Portland State University

Department of Electrical and Computer Engineering

Graduate Certificate of Specialization Handbook

OVERVIEW OF THE GRADUATE CERTIFICATE

The certificate programs are intended primarily to provide enrichment for professional engineers and scientists who may not initially wish to pursue a more extended M.Eng., M.S., or Ph.D. degree program. A Graduate Certificate of Specialization is awarded for successful completion of an approved course sequence relating to a specific area of Electrical and Computer Engineering. The courses within a sequence include a substantial body of knowledge at the graduate-level. Courses completed for a Graduate Certificate of Specialization may subsequently be applied towards a master's or doctoral degree if, and only if, a student is admitted and completes a graduate certificate program prior to formal admission to a degree seeking program (i.e. M.Eng., M.S., or Ph.D.).

For additional information, please see http://www.ece.pdx.edu or write to or call:

Graduate Program
Electrical and Computer Engineering Department
Portland State University
PO Box 751
Portland Oregon 97207-0751

Telephone (503) 725-3002

E-mail address: graduate.program@ece.pdx.edu

II. Admission

Admission Requirements

Admission requirements for our certificate programs are the same as for our Master of Engineering (M.Eng.) program. Applicants who have completed a B.S. degree in either electrical or computer engineering at a recognized university (PSU Admissions Office maintains a list of recognized universities) with a grade point average of 3.00 or better in all junior and senior level technical courses may be considered for regular admission to the Department of Electrical and Computer Engineering's Graduate Certificate program. Applicants who have completed a B.S. degree in a related field (for example: mathematics, physics, computer science, or mechanical engineering, etc.) or B.S. ECE candidates with a grade point average in their upper-division technical coursework below 3.00 but higher than 2.75 may be granted conditional admission status. An applicant conditionally admitted to a certificate program must achieve a grade of B or better in the first eight graduate of courses applicable to the certificate and may also be required to complete prerequisite courses if appropriate educational background in the field is lacking. If either of the above conditions is not achieved, then the student will be dropped from the certificate program.

Admission is possible in any quarter of the year except the summer quarter. Most course sequences begin in the fall or winter quarters so students who start in the spring quarter may not find suitable courses for their study plans.

Application Procedure

Applications to ECE Graduate Programs are handled jointly by the University's Office of Admissions and the ECE Department office. Review "Degree Programs: Graduate" at http://www.ece.pdx.edu for details.

III. Certificate Requirements

The total number of graduate level credits in a student's program must be at least 15, and some ECE certificates may require more than 15 credits or have additional requirements. Each student is assigned a faculty advisor who will assist the student in selecting courses. The student's program must be approved by his/her faculty adviser. Certificates offered are in the following areas:

Analog and Microwave Circuit Design

Specific requirements for the Graduate Certificate in Analog and Microwave Circuit Design include the successful completion of four courses from the following list:

ECE521	Analog Integrated Circuit Design I
ECE522	Analog Integrated Circuit Design II
ECE523	Analog Integrated Circuit Design III
ECE531	Microwave Circuit Design I
ECE532	Microwave Circuit Design II

Communication Systems

Specific requirements for the certificate in Communication Systems include the successful completion of the following courses:

ECE 561	Communications Systems Design I
ECE 562	Communications Systems Design II

The student must also complete one course from the following list:

ECE 518	Linear System Analysis I
ECE 567	Statistical Communications Theory

The student must take at least three additional credits in related areas.

Computer Architecture and Design

The Certificate in Computer Architecture and Design requires completion of the following four classes. The prerequisite for this sequence is successful completion of the ECE 371 Microprocessors class or equivalent background.

ECE 585	Microprocessor System Design
ECE 586	Computer Architecture
ECE 587	Advanced Computer Architecture I
ECE 588	Advanced Computer Architecture II

A student considering this sequence might audit the ECE 371 class to prepare for the Certificate sequence.

Design Automation

Specific requirements for the certificate in Design Automation include successful completion of three courses from the following list:

ECE 527	High Performance Digital Systems
ECE 528	Layout Techniques
ECE 529	Performance-Driven Layout
ECE 572	Advanced Logic Synthesis
ECE 573	Control Unit Design
ECE 574	High Level Synthesis and Design Automation

The student must take at least three additional credits in related areas.

Digital Design

Specific requirements for the certificate in Digital Design include successful completion of three courses from the following list:

ECE 573	Control Unit Design
ECE 574	High Level Synthesis and Design Automation
ECE 525	Digital Integrated Circuit Design I
ECE 526	Digital Integrated Circuit Design II

The student must take at least three additional credits in related areas.

Digital Signal Processing

Specific requirements for the certificate in Digital Signal Processing include the successful completion of the following courses:

ECE 565	Signals and Noise
ECE 566	Digital Signal Processing
ECE 567	Statistical Communications Theory

The student must take at least three additional credits in related areas.

Image Processing

Specific requirements for the certificate in Image Processing include the successful completion of the following courses:

ECE 568	Introductory Image Processing
ECE 569	Advanced Image Processing
ECE 570	Computer Vision

The student must take at least three additional credits in related areas.

Integrated Circuit Test, Verification, and Validation

Specific requirements for the certificate in Integrated Circuit Test, Verification, and Validation include the successful completion of three courses from the following list:

ECE 525	Digital Integrated Circuit Design I
ECE 526	Digital Integrated Circuit Design II
ECE 527	High Performance Digital Systems
ECE 572	Advanced Logic Synthesis

The student must also take at least three additional credits in related areas such as the following:

ME 588	Design of Industrial Experiments
Stat 566	Experimental Design: Theory and Methods

IV. Contact Information

Admissions and Records Office: **503.725.3511**
Neuberger Hall Lobby (NH)
Domestic: admissions@pdx.edu www.pdx.edu/admissions/graduate.html
International: intladm@pdx.edu.

Electrical and Computer Engineering Office: **503.725.3002**
Fourth Avenue Building, Suite 160 (FAB 160)
graduate.program@ece.pdx.edu www.ece.pdx.edu

Financial Aid Office: **503.725.3461**
Neuberger Hall Lobby (NH)
askfa@pdx.edu www.pdx.edu/finaid

Office of Graduate Studies & Research: **503.725.8410**
Cramer Hall, Room 117 (CH 117)
grad@pdx.edu www.gsr.pdx.edu

International Student & Faculty Services: **503.725.4094**
East Hall, Room 101 (EH 101) www.intl.pdx.edu