FAU

DEPARTMENT OF
ELECTRICAL ENGINEERING
AND COMPUTER SCIENCE
College of Engineering & Computer Science
Florida Atlantic University

PH.D. IN ELECTRICAL ENGINEERING
NEUROENGINEERING CONCENTRATION

Name: _____ Z#: _____ Date of Candidacy Exam Passed:_____

Dissertation Advisor (Chair): _____ Co-Chair:_____

Committee:
Member 1:_____ Member 2:_____ Member 3:_____
Member 4:_____ Member 5:_____ Member 6:_____

When did you submit Admission for Candidacy (Form 8), Semester: _____
Anticipated Date of your PhD proposal presentation: _____
Students are encouraged to submit their dissertation proposal as early as possible in consultation with their advisor but must do so at least six months prior to their defense.

Date:_____

Degree Requirements
- **Minimum of 30 credits from their Master's Coursework**
- **Minimum of 18 credits of coursework.**
- **Minimum of 12 credits must be in Computer Science and Engineering courses (excluding DIS and Advance Research credits).**
- **Minimum of 9 credits at the 6000-level.**
- **No more than 3 credits of Directed Independent Study and/or Advanced Research may be used to satisfy the minimum 18 credits. In that case, the subject matter may not overlap the student's dissertation.**
- **Minimum of 24 credits of dissertation.**
- **Minimum GPA of 3.0 (out of 4.0).**
- **All courses must be completed with a grade of "C" or higher.**
- **Mandatory two semesters of Graduate Seminar (zero credits).**

Prerequisites

Laboratory 1 is mandatory. In addition, need to satisfy at least four more courses from the menu below

Course No.	Course Title	Actual Course Title if Not Taken At FAU	Transfer School Name	Grade
CDA 3331C	Intro to Microprocessor Systems			
EEL 3470	Electromagnetic Fields and Waves			
EEE 4361	Electronics 2			
EEE 4510	Introduction to Digital Signal Processing			
EEL 4512	Communications Systems OR			
EEL 4652	Control Systems 1			
EEL 4656	Analysis of Linear Systems			
EEL 3118L	Laboratory 1 (Mandatory)			

MS to PhD Requirements

(Minimum of 72 credit hours total)

For students entering with a Master's Degree

Master's Coursework (minimum 30 credits):

Course Number and Title	Semester Taken	Credits	Grade

Graduate Courses (minimum 18 credit hours)

Course Number and Title	Semester Taken	Credits	Grade
CGS 5937 Graduate Seminar 1 (Mandatory, 0 credits)			
CGS 5937 or CGS 6938 Graduate Seminar 2 (Mandatory, 0 credits)			

Electrical Engineering Dissertation Credit Courses: EEL 7980 (Minimum of 24 credits taken over multiple terms):

Course Number and Title	Semester Taken	Grade
EEL 7980 Dissertation Electrical Engineering		

Electrical Engineering Directed Independent Study: EEL 6905   OR   Advanced Research: EGN 6918 (No more than 3 crs)

Course Number and Title	Semester Taken	Credits	Grade

Math Requirement: At least 6 credits

Course Number and Title	Semester Taken	Credits	Grade
EEL 5613 Modern Control			
EEE 5502 Digital Processing of Signals			
EEL 5654 Control Systems 2			
EEL 6482 Electromagnetic Theory 1			
EEL 6537 Detection Theory			
EEL 6935 Special Topics in Electrical Engineering			
EOC 5172 Mathematical Methods in Ocean Engineering 1			
MAP 6264 Queueing Theory			

Graduate coursework counted for the Ph.D. program must contain **at least three graduate courses from the table below**. These courses focus on theoretical and/or applied Neuroengineering. Additional courses may be approved by the dissertation advisor. Graduate courses completed during the master's degree program may also be used to meet this requirement.

The student's Ph.D. dissertation research and scholarship must have a strong emphasis on one or more areas of Neuroengineering, including but not limited to applied and/or theoretical areas.

Engineering and Computer Science Course list (minimum of 3 courses from this list)

Engineering and Computer Science Courses	Semester Taken	Credits	Grade
BME 5000 Introduction to Biomedical Engineering			
BME 5742 Biosystems Modeling and Control			
BME 6105 Biomaterials			
BME 6324 Stem Cell Engineering			
BME 6334 Tissue Engineering			
BME 6390 Neural Engineering			
BME 6585 Advanced Topics in Microfluidics and BioMEMS			
BME 6718 Computational Modeling of Biological Neural Networks			
BME 6762 Bioinformatics: Biomedical Perspectives			
CAP 5615 Introduction to Neural Networks			
CAP 6635 Artificial Intelligence			
CAP 6673 Data Mining and Machine Learning			
EEE 5286 Bio-signal Processing			
EEE 5425 Nanobiotechnology			
EEL 5661 Robotic Applications			
EEL 6532 Information Theory			
EEL 6819 Neural Complex and Artificial Neural Networks			
Science Course			
ISC 5665 Cognitive Neuroscience			
ISC 6460 Computational Neuroscience			
PCB 6835C Neurophysiology			
PSB 6345 Cellular and Molecular Neuroscience			
PSB 6346 Systems and Integrative Neuroscience			

All PhD Students

Publication Requirement

A Doctoral Candidate is expected to have at least one research paper published or accepted for publication in a fully referred conference or journal prior to graduation.

Layout and Content of "Dissertation Proposal"

This document provides general guidelines for the layout and content of the dissertation proposal. The guidelines may be modified to suit the project and the students' advisor may require additional material to be added to the proposal. The purpose of this document is to provide a starting point from which the final proposal can be developed.

Format

The dissertation proposal is expected to follow the template:

Cover Page

The proposal cover page should include

- Title (up to 25 words) - The title can be a working title in that it can be changed at a later date. It should convey the essence of the proposed work.
- Student Name
- The statement Dissertation Proposal submitted in partial fulfillment of a Doctoral Degree in Computer and Electrical Engineering and Computer Science.
- Date
- Names and room for signature of the student's advisor and advisory committee.

Content

The dissertation proposal should include the following sections:

1. **Introduction -** Gives the background to the work in general terms and the layout of the document.
2. **Dissertation Objective -** A statement, which is less than half a page long, specifying the objective of the work.
3. **Literature Review -** Reviews pertinent literature with the objective of placing the research in the context of work that has been done before. Having read this section, the committee will have a clear understanding of how the dissertation will provide new insights and advance the state of the art. A dissertation proposal must clearly identify the uniqueness of the study.
4. **Approach -** Describes the theoretical, experimental or numerical approach that will be used in the study, including the background theory where necessary. The derivation of major equations can be added in an appendix if required by the student's supervisor.
5. **Tasks to be completed -** This should describe the expected series of tasks that will be undertaken during the study.
6. **Timetable -** Defines the timeline for the completion of the work.
7. **References -** A list of references should be provided in an appropriate academic format such as Harvard or Author-Date.
8. **Figures and Tables -** Figures and tables may be placed in the document or at the end of the document. Each figure and table should be numbered in the order that it is referred to in the text and have a caption/heading that describes the content of the figure/table.
9. *** PhD proposal must be presented and approved by the committee at least 6 months before the oral dissertation defense**