NEW/CHANGE PROGRAM REQUEST
Graduate Programs

FLORIDA ATLANTIC UNIVERSITY

Department Computer and Electrical Eng. and Computer Science

College Engineering and Computer Science

UGPC Approval _____
UFS Approval _____
Banner Posted _____
Catalog _____

Program Name		Effective Date (TERM & YEAR)
MS Computer Science, MS Computer Engineering, MS Electrical Engineering, MS Bioengineering, PhD Computer Science, PhD Computer Engineering, PhD Electrical Engineering	☐ New Program ☑ Change Program	Fall 2019

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

The MS students will be required to take the 0-credit CGS 5937 Graduate Seminar course for 1 semester.
The PhD students will be required to take the 0-credit CGS 5937 Graduate Seminar course for 2 semesters.

The objective is to increase graduate student participation at the seminar series with distinguished speakers.

Faculty Contact/Email/Phone

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

Approved by		Date
Department Chair	_Nurgun Erdol_	11/16/2018
College Curriculum Chair	_____	11/19/18
College Dean	_MCardin_	11/20/2018
UGPC Chair	_____	_____
UGC Chair	_____	_____
Graduate College Dean	_____	_____
UFS President	_____	_____
Provost	_____	_____

Email this form and attachments to UGPC@fau.edu one week before the UGPC meeting so that materials may be viewed on the UGPC website prior to the meeting.

GRADUATE COLLEGE

NOV 2 6 2018

Received

Computer & Electrical Engineering and Computer Science

Master of Science with Major in Computer Engineering

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 programs.

Master of Science with Major in Computer Engineering, 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 Computer and Electrical Engineering and Computer Science.

2. Requires 24 credits of approved coursework with the following constraints:

a. A minimum of 3 credits must be selected from each of the three groups listed in Option A.

b. A minimum of 18 credits of 6000-level courses must be completed.

c. No more than 3 credits of directed independent study may be taken

d. No course can be counted toward the degree that is more than 10 years old at the time the degree is awarded.

e. No 4000-level course is allowed toward the degree. Courses taken to make up for the deficiencies will not be counted toward the degree.

3. Must have a GPA of 3.0 (out of 4.0) or better.

4. All courses in the degree program must be completed with a grade of "C" or better.

5. Must complete 1 semester of CGS 5937 Graduate Seminar (0 credits) with grade "S".

5. Every thesis student must maintain a Research Portfolio containing research papers (book chapter, conference or journal contributions accepted or published, patents, directed independent study-based research papers, technical reports) done throughout the student's master's degree studies. The master's thesis is added to the Research Portfolio prior to graduation. The portfolio must be approved by a graduate advisor prior to graduation certification.

Master of Science with Major in Computer Engineering, Non-Thesis Option (33 credits)
1. Requires 33 credits of approved coursework with the following constraints:

a. A minimum of 3 credits must be selected from each of the three groups listed in Option A.

b. A minimum of 18 credits of 6000-level courses must be completed.

c. No more than 6 credits of directed independent study may be taken.

d. One 3-credit, research-oriented directed independent study course must be taken after completion of 18 credits of coursework. At the end of the directed independent study course, the student is expected to submit a paper or technical report to be placed in the student's Research Portfolio.

e. No course can be counted toward the degree that is more than 10 years old at the time the degree is awarded.

f. No 4000-level course is allowed toward the degree. Courses taken to make up for the deficiencies will not be counted toward the degree.

2. Must have a GPA of 3.0 (out of 4.0) or better.

3. All courses in the degree program must be completed with a grade of "C" or better.

4. Must complete 1 semester of CGS 5937 Graduate Seminar (0 credits) with grade "S".

4. Every non-thesis student must maintain a Research Portfolio containing research papers (book chapter, conference or journal contributions accepted or published patents, directed independent study-based research papers, technical reports) done throughout the student's master's degree studies. Every non-thesis student is expected to have at least one research paper in the Research Portfolio prior to graduation. The portfolio must be approved by a graduate advisor prior to graduation certification.

Transfer Credits
Any transfer credits toward the requirements for a master's degree in Computer Engineering must be approved by the department, the College and the University. The transfer credits must correspond to equivalent requirements and performance levels expected for the degree. Normally, no more than 6 credits of coursework (that have not been applied to a degree) can be transferred from another institution.

Master of Science with Major in Computer Science

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 programs.

Master of Science with Major in Computer Science, 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 Computer and Electrical Engineering and Computer Science.

2. Requires 24 credits of approved coursework with the following constraints:

a. A minimum of 3 credits must be selected from each of the three groups listed in Option B.

b. A minimum of 18 credits of 6000-level courses must be completed.

c. No more than 3 credits of directed independent study may be taken.

d. No course can be counted toward the degree that is more than 10 years old at the time the degree is awarded.

e. No 4000-level course is allowed toward the degree. Courses taken to make up for the deficiencies will not be counted toward the degree.

3. Must have a GPA of 3.0 (out of 4.0) or better.

4. All courses in the degree program must be completed with a grade of "C" or better.

5. Must complete 1 semester of CGS 5937 Graduate Seminar (0 credits) with grade "S".

5. Every thesis student must maintain a Research Portfolio containing research papers (book chapter, conference or journal contributions accepted or published, patents, directed independent study-based research papers,-technical reports) done throughout the student's master's degree studies. The master's thesis is added to the Research Portfolio prior to graduation. The portfolio must be approved by a graduate advisor prior to graduation certification.

Master of Science with Major in Computer Science, Non-Thesis Option (33 credits)
1. Requires 33 credits of approved coursework with the following constraints:

a. A minimum of 3 credits must be selected from each of the three groups listed in Option B.

b. A minimum of 18 credits of 6000-level courses must be completed.

c. No more than 6 credits of directed independent study may be taken.

d. One 3-credit, research-oriented directed independent study course must be taken after completion of 18 credits of coursework. At the end of the directed independent study course, the student is expected to submit a paper or technical report to be placed in the student's Research Portfolio.

e. No course can be counted toward the degree that is more than 10 years old at the time the degree is awarded.

f. No 4000-level course is allowed toward the degree. Courses taken to make up for the deficiencies will not be counted toward the degree.

2. Must have a GPA of 3.0 (out of 4.0) or better.

3. All courses in the degree program must be completed with a grade of "C" or better.

4. Must complete 1 semester of CGS 5937 Graduate Seminar (0 credits) with grade "S".

4. Every non-thesis student must maintain a Research Portfolio containing research papers (book chapter, conference or journal contributions accepted or published patents, directed independent study-based research papers, technical reports) done throughout the student's master's degree studies. Every non-thesis student is expected to have at least one research paper in the Research Portfolio prior to graduation. The portfolio must be approved by a graduate advisor prior to graduation certification.

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Transfer Credits
Any transfer credits toward the requirements for a master's degree in Computer Science must be approved by the department, the College and the University. The transfer credits must correspond to equivalent requirements and performance levels expected for the degree. Normally no more than 6 credits of coursework (that have not been applied to a degree) can be transferred from another institution.

DOCTORAL PROGRAMS

Doctor of Philosophy with Major in Computer Engineering or in Computer Science

Degree Requirements
A minimum of 84 graduate credits (including a minimum of 33 dissertation credits) is required beyond a bachelor's degree. No 4000-level courses may be counted in the Ph.D. degree. A master's degree in a related field is considered equivalent to 30 credits. A minimum of 21 credits of coursework is required beyond a master's degree. All courses must be approved by the student's advisor. Students lacking proper background may have to take additional courses to make up for the deficiencies. In addition to meeting the course requirement, a doctoral student must pass the Qualifying Examination, complete the dissertation under the supervision of the student's advisor and dissertation committee and pass the oral dissertation examination. Also a written dissertation proposal must be accepted by the dissertation committee at least six months prior to the oral dissertation examination. A doctoral candidate is expected to have at least one research paper published or accepted for publication in a fully refereed conference or journal prior to graduation. Every doctoral student must maintain a Research Portfolio containing research papers (book chapter, conference or journal contributions accepted or published, patents, non-refereed publications) done

throughout the student's Ph.D. degree studies. The dissertation will be added to the Research Portfolio prior to graduation. The Portfolio must be approved by a graduate advisor prior to graduation certification. The following rules apply to the courses taken (beyond the master's degree):

1. Of the 21-credit minimum of coursework, a minimum of 15 credits must be in Computer Science and Engineering courses and a minimum of 15 credits of 6000-level courses must be completed.

2. No more than 3 credits of directed independent study may be used to satisfy the minimum of 21 credits. In that case, the subject matter may not overlap the student's dissertation.

3. A course that is more than 10 years old at the time the degree is awarded cannot be counted toward the degree. This rule does not apply to the courses transferred from the master's degree.

4. No 4000-level course may be counted toward the degree. Courses taken to make up for deficiencies will not be counted toward the degree.

5. Students must register for a minimum of 33 credits of dissertation.

6. Students must have a GPA of 3.0 (out of 4.0 maximum) or better.

7. All courses in the degree programs must be completed with a grade of "C" or better.

8. Must complete 2 semesters of CGS 5937 Graduate Seminar (0 credits) with grade "S".

Transfer Credits
Any transfer credits (from other institutions) toward the requirements for the Ph.D. degree must be approved by the department, the College and the University. The transfer credits must correspond to equivalent requirements and performance levels expected for the degree. A maximum of 30 credits can be transferred from a master's degree. In addition to the credits for a master's degree, no more than 6 credits of coursework can be transferred from another institution.

Electrical Engineering

Master of Science with Major in Electrical Engineering

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:

Master of Science Degree 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 Computer and Electrical Engineering and Computer Science.

2. Requires 24 credits of approved coursework with the following constraints:

a. Minimum of 15 credits at the 6000 level;

b. Minimum of 12 credits in EE courses;

c. No 4000-level course may be counted toward the degree;

d. 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. Must complete 1 semester of CGS 5937 Graduate Seminar (0 credits) with grade "S".

3. Every master's student must maintain a Research Portfolio containing research papers (book chapter, conference or journal contributions accepted or published, patents, directed independent study-based research papers, technical reports) done throughout the student's M.S. degree studies. The M.S. thesis will be added to the Research Portfolio prior to graduation. The Portfolio must be approved by a graduate advisor prior to graduation certification.

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

Master of Science Degree Non-Thesis Option (33 credits)
1. Requires 33 credits of approved coursework with the following constraints:

a. Minimum of 18 credits at the 6000 level;

b. No 4000-level course is allowed toward the degree. Courses taken to make up for the deficiencies will not 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;

d. A minimum of 18 credits must be completed in EE;

2. Must complete 1 semester of CGS 5937 Graduate Seminar (0 credits) with grade "S".

2. One 3-credit research-oriented directed independent study course must be taken after completion of 18 credits of coursework. At the end of the directed independent study course, the student is expected to submit a paper or a technical report to be placed in the student's Research Portfolio;

3. Every non-thesis student must maintain a Research Portfolio containing research papers (book chapter, conference or journal contributions accepted or published, patents, directed independent study-based research papers, technical reports) done throughout the student's M.S. degree studies. Every non-thesis student is expected to have at least one research paper in the Research Portfolio prior to graduation. The Portfolio must be approved by a graduate advisor prior to graduation certification.

Note: No more than 6 credits of directed independent study may be applied toward the master's degree.

DOCTORAL PROGRAM

Doctor of Philosophy with Major in Electrical Engineering

Degree Requirements
1. A minimum total of 84 credits, including 33 dissertation credits, is required beyond the bachelor's degree level. These must include at least 21 credits of coursework beyond the master's degree. At least 12 of these credits should be taken in the Electrical Engineering program at FAU.

2. No 4000-level course may be counted toward the degree.

3. At least 21 credits above the master's program requirement should be at the 5000 and 6000 levels.

4. Specific Focus Area coursework will be required. At least 12 of these credits should be taken in the Electrical Engineering program at FAU.

5. At least 6 credits in courses with math prefix are required as part of coursework beyond the bachelor's degree. These may include EEL 5613, Modern Control; EEE 5502, Digital Processing of Signals; EEL 6482, Electromagnetic Theory 1; EOC 5172, Mathematical Methods in Ocean Engineering 1.

6. Must complete 2 semesters of CGS 5937 Graduate Seminar (0 credits) with grade "S".

6. A written dissertation proposal must be accepted by the dissertation committee, at least six months prior to defending the dissertation.

7. When the candidate submits the Application for Graduation, he/she must indicate the following as a check list: (a) Date of QE taken and candidacy filed; (b) Date of dissertation proposal presented and approved by the Ph.D. Committee and (c) Status of the Plan of Study.

8. Draft copy of the dissertation must be submitted for review by the Ph.D. Committee at least 15 days prior to the date of defending the dissertation. And the dissertation must be completed and orally defended.

It is expected that all doctoral candidates have at least one research paper published or accepted for publication in a fully refereed conference or journal prior to graduation. A patent relevant to the Ph.D. research topic/dissertation as approved by the U.S. Patent Office with an assigned number can substitute for the journal or conference publication requirement. Every doctoral student must maintain a Research Portfolio containing research papers (book chapter, conference or journal contributions accepted or published, patents, non-refereed publications) done throughout the student's Ph.D. degree studies. The dissertation will be added to the Research Portfolio prior to graduation. The Portfolio must be approved by a graduate advisor prior to graduation certification.

Transfer Credits
Any transfer credit toward requirements for the Ph.D. program must be approved by the department and the University. A maximum of 30 credits (which may include credits taken toward the master's degree with no more than 6 credits for the M.S. thesis) can be transferred into the student's program of study.

Bioengineering

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:

Master of Science Degree Thesis Option (30 credits)
1. Requires 6 credits of orally defended 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 any department within the College of Engineering and Computer Science.

2. Requires 24 credits of approved graduate coursework (5000 level or higher) of which 12 credits are program core courses and the remaining 12 credits are approved elective courses offered by the College of Engineering and Computer Science and the Charles E. Schmidt College of Science.

3. No 4000-level course is allowed toward the degree. Courses taken to make up for deficiencies will not be counted toward the degree.

4. Must complete 1 semester of CGS 5937 Graduate Seminar (0 credits) with grade "S".

4. Every student must maintain a Research Portfolio containing research papers (book chapter, conference or journal contributions accepted or published, patents, directed independent study-based research papers, technical reports) done throughout the student's M.S. degree studies. The M.S. thesis will be added to the Research Portfolio prior to graduation. The Portfolio must be approved by a graduate advisor prior to graduation certification.

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

Master of Science Degree Non-Thesis Option (33 credits)
1. Requires 3 credits of research project taken as directed independent study with one of the College of Engineering and Computer Science faculty. As a minimum the student must submit a technical report at the conclusion of the

course. The technical report will be added to the Research Portfolio.

2. Requires 24 credits of approved coursework of which 12 credits are program core courses and the remaining 12 credits are approved elective courses offered by the College of Engineering and Computer Science and the Charles E. Schmidt College of Science.

3. No 4000-level course is allowed toward the degree. Courses taken to make up for deficiencies will not be counted toward the degree.

Note: No more than 6 credits of directed independent study may be applied toward the master's degree non-thesis option.

4. Must complete 1 semester of CGS 5937 Graduate Seminar (0 credits) with grade "S".

4. Every non-thesis student must maintain a Research Portfolio containing research papers (book chapter, conference or journal contributions accepted or published, patents, directed independent study-based research papers, technical reports) done throughout the student's M.S. degree studies. Every non-thesis student is expected to have at least one research paper in the Research Portfolio prior to graduation. The Portfolio must be approved by a graduate advisor prior to graduation certification.