FAU

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

PH.D. IN ELECTRICAL ENGINEERING WORKSHEET
NEUROENGINEERING CONCENTRATION

Name: _____ **Z#:** _____ **Advisor:** _____

Date of Qualifying Exam: _____ **Date of Admission to Candidacy:** _____

Date of PhD Proposal Presentation*: _____

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	Where	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 (for students entering with a Master's Degree) 72 Credits

Master's Credits (30):

Grade	Semester	Course Number/Name

Graduate Courses (18 credits):

Minimum of 12 credits must be Electrical Engineering courses. No more than 3 credits of Directed Independent Study may be used and the subject matter may not overlap the student's dissertation. A minimum of 9 credits of 6000 level must be completed. Must take two semesters of CGS 5937 Graduate Seminar.

Grade	Semester	Course Number/Name
		CGS 5937 Graduate Seminar (Mandatory, 0 credits)
		CGS 5937 Graduate Seminar (Mandatory, 0 credits)

Dissertation Credits (Minimum of 24 credits taken over multiple terms):

Grade	Semester	Course Number/Name
		EEL 7980 Dissertation Electrical Engineering

Directed Independent Study (Maximum of 3 credits)

Grade	Semester	Course Number/Name
		EEL 6905

Math Requirement: At least 6 credits

Grade	Semester	Course Number/Name
		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

BS to PhD Requirements (for students entering with a Bachelor's Degree) 72 Credits

Graduate Courses (42 credits):

Minimum of 27 credits must be Electrical Engineering courses. No more than 6 credits of Directed Independent Study may be used and the subject matter may not overlap the student's dissertation. A minimum of 18 credits of 6000 level courses must be completed. Must take two semesters of CGS 5937 Graduate Seminar.

Grade	Semester	Course Number/Name
		CGS 5937 Graduate Seminar (Mandatory, 0 credits)
		CGS 5937 Graduate Seminar (Mandatory, 0 credits)

Dissertation Credits (Minimum of 30 credits taken over multiple terms):

Grade	Semester	Course Number/Name
		EEL 7980 Dissertation Electrical Engineering

Directed Independent Study (Maximum of 6 credits)

Grade	Semester	Course Number/Name
		EEL 6905
		EEL 6905

Math Requirement: At least 6 credits

Grade	Semester	Course Number/Name
		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.

At least 3 courses from the table below

Grade	Semester	Engineering and Computer Science Courses
		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 Biosignal Processing
		EEE 5425 Nanobiotechnology
		EEL 5661 Robotic Applications
		EEL 6532 Information Theory
		EEL 6819 Neural Complex and Artificial Neural Networks
		Science Courses
		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 refereed 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 student's 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 the 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 time line 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.

Student Signature: _____ Date: _____