 3 Research Methods and Statistics Electives Courses (9 credits)
- **Teaching Requirement/Pedagogy Courses** (2 courses, 4 credits)
- **Engineering and Computing Education Specialization Courses** (3 Courses, 9 credits)
- **Discipline-Specific Specialization** (5 courses, 15 credits)
- **Dissertation Research Credits** (15 credits)
- **Additional credits in the form of graduate research or other coursework** (12 credits)

Students are only eligible to enroll in dissertation research credits once they have completed 60 credits and passed their comprehensive exams. This is all discussed further within later sections of the handbook. Prior to dissertation research credits, students may enroll in graduate

research sections under the advisement of their Major Advisor. These credits can go towards the additional 12 necessary to complete the program.

The subsequent sections go through the initial 48 credits of coursework students will take at the start of their doctoral experience.

Core Courses

As part of the ECED Core Courses, students must complete the following four **foundational courses:**

- ✓ **EGS-6008 Foundations of Engineering and Computing Education (3 credits)** - Introductory course providing a conceptual understanding of engineering and computing education through philosophical theories for research and practice. Theory-based methods will guide students through a historical context of engineering and computing education and its impact on current and future aspects of the fields.
- ✓ **EGN-6957 Professional Development in Engineering and Computing Education Research (2 credits) -** An exploration of professional development tools and techniques within engineering and computing education research and practice.
- ✓ **EGN-6900 Methods and Practices in Engineering and Computing Education Research (3 credits)** - Foundational course in research methods and practices of engineering and computing education researchers, focusing on research design decisions, research quality, ethical implications, and publishing. *Prerequisite: EDF-6481 or permission of instructor*
- ✓ **EGS-6057 Equity in STEM Education: Research, Policy and Practice (3 credits)** - An analysis of diversity and inclusion through research, policy and practice within science, technology, engineering, and mathematics (STEM) education for the private and public sectors. The primary focus of this course will be engineering and computing education with topics in science, technology and math incorporated as applicable.

Students are required to register for a **seminar course,** preferably while enrolled in EGN-6957, and attend weekly seminars hosted by the STEM Transformation Institute.

- ✓ **EGN-6935 Seminar on STEM Education Research (0 credits)** - Weekly interactive and engaging presentations featuring faculty, students and guest speakers sharing research topics in science, technology, engineering, and mathematics (STEM) topics.

Students are required to complete **three research methods courses**. EDF-6481 is required for all students. In conjunction with their Major Advisor, students must choose two additional research methods courses:

- ✓ **EDF-6481 Education Research Methods (3 credits) -** This course is designed to provide doctoral students with an in-depth analysis of the methods and procedures of research in education. Topics will include conceptualizing educational research, writing research proposals, constructing measurement instruments, collecting, and analyzing qualitative and quantitative data, and drawing inferences.

- ✓ **2 Research methods electives**

To further students' development as inclusive and innovative educators, ECED has a teaching requirement that is fulfilled by completing **two pedagogy courses:**

- ✓ **EGS-6055: Foundations of Engineering and Computing Teaching and Learning (3 credits) -** Introduction to learning theory and inclusive, learner-centered, and evidence-based pedagogy and assessment in engineering and computing, using a human-centered design approach to educational design.
- ✓ **EGN-6942 Mentored Teaching Practicum in Engineering and Computing Education (1 credits)** - Structured application of educational theories and pedagogy through classroom teaching experiences and weekly learning community meetings. Requires students to find a faculty teaching mentor. *Prerequisite: EGS-6055*

Students with teaching experience from previous graduate programs or students currently teaching may petition to waive the teaching requirement (EGN 6942 and in some cases, EGS 6055), in which case the courses could be replaced with alternate courses or experiences. Waivers will be granted at the discretion of the Graduate Program Director.

Engineering and Computing Education Specialization Courses

In consultation with their Major Advisor, students must complete nine credit hours of courses that focus on an area of specialization. We highly recommend that students consider enrolling in courses that would (1) support their doctoral research, (2) support their preparation for post-graduation careers, and/or (3) support their development as change agents in engineering and computing education.

Internships and Cooperative Education Experiences

As part of a student's specialization, the ECED program includes opportunities for independent study, cooperative education, and internship experiences. These opportunities can provide critical hands-on and field experiences that can support a student's dissertation research as well as their preparation for the job market. Students may receive course credit for independent study and cooperative education experiences. Interested students should speak with their Major Advisor about the appropriateness of these opportunities and timing for designing and participating in them.

- ✓ **EGN 6907 Independent Study (1-10 credits).** A variable credit independent study course for Ph.D. students to work on topics where standard courses cannot be offered. Topics must be related to engineering or computing education. The outcomes and goals of the course for the student must be approved by department.

- ✓ **EGN 6920 Cooperative Education in Engineering (1-3 credits).** A variable credit cooperative education in engineering course is for current Ph.D. students who have a position with an organization focused on their area of study. Topics must be related to engineering or computing education.

Discipline-Specific Specialization

The purpose of these five courses (15 credits) from a discipline-specific specialization is to expand a student's options for teaching/mentoring post-graduation. Engineering and computer science departments in the United States require 18 credit hours of graduate coursework in order to teach courses in that department. As such, students must complete 15 credit hours from one of the specialization tracks listed below and the 3 credit hour pedagogy course to be eligible for those 18 credit hours.

The list of courses is maintained by the department/school that houses the track and students can work with their Major Advisor to design sub-specializations within these disciplines (e.g., aerospace engineering, biomechanics, sustainability). This requirement can be satisfied by an appropriate Master's degree from an accredited university.

- ✓ Biomedical Engineering
- ✓ Civil Engineering
- ✓ Computer Engineering
- ✓ Computer Science
- ✓ Data Science
- ✓ Electrical Engineering
- ✓ Engineering Management
- ✓ Environmental Engineering
- ✓ Information Technology
- ✓ Mechanical and Materials Engineering

Transfer Credit

As stated in University Graduate School (UGS) policy (Number 380.085),

> *Doctoral programs may accept up to **20%** of the required total coursework, subject to approval of the Program Director, of graduate credit earned from another institution beyond a bachelor's degree. An exception to the 20% limitation is made for courses contained within an earned master's or doctoral degree. For such courses, **the maximum is one credit fewer than half of the total credits required for the program.***

Therefore, the transfer credit policy breaks down as follows: The 20% requirement (15 credit hours) is for t*hose who have an incomplete Master's or Doctoral degree*. *Students who have earned a Master's degree* can apply to transfer up to 36 credits hours (Half of 75 required

credits of coursework minus one). For *undergraduates who have taken graduate courses*, up to 12 credit hours of the graduate coursework (not applied to their undergraduate degree) can be transferred into ECED.

To be considered eligible, UGS outlines the following requirements for transfer courses:

- ✓ The student received a grade of 3.0 or better on a 4.0 scale.
- ✓ The course was taken at FIU or an accredited institution.
- ✓ The course must be relevant, as judged by the Graduate Program Committee, to the graduate program to which the student is accepted.
- ✓ The course must be listed on an official transcript sent to the University Graduate School Admissions Office by the institution where the course was taken.
- ✓ The date of completion will be no longer than 6 years or 9 years at the time of graduation with a master's or doctoral degree, respectively (requirement does not apply to credits earned as part of a completed graduate degree).

The course transfer process occurs when the student completes their D-2 form (Candidacy Exam Results), and the transfer credits will need to be approved by the Graduate Curriculum Committee within ECED as part of this process. Therefore, within ECED, we recommend that students who are eligible to receive transfer credit speak with the Graduate Program Director during the application process as well as following admittance to prepare the necessary paperwork for approval of transfer credit. In addition, students should gather syllabi for the courses that they wish to transfer and use the ECED Program of Study form to examine their transfer credit options.

Final notes from the UGS policy:

- ✓ *Waiver of the limit on the maximum number of credits that may be transferred requires the approval of the program director or chairperson of the degree granting program, the dean of the appropriate school or college and the dean of the University Graduate School.*
- ✓ *Waiver of any of the requirements for transfer courses (listed above) requires the approval of the program director or chairperson of the degree granting program, the dean of the appropriate school or college and the dean of the University Graduate School.*

Program Milestones and Example Timelines

The completion of the ECED curriculum is one component of the doctoral program. To achieve all of the outcomes of the program, doctoral students will also be required to:

- ✓ Select a **Major Advisor** and assemble a **Dissertation Committee.**
- ✓ Successfully complete the **Comprehensive Exam**. Upon completion of the required coursework and the Comprehensive Exam, the student advances to Candidacy.
- ✓ Successfully present and submit a **Dissertation Proposal.**

- ✓ Successfully submit and present a **Dissertation** based upon original research in Engineering and/or Computing Education.

Lastly, to support each student's professional development, all students in the program will annually have to complete (1) a **Service and Professional Development** requirement and (2) an **Evaluation and Mentoring Plan Review.**

The subsequent sections of the handbook discuss each component of the doctoral program in detail. We recognize that at the start of a graduate degree it can be challenging to know how and when one will complete each program requirement. Still, we recommend that students meet with their Major Advisor early (and often) to discuss a potential plan of study based on their transfer credits, educational background, interests, and part-/full-time status. During these discussions, be sure to refer to the deadlines described in the subsequent sections as well as all UGS deadlines, which are based on a student's expected graduation. While every student's experience in ECED is and will be different, Appendix A includes three examples of plans of study to use as a starting point for discussion:

- ✓ Full-time students who are not transferring in graduate coursework
- ✓ Full-time students with a Master's degree/15 credits of Master's level coursework,
- ✓ Part-time students taking 6 credits each semester who are not transferring in any graduate coursework.

Doctoral students must complete their degree within nine years of first enrollment. The student must pass the Comprehensive Exam by the end of the seventh semester (excluding summers) in the program if they were admitted without a Master's degree or by the end of the fifth semester if admitted with a Master's or the equivalent 15 credit hours.

Dissertation (Advisory) Committee

Each graduate student will be required to form a dissertation committee in consultation with their Major Advisor by the end of their first year in the Ph.D. program. The dissertation committee will consist of at least four members, including their Major Advisor. As a group, the basic responsibilities of the committee members will include:

- ✓ supervising research needs and academic performance,
- ✓ providing guidance for the student's research program,
- ✓ administering comprehensive examinations,
- ✓ actively participating in the proposal and dissertation preparation process,
- ✓ attending annual (or more frequent) committee meetings, and
- ✓ administering and evaluating the proposal and dissertation defense.

The student's Major Advisor will serve as the chair of the committee. The dissertation committee will be comprised of at least four members holding a Graduate Faculty (GF) status. At least two members of a student's committee must be SUCCEED or STEM TI faculty and one additional member from outside the school but within FIU. Students should be sure to meet often with all SUCCEED faculty before making the decision to include them on their committee.

For committee members that are not FIU faculty will complete the Non-FIU Graduate Faculty form along with the D-1 Form. Non-FIU Graduate Faculty members must submit a CV and complete the required Commitment Form for Non-FIU Committee Members. Non-FIU Graduate Faculty must be ***approved*** by the UGS.

Graduate students are responsible for forming their dissertation committee and maintaining communication about their progress. The committee is appointed via the D-1 form and subject to approval by the Major Advisor, GPD, and University Graduate School.

Selecting a Major Advisor/Co-Advisor

Prior to the start of their Ph.D. program, graduate students will have either selected or been assigned their Major Advisor at the completion of the admission process. ECED encourages prospective students to meet with as many SUCCEED Faculty as possible before selecting an Major Advisor. The Major Advisor must be a member of the SUCCEED Graduate Faculty (tenure-track or tenured), have Dissertation Advisor Status (DAS), and should have at least a close relation or relevant expertise in the area of research the student intends to pursue. Students should select their major advisors based on the communication and clear understanding of at least the following:

- ✓ a shared work style between both student and Major Advisor
- ✓ a preference to the faculty's advising style as well as research and academic expectations

- ✓ student and faculty research interests
- ✓ student career goals and interests
- ✓ faculty funding availability

Students have the opportunity to select another faculty member to serve as a co-advisor. If there is a co-advisor, students should ensure the co-advisor has completed both their name and signature in the line assigned for co-advisors only on the D-1 form. Additionally, co-advisors must have DAS. Students interested in having a co-advisor should discuss this with their Major Advisor and the Graduate Program Director.

Changing Dissertation Committee Members and/or Major Advisor

Students who wish to change advisors or dissertation committee members should complete the Appointment of Revised Dissertation Committee D-1r Form and submit it to the GPD for approval. The student should ensure that the faculty member has given their consent to serve in the capacity of their graduate advisor and/or dissertation committee member prior to submission of the form.

Selecting Dissertation Committee Members

The Major Advisor serves as the chair of a student's Dissertation Committee, and the student should collaborate with their advisor in identifying faculty members who might serve on the committee. This committee plays a critical role as advisors in the doctoral process, evaluators, and mentors. When considering who to include in one's committee, students may want to reflect on (1) their research interests for their dissertation and individuals who could provide expertise in specific topics, theories and/or methods and (2) their career interests and individuals who may be able to help them build their network and/or craft their research in a way that would support their career goals.

Rights & Responsibilities of the Student

The University has developed policies and procedures on the rights and responsibilities of students and a code of conduct assuring that these rights can be freely exercised without interference or infringement by others. The code of conduct, academic misconduct policies, student grievance procedures and policies on student records are reported in detail in the University publication Rights and Responsibilities of Students. Additionally, all administrative procedures and deadlines must be met, whether they are specifically mentioned in this document. Students must operate within the rules and guidelines of the Graduate Program in Engineering and Computing Education Graduate Student Handbook, the FIU Graduate Catalog and the FIU Regulations for Thesis and Dissertation Preparation Manual. Accordingly, graduate students should obtain copies of these publications from the University Graduate School website: http://gradschool.fiu.edu/ and become familiar with their contents. Students should pay attention to the deadlines posted annually in the University Academic Calendar.

Responsibilities of Major Advisor/Co-advisor

While advising styles differ across faculty members, there are particular responsibilities that are required of every Major Advisor:

- ✓ Be accessible to the student, which includes providing feedback to student in a timely manner and annually as part of the review process
- ✓ Actively support student's holistic development as an independent scholar, change agent, and leader
- ✓ Supervise, encourage and support the student in their dissertation development and their preparation for their post-graduation career
- ✓ Advise students concerning the ethics of the profession, encourage the practice of research and publication consistent with ethical standards, and help students navigate ethical questions throughout their projects
- ✓ Collaborate with the committee to evaluate and support the student throughout the proposal and dissertation development process
- ✓ Connect student with resources within and outside FIU to support their research and professional goals
- ✓ Be objective in the evaluation of research and academic performance and communicate that evaluation fully and honestly to the students
- ✓ Be open to feedback from the student to improve the advisor-advisee relationship
- ✓ Be a model of equitable and inclusive behavior towards students, faculty and staff within and outside of the University

Responsibility of Dissertation Committee Members

Committee members work together to provide formative and summative evaluation throughout the dissertation development process. In particular, they are expected to:

- ✓ Be accessible to the student, especially for annual meetings, proposal presentation, and the final dissertation defense.
- ✓ Individually and/or collectively provide feedback to students in a timely manner and annually as part of the review process
- ✓ Actively participate in the comprehensive exam process
- ✓ Be objective in the evaluation of research and academic performance and communicate that evaluation fully and honestly to the students
- ✓ Actively participate in the student's development of a scholarly dissertation
- ✓ Actively participate in the dissertation proposal and defense presentations and provide written feedback on the dissertation documents, as appropriate
- ✓ Complete the formal evaluation of the comprehensive exam, proposal and final dissertation

- ✓ Support the student's preparation for their post-graduation career (e.g., help them build their network within the field, connect them with appropriate resources)

Dissertation Forms (D-Forms)

Students are responsible for ensuring that all completed forms are received by the University Graduate School (UGS) on time and that all deadlines have been met. To monitor the status of their submitted forms, students must log in to https://my.fiu.edu/, and navigate the to the Tasks tile.

Below is a list of the required UGS dissertation forms for completion of the doctoral program:

- ✓ **D-1 Form: Appointment of Dissertation Committee**
  To be submitted at the time a student's advisory committee is formed but no later than four semesters before the anticipated graduation term.

  - **Non-FIU Commitment Form:** To be used with the D-1 where applicable.
  - **D1r Form: Appointment of Revised Dissertation Committee**
    To be completed as soon as a revised committee is formed.

- ✓ **D-2 Form: Program for Doctoral Degree and Application for Candidacy**
  To be submitted after finishing coursework, as soon as results of candidacy examination's results are available and before registering for dissertations credits.

- ✓ **D-3 Form: Doctoral Dissertation Proposal**
  To submit a copy of proposal (not to exceed five pages) no later than three semesters before the anticipated graduation term.

- ✓ **D-5 Form: Preliminary Approval of Dissertation and Request for Oral Defense**
  Must be submitted to UGS three weeks before the date of the defense or by the deadline whichever date is the earliest. Attach a copy of the dissertation with the D5 and email the announcement in Word format to ugs@fiu.edu. Click here for the step-by-step process.

  NOTE: This form must be submitted to the Dean's Office in the College of Engineering and Computing ***no later than one week prior to the deadline for UGS.*** Prior to the submission of the D-5 to either the Dean's Office OR UGS, students must also give their committee at least two weeks to review their dissertation. Advisors, committee members, and the GPD/Director must return the D-5 form within two weeks of receiving it, whether with a signature or an explanation that the dissertation is not ready.

- ✓ **Final ETD Approval Form: Final Electronic Thesis or Dissertation Approval of defense, dissertation, and electronic submission of dissertation**
  To be submitted after successful dissertation defense. Form should be signed in original ink with required documentation. Click here for the step-by-step process.

Ph.D. Milestones and Benchmarks

Service and Professional Development Requirement

A critical component of SUCCEED's mission is to develop our students as leaders who are prepared for diverse career trajectories. Part of that development, in alignment with our values of *community and collaboration*, will be supported by the service and professional development requirement. Each year, all doctoral students will be asked to participate in ***two hours of service work within SUCCEED*** (which includes the Center for Diversity and Student Success in Engineering and Computing, CD-SSEC) ***and/or STEM Transformation Institute***. These service hours can be fulfilled in many ways such as assisting with SUCCEED and CD-SSEC events, leading the STEM Transformation Institute student groups, or working the FIU/SUCCEED booth at a national conference.

In addition, all doctoral students should participate in **at least one professional development event/workshop** each year. Many are offered around FIU and within the national societies for engineering and computing education. These events and workshops can support a student's development as a researcher, as an educator, in preparation for the job market, and/or as a leader. Please speak with your Advisor, the Graduate Program Director, and/or the SUCCEED program coordinators to learn more about possible professional development opportunities.

Each year, students will record their service work and professional development participation in their annual evaluation and mentoring plan. See subsequent section for more information.

Annual Evaluation and Mentoring Plan

To facilitate the success and development of every Ph.D. student at FIU, the University has designed an annual evaluation and mentoring plan procedure for completion each year. Within the Engineering and Computing Education program, all doctoral students will be required to meet with their Major Advisor and to update their progress and plan at the end of each spring semester (Late April/Beginning of May).

There are two parts to this Annual Evaluation and Mentoring Plan. The first part is mandated by FIU and is to be completed within your my.fiu.edu portal. This part is only required for doctoral students (1) who have completed at least 18 credit hours of courses and (2) who do not have an approved D-5. The second part is SUCCEED-specific and has to be completed by all doctoral students each year of the program.

The purpose of these plans, reflections, and evaluations are to help YOU as the student not only check-in as to your progress towards your doctoral and career goals, but also to enable your Major Advisor and Dissertation Committee to better support you as you work towards your

goals the following year. If you have created an Individual Development Plan (IDP) or similar reflection documents, please feel free to incorporate them into this process.

To complete each part of the Annual Evaluation and Mentoring plan (the FIU-specific and the SUCCEED-specific parts), students will need to:

- Complete the online Doctoral Student Annual Evaluation and Mentoring Plan within their my.fiu.edu accounts. *[only if you have completed 18 credit hours and do not have an approved D-5]*
- Send an email to your Major Advisor, the Graduate Program Director, and the Senior Program Coordinator with the three SUCCEED-specific attachments described below. *[Every year]*
- Schedule a meeting with your Major Advisor AND, if you have an approved D1 form, your Dissertation Committee, to complete the process. *[Every year]*

This meeting should take place no later than May 1st each year – so that your plan has the appropriate time to be submitted to UGS by the late May deadline stated on the UGS website. UGS will place a fall semester enrollment hold on students who do not have an **approved** (including the Dean of UGS approval) Annual Evaluation and Mentoring Plan. Accordingly, it is important to meet all UGS deadlines.

A workflow of the tasks is presented at the end of this section.

FIU Annual Review Form (online at my.fiu.edu)

This form will ask you to think about your accomplishments for the year (i.e., milestones completed, publications/presentations, awards, fellowships, leadership positions, service participation, professional development), your performance goals for the subsequent year, and any topics you wish to discuss during your meeting with your Advisor and, when appropriate, your dissertation committee.

For the ***performance goals*** section, we ask that you think about *at least ONE goal* in each of the following four categories:

- Courses/Program Milestones
- Career Development
- Researcher Development (includes research)
- Professional Skills (e.g., work-life balance, communication, leadership, collaboration, time management)

Additional goals are welcome. Again, this instance is another where if you have an existing IDP, you should incorporate what you have developed on that document so far into the Annual Review form.

SUCCEED Annual Evaluation and Mentoring Plan Documents

There are three specific documents that you will need to share with your Major Advisor, the Graduate Program Director, and the Senior Program Coordinator each year. You may format these documents as you prefer (e.g., using the IDP format for the reflection document).

Annual Reflection

In a 1-2-page attachment, we would like you to:

- ✓ **Look Back: Goals for the last year** – What goals did you identify last year? Which of these have you pursued/made progress on this year? Which have you perhaps set aside or would like to improve on in the coming year?
- ✓ **Look Ahead: Course & Milestone Planning** – Share your plans for courses and/or milestone completion for the upcoming year (be specific with which semesters/months you will complete things). Note any help or resources you need.
- ✓ **Look Back and Ahead: What went well and what could be better** – Reflect on your engagement with your Advisor, dissertation committee, and SUCCEED. What went well? What could we do differently this upcoming year to better support your development and goals?

Updated Copy of CV/Resume

Provide an updated copy of your CV or Resume, as relevant depending on which career route you are currently planning to pursue following graduation. Please highlight items that have been added since the previous Annual Evaluation in a different color (track changes is also fine) to make it easy to distinguish changes. These items should include any departmental service and professional development participation.

Updated ECED Program of Study

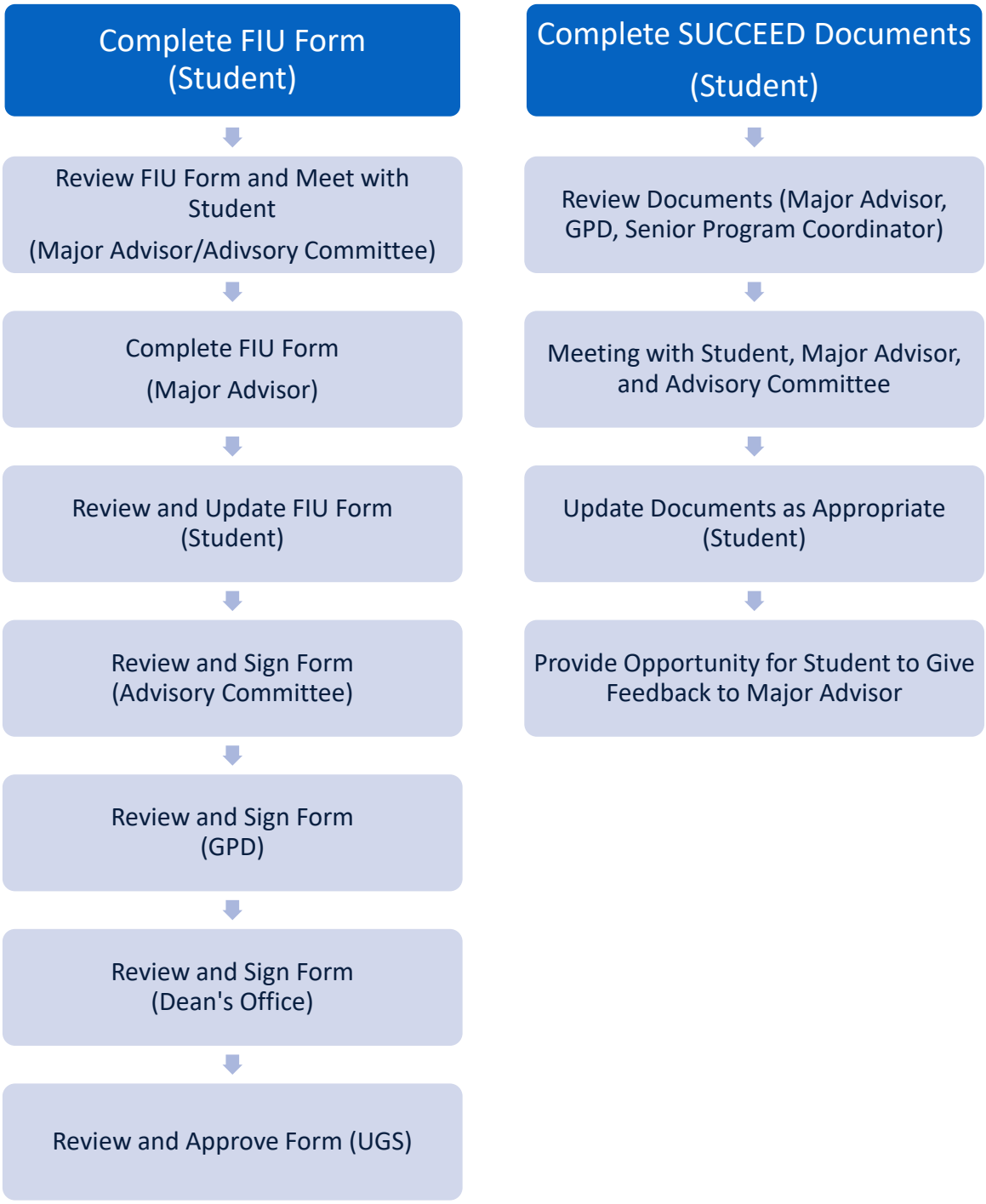
Each year, you should review your progress towards completing the necessary credits for the program with your Major Advisor. Therefore, you should submit the most updated copy of the ECED Program of Study along with the other documents.

Notes for the Major Advisor

For each doctoral student, you will need to:

- Complete the items on the Annual Review Form (my.fiu.edu)
  - If applicable, include language in your review regarding the student's preparation for upcoming milestones (i.e., comprehensive exams, proposal defense, dissertation defense)
- Review the SUCCEED Annual Reflection, the CV/Resume, and the ECED Program of Study
  - Provide feedback on the CV/Resume as appropriate

- Meet with student (with the Dissertation Committee, as appropriate) to discuss progress and goals. At this meeting, shape goals as appropriate for the following academic year. work with student to co-develop goals for the following academic year.
- Have a separate meeting with student to give the student an opportunity to debrief the committee meeting and to provide you with feedback.



Annual Evaluation and Mentoring Plan Workflow

Comprehensive Examination

The Comprehensive Examination serves the two important purposes of a) evaluation of student preparedness for doctoral study and b) continual assessment of program and core courses. This examination assesses the student's understanding of the field of engineering and computing education and the major theoretical concepts, applied issues, and means of inquiry for undertaking research in the field. As such it serves as a critical precursor to the dissertation proposal. The structure of the examination seeks to 1) incorporate the student's research interests, 2) support their preparation for their proposal development, and 3) provide multiple mediums for sharing knowledge. **The comprehensive exam includes both written and oral components that must be completed over a five to seven-week period.**

ECED students are eligible to take their comprehensive exam when the following conditions have been met:

- ✓ They have completed at least 27 engineering and computing education and/or education research credits.
- ✓ They have assembled a dissertation committee and have an approved D1 form on file.
- ✓ The student and their Major Advisor/co-advisors agree that the student is prepared to sit for their comprehensive exams.

The Graduate Program Director will contact students at the start of each semester who are eligible based on the first two criteria. Once the student and their Major Advisor/co-advisor have determined that the student will complete the comprehensive examination, the student needs to set up a meeting with their Advisory Committee to discuss possible topic areas for their examination as well as the schedule for the exam. *When the exam schedule is set, the student must notify the Graduate Program Director of the schedule.*

The examination and the particular exam schedule are comprised of the following:

Step	Who	Duration
Development of Exam Prompts	Advisory Committee	1 week
Development of Written Responses	Student	2-4 weeks*
Review of Written Responses	Advisory Committee	2 weeks
Preparation for Oral Presentation of Responses	Student	
Complete Revise & Resubmit (if required)	Student	Max. 6 weeks

*Defined by committee and student

1. **Development of Exam Prompts –** Following the committee meeting, the Advisory Committee will have one week to prepare three exam prompts based on the discussion with the student about their interest areas. These exam prompts must include:
    a. A theory-focused prompt
    b. A synthesis/literature review prompt

c. A third artifact that is relevant to the student's research interests (e.g., a critical review of 1 or 2 existing papers, resubmission of a term paper from an ECED course).

The first two responses must include a discussion of research methods. Once the components have been defined, the Major Advisor will share those prompts as well as any requirements for page limits with the student, the Advisory Committee, and the Graduate Program Director via email.

2. **Development of Written Responses –** The student will have two to four weeks to craft responses to each of the exam components. The exact timing for the submission must be decided by the committee in consultation with the student as part of the exam schedule. Extensions on response submissions will be granted under extenuating circumstances (i.e., exceptional short term events outside of a student's control that may have a negative impact upon their ability to take or complete the exam) and requires the approval of the Major Advisor and the Graduate Program Director. Extensions should be discussed with the committee but do not require their approval.

   As a reminder, the student should include a discussion of research methods in their responses to the theory and synthesis/literature review prompts. Given the individual-nature of this examination, the student can consult whatever resources (e.g., class notes, books, papers, the internet) they choose EXCEPT other people. The student, however, may utilize the Center for Excellence in Writing and ask clarifying questions to the Advisory Committee members and the Graduate Program Director.

   The student should use APA format in their submissions and the final submissions should be sent no later than the predetermined deadline via email to the committee.

3. **Committee Review of Written Responses –** The Advisory Committee will have two weeks to review the three exam components. The Advisory Committee should provide written feedback that can be shared with the students.

4. **Student Presentation of Responses –** Following the submission of questions, the student should confirm the presentation date and time with the Advisory Committee. The Advisory Committee and student should allot two hours for this meeting. The student will need to prepare a 30-45 minute presentation (10-15 minutes per exam component) on each of their responses.

5. **Oral Presentation and Evaluation of Responses -** Following the student's presentation, the Advisory Committee and student will discuss each response, with the committee posing additional questions and providing feedback.

   At the conclusion of the discussion, the student will be asked to leave the meeting while the Advisory Committee determines a final assessment on each response. Advisory

Committee members will discuss their individual assessments and come to a final rating for each prompt:

- ✓ PASS – The response demonstrates the student's deep understanding of the prompt area and shows preparedness for progressing to the Dissertation Proposal.
- ✓ REVISE & RESUBMIT – The response demonstrates an overall understanding of the prompt area, with a small number of areas that require improvement prior to receiving a PASS rating.
- ✓ RETAKE REQUIRED – The response demonstrates minimal understanding of the prompt area, and significant changes would be necessary with the response to warrant a PASS rating. Failing to respond to a question results in an automatic RETAKE REQUIRED rating.

The student will then be invited back into the meeting to discuss the final ratings and appropriate next steps. Following this meeting, the Advisor needs to share the ratings and rubrics with the Student and the Graduate Program Director via email.

Making Sense of the Evaluation Ratings

Passing the Comprehensive Exam requires a rating of a PASS on all three responses.

If the student receives a REVISE & RESUBMIT rating on any response, the committee will develop a resubmission plan with the student. This resubmission plan could include an updated written and/or oral response. The resubmission plan should take place within 6 weeks of the original oral presentation. If the student does not complete the resubmission process or the resubmission does not result in a PASS rating on that question, their rating will change to a RETAKE REQUIRED.

If the student receives a RETAKE REQUIRED on any response, they will need to wait until the subsequent semester to retake ONLY the particular prompt area(s). At that time, the student will receive a new exam prompt for that area or those areas. For students who do not pass this second attempt on that prompt area, their case will be reviewed by the Graduate Committee and they may be ineligible for a Doctoral degree within SUCCEED.

Outcomes of the comprehensive examination process will not be subject to appeal, except where it is the consensus of your Dissertation Committee that procedures set forth were not followed.

Dissertation

The dissertation serves as the culminating milestone in a student's doctoral experience. Through the manuscript and associated presentation, the student demonstrates their ability to conduct and direct research in engineering or computing education. In addition, the dissertation may also fulfill additional outcomes of the program, if the project seeks to (1) address critical issues in equity, diversity, and inclusion within engineering and computing education and/or (2) design and assess inclusive, innovative, and effective educational experiences in engineering, computing, and/or engineering and computing education.

The format of the dissertation is determined through discussions between the student and their committee and can take one of two forms:

1. ***Chapter Format –*** This format considers the dissertation research as a single study that may include multiple phases or parts. The chapters would capture the motivation, literature argument, research design and theory, results and discussion, future work, implications and general conclusions. The exact chapter titles and the number of chapters should be defined by the student and their advisor, in collaboration with the committee. The final document at the time of the D-5 submission should follow the stylistic guidelines defined by UGS. See *Dissertation Defense* section.

2. ***Manuscript Format –*** This format includes two to three scholarly manuscripts written in a manner suitable for publication in appropriate venues (could include journals and/or conferences). Possible venues could also be outside of engineering and computing education if aligned with dissertation and career goals (e.g., education, engineering or computer science journals). This structure enables the student to prepare and present their graduate work in a format that facilitates publication. The final submission of this format, however, should include (1) an introduction chapter (which could be the first manuscript) that defines the objectives and questions within all manuscripts and links those manuscripts together and (2) a conclusion chapter (which could also be the final manuscript) that discusses future work and the overall implications of the research. The final document at the time of the D-5 submission should still follow the stylistic guidelines defined by UGS. See *Dissertation Defense* section.

We recommend that students and their committees finalize the format of the dissertation in advance of or at the time of the proposal to help shape the study such that it is most helpful to them and the project.

Dissertation Proposal

To initiate the research effort, the student is required to prepare a research proposal that describes the background, purpose, and methods of the research, the outcomes anticipated, and the contribution to the field. This proposal provides an opportunity for the student to demonstrate their abilities to:

- ✓ Define research goals and/or questions,
- ✓ Deeply examine theory and previous work relevant to that research area,
- ✓ Scope and plan the work leading to the completion of the project,
- ✓ Identify ethical and appropriate methods for responding to the goals and questions, and
- ✓ Describe the work in accessible and professional style.

The research proposal structure is designed to enable flexibility given the type of project proposed by the student, but also in alignment with the objectives defined previously. In particular, students will work with their committee to define ***two to three chapters*** that describe the

1. *Motivation* – Why is the research project important? How might it contribute to engineering and computing education?
2. *Literature argument* – What work has previously been done in this area? Where will the project be situated in the literature once completed? How will the project enhance and/or shape the literature?
3. *Theoretical framework (as appropriate)* – How does a particular theory or combination of theories help the student frame and conduct the project?
4. *Research design* – How will the study be conducted? How will the student ensure research quality, validity, and/or reliability as appropriate? What is the project timeline?

The student may add appendices to this proposal as needed to share preliminary research instrument designs or findings.

Over the course of proposal development and the subsequent dissertation research, SUCCEED faculty highly recommends that students share details of the research with their committee. For example, students may consider meeting individually with members of their committee before the proposal defense to receive feedback on a shorter version (e.g., the five-page UGS version or a two-page project summary).

The subsequent sections outline the procedures for the proposal and dissertation defenses in more detail.

Proposal Defense

The proposal defense is typically conducted when the student completes all required and elective coursework so that the student can focus on the dissertation following the completion of their defense.

SUCCEED requires the submission of two to three chapters that outline the research to be conducted as well as an oral defense of the proposal. In addition, an abbreviated, 5-page proposal is required by the University Graduate School (UGS) along with a signed D-3 and additional Institutional Review Board (IRB) approval forms. The student may choose to work on a draft of the 5-page proposal in advance of the oral defense, but may also choose to wait until the oral defense has been completed. Students should monitor all UGS deadlines and speak with their Major Advisor about a plan for completing all of the D-3 requirements.

Steps to Submission of Dissertation Proposal and Defense

1. **Initial Proposal Preparation**: The student, Major Advisor, and the Advisory Committee collaborate to determine the appropriate format for the final dissertation and for the proposal. Ultimately, the Major Advisor is responsible for guiding the process. Some Major Advisors prefer Advisory Committee members to work closely together throughout the entire proposal development process. Other Major Advisors work closely with the student throughout much of the process, interspersing Advisory Committee members' feedback and support as needed and then including the Advisory Committee members more extensively towards the end of the process.

   Recommended Practice: *SUCCEED highly recommends that the student meets one-on-one with all Advisory Committee members prior to submitting the proposal to the Advisory Committee.*

2. **RCR Training Modules and Certificates:** For the Graduate School and/or the University IRB, to conduct research, students must participate in training to improve research integrity. Students are responsible for securing and keeping evidence of earning the necessary certification to be submitted with their D-3 Form. This evidence is provided in the form of a completion certificate presented at the end of the modules. The student must print out the certificates. FIU provides the CITI Course in the Responsible Conduct of Research (RCR) section, which is designed to be used by institutions or organizations. Go to the UGS website at http://research.fiu.edu/rcr/training/and follow directions to secure this training.

3. **Submission of Proposal to Committee and Oral Defense Scheduling:** Once the Major Advisor deems the proposal ready for the Advisory Committee's review, the student should schedule the proposal defense. The student may then submit the proposal to the Advisory Committee members and allow them time to review the document prior to the defense.

   Note: The submission timeline decision is made on an individual student basis, but Advisory Committee members must be allowed at least one week to review the proposal document.

***Recommended Practice**: The proposal defense should be scheduled two to three weeks later and a two-hour time slot should be scheduled.*

4. **The Proposal Oral Defense Announcement:** Once the oral defense is scheduled, the student needs to email the title of the proposal as well as the date/time/location of the defense to the Senior Program Coordinator and Graduate Program Director. This information will be shared with SUCCEED doctoral students.

5. **Committee Initial Review/Feedback:** The committee may share feedback on the proposal with the student in advance of the oral defense, but it is not required. The committee will, however, share feedback on the proposal at the time of the defense.

6. **The Dissertation Proposal Oral Defense**: The student prepares a 25-30 minute presentation of the dissertation proposal with the guidance of their advisor. This presentation will only be open to the committee, the Graduate Program Director, the Senior Program Coordinator and doctoral students from SUCCEED and STEM TI. Following the presentation, the floor will be open for questions from the doctoral students and the committee. Then, the advisor will request that all non-committee audience members applaud the presenting student and leave the presentation. At this point, the committee may ask additional questions and discuss particular details of the proposal. Shortly thereafter, the student will be asked to step out of the room while the committee discusses their evaluation and makes a recommendation for moving forward with the project. Finally, the student will return to the room to discuss the evaluation and recommendation with the committee.

   ***Recommended Practice:** Students may consider practicing their presentation at the STEM TI Research Meetings and in their particular research group meetings. Students may also choose to present their proposal publicly at a later time within SUCCEED or STEM TI.*

7. **Post-Defense Revision(s):** After the defense, the advisor and the student work to implement the suggestions of the committee and/or others.

8. **UGS Five-Page Proposal Summary:** Students are required to also prepare a five-page proposal summary for submission with the D-3 form. This can be done prior to or at the same time as the research proposal development. Please refer to UGS guidelines for the formatting and structural requirements for this proposal summary: http://gradschool.fiu.edu/thesis-dissertation/)

9. **IRB Approval:** Once major components of proposal have been approved, the student applies for IRB approval/exemption (if project involves human subjects). Also, necessary approval(s) from research site must be obtained. (Note: Necessary PHRP and RCR training modules are to be done earlier in the process. IRB documents should be

completed as early as possible and should be completed prior to this step, if possible.) IRB guidelines, procedures and forms can be found at http://research.fiu.edu/irb/.

***Recommended Practice**: IRB can take more than two weeks to approve a study protocol. Start the IRB process before the proposal defense. If the student needs to make changes following the defense, they can submit an amendment, which has a faster turnaround time.*

10. **Submission of D-3 w/ Documentation to Graduate Program Director:** The student submits to the Graduate Program Director a signed D-3, the final 5-page proposal summary along with IRB approval and certificate documentation. The GPD will share the signed D-3 packet with the Dean's Office.

11. **Submission of D-3, Five-Page Proposal and w/ Documentation to UGS:** Finally, the Dean's Office will submit the signed D-3, the five-page proposal summary, and the IRB approval memo with certifications to UGS.

12. **UGS Approval/Data Collection Begins:** UGS provides final approval to begin the dissertation research to the graduate office. Students can check the status of their D-3 approval on the my.fiu.edu portal. Upon notification of UGS approval, data collection may now begin under guidance of the advisor.

Dissertation Defense

Following the research proposal, it is time to do the research!

Once a student advances to candidacy, those Dissertation Research credits become part of the discussion. In particular, the now Ph.D. Candidate (from this point on, the student will be referred to as a candidate) must be continuously enrolled in at least three Dissertation Research credits each term including summer term until they graduate. Candidates will receive In Progress (IP) grades for Dissertation Research until the final term. Grades will be changed from IP to Pass (P) as soon as the candidate successfully defends the dissertation and the Major Advisor files a grade of P for all the Dissertation Research credits.

As Candidate conduct their dissertation research, they should (1) meet with their Advisory Committee to discuss research progress (this could include individual meetings) and (2) continue to work on their dissertation document using the format decided on at the time of the proposal. Please note the final dissertation format (chapter or manuscript structure) must conform to the format outlined in the Regulations for Thesis and Dissertation Preparation Manual available to students online from the Graduate School (http://gradschool.fiu.edu/documents/Graduate_Packet_For_Dissertations.pdf).

This section defines the steps for completing the dissertation defense. **It is critically important that students keep in mind all deadlines (UGS, CEC, and SUCCEED)!** A completed D-5 form

must be filed with the Graduate Program Director **5 weeks** before the defense date (the College deadline is 4 weeks before the defense and the UGS deadline is 3 weeks before the defense or the UGS deadline – whichever is earlier). If these deadlines are not met, the student will need to reschedule their defense and may need to enroll in an additional semester.

Documents to be submitted to GPD at least 5 weeks prior to the Dissertation Defense:

- ✓ Near-final draft of dissertation (both a hard copy and an electronic copy)
- ✓ Dissertation Defense Announcement
- ✓ Originality Report from Turnitin
- ✓ D-5 Form

1. **Submission of Near-final Dissertation Draft to GPD and Advisory Committee**: When deemed appropriate by the Major Advisor, a digital copy of the dissertation is submitted to the GPD. In addition, paper and/or digital copies are submitted to the committee for review, as requested by committee members. The Major Advisor can determine whether the GPD and Advisory Committee reviews occur simultaneously or at different times. Candidates MUST give their Advisory Committee at least two weeks to review their dissertation and the Advisory Committee members MUST return drafts (with comments/corrections) to the candidate within two weeks of receiving them. Once the Advisory Committee approves this initial draft and a defense is scheduled (see point 3), the signed D-5 form is submitted to the GPD and subsequently the Dean's Office.

2. **Turnitin examination:** The candidate's Major Advisor should run the near-final dissertation draft through Turnitin. The originality report should be included with the D-5 submission.

3. **Oral Defense Scheduling and Dissertation Announcement:** When scheduling the defense, remember UGS expects that all Advisory Committee members will be physically present for the dissertation defense. If this is not possible, prior approval must be obtained from UGS. Please speak with the GPD before requesting approval from UGS.

   Once scheduled, the candidate needs to create an announcement in accordance with the UGS template (http://gradschool.fiu.edu/thesis-dissertation/). This announcement will be submitted with the D-5 form.

4. **GPD Review and Submission of D-5:**
   a. The GPD will review the dissertation and contact the Major Advisor and candidate when the dissertation review is completed via email with comments or concerns.
   b. The Senior Program Coordinator and GPD will review the dissertation announcement and contact the Major Advisor and candidate if any changes are needed.

c. Once approved, the GPD will sign and send the D-5 packet to the Dean's Office for approval. NOTE: The candidate will need to work with the GPD to be sure this is submitted on time.
d. When the dissertation and announcement are approved for defense by UGS, the dissertation defense date/time/place is publicized by the Senior Program Coordinator, with support from the candidate.

After preliminary approval of the dissertation, the candidate will give a public presentation on their doctoral work. The subsequent paragraphs outline the steps for this process and final submission of the dissertation.

1. **The Dissertation Oral Defense**: The candidate should prepare a 45-60 minute presentation of their doctoral work with guidance from their advisor. Candidates defend the dissertation at a presentation with the Advisory Committee and others from SUCCEED, STEM TI and the general public in attendance. The presentation follows a similar structure to the proposal defense:
   - ✓ Oral presentation by the candidate,
   - ✓ Questions from the audience with an emphasis on non-Advisory Committee members,
   - ✓ Audience exclusive of Advisory Committee are asked to applaud the candidate and leave,
   - ✓ Closed question and answer session with just the Advisory Committee and the candidate,
   - ✓ Candidate will be asked to leave the room briefly so the Advisory Committee can discuss their evaluation of the doctoral work and come to a final recommendation, and
   - ✓ Candidate will return to the room to meet with the Advisory Committee and discuss next steps.

   Recommended Practice: *Candidates may consider practicing their presentation at the STEM TI Research Meetings and in their particular research group meetings.*

2. **Post-Defense Revision(s):** After the dissertation oral defense, the Major Advisor and the candidate work to make revisions as recommended by the Major Advisor, the Advisory Committee and others as deemed appropriate.

3. **ETD Form Signatures:** Upon the completion of the dissertation revisions, the candidate, Major Advisor, and Advisory Committee Members sign the ETD form!!!!!!

4. **Submission of final dissertation and supporting documents.** With guidance and support from the GPD and Senior Program Coordinator, the candidate will submit their dissertation electronically to UGS. Detailed information about these procedures can be found at https://library.fiu.edu/etd and is summarized below.

In particular, the candidate submits the following**:**

a. The completed ***digital copy of the dissertation*** to keep on file.
b. A ***completed signature page*** (page ii) with original signatures of the Advisory Committee members. This page will be included in the final published dissertation. The forms are available for a 4-member Advisory Committee or a 5-member Advisory Committee. Go to https://library.fiu.edu/c.php?g=159937&p=3843783.
c. ***ETD Submission Approval Page*** - This page allows FIU to release the document to its ETD archive. It also allows the candidate to determine how they want their work distributed. The form asks the candidate to name a proxy so that decisions as to how the document is distributed can be made in their absence. The form is at http://gradschool.fiu.edu/wp-content/uploads/2020/02/Final_ETD_Approval_Form02192020.pdf
d. ***Survey of Earned Doctorates*** - This survey is completed as a UGS requirement upon submission of the dissertation. It is a questionnaire about the students' experiences in their doctoral programs. A certificate of completion is required as part of the final ETD approval. https://sed-ncses.org/login.aspx

5. **UGS Approval.** UGS reviews all dissertation materials. This is often done at the end of the semester even if they are submitted earlier in the semester. It is the candidate's responsibility to continue checking their FIU e-mail until they have received word that their dissertation needs additional changes or has been approved. It is the candidate's responsibility to make changes required by UGS following the submission of all the materials.

Policies and Procedures

Student Conduct

The Student Conduct and Honor Code is a compilation of policies, regulations, and rights designed to serve the Florida International University Community. Graduate students are expected to obtain, read and follow the University's Student Conduct and Honor Code which can be obtained at https://studentaffairs.fiu.edu/get-support/student-conduct-and-academic-integrity/student-conduct-and-honor-code/index.php

SUCCEED expects each graduate student to approach all their graduate education endeavors in a professional manner while maintaining compliance of all rules and guidelines committed to the completion of their degree. In addition to meeting the academic standards of both the University Graduate School and College, students pursuing their graduate degree in SUCCEED courses must demonstrate professionalism in the classroom. Students should have a clear understanding of the concept of professionalism in addition to also practicing the development of those behaviors and attitudes during the program. These behaviors and attitudes include but are not limited to increasing maturity, competence, integrity, regard for human dignity, respect for social justice, accountability, responsibility, and caring as they progress through the program. Students are expected to respect the rights of others regardless of their race, religion, nationality, sex, age, sexual orientation, physical condition, or mental state. Professionalism includes, but is not limited to, satisfactory academic conduct and performance.

Administrators, faculty, and staff of SUCCEED reserve the right to interpret, maintain, and enforce the standards of professional conduct and performance for all doctoral students. In addition, administrators, and faculty also reserve the right to recommend dismissal of any student who has violated the standards of professional conduct or demonstrates a lack of professional development. Any violation of professionalism or academic conduct will be brought to the attention of the SUCCEED Director and Graduate Program Director. Further recommendations and decisions will be decided following formal communication to the student and their advisor.

Academic Integrity

Graduate Students at FIU are expected to adhere to the highest standards of integrity in every aspect of their lives. Honesty in academic matters is part of this obligation. Academic Integrity is the adherence to those special values regarding life and work in an academic community. In instances where the academic standards may have been compromised, FIU has a responsibility to respond appropriately to any charges of misconduct of academic integrity. For a summary of FIU's policy on academic integrity, please visit the Student Affairs website: https://studentaffairs.fiu.edu/get-support/student-conduct-and-academic-integrity/academic-integrity/index.php

Violations of academic integrity and student conduct include, but are not limited to cheating, fabrication of data, tampering, plagiarism, or aiding and/or facilitating such activities. Graduate students are expected to be familiar with these issues and to take personal responsibility in their work. It is the student's responsibility to become familiar with the academic integrity policies at the program, college, and university levels.

Leave of Absence

All ECED graduate students, both part-time and full-time status, are expected to maintain continuous enrollment during fall, spring, and summer semesters. The graduate program makes every effort to schedule all required courses to ensure students can easily maintain their enrollment.

A graduate student who is requesting to be excused from registration while in the Ph.D. program, and any student who has reached candidacy status must formally request a leave of absence a semester before the anticipated leave. Prior to requesting a leave of absence, students must discuss this with his/her major advisor.

A leave of absence must be approved by the Graduate Program Director and the Dean of UGS and in accordance with UGS policy 380.048, Leave of Absences from a Graduate Program. Leave will be granted only under exceptional circumstances and in accordance to UGS procedure. Students have the right to appeal a decision of their leave of absence with the Dean of the College. Leave will generally be granted in cases involving parental leave, personal hardship or other family need. Academic standing is not considered a reason for granting a leave of absence. When a student returns from a leave of absence, decisions concerning previous plan of study will be mutually agreed upon by the student's major advisor and the student.

Withdrawal

Admitted graduate students who have not been registered for three consecutive terms, including the summer session, will be removed from the graduate program and must apply for readmission through the Graduate Admissions Office. Graduate students who withdraw voluntarily from their graduate studies are required to apply for readmission under the admission regulations in place at the time of reapplication. Withdrawal must occur only during the first eleven weeks of the semester. In the summer semester, withdrawal deadlines will be adjusted accordingly. Students who voluntarily withdraw from the University must file the appropriate paperwork. A withdrawal form must be completed and submitted to the OneStop Enrollment & Services. See the Student Withdrawal form for additional policies/procedures related to withdrawal and refer to the Academic Calendar for the deadline dates. International students should consult with the ISSS to ensure all required international documents are considered and submitted when taking a leave of absence.

Grades & Academic Standing

All graduate students are expected to maintain good academic standing. A GPA of 3.0 or higher is required. Students who fail to maintain a 3.0 may be dismissed from the program. Students are required to attain a grade of B or above in all courses. Failure to maintain good academic standing will result in placement on academic ***warning, probation or dismissal***.

A graduate student whose cumulative graduate GPA falls below a 3.0 will be placed on ***warning***.

A graduate student on warning whose cumulative graduate GPA remains below 3.0 will be placed on ***probation***, indicating academic difficulty. It will be to the discretion of the Graduate Committee and Graduate Program Director to determine the conditions which must be met for the student to continue enrollment.

A graduate student on probation who's cumulative and semester GPAs fall below a 3.0 will be automatically dismissed from their program and the University.

Incomplete Grade

A grade of incomplete (IN) is a temporary symbol given at the discretion of the instructor for work not completed because of serious interruption not caused by the student's own negligence. An incomplete must be made up as quickly as possible but no later than two consecutive semesters (including the summer semester) after the initial taking of the course or it will automatically default to an "F" grade. There is no extension of the two-semester deadline. The student must not register again for the course to make up the incomplete.

Students who have incomplete grades on their records must remove the incomplete by the end of the fourth week of the term in which they plan to graduate. Failure to do so will result in a cancellation of their graduation. The student will need to reapply for graduation. For more information about the UGS Policy 380.0449 Graduate Incomplete Grades, click here.

Dissertation Credits

Once a graduate student advances to candidacy, they must be continuously enrolled in at least three credits each term, including the summer term, until they graduate. Student will receive in progress (IP) grades for Doctoral Dissertation credits until the final term. Grades will be changed from IP to P (pass) as soon as the candidate successfully defends the dissertation and the major advisor files a grade of P for Doctoral Dissertation.

Dismissal

As noted in previous sections, certain circumstances may lead to a graduate student being dismissed from the program. Those circumstances may include:

1. Falling out of GPA compliance two consecutive semesters (see *Academic Standing* section)
2. Not passing the comprehensive exams (see *Comprehensive Examination* section)
3. Failure to maintain continuous enrollment
4. Failure to meet conditional admission requirements – These would have been communicated to the student at the time of admission.
5. Student no longer has a sponsoring major professor (See *Changing Major Advisors* section)
6. Student is not making satisfactory progress as reflected by unresolved unsatisfactory status on the ECED Annual Evaluation (see *Annual Evaluation and Mentoring Plan* section)
7. Student engages in Academic or Research Misconduct, Illegal/Fraudulent, or Unethical Behavior
8. Other serious issues as determined by the ECED Graduate Program Committee

Students dismissed from the Program have 10 business days to appeal to the ECED Graduate Committee for reinstatement. If one of the committee members or the GPD has a conflict of interest with the student, the member in conflict will be replaced by the SUCCEED or STEM TI Director as appropriate. The Committee will evaluate the appeal and render a decision within two weeks. Note that for reinstatement after dismissal for items 1 and 3, a petition to UGS will also be required. Appeals from students failing their comprehensive exams (item 2) and petitions from students not meeting conditional admit requirements (item 4) will not be considered.

Student Travel

SUCCEED supports graduate students with the opportunity to attend conferences, trainings, workshops, and other activities related to a student's program of study or professional development. For more information about requesting travel grants, contact both the Graduate Program Director and your Major Advisor.

DBER Community at FIU

STEM TI Mission & Organization

The STEM Transformation Institute was founded in 2014 and maintains its mission in direct support of FIU's Next Horizon 2025 Strategic Plan and state performance metrics. The vision of the STEM Transformation Institute is to support, expand and conduct research on the improvement of STEM teaching across the K-20 spectrum, which will lead to better prepared and more employable STEM professionals and educators. This vision motivates the unifying mission of the Institute to advance learning and success of K-20 learners by transforming classrooms, programs, and institutional education practices across disciplines; develop and share best practices, policies and training for STEM and STEM education professionals across the nation; and conduct innovative basic and applied research to advance our understanding of STEM teaching and learning. Specifically, the STEM Transformation Institute coordinates strategic activities across many departments and colleges that are organized towards high quality teaching and evidence-based, outcome-oriented improvements in the teaching of STEM at the undergraduate level and driving efforts towards institutional change.

The STEM Transformation Institute's *teaching* mission integrates objectives across multiple projects, primarily fostering adoption of evidence-based instructional practices through resources and professional development to faculty. Such flagship programs and institutional advancement areas include the Learning Assistant Program, FIUteach, the Howard Hughes Medical Institute (HHMI) Faculty Scholar program, and deployment and expansion of evidence-based curricular materials.

The STEM Transformation Institute's *research* mission includes state-of-the-art research and creative activities across a number of cutting-edge discipline-based education research (DBER) projects, a set of emergent disciplines which have received much attention and funding in recent years. With the efforts of over 25 DBER research faculty in eight departments and by bringing in around $40 million in research funding, the Institute's research and outreach activities have positioned FIU as a national leader in DBER, leading to national prominence for the institution as a whole.

As of Spring 2020, the STEM Transformation Institute has 42 personnel, including tenure-track DBER faculty, clinical faculty, instructors, program managers, postdoctoral researchers, and staff. All faculty in SUCCEED are also members of the STEM Transformation Institute, and as such, so are all graduate students who are part of the Ph.D. in Engineering and Computing Education, as well as undergraduate students who participate in SUCCEED-related research groups.

Learn more about the Institute, research projects and team at **stem.fiu.edu**

DBER Graduate Community Organization

The Discipline-Based Education Research (DBER) Graduate Community within STEM TI provides students an opportunity to collaborate and build community across disciplinary boundaries. In terms of communication among graduate students and the STEM TI research community, there are two main email listservs which doctoral students will be added to:

- ✓ The **Graduate Student Group** is where the graduate students of the STEM Institute come together for writing sessions, to socialize and share opportunities. The students meet on a weekly or biweekly basis. Contact the appropriate **point of contact** to get added to the listserv.
- ✓ The STEM research listserv serves the purpose of connecting undergraduates, graduates, postdocs, faculty, staff and alumni at the Institute. The research listserv is used to spread word across the entire institute and its past/present members (150+ people) regarding announcements, research opportunities, and Tuesday lunch meetings. Contact the appropriate **point of contact** to get added to the listserv.

Events & Opportunities

STEM TI offers a variety of events and opportunities to come together each semester. While there are many informal gatherings (e.g., lunch at the tables outside and inside of STEM TI, practice conference and defense presentations) and less frequent events (e.g., learning assistant workshops, FIUteach events), there are also a series of on-going events:

- ✓ ***Tuesday Research Lunches and Meetings:*** The goals of these meetings, which occur each semester, including summer, are to: (1) Promote the personal and professional development of attendees, (2) Build and maintain a community through creating opportunities for collaboration and relationship building, and (3) Develop an environment that promotes building research skills and intellectual rigor. Each semester, the different disciplines within STEM TI are highlighted, usually one per week through presentations by STEM TI faculty and students and/or outside visitors. In addition, certain weeks are dedicated to social events or professional development.
- ✓ ***DBER Seminar:*** These weekly seminars occur in the fall and spring semesters and include a diverse group of educational researchers and practitioners from both inside and outside of FIU. The seminar talks are targeted for practitioners (i.e., instructors, student support personnel, mentors, advisors) and can include both approaches and tools for educational design as well as connections to research.
- ✓ ***Other Graduate Student-Specific Events:*** The STEM TI graduate students hold multiple meetings according to the interests of the students at the time (e.g., journal clubs, R statistical support meetings). These are all graduate student created and led, as such

students have agency to create communities, structures, and resources to support their overall experience.

Resources

The STEM Transformation Institute has put together a How-To guide with sections of interest to graduate students. The How-To guide also includes a list of educational research-related courses that may be of interest to STEM TI graduate students. This guide will be helpful as students explore research method and engineering and computing education specialization course options.

University Resources

Graduate Assistant Handbook (UGS)

Click here to access the University Graduate School Graduate Assistant Handbook. This handbook is updated annually and reflects all information related to Graduate Assistantships.

Academic Calendar

Click here to access the University's Academic Calendar. This calendar includes dates, deadlines for registration, enrollment, holidays and university closings.

Student Survival Guides (FIU)

The University's Student Affairs office offers a Survival Guide to all students to help them navigate important matters pertaining to FIU.

Counseling & Psychological Services (CAPS)

Counseling and Psychological Services (CAPS) provides mental health services to students that will facilitate and enhance their personal learning, emotional well-being and academic skills development. Click here for more information and how to schedule an appointment.

Center for Excellence in Writing

The Center for Excellence in Writing offers students several services that include face-to-face and online tutoring, workshops, and community engagement. In addition, the Center offers a dissertation writing retreat multiple times a year for students who have an approved D-3 form on file. Click here for more information and access to their calendar of events.

Career & Talent Development

The FIU College of Engineering & Computing has a Career & Talent Development office that is fully dedicated to students and offers a range of services and activities to help you develop professional skills to go beyond the classroom and into the workplace. Located in EC 2852 (next to the Panther Pit), the Career & Talent Development office offers a variety of services including interviewing skills, resume writing, networking, job search strategies, salary negotiation, and much more. Click here for more information.

Tech Support

The Engineering Information Center (EIC) offers technology support and services for the College of Engineering and Computing. Services and support include printing, laptop loaner program, account and network account and troubleshooting, Click here for more information about EIC and the support they offer.

Center for Diversity and Student Success in Engineering and Computing (CD-SSEC)

The Center for Diversity and Student Success in Engineering and Computing (CD-SSEC) provides engineering students with opportunities and services that will enhance their academic experiences and increase their rate of success in the school and their future careers. The office supports the college through recruitment, retention and enrichment programs, such as mentorship, undergraduate research opportunities, peer-to-peer tutoring, internship, and pre-college outreach activities. Click here for more information about CD-SSEC.

Student Organizations

Click here for a list of engineering student organizations and access to their website.

APPENDIX

A. Program of Study Examples

The subsequent pages include three examples of how one might traverse the doctoral program. These examples are meant to be used as a starting point for discussion with your advisor:

- ✓ Full-time students who are not transferring in graduate coursework
- ✓ Full-time students with a Master's degree/15 credits of Master's level coursework,
- ✓ Part-time students taking 6 credits each semester who are not transferring in any graduate coursework.

Credit hours are displayed in parenthesis after course numbers (e.g., EGN 1234 (3) means that EGN 1234 is a 3 credit course).

Please note these examples include the maximum time a student can wait to submit the D-1 form and the minimum time between proposal and defense. The actual time necessary between proposal and defense is dependent on many factors, including, but not limited to data collection plan, research methods selected, complexity of data analysis, and comfort level with writing.

Year	Semester	Full-time with no transfer credits	Full-time with M.S. level transfer credits	Part-time with no transfer credits
1	Fall	9 credits of coursework & graduate research: • EGS 6008 (3) • EGN 6957 (2) • EDF 6481 (3) • EGN 6935 (0) • Research (1)	9 credits of coursework & graduate research: • EGS 6008 (3) • EGN 6957 (2) • EDF 6481 (3) • EGN 6935 (0) • Research (1)	5-6 credits of coursework & graduate research: • EGS 6008 (3) • EGN 6957 (2) • EGN 6935 (0) • (Optional) Research (1)
1	Spring	9 credits of coursework: • EGN 6900 (3) • EGS 6057 (3) • Research Methods (3) • EGN 6935 (0)	9 credits of coursework: • EGN 6900 (3) • EGS 6057 (3) • Res Methods (3) • EGN 6935 (0)	6 credits of coursework: • EGN 6900 (3) • EGS 6057 (3)
1	Summer	6 credits of coursework: • Discipline Spec (3) • Discipline Spec (3)	6 credits of research	6 credits of coursework and/or research: • Research (3) • Discipline Spec (3)
2	Fall	9 credits of coursework: • EGS 6055 (3) • Research Methods (3) • Discipline Specific (3)	9 credits of coursework: • EGS 6055 (3) • Specialization (3) • Research Methods (3)	6 credits of coursework: • EGS 6055 (3) • Discipline Spec (3)
2	Spring	9 credits of coursework: • Specialization (3) • Specialization (3) • Discipline Specific (3)	9 credits of coursework & research: • Specialization (3) • Specialization (3) • EGN 4942 (1)	6 credits of coursework: • Research Methods (3) • Discipline Spec (3)

			• Research (2) **Assemble Dissertation Committee and Submit D-1** Complete **Candidacy Exam and Submit D-2**	
2	Summer	6 credits of coursework and/or research: • Research (3) • Discipline Spec (3) **Assemble Dissertation Committee and Submit D-1** Complete **Candidacy Exam**	6 Dissertation Credits **Complete Dissertation Proposal and Submit D-3**	6 credits of coursework and/or research: • Discipline Spec (3) • Discipline Spec (3)
3	Fall	9 credits of coursework and/or research: • Specialization (3) • EGN 4942 (1) • Research (5) **Submit D-2 Form**	3 Dissertation Credits Conduct Dissertation Research	6 credits of coursework: • Research Methods (3) • Specialization (3)
3	Spring	3 Research Credits Prepare proposal	3 Dissertation Credits Conduct Dissertation Research	6 credits of coursework: • Specialization (3) • Specialization (3)
3	Summer	6 Dissertation Credits **Complete Dissertation Proposal and Submit D-3**	3 Dissertation Credits **Present and Submit Dissertation** **Submit D-5 & ETD Forms** **GRADUATION!**	6 credits of coursework and research • EGN 4942 (1) • Research (5) **Assemble Dissertation Committee and Submit D-1** Complete **Candidacy Exam**
4	Fall	3 Dissertation Credits Conduct Dissertation Research		6 credits of research **Submit D-2 Form**
4	Spring	3 Dissertation Credits Conduct Dissertation Research		6 Dissertation Credits **Complete Dissertation Proposal and Submit D-3**
4	Summer	3 Dissertation Credits **Present and Submit Dissertation** **Submit D-5 & ETD Forms** **GRADUATION!**		3 Dissertation Credits Conduct Dissertation Research
5	Fall			3 Dissertation Credits Conduct Dissertation Research
5	Spring			3 Dissertation Credits **Present and Submit Dissertation** **Submit D-5 & ETD Forms** **GRADUATION!**

SUCCEED Department forms

FIU Engineering & Computing

School of Universal Computing, Construction and Engineering Education

SUCCEED ECED:PHD Program of Study Form

OVERVIEW: The Program of Study form provides students an overview of the program requirements and a single form to use to track doctoral coursework. This form will be used as part of the annual evaluation and mentoring plan review process. This form should be included with the D-2 form when submitting to the Graduate Program Director for review and approval.

INSTRUCTIONS:

1. Determine which form to use.
    a. Students who are transferring in coursework (i.e., they took graduate coursework during their undergraduate program, they previously received a Master's degree, they have an incomplete graduate degree) should use the Transfer Credit form, which provides an overview of the transfer credit policy.
    b. Students who are NOT transferring coursework can use the standard Program of Study form.

2. Record planned and current coursework. The form is designed to enable students to track their current courses and to record potential terms when they will complete graduate courses.

3. Share this form with Advisor each semester. Students should share this form with their advisor before registering for courses each semester. This form is meant to be dynamic and therefore, to be updated on a semester-by-semester basis.

4. Submit a copy of this form with your D-2. This form should be submitted to the GPD with your D-2 along with the other attachments. NOTE: If you are transferring courses, refer to 4a.

    4a. If a student is transferring courses, they should share the form at least one semester prior to submitting their D-2 (in other words, completing 60 credits of coursework and their comprehensive exam).

PhD Engineering and Computing Education Course Requirements

NAME:	Panther ID:

Eng & Comp Education Foundations (12 Credits)

Course #	Course Title	Credits	Term	Grade
EGS 6008	Foundations of ECED	3		
EGN 6957	Professional Development	2		
EGN 6900	Meth. & Practices in ECED Res.	3		
EGN 6057	Equity in STEM Education	3		
	Credit Total			

Research Methods & Statistics Elective (9 Credits)

Course #	Course Title	Credits	Term	Grade
EDF 6481	Education Res. Methods			
	Credit Total	0		

Specialization Courses (9 Credits)

Course #	Course Title	Credits	Term	Grade
	Credit Total	0		

Teaching Requirement (4 Credits)

Course #	Course Title	Credits	Term	Grade
EGS 6055	Fdns of Eng & Comp Teaching & Learning			
EGN 6942	Mentored Teaching Practicum			

Seminar (0 Credits)

Course #	Course Title	Credits	Term	Grade
EGN 6935	Seminar on STEM Ed. Research	0		

Discipline Specific Specialization (15 Credits)

Course #	Course Title	Credits	Term	Grade
	Credit Total	0		

Research Credits (Need 15 Credits of Dissertation Research)

Course #	Course Title	Credits	Term	Grade
	Credit Total	0		

Other

Course #	Course Title	Credits	Term	Grade

TOTAL CREDITS	0

FIU Engineering & Computing

School of Universal Computing, Construction and Engineering Education

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PhD Engineering and Computing Education Coursework

NAME: **ID:** **DATE:**

Eng & Comp Education Foundations (12 Credits)

Course #	Course Title	Credits	Term	Institution	Grade	Course Equivalent
						EGS 6008
						EGN 6900
						EGN 6057
						EGN 6957
	Credit Total	0				

Research Methods & Statistics Elective (9 Credits)

Course #	Course Title	Credits	Term	Institution	Grade	Course Equivalent
						EDF 6481
	Credit Total	0				

Specialization Courses (9 Credits)

Course #	Course Title	Credits	Term	Institution	Grade	Course Equivalent
	Credit Total	0				

Seminar (0 Credits)

Course #	Course Title	Credits	Term	Institution	Grade	Course Equivalent
		0				EGN 6935

Teaching Requirement (4 Credits)

Course #	Course Title	Credits	Term	Institution	Grade	Course Equivalent
						EGS 6055
						EGN 6942

Discipline Specific Specialization (15 Credits)

Course #	Course Title	Credits	Term	Institution	Grade	Course Equivalent
	Credit Total	0				

Research Credits (Need 15 Credits of Dissertation Research)						
Course #	**Course Title**	**Credits**	**Term**	**Institution**	**Grade**	
	Credit Total	0				

Other						
Course #	**Course Title**	**Credits**	**Term**	**Institution**	**Grade**	
	Credit Total	0				

Total Credits (75 Required)	0

Transfer Credit Determination	
Transfer From	**Max Credits**
Taken in ugrad but not applied to degree	12
Non-Degree Seeking	12
Completed Master's Degree	36
Incomplete Master's	15
Incomplete Doctorate	15

Requirements for Transfer Courses:

1. The student received a grade of 3.0 or better on a 4.0 scale.
2. The course was taken at FIU or an accredited institution.
3. The course must be relevant, as judged by an appropriate committee of the program, to the graduate program to which the student is accepted.
4. The course must be listed on an official transcript sent to the University Graduate School Admissions Office by the institution where the course was taken.
5. The date of completion will be no longer than 6 years or 9 years at the time of graduation with a master's or doctoral degree, respectively (requirement does not apply to credits earned as part of a completed graduate degree).