Faculty and Staff Update Session

Guiding Team

April 23, 2024

SMITH
ENGINEERING
Queen's University

FOR THE FUTURE

Research Impact

Student Learning

Research & Teaching Integration

Global Engagement

Queen's in the Community

Organizational Culture

Leading the way to a Sustainable Future

3rd in the world

1st in North America

Goal: Prepare our graduates with the knowledge, skills, and mindset to address complex, multidisciplinary global challenges with deep technical knowledge and awareness of societal factors.

Pre-November 2, 2023

CROSS-COLLEGE CHALLENGE (XCC)

BOSTON UNIVERSITY · BU HUB

PROJECT-BASED LEARNING AT ITS BEST

Projects are proposed by community partners from many sources including faculty, staff, alumni, entrepreneurs, and non-profits. An interdisciplinary team of approximately 5 students addresses a substantial problem and produces a tangible product (physical object, film, podcast, website, work of art, essay, etc.). 2 faculty members supervise each team to ensure that the 4 Hub requirements are completed throughout the development of the project.

25 STUDENTS → **PROJECT** ← **2 FACULTY**

↑ **1 COMMUNITY PARTNER**

4 HUB REQUIREMENTS
- CREATIVITY / INNOVATION
- COMMUNICATION* *Specific area varies by course
- RESEARCH AND INFORMATION LITERACY
- TEAMWORK / COLLABORATION

SCAN ME

AN EXCITING OPPORTUNITY FOR RISING JUNIORS AND SENIORS

**AT THE CROSSROADS OF THEORY AND PRACTICE**

The BU Cross-College Challenge (XCC) is a distinctive one-semester, 4-credit elective course open to juniors and seniors from all undergraduate schools and colleges and a rare opportunity to meet students from across the campus.

XCC offers unique project-based courses in which student teams from across BU's undergraduate colleges tackle real-world problems and develop leadership, teamwork, and communication skills prized by employers. Students from any major collaborate with community partners to explore challenges impacting BU and the City of Boston in areas such as:
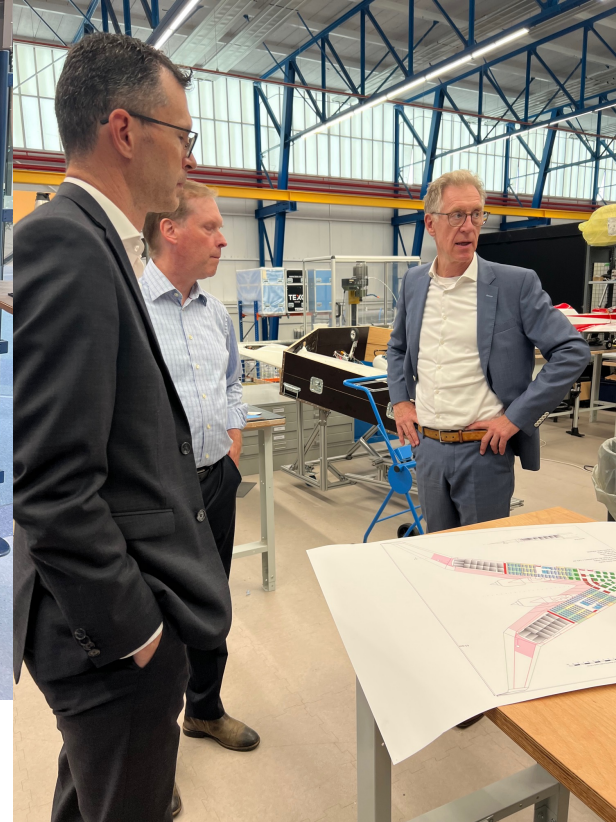
- data science
- public health
- racial equity & social justice
- sustainability & climate change

MORE INFORMATION AT:

bu.edu/xcc
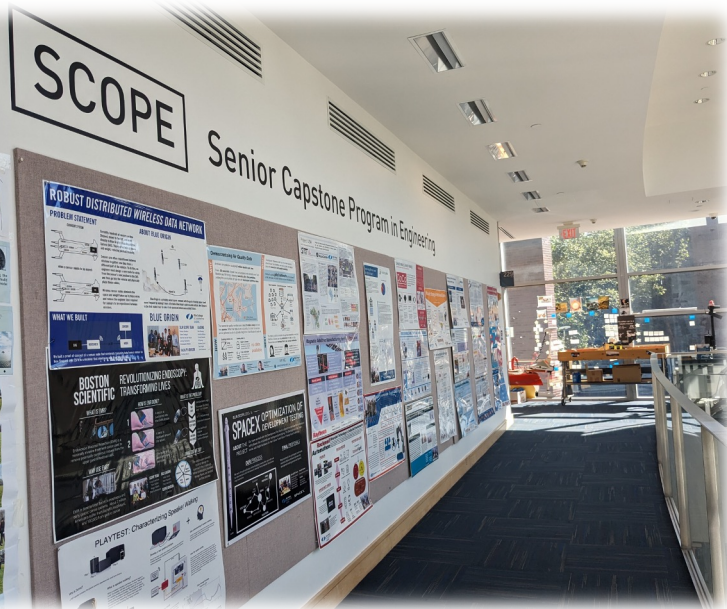
Pre-November 2, 2023

Smith Engineering Implementation Team

- Christa Camirand, Director, Human Resources, Smith Engineering

- Paul Hiles, Associate Director, Information Technology, Smith Engineering

- Stephen Hunt, Senior Director, Information Technology and Facilities, Smith Engineering

- Sarah Kauffman, Executive Director, Community and Strategic Priorities, Smith Engineering

- Jane McMillan, Special Advisor, Smith Engineering

- Kate Minor, Manager, Office of the Dean, Smith Engineering

- Kate Spoljaric, Manager, Organizational Development and Engagement, Smith Engineering

- Kyle Strike, Facilities Manager, Smith Engineering

- David Yokom, Director, Innovative Educational Initiatives, Smith Engineering

- Matt Shepherd, Director, Marketing and Communications, Smith Engineering

Post November 2ⁿᵈ Announcement

We're Listening

November 2, 2023 to March 22, 2024

Consultations:
- Trip to UCL
- Staff, faculty and student town halls
- Departmental meeting visits with faculty and staff
- One on one conversations with faculty, staff, alumni and students
- Three ThoughtExchanges (student, staff and faculty)

Other:
- Change Management training and awareness
- Development of the Reimagining Engineering Education Team Structure (later slide)
- Developed 3 working groups (admissions, space and impact)
- First speaker seminar and workshop – on Contextual Engineering on Feb. 21st
- ECAP – fully embedded in 2nd year classes

Engineering Career Accelerator (ECAP)

The Engineering Career Accelerator launched for the first time with our entire 2nd year class September 2023. That means they have access to the first ECAP portal on onQ with streamlined career resources, modules and industry guides. All second year students have received Smith-engineering specific professional development workshops and employer insight in their design class. We have 400 students out on internship and currently have the most students who have secured internships by March that we have ever seen.

ECAP OnQ Portal Resource

1ST YEAR — ECAP 1

2ND YEAR — ECAP 2

3RD YEAR — ECAP 3

Engineering Internship Industry Guides

MyCareer

Student Leaders in Experiential Learning

Technical Interviews

Queen's Undergraduate Internship Program

Launching Your Summer Experience

Networking

International Student Career Resources

Project Management

INTERNSHIP — ECAP 4

FINAL YEAR — ECAP 5

UCL Trip
December
2024

What We've Heard

Information Gathered from Faculty, Staff and Students

Students answered our call for input

256 Participants   **132** Thoughts   **3,975** Ratings

- Who participated?
  - 256 participants submitted 132 thoughts and nearly 4,000 rankings.
  - Participants represented First (18%), Second (27%), Third (22%), Fourth (16%) and Fifth (11%) year students, from all engineering disciplines.

SMITH ENGINEERING
Queen's University

Student Thought Themes

- Top 8 Rated Thought Themes:

  - Teaching Quality

  - Engineering Skills Development

  - Industry Skills

  - Technology, equipment, and infrastructure

  - Experiential Learning

  - Design teams

  - Research opportunities

  - Community

Professors that have experience teaching, that CARE about their subject

More variety and depth in technical electives

More industry related courses (Nuclear technology, automation, EV technology, aerospace)

Better/updated laboratory equipment and software subscriptions (ie better tools for learning)

Hands on learning. More labs with actual applicable projects.

Improving our student design teams.

Increasing the amount of research opportunities internationally (partnering with other universities in Canada or around the globe)

Building upon the collaborative community that already exists within the program
This community is what already sets Queen's apart from other engineering programs. Lowering stress among students improves learning ability

3.5 ★★★☆ (37 👤)

5 ★
4 ★
3 ★
2 ★
1 ★

💬 Comment   ☑ Action

Staff and faculty answered our call for input

👤 **244** Participants	💬 **244** Thoughts	⭐ **6,541** Ratings

- **FACULTY**
  - 125 participants
  - 128 thoughts
  - 3.4k ratings
  - 26 ratings/ thought

- **STAFF**
  - 119 participants
  - 116 thoughts
  - 3.2k ratings
  - 27 ratings/ thought

SMITH ENGINEERING
Queen's University

Staff Thought Themes

- Top 8 Rated Thought Themes:

  - Teaching Quality

  - Experiential Learning

  - Engineering Skills Development

  - Interdisciplinary Learning

  - Human-Centered Approach & Societal Impact

  - Inclusivity & Community

  - Student Experience

  - Industry Skills

Faculty Thought Themes

- Top 8 Rated Thought Themes:

  - Teaching Quality

  - Admissions & Recruitment

  - Experiential Learning

  - Engineering Skills Development

  - Research

  - Interdisciplinary Learning

  - Human-Centered & Societal Impact

  - Industry Skills

Need to teach with real life applications in mind. All the positive comments I get involve the application of the theory not the theory itself.

Continue to attract academically top students to Queen's Engineering.

Better blend research with undergraduate education.

Educate students so that they are able to learn by themselves (learn to learn)

improve research intensity that makes meaningful social impact

incorporating more fundamental courses alongside courses on cutting-edge

Interdisciplinary Projects

Interdisciplinary education that incorporates more soft skills
Students need more breadth. We should be teaching them how to write, communicate, and think critically. These skills are extremely low at the moment.
Faculty

3.8 (16)
★★★★☆

5 ★
4 ★
3 ★
2 ★
1 ★
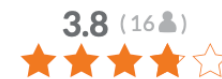
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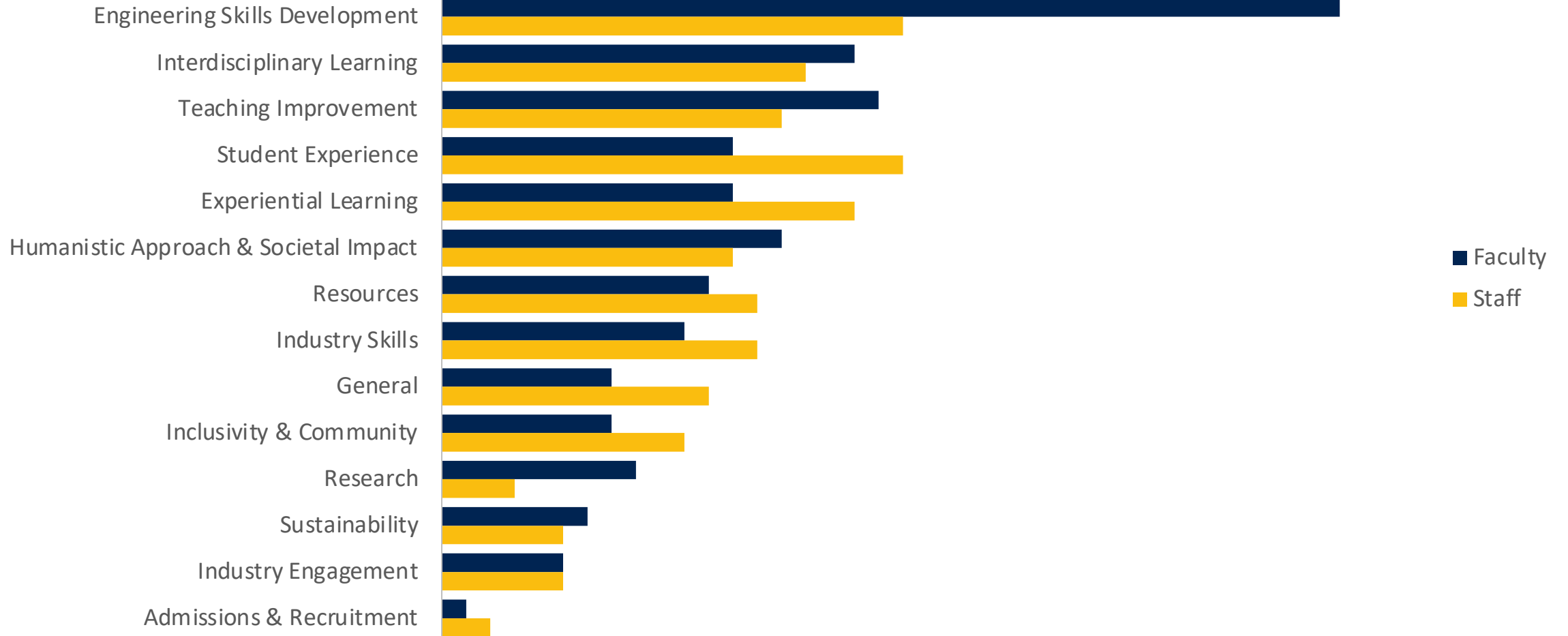
Top rated keywords: Faculty, Staff & Students

Structure and Next Steps

Overview

Team Structure

THE GUIDING TEAM

Team Structure

STUDENT LIAISON COMMITTEE

EXTERNAL ADVISORY COMMITTEE

THE GUIDING TEAM

Kevin Deluzio   Kevin Mumford
Sarah Kauffman   Kat Paudyn
Chelsea Elliot   Keith Pilkey
Brian Frank   Vicki Remenda

Admin Support: Kate Minor

THE DEPARTMENTAL LEAD COMMITTEE

Chair: Marianna Kontopoulou

CHEE: Scott Parent   CIVL: Neil Hoult
GEOE: Bas Vriens   ECE: Ahmad Afsahi
MINE: Charlotte Gibson   ENPH: Tony Noble
MME: Roshni Rainbow   MTHE: Fady Alajaji

Admin Support: Chelsea van Hoof-Dickin

WORKING GROUPS

IMPACT
Chair: Brian Frank
Members: Chelsea Elliot, Roshni Rainbow, Kat Paudyn, Eric Tremblay

ADMISSIONS
Chair: Marianna Kontopoulou
Members: Allison Yokom, Rei Yang, Justine Mayhew

SPACE
Chair: Brian Surgenor
Members: Stephen Hunt, Kent Novakowski

Overview of the Vision: Goals & Principles

Goal: Smith Engineering aspires to continually evolve in developing human-focused engineering leaders.

Context: Demonstrated in collaboration with our local, regional and target international communities, in industry, and with a range of engineers and students from other programs/ professions.

Every student will have the ability to design, investigate, analyze, collaborate, and communicate.

Every student will demonstrate initiative and leadership via one of: research, community, industry, or design team experience.

Overview of the Vision: Defining the "What"

Aspects of our current programs we want to retain:

- Strong technical base
- Discipline specific capstone
- Design experiences
- Teamwork
- Design teams
- Optional internship

Aspects we want to reimagine:

Reimagined Learning Experiences

Learning with others
- Engineering disciplines
- Social sciences & humanities
- On campus experience
- Collaboration & community

Co-curricular experiential learning
- Internship, exchange, research, & design teams

Curricular experiential learning
- Problem based learning
- Authentic problems from industry, community, research

First year foundations are broader and more applied

Career skills, industry insights, & professional skills (ECAP)

Reimagined Graduate Skills

Interdisciplinary collaboration and communication
- Cultural competence
- Valuing diverse perspectives
- Communication & teamwork skills

Professional readiness & workplace competence
- Leadership, management, networking, communication, professional ethics, integrity, flexibility, humility, empathy, and resilience

Critical thinking and problem-solving skills
- Creativity & innovation
- Self-directed motivation & learning

Broadly informed decision making
- Data: Statistical analysis, tools for the future (ML & AI)
- Engineering for humanity

Overview of the Vision: Shared Terminology

Engineering for humanity
Our educational approach will involve framing problems with a deep understanding of users' needs, ensuring that knowledge and creativity are applied to solutions to have the greatest positive impact. We will look beyond the boundaries of traditional engineering, incorporating perspectives from diverse disciplines and communities. Collaborative projects engage students with various stakeholders, fostering empathy and a sense of responsibility. Our goal is to instill a mindset where creative and critical thought are central to engineering practices and results tailored specifically for addressing the needs of humanity.

Problem based learning
Students will work in collaborative multidisciplinary teams on real-world challenges to build knowledge and skills. These authentic experiences provide autonomy for students to take ownership of learning, apply knowledge in practical settings, and reflect on relevance for future engineering activities. Problems drawn directly from current research, community needs and industry demands will vary in scope and complexity from realistic constraints to real-world scenarios. This approach involves developing suitably complex, open-ended problems, delivering appropriate instruction, facilitating effective teamwork, and providing consistent feedback.

Competency based assessment
Instructors will assess and provide ongoing feedback to students on their progress toward competency (mastery) of clearly defined learning objectives and provide repeated opportunities to improve. This approach emphasizes the demonstration of mastery through the application of knowledge through various means, such as projects, presentations, portfolios, simulations etc. In addition, this assists graduating students to articulate their competencies to future employers and establish themselves as professionals.

Experiential learning
By integrating insights from industry, community and research into our curriculum and beyond, we will ensure all students gain access to cutting-edge professional development and experiential learning opportunities. Students will have support to pursue a breadth of engaging experiences, such as international exchanges, leadership in student engineering groups and optional internship. From the outset, our holistic approach entwines career development into the classroom and co-curricular experiences, immersing students in meaningful research and the practical application of their studies.

How to get Involved

Moving Forward for the GT: March 2024 to Sept. 2024

Consultations:
- Complete first round of departmental and staff meetings
- Hold an update/call to action town hall session for Staff & faculty – April 22
- Additional ThoughtExchanges (as needed)
- Reach out to other units across the university (ie DSA, VPT&L)

Other:
- Discussion of additional Working Group needs
- Decide on members of the External Advisory Committee
- Begin discussions with OUR re: timetabling
- Begin discussions on policies/processes that will support the reimagination
- Capture a snapshot of current state of curriculum – via faculty survey April 25th
- Plan for departmental summer retreats and what support is needed
- Review pilot/speaker requests as they come in deadline May 15th

Ways for individuals to get involved

Website
- Familiarize yourself with what the initiative is about
- Submit a proposal for a 24-25 pilot
- Submit a proposal for a speaker idea
- Individual input/ideas/suggestions – coming soon
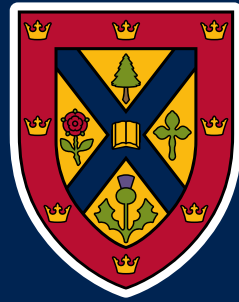
Departmental Lead Committee
- Reach out to your Departmental Lead rep
- Continue to have discussions amongst all staff and faculty

Share the guiding team email – guidingteam@queensu.ca
- Ask questions
- Offer additional suggestions

Think about what to discuss/learn at departmental retreat
Propose additional ThoughtExchanges that we should ask the community about