Faculty and Staff Update Session

Guiding Team

April 23, 2024
DRIVING CURIOSITY FORWARD

• Research: From Curiosity to Impact
• The Forefront of Engineering Education
• Engineering for Everyone
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
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
A ‘balance of terror’: The geopolitics of the Israel-Hamas war

Hezbollah leader threatens escalation as Netanyahu rules out cease-fire in Gaza until hostages freed

Meanwhile, Israeli forces have now completely excised Gaza City, a densely packed cluster of neighbourhoods that Iran says is the center of Hamas military operations.

ECONOMY
Canada’s unemployment rate rises to 5.7% in October as economy sees modest 18,000 job gain

October marks the fourth increase in the unemployment rate over the past six months.
Post November 2\textsuperscript{nd} 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.
What We’ve Heard

Information Gathered from Faculty, Staff and Students
Students answered our call for input

• 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.
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
Staff and faculty answered our call for input

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

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

- Hire teaching-focused faculty, especially for foundational courses in first year
- Bridging the gap between academics and real world problems through interdisciplinary collaboration
- Hands-on opportunities that focus on real life problems
- An interdisciplinary focus, with a broader understanding of societal needs and challenges.
- Inclusive & equitable action - not just words. Include front-line staff in decision-making processes.
- Bridging our learning experiences to opportunity.
- More emphasis on non-technical industry valued skills such as communication, writing, resiliency, and collaboration
  
  Future engineers need to be able to communicate complex ideas simply, and how to leverage different strengths to work effectively within a team.
  
  Staff: 4.1★ ★ ★ ★ ★ (29 Δ)
  
  Comment  Action
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

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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)

☆☆☆☆☆☆☆☆
Thought Themes

- Engineering Skills Development
- Interdisciplinary Learning
- Teaching Improvement
- Student Experience
- Experiential Learning
- Humanistic Approach & Societal Impact
- Resources
- Industry Skills
- General
- Inclusivity & Community
- Research
- Sustainability
- Industry Engagement
- Admissions & Recruitment

Number of Thoughts (Faculty & Staff)
Top rated keywords: Faculty, Staff & Students

understanding, ai, engineering, learning, climate, skills, new, technical, industry, solve, challenges, work, develop, foundation, projects, queen's, research, support, interdisciplinary, community, global, collaboration, experience, opportunities, technologies, education, year, robotics, courses, communication, important, entrepreneurship.
Structure and Next Steps

Overview
Team Structure

THE GUIDING TEAM
Team Structure

THE GUIDING TEAM
- Kevin Deluzio
- Sarah Kauffman
- Chelsea Elliot
- Brian Frank
- Kevin Mumford
- Kat Paudyn
- Keith Pilkey
- Vicki Remenda
Admin Support: Kate Minor

THE DEPARTMENTAL LEAD COMMITTEE
- Chair: Marianna Kontopoulou
- CHEE: Scott Parent
- GEOE: Bas Vriens
- MINE: Charlotte Gibson
- MME: Roshni Rainbow
- CIVL: Neil Hoult
- ECE: Ahmad Afsahi
- ENPH: Tony Noble
- MTHE: Fady Alajaji
Admin Support: Chelsea van Hoof-Dickin

STUDENT LIAISON COMMITTEE
- Kevin Deluzio
- Sarah Kauffman
- Chelsea Elliot
- Brian Frank
- Admin Support: Kate Minor

EXTERNAL ADVISORY COMMITTEE
- Kevin Mumford
- Kat Paudyn
- Keith Pilkey
- Vicki Remenda

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
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”

<table>
<thead>
<tr>
<th>Aspects of our current programs we want to retain:</th>
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<tbody>
<tr>
<td>• Strong technical base</td>
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<td>• Discipline specific capstone</td>
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<tr>
<td>• Design experiences</td>
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<td>• Teamwork</td>
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<td>• Design teams</td>
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<td>• Optional internship</td>
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<table>
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<tr>
<th>Aspects we want to reimagine:</th>
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<tr>
<td><strong>Reimagined Learning Experiences</strong></td>
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<tr>
<td>Learning with others</td>
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<tr>
<td>• Engineering disciplines</td>
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<tr>
<td>• Social sciences &amp; humanities</td>
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<tr>
<td>• On campus experience</td>
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<tr>
<td>• Collaboration &amp; community</td>
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<tr>
<td>Co-curricular experiential learning</td>
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<tr>
<td>• Internship, exchange, research, &amp; design teams</td>
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<tr>
<td>Curricular experiential learning</td>
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<td>• Problem based learning</td>
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<td>• Authentic problems from industry, community, research</td>
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<td>First year foundations are broader and more applied</td>
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<td>Career skills, industry insights, &amp; professional skills (ECAP)</td>
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| **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