

ELECTRICAL AND COMPUTER ENGINEERING, PH.D.

Degree Requirements

The Ph.D. program in Electrical and Computer Engineering depends on student classification as follows:

- **M.Sc.** degree in Electrical or Computer engineering and who have been admitted directly into the Ph.D. program
 - minimum of 12 credit hours of Advisory Committee-approved coursework is required
 - courses must be at the 7000 level or higher
 - at least 6 of the 12 credit hours must be from the ECE department
- **B.Sc.** degree in Electrical or Computer Engineering and who are
 - recommended for transfer into the Ph.D. program from the ECE M.Sc. program at this university
 - minimum of 24 credit hours of Advisory Committee-approved coursework is required
 - 9 credit hours MUST be at or above the 7000 level
 - 6 credit hours may be
 - Other department: at or above the 3000 level or
 - ECE department: 4000 level elective courses
 - at least 12 of the 24 credit hours **must** be from the ECE department
 - In the case of a transfer from an M.Sc. program to the ECE Ph.D. program credit may be given for approved coursework completed at the M.Sc. level
- **Transferred from the M.Sc program**
 - Please see info at http://umanitoba.ca/faculties/engineering/departments/ece/curr_students/graduate/transfer-to-phd.html
- **For all other categories of students**
 - a minimum of 24 credit hours of advisory committee-approved coursework is required if the student does not hold a M.Sc., otherwise 12 credit hours is required
 - of which 9 credit hours must be at or above the 7000 level
 - the balance of 6 credit hours must be at or above the 3000 level from other departments or 4000 level elective courses from the ECE department
 - at least 12 of the 24 credit hours must be from the Dept. of Electrical and Computer Engineering department
- A Ph.D. thesis, which is based on research work normally carried out at this university, is required.

Expected Time to Graduate: 3.5 years

Progression Chart

Ph.D. Students Holding a Master's Degree

Course	Title	Hours
Years 1-2		
GRAD 7300	Research Integrity Tutorial	0
GRAD 7500	Academic Integrity Tutorial	0
GRAD 8010	Doctoral Candidacy Examination	0
ECE 7XXX	ECE Courses designated 7000 level or higher ¹	12
Hours		12

Year 2

Ph.D. Thesis Proposal Presentation	0
Hours	0

Years 3-6

GRAD 8000	Doctoral Thesis	0
Hours		0

Total Hours	12
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¹ TBD (Course must be in the student's field of research) – Must be approved by Academic Advisor. With permission from the Academic Advisor and Department students may take courses outside of ECE.

Ph.D. Students Without a Master's Degree

Course	Title	Hours
Years 1-2		
GRAD 7300	Research Integrity Tutorial	0
GRAD 7500	Academic Integrity Tutorial	0
GRAD 8010	Doctoral Candidacy Examination	0
Hours		0

Years 1-2.5

ECE 7XXX	ECE Courses designated 7000 level or higher ^{1,2}	12-24
ECE 4XXX	ECE Courses designated 4000 level or higher outside ECE, 3000 or higher ^{1,3}	6
Hours		18-30

Year 2

Ph.D. Thesis Proposal Presentation	0
Hours	0

Years 3-6

GRAD 8000	Doctoral Thesis	0
Hours		0

Total Hours	18-30
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¹ TBD (Course must be in the student's field of research) – Must be approved by Academic Advisor.

² At least 12 of the 24 credit hours **must** be from the ECE Department.

³ **Up to 6-credit hours** may be taken from another department.