Software Engineering Program

Presentation to the Board
Patrick Lam

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Faculty of Engineering
Faculty of Mathematics

UNIVERSITY OF
WATERLOO

Part I

Succession Plan

Program Administration

| 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |

Director

| Jo Atlee | Bill Wilson | Charlie Clarke | Andrew Morton | Patrick Lam | Derek Rayside |

Associate Director

| Matt Armstrong | Norm Young | Andrew Morton | Patrick Lam | Mahesh Tripunitara | Derek Rayside | Victoria Sakhnini |

Assistant to Director / Ugrad Advisor & Coordinator

| Shaz Rahaman | Kate Andrey | Shaz Rahaman | Liz Skibicki | Shaz Rahaman |
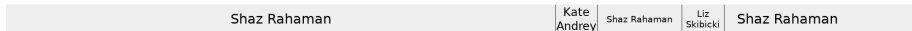
Part II

Curriculum Committee Updates

Recent Changes: Done

- Curriculum shuffle,
  reducing SE from 44.5 to 44 courses:
  - MSCI 261 $\rightarrow$ ECE 192 (in 2B);
  - CS 348 from 3B to 2B;
  - ECE 358 from 4A to 3B;
  - elective from 4B to 4A.

- Abolish Technical Presentation Milestone (2B)

Recent Changes (Underway)

Approved by SE Curriculum Committee:

- Reducing open electives from 3 to 2 (one elective in either 3A or 3B);
- Allowing CHEM 120 for CHE 102 & flexibility in term taken.

Resulting loads:

1A	5.5	1B	5
2A	6	2B	5.5
3A	5/6	3B	5/6
4A	5	4B	5

If approved, total course count will be 43.

Other CC Items

- Course overlap:
    - SE 464/CS 247 subcommittee.
- Providing positive PR for SE 463
- Ideas Clinic in SE 101.

Active topics

Statistics

Electricity & Magnetism

Part III

Student Survey Results

2019 Exit Survey (N=49): Expectations & Would Recommend

The on-campus portion of my engineering undergraduate program has met my expectations:

D = 0, d = 2, n = 6, a = 29, A = 13

The co-op portion of my engineering undergraduate program has met my expectations:

D = 1, d = 0, n = 0, a = 8, A = 41

I would recommend my program to other prospective students:

D = 0, d = 3, n = 7, a = 19, A = 21

Similar to 2018, though slightly less positive in general.

2019 Exit Survey: Cannot Program

Do you know of any classmates who cannot program (to a level that one would expect of an SE grad)? How many?

- 0: 32
- 1: 1
- 2: 2
- 5+: 3

2019 Exit Survey: Next Steps

In the year after graduation my next career step will be:

Full-time, SE	45
Other/unknown	2
Grad school (CS/ECE)	2
Grad school (other)	1

Do you plan to work on getting a professional engineering license in the next 5 years?

- Yes: 3
- No: 47

Social Connectedness Survey

Poll broadcast to students:

How many people have you had an in-person social conversation with for more than 15 minutes last week?

term	0-2	3-9	10+
1B	7 (15%)	14 (29%)	27 (56%)
3A	4 (10%)	29 (69%)	9 (21%)
4B	0 (0%)	18 (66%)	9 (33%)

Longer-term trends from W18, S18, F18, W19:

- 0-2: max of 21%
- 3-9: most responses here
- mean just below 10

Workload Survey

term	nominal load	contact hrs	total workload (hrs/week) (last year)
1A	5.5	28.25	59.0 (57.5)
1B	5.0	28	57.8 (51.5)
2A	6.0	27.25	56.6 (51.3)
2B	6.0	28	53.9 (57.1)
3A	5.0	19.25	47.0 (39.5*)
3B	6.0	20.25	43.5 (56.3)
4A	5.0	17	43.4 (49.1)
4B	6.0	17	35.0 (47.6)

* exceptionally, there was no HW-based SE 350 lab in W18

SE Society

Founding Presidents:
Bilal Akhtar (SE 2019) & Spencer Dobrik (SE 2020).
Incoming President:
Roxane Fruytier (SE 2021).

Part IV

Space Update

Space Plan: Long-Term

SE admin space will move to DC 2523
    (about to go out to tender)
SE undergrad lounge moved to EIT 3143/3146 (thanks ECE)

Part V

Admissions, Graduations, and Retention

Admissions Data

	2019	f %	2018	f %	2017	f %	2016	f %	2015	f %
Applications	1480	19	1555		1475	16	1340	17	1112	14
Offers		*23*	184	23	190	26	195	21	185	20
Accepts			125	22	135	26	130	18	123	20
OSS avg			96.8		95.9		96.5		96.0	
OSS 10th dec			95.0		93.2		94.3		92.5	

notes:

- SE Board meeting is early this year, data to come later
- 77 offers out so far (61 domestic)
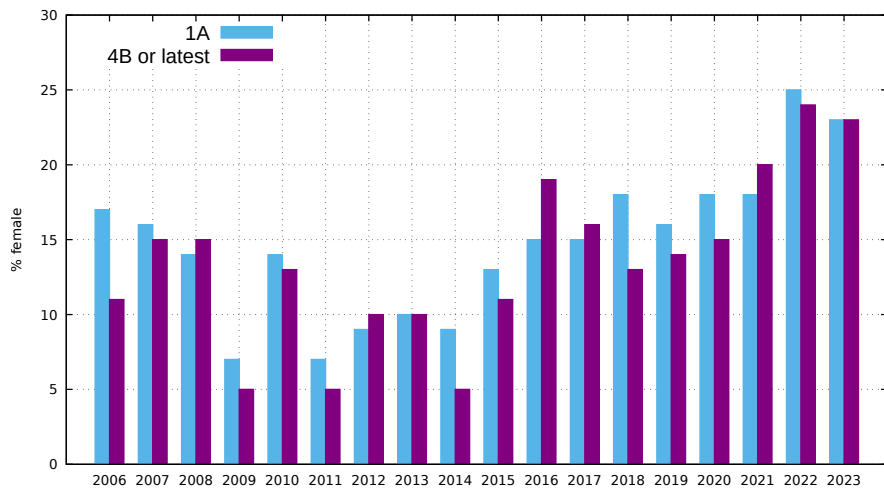
2019 & 2018 Applications

2019 applications:

	OSS	NOSS	total
Domestic	764	280	1044
Visa	73	363	436

2018 applications:

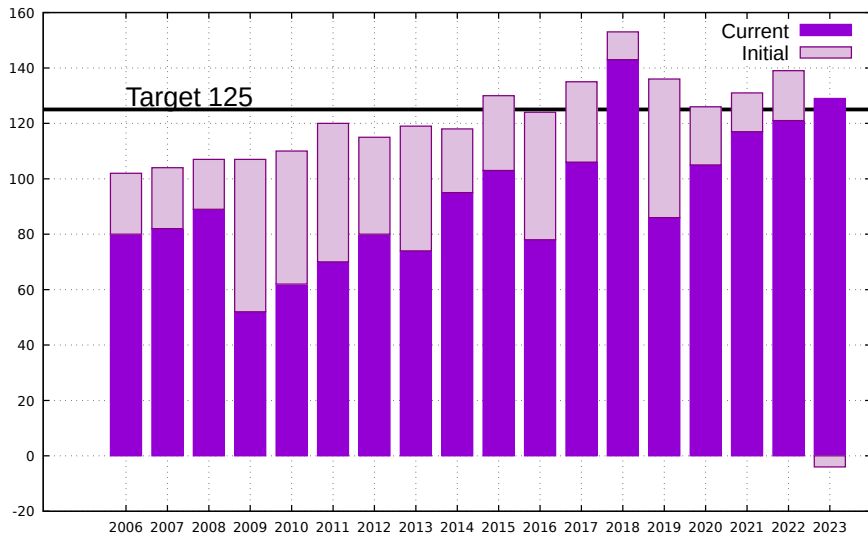|	OSS	NOSS	total
Domestic	782	292	1074
Visa	79	402	481

Gender Counts

% female students in Software Engineering

Cohort Sizes

Graduation Rates

Tracking each of the students that initially enrolled in the BSE:

class of	# initial	% BSE	% BSE or BCS	% B.any
2014	115	65	77	82
2015	131	67	75	82
2016	122	63	71	75
2017	137	73	86	88
2018	151	81	85	85
2019	136	62	85	88

2019 BSE Graduates

- 89 students should be granted BSEs in 2019.
- 91% of the 2019 graduates started with us in 2014.
- 7 students transferred into this class internally + 1 external.
- 2 students originally from SE 2018 (repeaters).

BSE Degrees Granted (total 2006–2019 = 1200)