FLORIDA ATLANTIC UNIVERSITY

NEW/CHANGE PROGRAM REQUEST
Graduate Programs

UGPC Approval _____
UFS Approval _____
Banner _____
Catalog _____

Department Electrical Engineering and Computer Science

College Engineering and Computer Science

Program Name
MS Electrical Engineering; PhD Electrical Engineering

☐ **New Program***

☑ **Change Program***

Effective Date *(TERM & YEAR)*
Summer 2024

Please explain the requested change(s) and offer rationale below or on an attachment.

EECS department is revising the list of prerequisite courses for admission into the MS Electrical Engineering and PhD in Electrical Engineering Programs by applicants who do not have the BS Electrical Engineering degree. Due to the recent revision of the department undergraduate curriculum, some of the prerequisites courses are no longer offered or have been absorbed into other courses. Therefore, the present list of prerequisite courses for the EE Graduate Program needs to be revised.

*All new programs and changes to existing programs must be accompanied by a catalog entry showing the new or proposed changes.

Faculty Contact/Email/Phone
Hari Kalva/hkalva@fau.edu/561-297-0511

Consult and list departments that may be affected by the change(s) and attach documentation
NA

Approved by		***Date***
Department Chair	Hari Kalva	11/28/2023
College Curriculum Chair	Masoud Jahandar Lashaki	11/28/2023
College Dean	M Cardei	11/29/2023
UGPC Chair		
UGC Chair		
Graduate College Dean		
UFS President		
Provost		

Email this form and attachments to UGPC@fau.edu 10 days before the UGPC meeting.

MASTER'S PROGRAMS

ELECTRICAL ENGINEERING

MASTER OF SCIENCE (M.S.)

(For this degree program, the GRE admission requirement is waived through and including fall 2023.)

The department offers thesis and non-thesis options at the master's level. Students may specialize in several areas: telecommunications; digital signal processing; systems and robotics, including control systems and machine vision; electromagnetics and RF, antennas, microwave systems, EMC/EMI and HF RF circuit design; alternative energy systems, including photovoltaic and fuel cell systems; bioengineering; neural networks; and optics and photonics. The Master of Science with major in Electrical Engineering is available in person and fully online.

Admission Requirements

All applicants must submit GRE scores and official transcripts from all previous postsecondary institutions attended. Applicants for admission will be evaluated on an individual basis and must satisfy the following requirements. Students with non-engineering bachelor's degrees, click here for additional requirements.

1. International students from non-English-speaking countries must be proficient in written and spoken English as evidenced by a score of at least 500 (paper-based test) or 213 (computer-based test) or 79 (Internet-based test) on the Test of English as a Foreign Language (TOEFL) or a score of at least 6.0 on the International English Language Testing System (IELTS).
2. A baccalaureate degree in Engineering, Natural Science or Mathematics;*
3. A minimum GPA of 3.0 (of a possible 4.0 maximum) in the last 60 credits of undergraduate work;

4. Submission of the Graduate Record Examination (GRE) score is required. GRE scores more than five years old are normally not acceptable. The GRE requirement is waived for any student who has a baccalaureate degree from FAU's Department of Electrical Engineering and Computer Science with a GPA of at least 3.25 (of a possible 4.0) in the last 60 credits attempted prior to graduation.

* Students whose backgrounds are not in electrical or computer engineering should expect to take additional coursework to satisfy deficiencies.

Admission to Candidacy
Graduate students are required to submit a Plan of Study when they have completed between 9 and 15 credits of coursework with a minimum cumulative GPA of 3.0. A student may not register for thesis credits prior to approval of a submitted Plan of Study.

Degree Requirements
Students must satisfy all of the University graduate requirements. In addition, the following specific degree requirements apply, depending on the choice of degree program:

Thesis Option (30 credits)

1. Requires 6 credits of orally defended written thesis. The M.S. committee is chaired by the student's thesis advisor. The chair of the committee must be a graduate faculty member from the Department of Electrical Engineering and Computer Science.
2. Requires 24 credits of approved coursework with the following constraints:
    a. Minimum of 12 credits in EE courses;
    b. No 4000-level course may be counted toward the degree;
    c. A 3-credit course with math prefix or one of the following courses: EEL 5613, Modern Control; EEE 5502, Digital

Processing of Signals; EEL 6482, Electromagnetic Theory 1; EOC 5172, Mathematical Methods in Ocean Engineering 1.

3. At least one-half of the credits must be at the 6000 level or above.
4. Must complete one semester of CGS 5937, Graduate Seminar (0 credits) with grade of Satisfactory ("S").

Note: No more than 3 credits of directed independent study may be applied toward the master's degree.

Non-Thesis Option (30 credits)

1. Requires 30 credits of approved coursework with the following constraints:
    a. No 4000-level course is allowed toward the degree. Courses taken to make up for the deficiencies will not be counted toward the degree;
    b. A 3-credit course with math prefix or one of the following courses: EEL 5613, Modern Control; EEE 5502, Digital Processing of Signals; EEL 6482, Electromagnetic Theory 1; EOC 5172, Mathematical Methods in Ocean Engineering 1;
    c. A minimum of 18 credits must be completed in EE.
2. At least one-half of the credits must be at the 6000 level or above.
3. Must complete one semester of CGS 5937, Graduate Seminar (0 credits) with grade of Satisfactory ("S").

Note: No more than 3 credits of directed independent study may be applied toward the master's degree.

Deficiency Requirements

From the following list of deficiency EE courses, students must take two mandatory courses and at least two from the menu of courses.

EEL 3118 Laboratory 1 (**Mandatory**)

EEL 3502 Signals and Digital Filter Design (**Mandatory**)

CDA 4630 Introduction to Embedded Systems

EEL 3470 Electromagnetic Fields and Waves

EEL 4361C Electronics 2 and Lab

EEL 4512C Principles of Communication Systems

EEL 4652 Control Systems 1

EEE 4541 Stochastic Processes and Random Signals

EEL 4216 Electric Power Systems

EEL 4220 Electrical Machines

~~From the following list of deficiency EE courses, students must take the Electronics Laboratory 1 course and at least four more courses.~~

~~Introduction to Microprocessor Systems~~	~~CDA 3331C~~
~~Electromagnetic Fields and Waves~~	~~EEL 3470~~
~~Electronics 2 and Lab~~	~~EEE 4361C~~
~~Introduction to Digital Signal Processing~~	~~EEE 4510~~
~~Principles of Communication Systems~~	~~EEL 4512C~~
~~Control Systems 1~~	~~EEL 4652C~~
~~Analysis of Linear Systems~~	~~EEL 4656~~
~~Electronics Laboratory 1~~	~~EEL 3118L~~

An insufficient number of the above courses will be considered a deficiency. Students are expected to take the necessary deficient courses during their course program as an extra load beyond the regular graduate coursework.

Students with engineering technology degrees are expected to first satisfy the FAU EE undergraduate graduation requirements before

being admitted to the graduate program.

ELECTRICAL ENGINEERING

MASTER OF SCIENCE (M.S.) WITH A BUSINESS MINOR

Those students electing to receive a minor in Business must complete 36 credits, of which 21 are to be from the Electrical Engineering courses described in this section of the catalog and 15 are to be from the courses approved by the College of Business for the Business minor. Such students will have to satisfy the prerequisite and core requirements of the appropriate degree program of the department. In addition, students should also satisfy the University requirements for graduate programs. For more information, students should consult their faculty advisor.

DOCTORAL PROGRAMS

ELECTRICAL ENGINEERING

DOCTOR OF PHILOSOPHY (PH.D.)

(For this degree program, the GRE admission requirement is waived through and including fall 2023.)

The department offers a program of advanced graduate study leading to a Doctor of Philosophy degree in Electrical Engineering. This degree program is available in person and fully online. Students in the Ph.D. with Major in Electrial Engineering program have the option of pursuing a concentration in Neuroengineering.

Admission Requirements

Applicants for admission to doctoral study will be evaluated on an individual basis by the departmental graduate admissions committee. As a rule, the applicant must have:

1. At least a 3.3 (of a possible 4.0 maximum) grade point average in the last 60 credits attempted in the relevant field;
2. Submission of the Graduate Record Examination (GRE) score is required. GRE scores more than five years old are normally not acceptable. The GRE requirement is waived for any student who has an M.S. degree without thesis from FAU's Department of Electrical Engineering and Computer Science;
3. A master's degree in Engineering or a related discipline awarded by a recognized institution (thesis options are preferred);
4. Two reference forms that document the applicant's research potential, motivation, relative academic achievement and personality;

5. International students from non-English-speaking countries must be proficient in written and spoken English as evidenced by a score of at least 500 (paper-based test) or 213 (computer-based test) or 79 (Internet-based test) on the Test of English as a Foreign Language (TOEFL) or a score of at least 6.0 on the International English Language Testing System (IELTS).

Applicants are expected to have taken the following prerequisite courses (or equivalents) before pursuing the Ph.D. degree. In some cases, prerequisite requirements may be satisfied after admission to the Ph.D. program. In such a case, proficiency in the prerequisite courses must be shown before the student takes dissertation credits.

From the following list of deficiency EE courses, students must take two mandatory courses and at least two from the menu of courses.

EEL 3118 Laboratory 1 (**Mandatory**)

EEL 3502 Signals and Digital Filter Design (**Mandatory**)

CDA 4630 Introduction to Embedded Systems

EEL 3470 Electromagnetic Fields and Waves

EEL 4361C Electronics 2 and Lab

EEL 4512C Principles of Communication Systems

EEL 4652 Control Systems 1

EEE 4541 Stochastic Processes and Random Signals

EEL 4216 Electric Power Systems

EEL 4220 Electrical Machines

~~Students must take EEL 3118L, Electronics Laboratory 1, and at least four more courses from the table.~~

~~Introduction to Microprocessor Systems~~	~~CDA 3331C~~
~~Electromagnetic Fields and Waves~~	~~EEL 3470~~
~~Electronics 2 and Lab~~	~~EEE 4361C~~
~~Introduction to Digital Signal Processing~~	~~EEE 4510~~
~~Principles of Communication Systems~~	~~EEL 4512C~~
~~Controls Systems 1~~	~~EEL 4652C~~
~~Analysis of Linear Systems~~	~~EEL 4656~~