A. GRADUATE STUDIES PLAN

The ECE graduate program at Waterloo is one of the largest in the country, with approximately 575 graduate students in 2014. In 2014, we witnessed a modest growth in intake. The annual intake growth in PhD and research masters student was 15%, and 11%, respectively while professional masters students decline by 14% during the same period. The department continue to struggle to meet its CPR graduate student targets. The department, together with the office of Associate Dean graduate studies, is working to attract more CPR graduate students.

Figure 1: ECE Graduate Intake Plan Performance to Target by Visa Status

![Figure 1: ECE Graduate Intake Plan Performance to Target by Visa Status](image)

<table>
<thead>
<tr>
<th>Year</th>
<th>Target Intake</th>
<th>Actual Intake</th>
<th>Target CPR</th>
<th>Actual CPR</th>
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<tr>
<td>2011</td>
<td>237.6</td>
<td>194.4</td>
<td>132.5</td>
<td>79.1</td>
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<tr>
<td>2012</td>
<td>204</td>
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<td>90</td>
<td>82.5</td>
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<td>2013</td>
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<td>181.1</td>
<td>96</td>
<td>61.8</td>
</tr>
<tr>
<td>2014</td>
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<td>198</td>
<td>95</td>
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<td>2018</td>
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<td>63</td>
</tr>
</tbody>
</table>

Figure 2: ECE Graduate Intake Plan Performance to Target by Program Type

![Figure 2: ECE Graduate Intake Plan Performance to Target by Program Type](image)

C1: Increase the Rigour of the PhD Examination

- Starting in Fall 2015, the PhD Comprehensive Examination will be split into two parts; an oral Comprehensive Background Examination to be completed by the end of the third term of registration and an oral Comprehensive Research Proposal Examination to be completed by the end of the sixth term of registration.

- This split allows for a comprehensive examination of the candidate’s background knowledge on the subject matter prior to a significant research effort, unlike the current practise where generally the comprehensive examination identifies candidate weaknesses too late in the program. In
addition, it is hoped that this new format will help to increase the rigour of the comprehensive process as well as PhD committee involvement and thereby decrease the time to graduation.

- To further support timely completion of the PhD program, the Department has also amended the Research Seminar requirements. Students are now required to hold their seminar no later than the end of their third year of registration and the seminar must be attended by the student's supervisor as well as their advisory committee rather than just one additional faculty member who may or may not have been part of their committee.

C2: Provide High-Quality PhD Supervision and Support Timely Degree Completion

- Effective in Spring 2015, the Department has implemented online Term Activity Report submissions. The activity reports are a program requirement for all research based programs (part-time and full-time), and must be completed by students to remain in their program. Students must complete the report which outlines their previous term’s accomplishments as well as goals for the upcoming term. Supervisors must, in turn, provide feedback on the student's performance and identify any areas of growth, improvement, and/or concern. It is expected that the supervisor will identify any problems with the student’s performance at this time so that appropriate action can be taken. The Term Activity Reports are stored online to provide a clearer, more accessible, and simplified evaluation/communication between supervisors and students.

- As noted in the above, PhD Committees will meet at least once per year with their PhD candidate over their four year program, specifically in the Comprehensive Background Examination, Comprehensive Research Proposal Examination, the Research Seminar, and the PhD defense. This is a 50% increase over the previous norm of twice over the course of the student’s program; at the Comprehensive Exam and at the PhD Defense.

C3: Increase Graduate Course Requirements

- Core courses were introduced to the graduate research programs in Fall 2014 and the minimum number of courses for PhD students was increased from 3 to 4. In Fall 2015 the Department will be adding 6 new core courses to this list in order to give students more flexibility in their course choices. Furthermore, the Department has dedicated teaching resources to ensure that all core courses are taught on a yearly basis.

C4: Increase Recruitment Efforts to Attract CPR Students and Improve Graduate Funding

- The Department has allocated funds to create faculty grants of $22,000 per year to directly support graduate students and their research efforts. These awards are administered by the Department with the intent that the money will be used to attract top quality applicants and send out timely admission offers in order to increase our new admit acceptance rate.

- Each term the Associate Chair of Graduate Studies, the Graduate Studies Manager, and the Graduate Admissions Coordinator make a presentation to the upper year undergraduate students during their class prof hours to promote graduate studies at UW and outline the various scholarship opportunities available to top domestic applicants.

- The Department of Electrical and Computer Engineering also actively participates in all Faculty of Engineering recruitment efforts including the Faculty wide Graduate Studies Information Reception, the Graduate Recruitment Working Group, and the implementation of Salesforce software to track potential applicant inquiries and leads.

C5: Restructure the MEng Program with a Focus on Quality

- The Department continues to seek ways to grow and improve the MEng program. In the last year there has been a focus on quality admissions where incoming admission averages continue to be correlated with subsequent UW grade averages to identify trends of success and decreased academic performance based on a wide variety of criteria.

- MEng certificates of specialization were renamed Diplomas in early 2015. While the change was merely linguistic to accommodate accreditation requirements it has had a positive impact on the
appeal of the program to prospective students who can now graduate with both a Masters of Engineering and a Diploma in one of four areas of specialization rather than just a certificate. Student’s feel that there is a greater prestige associate with a diploma rather than a certificate and has generated increased interest in the Diploma options amongst current students as well.

- In May 2015 the Department hired a new, part-time, Admissions Coordinator who will solely focus on MEng and MEng-Power admissions. With the increase in administrative support the MEng program applications can now be more carefully reviewed and vetted before being sent for admission decisions. The increase in support has also improved the turnaround time in processing offers which should, over time, lead to more admissions acceptances. The new administrator is also constantly watching for top quality CPR applicants to the program so offers can be made early to increase overall domestic enrolment in the program.

**C6: Improve Graduate Student Experience**

- In Winter 2015 the departmental award given out for exceptional student performance based on Term Activity Reports was increased from $1250 to $1500. The increased value of the award reduces the number of awards over all but increases the prestige of the award thereby rewarding truly outstanding students.

- ECE Chair and Associate Chair for graduate study met with students in a Town Hall meeting in the Winter 2015 term at the request of the ECE Graduate Student Association (GSA) to answer questions and concerns students had regarding Department policies and practices. The department will schedule such meetings regularly to improve communication with students.

- The Graduate Studies administrative team continues to maintain and update the ECE Graduate Studies Manual. All new students as well as each of the faculty receive a copy of this manual. The manual is a living document that is constantly evolving and changing as the department grows and develops. Work on the second edition of the manual, which is set to be released in September 2015, has been underway since late 2014 and includes updates on the new PhD split comprehensive exam, changes of enrolment, teaching assistantships, and student funding.

- Five teaching assistantship awards continue to be given out each term to the top 5 TAs in the department to reward excellent TAs. Winners are taken out to lunch at the University Club by the Associate Chairs of Undergraduate and Graduate Studies and receive a certificate in recognition of their accomplishment.