

Join the American Society for Engineering Education in Montréal!

Engineering Education:

*Une Célébration
Internationale*

127th Annual Conference & Exposition

JUNE 21 - 24, 2020 | MONTRÉAL, QUÉBEC, CANADA

The ASEE Annual Conference and Exposition is the only conference dedicated to all disciplines of engineering and engineering technology education. As the premier event of its kind, the ASEE Annual Conference and Exposition fosters an exchange of ideas, enhances teaching methods and curricula, and provides unparalleled networking opportunities for engineering and engineering technology education stakeholders, including deans, faculty members, researchers, and industry and government professionals.

The Conference features more than 400 technical sessions, with peer-reviewed papers spanning all disciplines of engineering education; distinguished lectures, including the main plenary; award receptions and banquets; the "Greet the Stars" orientation for new ASEE members and first-time Annual Conference attendees; and the ASEE Division Mixer. The Exhibit Hall is also home to several exciting events, including the "Focus on Exhibits" Welcome Reception, Happy Hour, networking breaks, and poster sessions. We look forward to welcoming you to Montréal!

Conference at a Glance



For detailed session information visit www.asee.org/osl.

SATURDAY, JUNE 20	SUNDAY, JUNE 21	MONDAY, JUNE 22	TUESDAY, JUNE 23	WEDNESDAY, JUNE 24	EVENTS KEY
	Registration Open - 8:00 A.M. – 7:00 P.M.	Registration Open - 7:00 A.M. – 5:00 P.M.	Registration Open - 8:00 A.M. – 5:00 P.M.	Registration Open - 8:00 A.M. – 4:00 P.M.	<div></div> - Registration
		Exhibit Hall Open - 5:00 P.M. – 6:30 P.M.	Exhibit Hall Open - 9:45 A.M. – 6:00 P.M.	Exhibit Hall Open - 8:00 A.M. – 11:15 A.M.	<div></div> - Exhibit Hall
			Division Business Meetings Only (Optional) 7:00 A.M. – 8:00 A.M.	Division Business Meetings Only (Optional) 7:00 A.M. – 8:00 A.M.	<div></div> - Technical Sessions & Business Meetings
ASEE Oversight Committee Meeting 8:00 A.M. – 10:00 A.M.	Finance Committee Meeting 8:00 A.M. – 9:30 A.M.	Monday Plenary - 8:00 A.M. – 9:30 A.M.	Technical Sessions & Business Meetings 8:00 A.M. – 9:30 A.M.	Technical Sessions & Business Meetings 8:00 A.M. – 9:30 A.M.	<div></div> - Committee-, Board-, and Fellow-Based
ASEE Finance Committee Meeting 10:00 A.M. – Noon			ASEE Fellows Breakfast 8:00 A.M. – 9:30 A.M.	International Day Technical Session	<div></div> - Plenaries and Distinguished Lectures
ASEE PIC and Council Chairs Meeting Noon – 1:00 P.M.			CMC Industry Day Breakfast 8:00 A.M. – 9:30 A.M.	2020/2021 ASEE Board of Directors Meeting 7:30 A.M. – 9:30 A.M.	<div></div> - Sunday Workshops
ASEE Long-Range Planning 1:30 P.M. – 4:00 P.M.	ASEE Board of Directors Meeting 9:30 A.M. – 4:00 P.M.	Technical Sessions & Business Meetings 9:45 A.M. – 11:15 A.M.	Focus on Exhibits Networking Break & ASEE Division Poster Sessions 9:45 A.M. – 11:15 A.M.	Focus on Exhibits Networking Break & NSF Grantees Poster Session 9:45 A.M. – 11:15 A.M.	<div></div> - Gatherings & Receptions
		Technical Sessions & Business Meetings 11:30 A.M. – 1:00 P.M.	Tuesday Plenary 11:30 A.M. – 1:00 P.M.	Technical Sessions & Business Meetings 11:30 A.M. – 1:00 P.M.	<div></div> - Free Time
		Free Time - 1:00 P.M. – 1:45 P.M.	Free Time - 1:00 P.M. – 1:45 P.M.	Free Time - 1:00 P.M. – 1:45 P.M.	<div></div> - Interdivisional Town Hall
		Technical Sessions & Business Meetings 1:15 P.M. – 2:45 P.M.	Technical Sessions & Business Meetings 1:45 P.M. – 3:15 P.M.	Distinguished Lecture Series 1:45 P.M. – 3:15 P.M.	<div></div> - Division Social Events
		Technical Sessions 3:00 P.M. – 4:30 P.M.	Technical Sessions & Business Meetings 3:30 P.M. – 5:00 P.M.	Technical Sessions & Business Meetings 3:30 P.M. – 5:00 P.M.	<div></div> - CMC Industry Day & Institutional Council
		Interdivisional Town Hall 3:30 P.M. – 5:00 P.M.	CMC Industry Day Technical Session 3:30 P.M. – 5:00 P.M.	International Day Technical Session	<div></div> - International Day
ASEE Diversity & P12 Committee Meetings - 4:00 P.M. – 5:30 P.M.	PIC I-V Meetings 4:00 P.M. – 5:30 P.M.	Division Mixer 4:30 P.M. – 6:00 P.M.	Focus on Exhibits Happy Hour 5:00 P.M. – 6:00 P.M.	ASEE President's Farewell Reception & International Forum Poster Presentations 6:00 P.M. – 7:30 P.M.	
	Taste of Montréal 6:00 P.M. – 9:00 P.M. Complimentary for All Attendees	Division Social Events (Optional)	Division Social Events (Optional)	Institutional Council Reception (by Invitation Only) 7:00 P.M. – 8:30 P.M.	



ENGINEERING AND ENGINEERING
TECHNOLOGY CHAIRS OPEN EXCHANGE

Date: Sunday, June 21
Time: 10:00 a.m. – Noon

Ticketed event: \$20 advanced and \$25 on-site registration

This interactive session serves as an exclusive forum for engineering and engineering technology chairs and department heads to exchange ideas, talk through challenges, and build new working relationships.

The bulk of the session will be dedicated to small-group roundtable discussions on topics of interest suggested by 2019 Chairs Conclave participants, including faculty evaluations, conflict mediation and resolution, and working with deans and administrators.

Come prepared to have open discussions, share knowledge, resources, and best practices, and build relationships with new and seasoned department chairs and heads. Learn more at <https://chairsconclave.asee.org>.

Note: This session is open to engineering and engineering technology chairs and department heads only.

GREET THE STARS! NEW MEMBERS AND
FIRST-TIME ATTENDEES LUNCH

Date: Sunday, June 21
Time: Noon – 1:00 p.m.
Location: Ballroom, Montréal Convention Center

Free ticketed event

Luncheon for first-time attendees and new members as of January 1, 2020.

Tickets are limited and available on a first-come, first-served basis.

ASEE DIVISION MIXER

Date: Sunday, June 21
Time: 4:30 p.m. – 6:00 p.m.
Ballroom, Montréal Convention Center

TASTE OF MONTRÉAL

Date: Sunday, June 21
Time: 6:00 p.m. – 9:00 p.m.
Location: Montréal Convention Center

MONDAY PLENARY

Sponsored by University of Maryland

Date: Monday, June 22
Time: 8:00 a.m. – 9:30 a.m.
Location: Ballroom, Montréal Convention Center

Join your friends and colleagues as we kick off our conference with the Monday Plenary.



ALDERT KAMP
Director of Education
Faculty of Aerospace
Engineering
Delft University of Technology
(TU Delft)

Aldert Kamp is deeply involved in the rethinking of higher engineering education with a horizon of 2030. With more

than 20 years of industrial experience in space systems engineering and 15 years of academic teaching, educational management, and leadership, he has broad insight into the competencies engineering graduates will need for a successful career. He is the author of the report, “Engineering Education in a Rapidly Changing World - Rethinking the Vision for Higher Engineering Education,” and publishes a blog entitled “Adapting Engineering Education to Change.” Kamp has been involved in university-level education policy development, reconstruction of engineering curricula, and audits of Dutch and international engineering degree programs. He is the Academic Liaison for the Global E3 university consortium, European co-leader and council member of the CDIO Initiative (an innovative education framework for producing the next generation of engineers) and co-leader of the Dutch 4TU.Centre for Engineering Education, which facilitates innovations in engineering higher education.

DIVERSITY ROUNDTABLES

Date: Monday, June 22
Times:
• 9:45 a.m. – 11:15 a.m.
• 11:30 a.m. – 1:00 p.m.
• 1:45 p.m. – 3:15 p.m.
• 3:30 p.m. – 5:00 p.m.

Date: Tuesday, June 23
Times:
• 8:00 a.m. – 9:30 a.m.
• 1:45 p.m. – 3:15 p.m.
• 3:30 p.m. – 5:00 p.m.

Date: Wednesday, June 24
Times:
• 3:30 p.m. – 5:00 p.m.

2020 INTERDIVISIONAL TOWN HALL:
THE ENGINEERS OF THE 2030s

Date: Monday, June 22
Time: 3:30 p.m. – 5:00 p.m.
Location: Ballroom, Montréal Convention Center

Moderator: **JOHN K. ESTELL**, chair and professor of electrical and computer engineering and computer science at Ohio Northern University

In 2004, the National Academy of Engineering published “The Engineer of 2020: Visions of Engineering in the New Century,” which urged the engineering profession to recognize what engineers can build for the future through not just technical jobs but also a wide range of leadership roles in industry, government, and academia.

It’s now 2020. Where do we go from here?

Join us as we explore how to position engineering education in preparing the next generation of engineers—the “Engineers of the 2030s.” Our visioning process involves holding a multi-phase set of events before, during, and after the 2020 ASEE Annual Conference designed to systematically develop the “Engineers of the 2030s” framework:

- Phase I: An invitational online forum in February 2020 where appointed delegates from all interested ASEE divisions and committees will join the Interdivisional Town Hall Planning Committee to determine the proper scope of this conversation. Our goal is to identify topics of interest pertaining to the overall theme.
- Phase II: A Virtual Conference open to all ASEE members held in April 2020 where we will provide an opportunity for all interested individuals to contribute to the dialogue surrounding the topics identified during Phase I.
- Phase III: The Interdivisional Town Hall Meeting held during the 2020 ASEE Annual Conference in Montréal will open with brief statements pertaining to the chosen topics and proceed directly to a set of hands-on, parallel breakout sessions. The purpose of these sessions will be to share suggestions and generate ideas designed to turn the Phase II discussions into proposed lists of actionable items.
- Phase IV: Individuals identified during the Virtual Conference and Town Hall will be asked to apply their skills, knowledge, and expertise to the Phase III results in crafting deliverables for guiding future efforts in support of the Engineers of the 2030s

initiative. These deliverables will be shared with the ASEE membership and also be provided to the National Academy of Engineering.

The Interdivisional Town Hall has been an exciting way for us to un-silo our communities and work together across the entire ASEE membership in advancing engineering education. Please join us this year to share your thoughts and ideas!

FOCUS ON EXHIBITS:
WELCOME RECEPTION AND BEST PAPER
NOMINEE POSTER SESSION

Date: Monday, June 22
Time: 5:00 p.m. – 6:30 p.m.
Location: Exhibit Hall, Montréal Convention Center

ASEE 101:
HOW TO GET INVOLVED WITH ASEE

Date: Tuesday, June 23
Time: 9:45 a.m. – 11:15 a.m.
Location: Exhibit Hall, Montréal Convention Center

FOCUS ON EXHIBITS:
NETWORKING BREAK & ASEE DIVISION
POSTER SESSIONS

Date: Tuesday, June 23
Time: 9:45 a.m. – 11:15 a.m.
Location: Exhibit Hall, Montréal Convention Center

TUESDAY PLENARY

Date: Tuesday, June 23
Time: 11:30 a.m. – 1:00 p.m.
Location: Ballroom, Montréal Convention Center

Join friends and colleagues for Tuesday’s plenary, featuring the winners of the 2019 Best Overall Zone, PIC, and Diversity Paper Awards as well the recipient of this year’s National Outstanding Teaching Award and a keynote address sponsored by the Corporate Member Council.

2019 Best Paper Winners:

Best Overall PIC Paper
PIC II - Assessment of Project-Based Learning Courses Using Crowd Signals

Authors: Georgios Georgalis and Karen Marais, Purdue University



Best Overall Zone Paper

Zone I - Implementation and First-Year Results of an Engineering Spatial Skills Enhancement Program

Authors: Alex De Rosa and Maxine Fontaine, Stevens Institute of Technology

Best Overall Diversity Paper

Work in Progress: Aligning What We Want with What We Seek: Increasing Comprehensive Review in the Graduate Admissions Process

Authors: La'Tonia Steiner-Jones and Wolfgang Windl, Ohio State University

Speakers:



REMI DUQUETTE
Vice President, Innovation
Maya HTT

Remi Duquette's 20-year involvement with Maya HTT, a Québec-based heat transfer technologies company, has led him to play a key role in the company's products strategy and innovation. As vice president, he currently heads the applied and industrial AI, IoT/IIoT, and Datacenter Clarity LC global business and research and development directions. He also has been instrumental in designing and analyzing structural components of five successful spacecraft currently orbiting the planet. A short-track speed skating champion during his youth, Duquette earned a bachelor's degree with honors in mechanical engineering from McGill University and an M.A.Sc. from the University of Toronto. He subsequently attended the International Space University.

ASEE NEW DIVISION AND SECTION OFFICERS ORIENTATION

Date: Tuesday, June 23
Time: 3:30 p.m. – 5:00 p.m.

FOCUS ON EXHIBITS: HAPPY HOUR

Date: Tuesday, June 23
Time: 5:00 p.m. – 6:00 p.m.
Location: Exhibit Hall, Montréal Convention Center

FOCUS ON EXHIBITS: NETWORKING BREAK & NSF GRANTEES POSTER SESSIONS

Date: Wednesday, June 24
Time: 9:45 a.m. – 11:15 a.m.
Location: Exhibit Hall, Montréal Convention Center

ASEE ANNUAL AWARDS LUNCH

Date: Wednesday, June 24
Time: 11:30 a.m. – 1:00 p.m.
Location: Ballroom, Montréal Convention Center

Join your friends and colleagues as we honor our national award winners.

Ticketed event: Tickets are complimentary for award winners and their guests; others may attend for \$50 in advance and \$60 on-site registration.

DISTINGUISHED LECTURE – INDIGENEERING ENGINEERING EDUCATION: WELCOMING INDIGENOUS KNOWLEDGE AND WISDOM WITH INTEGRITY

Date: Wednesday, June 24
Time: 1:45 p.m. – 3:15 p.m.

A transforming world invites us to change our mindset and consider more innovation, more collaboration, and greater co-creation. Ecosystems of innovators, technical specialists, and humanitarians are growing to help find solutions to global challenges. Deanna Burgart, Indigeneer, believes that greater incorporation of diverse perspectives, including Indigenous perspectives and worldviews, can be a catalyst for finding solutions in a more meaningful, long-term way.

As Indigenous perspectives are sought and Indigenous knowledge is captured, the importance of creating an ethical understanding on how to accomplish this in a positive way is imperative. In this Distinguished Lecture, Burgart will invite all to explore how we can bring Indigenous perspectives to the engineering education landscape within an ethical space of cultural safety that protects the integrity of Indigenous beliefs and worldviews. She will share her own stories and examples of initiatives of Indigenous inclusion in innovation, and inspire participants to join her in seeing a future that invites more Indigenous voices to engineering education and developing solutions for all.

Participants will learn about the results of a two-day retreat held for Indigenous and non-Indigenous STEM professionals, educators, and community members exploring the best ways to support and inspire Indigenous youth to pursue STEM careers. The issue of cultural appropriation and commodification of Indigenous ways of knowing also will be addressed, including defining and illustrating the difference between sacred Indigenous knowledge and personal knowledge, summarizing a literature review, and examining incidents of cultural appropriation as a means to inform. Finally, Burgart will lead a discussion activity exploring Indigenous self-determination with respect to knowledge and data protection, and how best to accomplish this in accordance with the United Nations Declaration on the Rights of Indigenous Peoples.

Participants will leave feeling empowered to listen, learn, and grow with the wisdom of Indigenous peoples whom they are fortunate to meet on their journey.



DEANNA BURGART
Schulich School of
Engineering,
University of Calgary

Deanna Burgart, both an engineer and technologist, began her career in 1998 as a technician analyzing oil sands in a Calgary laboratory. She brings more than 20 years of experience and education in energy and pipelines and is passionate about global energy transitions, the United Nations Sustainable Development Goals, and the United Nations Declaration of Rights of Indigenous Peoples. She helps STEM-focused organizations move forward in increasing inclusion of Indigenous people, knowledge, and perspectives.

She has recently joined the Schulich School of Engineering at the University of Calgary as a senior instructor in chemical and petroleum engineering and is the first teaching chair focused on integrating Indigenous knowledge into engineering.

DISTINGUISHED LECTURE – LEARNING SPACES AND TEACHING CHOICES

Date: Wednesday, June 24
Time: 1:45 p.m. – 3:15 p.m.

Active learning classrooms are now a common feature at many higher education institutions. While these learning spaces continue to be created, it is not always the case that faculty are engaged in the design process. However,

faculty participation can make a significant difference in the design of learning spaces, and participation by faculty and students in the process is a means of engendering uptake of active pedagogy. Classroom space, which was largely static and relatively unstudied, is undergoing a renaissance both in terms of creative design and scholarly investigation. In her talk, Susan McCahan will discuss the history of formal university classrooms and how we arrived at active learning space design. She will describe an example of participatory design and the outcomes from that process. New active learning spaces are testing the limits of size and functionality. They are also rapidly blending the physical and virtual worlds to create new types of hybrid learning experiences. The research in this field suggests future directions and modes of teaching that are now coming into focus.



SUSAN MCCAHAN,
Vice Provost, Innovations in
Undergraduate Education, and
Academic Programs
University of Toronto

Susan McCahan is responsible for developing and implementing initiatives to re-imagine and strengthen academic experiences at the university. This role includes strategic leadership on IT systems and data systems that support academic processes and teaching and leadership on key pedagogical initiatives such as experiential learning. McCahan's Academic Programs portfolio oversees governance and quality assurance of the university's 700 graduate and undergraduate programs.

She previously served as vice dean, undergraduate, in the Faculty of Applied Science and Engineering. As a professor of mechanical engineering, she specialized in thermodynamics, but her current area of research is engineering education. She is the author of a textbook for first-year engineering design, which she continues to teach.

McCahan is a fellow of the American Association for Advancement in Science and is the past president of the Canadian Engineering Education Association. She has received numerous awards for education excellence and leadership, including the 3M National Teaching Fellowship.



DISTINGUISHED LECTURE - TALKING THE TALK AND WALKING THE WALK: HOW OUR PUBLICATIONS REFLECT THE ENGINEERING EDUCATION COMMUNITY

Date: Wednesday, June 24
Time: 1:45 p.m. – 3:15 p.m.

As members of a community of scholars, what we write about and who we write about are artifacts of our culture; they reflect who we are collectively. The ways we collaborate on, review, and publish our work also reflect who we are. The engineering education community is unique; as students, educators, and researchers, we hail from other disciplinary backgrounds. We bring with us aspects of our “home” disciplinary cultures, including our expectations about sharing ideas, data, and authorship; our practices around building upon and citing each other’s work; and the standards we set for our scholarship. The community around our relatively new discipline is establishing its own research agenda and its own culture with respect to communicating and acting on our scholarly work. As our community develops and grows, many of us are wary of bringing along excess baggage from our home disciplines—those sometimes hostile and oppressive aspects of engineering cultures—that make it difficult for students, early career faculty, and those from marginalized populations in engineering to survive and thrive. In fact, for many of us, it was negative experiences in our home disciplines (being overlooked for recognition or promotion, being harassed or patronized, being undervalued) that served as the impetus for finding our way into engineering education. We are here not because we are looking to escape from the trappings of tradition, but to turn that tradition on its head to create a more open, just, and responsive culture.

Members of the engineering education community have the opportunity to question and explore important issues such as diversity, equity, professional formation, recruitment, complex systems, classroom innovations, and emerging instructional technologies. Through our scholarship, we are poised to examine and change aspects of our culture that generate disparities based on gender, sex, race, ethnicity, and other criteria for marginalization. Our publications serve as the voice for our scholarship; they are our call-and-response system as we read and respond to scholarship in our field and build upon each other’s work. Does our work—and our responses to others’ work—take the form of action as well? Are we talking the talk and walking the walk?

As we explore important issues in engineering education, our work often makes the case for students to be reflective and intentional, open and willing to critically examine new ideas, empathetic and willing to

take multiple perspectives into account. We write about how students grapple with so-called “wicked problems” in engineering. As a community of scholars, how are we grappling with wicked problems in engineering education? In what ways are we modeling reflective, intentional, and perspective-taking approaches as we educate students, conduct our studies, and affect change in engineering education?

In this talk, Lisa Benson will draw on her experiences as editor of the *Journal of Engineering Education* and as an education researcher to identify parallels between scholarship and our approaches to transformational change in engineering education. She will highlight—perhaps most importantly—the issue of access to engineering education scholarship, and the ways our community reflects its values and beliefs through its scholarly work as well as its actions related to sharing and building on that work.



LISA BENSON
Professor of Engineering and Science Education
Clemson University
Editor in Chief,
Journal of Engineering Education

Lisa Benson’s research focuses on the relationships between student motivation and their learning experiences. Her projects include studies of student perceptions, beliefs, and attitudes toward becoming engineers and scientists and their development of problem solving skills, self-regulated learning practices, and epistemic beliefs. Benson is an American Society for Engineering Education (ASEE) Fellow, a member of the European Society for Engineering Education (SEFI), American Educational Research Association (AERA), and Tau Beta Pi, and the 2018 recipient of the Clemson University Class of ’39 Award for Faculty Excellence. She earned a B.S. in bioengineering (1978) from the University of Vermont, and an M.S. (1986) and Ph.D. (2002) in bioengineering from Clemson University.

DISTINGUISHED LECTURE - CREATING INCLUSIVE AND DIVERSE P-12 LEARNING ENVIRONMENTS

Date: Wednesday, June 24
Time: 1:45 p.m. – 3:15 p.m.

As part of the distinguished lecturer series, the Pre-College Engineering Education Division worked with the Minorities in Engineering and Women in Engineering divisions to invite a speaker with many accomplishments

in promoting inclusion and diversity within the P-12 engineering education space. Renetta Garrison Tull, vice chancellor of diversity, equity, and inclusion at the University of California–Davis, will explain what we can do as an engineering education community to foster positive inclusion and diversity in different P-12 learning environments. Tull has led discussions around the world on topics such as “Inclusive Engagement–Engineering for All,” “Cultivating Inclusive Excellence within Science, Engineering, and Technology,” work/life balance, family, and prevention of domestic and workplace abuse. She co-led Puerto Rico’s ADVANCE Hispanic Women in STEM project and continues to lead the “Women in STEM Forum” for the Latin and Caribbean Consortium of Engineering Institutions (LACCEI), which she currently serves as vice president for initiatives. She has been an invited plenary panelist for diversity in engineering initiatives for the 2016 International Conference on Transformations in Engineering Education in India, and an invited speaker for the International Federation of Engineering Education Societies (IFEES) “Global Engagement in Diversity” webinar. She was also part of an invited United Nations Educational, Scientific, and Cultural Organization (UNESCO) team for the “Engineering Report II” meeting in Beijing, hosted by the Chinese Academy of Engineering in September 2017. In 2017, she was appointed to a two-year term on the National Academies for Science, Engineering, and Medicine’s Committee on the Science of Effective Mentoring in Science, Technology, Engineering, Medicine, and Mathematics (STEMM).



RENETTA GARRISON TULL
Vice Chancellor of Diversity, Equity, and Inclusion
University of California–Davis

Before joining UC-Davis in 2019, Tull was associate vice provost for strategic initiatives at the University of Maryland–Baltimore County (UMBC) and professor of the practice in UMBC’s College of Engineering and IT (COEIT). Within COEIT, she served as part of the “engagement” team and pursued research in humanitarian engineering. Tull was founding director and co-PI of the 12-institution National Science Foundation University System of Maryland’s (USM) PROMISE AGEF, and co-director and co-PI of the NSF USM’s Louis Stokes Alliance for Minority Participation (LSAMP). She was also USM’s director of graduate and professional pipeline development and chair of the system’s Health Care Workforce Diversity subgroup. Tull earned a bachelor’s degree in electrical engineering from Howard University, and a master’s in electrical engineering and doctorate in speech science from Northwestern University.

DISTINGUISHED LECTURE - SMART ENERGY: OPPORTUNITIES AND CHALLENGES

Date: Wednesday, June 24
Time: 1:45 p.m. – 3:15 p.m.

The world is entering into the ‘smart everything’ age, and energy is no exception. Artificial intelligence (AI) is forming the new platform for tomorrow’s products, services, work environment, and the workforce. Data literacy is becoming an essential cross-cutting skill. Power grids are to be replaced by smart grids where electric generation plants, consumer devices, and storage systems are connected, and supply-and-demand analyses are made. To survive in this high-tech environment, the society at large will have to embrace change and acquire new skills associated with Society 5.0. Future engineers will have to develop a creative mindset and focus on producing original ideas and inventing new goods and services.



YUNUS CENGAL
Professor Emeritus
University of Nevada, Reno
Founding Engineering Dean
Adnan Menderes University

Yunus Cengal is a professor emeritus at the University of Nevada, Reno, and the founding dean of the Faculty of Engineering at Adnan Menderes University in Aydin, Turkey. He received his Ph.D. in mechanical engineering from North Carolina State University. Before joining ADU in 2012, he was the dean of the Faculty of Mechanical Engineering at Yildiz Technical University (YTU) and served as adviser to the president at the Scientific and Technological Research Council (TUBITAK) on international cooperation. He also served as adviser to several government organizations and private companies on energy efficiency, energy policies, and education reform.

Çengel, a registered professional engineer in Nevada, is the author or coauthor of several widely adopted textbooks published by McGraw-Hill. He has given numerous seminars and written article and prepared reports on a variety of topics. The recipient of several outstanding teaching awards, he has twice received the ASEE Meriam/Wiley Distinguished Author Award.

Conference Highlights

DISTINGUISHED LECTURE - CONTINUED CONVERSATION: SOCIAL DISRUPTION OF EMERGING TECHNOLOGIES AND IMPLICATIONS FOR ENGINEERING EDUCATION

Date: Wednesday, June 24
Time: 1:45 p.m. – 3:15 p.m.

Given the recent focus on emerging technologies, a shift toward more socially-relevant, outward-facing curricula is anticipated in engineering education. Such curricula emphasize multidisciplinary learning, societal impact, experiential learning (within and outside the traditional classroom), and a global mindset. This discussion will introduce the global, legal, economic, environmental, and societal impacts of vehicle autonomy and electrification, and include an overview of some of the following impact areas: workforce disruption, driver safety, industry shifts and educational training. The session will focus on the value of a liberal arts education in developing solutions for 21st-century emerging technologies, particularly implications associated with vehicle autonomy and electrification in future mobility modes. Relevant topics, including but not limited to the following, will be addressed:

- Global, legal, economic, and environmental impact of vehicle autonomy and electrification
- Growth in vehicle autonomy/electrification in various mobility forms
- Explosion of data-driven software development
- Innovation in vehicle design (electric, composite bodies that are 3-D printed)
- Societal disruption involving vehicle operation/parking, auto industry employment, privacy, and business models.



KIRAN BHARWANI
Vice President, Autonomous Driving
Rivian

Kiran Bharwani is a technical specialist in the domain of ADAS and autonomous driving. Starting his career with Caterpillar, he was tasked with leading the design and development of solutions to support ADAS and autonomous driving features on large mining trucks. He led a high-performing global team working on systems including LiDARs, RADARs, cameras, GNSS, and V2X technology. His journey from Caterpillar led him to the emerging industry of electric vehicles. He became the key member for developing the Level 4 Self-Parking feature on Faraday Future's FF91, which was demonstrated live at CES 2017 in Las Vegas.

Bharwani joined Rivian, an electric vehicle manufacturer, in 2017, eventually becoming the vice president of autonomous driving. His team is developing technology for the electric adventure vehicles R1T and R1S.

DISTINGUISHED LECTURE-2019 BEST PIC AND ZONE PAPER WINNERS

Date: Wednesday, June 24
Time: 1:45 p.m. – 3:15 p.m.

Best PIC I Paper

Effects of Alternative Course Design and Instructional Methods in the Engineering Classroom

Authors: Lindy Hamilton Mayled, Lydia Ross, and Jay Oswald, Arizona State University; Casey Jane Ankeny, Northwestern University

Best PIC III Paper

Do They Understand Your Language? Access Their Fluency with Vector Representation

Authors: Eric Davishahl and Lee Singleton, Whatcom Community College; Todd Haskell and Jill Davishahl, Western Washington University; and Wade Goodridge, Utah State University

Best PIC IV Paper

Student Views on Their Role in Society as an Engineer and Relevant Ethical Issues

Authors: Angela Bielefeldt, David Zhao, Madeline Polmear, and Daniel Knight, University of Colorado; Alexandra Kulich and Chris Swan, Tufts University; and Nathan Canney, CYS Structural Engineers Inc.

Best PIC V Paper

Mapping and Strengthening Curriculum-Based Industry/Academia Intersections

Author: Katherine McConnell, University of Colorado

Best Zone II Paper

Research to Practice: Leveraging Concept Inventories in Statics Instruction

Authors: Ruth Wertz, Valparaiso University; Theresa Green, Utah State University

Best Zone III Paper

Blended Learning: Electrical Circuits for non-EE students

Authors: Theresa Swift and Amardeep Kaur, Missouri University of Science and Technology

Best Zone IV Paper

Assessing Student Assessment in a Flipped Classroom

Authors: Bryan J. Mealy, California Polytechnic State University, San Luis Obispo

Exposition Details

ASEE 2021 PROGRAM CHAIR ORIENTATION

Date: Wednesday, June 24
Time: 3:30 p.m. – 5:00 p.m.

All program chairs for the 2021 Annual Conference in Long Beach are encouraged to attend.

PRESIDENT'S FAREWELL RECEPTION AND INTERNATIONAL FORUM POSTER PRESENTATIONS

Sponsored by Dassault Systèmes

Date: Wednesday, June 24
Time: 6:00 p.m. – 7:30 p.m.
Location: Ballroom, Montréal Convention Center

This year's Annual Conference and Exposition features an exciting schedule of activities in the Exhibit Hall, including refreshment breaks, product demonstrations, and interactive attractions.

EXPOSITION HOURS

Monday, June 22	5:00 p.m. – 6:30 p.m.
Tuesday, June 23	9:45 a.m. – 6:00 p.m.
Wednesday, June 24	8:00 a.m. – 11:15 a.m.

'FOCUS ON EXHIBITS' EVENTS

"Focus on Exhibits" events are exclusive; no sessions or other events will be held during these times. This allows attendees to visit the Exhibit Hall floor and provides an excellent networking opportunity in a dynamic atmosphere. The 2020 ASEE Annual Conference will feature more than four hours of "Focus on Exhibits" events, all of which include complimentary food and drinks.

See the Conference Highlights section (above) for details about important events in the Exhibit Hall.

Also of note, our popular **Two-Year College Model Design Competition** will take place on Tuesday, June 23, from 9:45 a.m. to 11:15 a.m. during the networking break and ASEE Division Poster Session. In this annual contest sponsored by ASEE's Two-Year College Division, teams of first- and second-year engineering and engineering technology students put robots they have designed and built through a series of challenges.



ABET Sessions

ASEE is pleased to partner again with ABET (formerly the Accreditation Board for Engineering and Technology). The following ABET sessions are being offered at the 2020 Annual Conference:

ABET-SPONSORED SESSIONS

Date: Monday, June 22
Time: 1:45 p.m. – 3:15 p.m.

Beginning in fall 2019, programs undergoing review by the Engineering Accreditation Commission (EAC) of ABET are being evaluated based on recently revised criteria. ABET is never prescriptive about how programs choose to meet the requirements; its review process is designed to assure programs meet quality standards set forth in the EAC criteria and the Accreditation Policy and Procedure Manual, known as the APPM. The changes to EAC General Criteria create a number of opportunities to modify our traditional approaches to educating future engineers so they are not only aware of the need to practice engineering in an inclusive manner but are also equipped to do so. This session will highlight ABET EAC criteria changes that promote diversity, equity, and inclusion along with strategies for addressing them in ways that support the attainment of EAC Criterion 3: Student Outcomes. Connections will be made to various engineering codes of ethics (e.g., NSPE, ASCE, IEEE, AIChE) as appropriate.

Speaker:



YVETTE E. PEARSON
Associate Dean for Accreditation, Assessment, and Strategic Initiatives
Rice University

LISTENING SESSION: ACADEMIC ADVISORY COUNCIL

Date: Monday, June 22
Time: 3:30 p.m. – 5:00 p.m.

Are you aware that ABET has an Academic Advisory Council (AAC)? Did you know that the AAC represents all four ABET commissions? Provosts, deans, and chairs from a variety of institutions across the U.S. populate the AAC. The AAC is one of three councils that provide recommendations to the ABET Board of Directors on issues of importance, particularly to the academic community. This listening session will highlight the impactful work of the AAC, provide an overview of its current initiatives, and invite session attendees to present topics and issues for the AAC to consider addressing to make meaningful and helpful changes to ABET processes and practices. Take this opportunity to provide direct input to ABET from the academic community!

HOW TO LEAD THE PREPARATION FOR AN ON-SITE ACCREDITATION VISIT

Date: Tuesday, June 23
Time: 8:00 a.m. – 9:30 a.m.

Leading the institutional planning and execution for an on-site ABET visit involves creating an infrastructure of support from many groups of stakeholders. This session features representatives from both the Engineering Accreditation Commission (EAC) and Engineering Technology Accreditation Commission (ETAC) who led ABET visits in 2019. Best practices from the viewpoints of both Program Evaluators and institutional representatives will be of interest to session attendees, specifically those who are preparing for on-site visits.

MAKING AN IMPACT ON STEM EDUCATION - BECOME AN ABET PROGRAM EVALUATOR!

Date: Tuesday, June 23
Time: 1:45 p.m. – 3:15 p.m.

Each year, more than 2,000 academic administrators and faculty, industry and government officials, and technical professionals serve as ABET program evaluators, making initial accreditation recommendations and working together to ensure quality and confidence in technical education worldwide. These volunteer experts play a key role in ensuring that today's college students are prepared to develop solutions that address some of the pressing sustainability challenges facing our planet. This session will provide important and timely information for prospective ABET Program Evaluators, including:

The impact of an ABET Program Evaluator on STEM education

1. An overview of ABET's international growth and increasing need for Program Evaluators
2. The scope of Program Evaluator responsibilities
3. Requirements for service as a an ABET Program Evaluator and an overview of the selection process
4. The Program Evaluator training process

WHAT'S NEW AT ABET 2020?

Date: Tuesday, June 23
Time: 3:30 p.m. – 5:00 p.m.

This session will share updates on current and relevant ABET activities. Among the list of topics to be covered: Highlights from the March 2020 ABET Symposium, including emerging topics such as cybersecurity and data science; updates on the growth of ABET international activities; and the recently formed ABET Inclusion, Diversity, and Equity Advisory (IDEA) Council.

WHAT'S NEW THIS YEAR!

2020 ASEE ANNUAL CONFERENCE

We constantly strive to balance and accommodate the various elements of our full schedule; so we made changes in response to comments, concerns and questions from you.

- **The Taste of Montréal is now on Sunday night.**
- **The Exhibit Hall Welcome Reception is on Monday.**
- **Registration will open in the Exhibit Hall on Sunday morning.**
- **Our Summertime Lemonade Social on Tuesday afternoon is now a Happy Hour featuring light nosh and beer & wine.**
- **The exhibit hall brunch and lunch have been replaced with networking refreshment breaks (allowing those who travel on per diem to submit reimbursement for breakfast and lunch each day).**
- **The exhibit hall will now be open through Wednesday.**
- **There are two (optional) business meeting only timeslots from 7:00 am to 8:00 am on Tuesday & Wednesday. Please check the on-site schedule for when your division's meeting will be held.**
- **The Distinguished Lectures are now on Wednesday afternoon.**

**WE LOOK FORWARD TO SEEING
EVERYONE IN MONTREAL!**



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CMC AND CIPD BREAKFAST

Date: Tuesday, June 23
Time: 8:00 a.m. - 9:30 a.m.

Members of the Corporate Member Council (CMC) and College-Industry Partnerships Division as well as those interested in becoming members are invited to attend the CMC and CIPD joint breakfast. Sit back and relax while we kick off Industry Day and preview the exciting line-up of speakers and panel discussions. Reserve your seat soon for this free ticketed event to ensure an accurate headcount.

TUESDAY INDUSTRY DAY PLENARY

Date: Tuesday, June 23
Time: 11:30 a.m. - 1:00 p.m.
Location: Ballroom, Montréal Convention Center

The Corporate Member Council keynote speaker is Remi Duquette, vice president for innovation at Maya HTT, a Québec-based heat transfer technologies company.

INDUSTRY DAY PANEL SESSION:
HEARING FROM DIVERSE VOICES IN
THE CLASSROOM

Date: Tuesday, June 23
Time: 1:45 p.m. - 3:15 p.m.

A diverse group of recent graduates will explain why they decided to change the world as engineering students. What does it mean to these new engineers to see diversity in the classroom and how can it help drive innovation in the workplace? Learn what educators, academic institutions, and industry need to do to nurture creativity in high school and maintain excitement throughout the college experience. Be a part of the discussion on increasing different perspectives in the global family of engineers and innovators.

INDUSTRY DAY PANEL SESSION:
PREPARING STUDENTS FOR
TRANSFORMATIVE TECHNOLOGY

Date: Tuesday, June 23
Time: 3:30 p.m - 5:00 p.m.

The future mega-trends, such as artificial intelligence, Internet of Things, and 5G, are profoundly changing the way in which future engineers will apply theory to transformative applications like Industry 4.0, autonomous vehicles, and health care. How will educators adapt curricula throughout the engineering discipline to be able to prepare students for fields that were science fiction but a decade ago?



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THANK YOU TO OUR SPONSORS FOR THEIR OUTSTANDING SUPPORT!

HOST



VISIONARY



INNOVATOR



PIONEER



MENTOR



Engineering

LEADER



Exhibitors (As of Jan. 2020)

ABET
Acrome Robotics
Afinia 3D
Allied Power
Altair Engineering
Amatrol Inc.
American Institute of Aeronautics and Astronautics
American Society of Civil Engineers
American Welding Society
Analog Devices Inc.
ANSYS
Arizona State University
Armfield Inc.
ASTM International
Begell House Inc.
Biomedical Engineering Society
BSI Group
CellScale Biomaterials Testing
Christian Engineering Society
Clarkson University
Clemson University
Conference for Industry and Education Collaboration (CIEC)
Correlated Solutions Inc.
CRC Press - Taylor & Francis Group
DAC Worldwide
Dassault Systèmes
Demand Products Inc.
Desktop Metal
Digilent Inc.
Edibon USA
eGrove Education
Elsevier
Emona Instruments Pty. Ltd.
EMWorks Inc.
EngineeringCAS by Liaison
Engineering Education Centers & Programs
Florida International University
Formlabs Inc.
Fortify Inc.
Frontiers in Education
George Mason University
Gradescope by Turnitin
ICE Publishing
IEEE Xplore Digital Library
IET Inspec
IUPUI SAE
Jameco Electronics
JoVE
Kern Entrepreneurial Engineering Network
Keysight Technologies
LabArchives
Liquid Instruments
LJ Create
Lucas-Nuelle Inc.
MakerBot Industries LLC
MathWorks

McGraw-Hill Higher Education
Microchip Technology Inc.
MIDFIELD/CATME
Minitab LLC
Mississippi State University
Morgan & Claypool Publishers
MSC Software Corporation
National Council of Examiners for Engineering & Surveying
National Science Foundation
National Science Foundation ATE Centers
North Carolina State University
Ohio State University
Order of the Engineer
Overleaf
Oxford University Press
PASCO Scientific
Piazza Technologies Inc.
PPI
Project Management Institute
Purdue Polytechnic Graduate Programs
Purdue University College of Engineering
Quality Measures LLC
RIGOL Technologies
Rohde & Schwarz USA Inc.
Rubin
SAE International
Siemens Industry Software Inc.
SIGLENT Technologies
SMC International Training Group-USA
SolidProfessor
SpectraQuest Inc.
STMicroelectronics, Inc.
Studica, Inc.
TecQuipment
Tektronix Inc.
TestEquity LLC
Texas A&M University
Tufts University
University at Albany-SUNY
University of Cincinnati
University of Florida
University of Illinois at Urbana-Champaign
University of Maryland, College Park
University of Michigan
US Didactic Inc.
Utah State University-Engineering Education
Vernier Software & Technology
Virginia Tech
Wiley
Worcester Polytechnic Institute
Zeiss Industrial Metrology
zyBooks

To view floor plan, please visit https://www.asee.org/mobile/exhibits/9/expo_map



REGISTRATION FEES

Rate Type 2020	Early ends 04/08	Advance 04/09 - 05/16	Regular 05/17 - 6/24
Member	U.S. \$725	U.S. \$775	U.S. \$825
Nonmember	U.S. \$900	U.S. \$950	U.S. \$999
Life Member	U.S. \$105	U.S. \$105	U.S. \$105
Retiree Member	U.S. \$195	U.S. \$195	U.S. \$195
Student Member	Free	Free	Free
Student Nonmember	U.S. \$50	U.S. \$50	U.S. \$50
K-12 Teacher*	U.S. \$250	U.S. \$250	U.S. \$250
Industry Day**	U.S. \$325	U.S. \$325	U.S. \$325
Spouse/Guest	U.S. \$125	U.S. \$175	U.S. \$225
Child (7-16)***	U.S. \$35	U.S. \$35	U.S. \$35
Child (6 and under)***	Free	Free	Free

INCLUDED IN YOUR REGISTRATION

	Taste of Montréal	Division Mixer	Exposition & Focus on Exhibits Events	Plenaries	Technical Sessions	President's Farewell Reception
Member/Nonmember Full Registration	X	X	X	X	X	X
Student	X	X	X	X	X	X
Life Member	X	X	X	X	X	X
Spouse/Guest	X	X	X	X		X
Child (ages 7 to 16)	X	X	X	X		X
Industry Day			X	X	X	
Retiree Member	X	X	X	X	X	X

AUTHORS

Please be advised that all registration fees must be processed by ASEE Headquarters on or before April 6, 2020 at midnight EDT or your paper will be withdrawn. Please review the Author's Kit for more details.

*K-12 TEACHERS

K-12 Teacher rate of \$250 applies to the entire conference. Please e-mail conferences@asee.org to complete your registration. K-12 Teachers are also eligible for a one-day FREE Exhibit Hall Pass.

School ID is required

**INDUSTRY DAY

The Industry Day rate is only available to members of industry who otherwise would not attend the ASEE Annual Conference and is valid for Tuesday, June 23, 2020 only. ASEE members/(co)-authors are not eligible.

***CHILDREN

Children under 12 are admitted FREE to the Exhibit Hall.

Children under 12 must be accompanied by a registered adult at all times

MILITARY

Active and retired military are eligible for a one-day FREE Exhibit Hall Pass.

Military ID is required.

ASEE MEMBERSHIP

Please be advised that the nonmember professional rate does NOT include a one-year ASEE membership.

The ASEE membership rates are as follows:

1. U.S. \$100 for United States residents
2. U.S. \$99 for Canadian residents
3. U.S. \$114 for all other countries
4. U.S. \$89 for online membership only

CANCELLATION POLICY

Registration and ticket cancellations must be made in writing and received by the ASEE Annual Conference staff via e-mail: conferences@asee.org on or before Monday, June 1, 2020. A \$50 processing fee will apply to all cancellations. On-site refunds of any ticketed events cannot be honored. There are no exceptions to this policy.

AMERICANS WITH DISABILITIES ACT (ADA)

Registrants with special needs who participate in our conference will be accommodated to the fullest extent possible. If you need special arrangements, please advise us at the time you register at conferences@asee.org.

WANT TO OFFSET YOUR CARBON FOOTPRINT?

There is increasing concern about the environmental impact of conference travel. ASEE is sensitive to these concerns and supports the option of purchasing offsets via respected organizations. While we cannot endorse any specific provider, additional information on purchasing environmental offsets is provided here: <https://www.goingzerowaste.com/blog/where-to-buy-carbon-offsets-and-why-you-should>

HOUSING LOCATIONS AND INFORMATION

Hotel	Room Rate	Rating	Distance to Convention Center
Le Westin Montréal (Headquarters)	\$269 CAD	5*	Across the street
InterContinental Montréal	\$269 CAD	5*	1 block
Embassy Suites by Hilton	\$269 CAD	4*	
Hotel Monville	\$259 CAD	4*	1 block
Doubletree by Hilton Montréal	\$259 CAD	4*	3 blocks
Marriott Montréal Chateau Champlain	\$219 CAD	4*	6 blocks

* Complimentary Wi-Fi in all hotels

- The following taxes are not included in the room and are subject to change without notice (on a per room, per night basis): 3.50% lodging tax, 5.00% federal goods and services tax, and 9.975% Provincial sales tax.

ACCOMMODATION INFORMATION

- Hotel reservations must be made through the Conference Housing Bureau to secure the ASEE rate
- Preferential rates have been negotiated for the participants of the 2020 ASEE Annual Conference & Exposition. All the hotels are located within a 5 to 20 minute walk from the Palais des Congrès de Montréal. The hotels

Registration & Housing



are also in close proximity to many restaurants, museums, local attractions, and nightlife. The Montréal metro system is an efficient and fast way to get around the city.

- Be advised: Hotel rooms are limited in the Downtown/Convention Center area on Wednesday, June 24. We may not be able to accommodate extended stays.
- ASEE will have a bag drop location at the Montréal Convention Center Wednesday, June 24. Please see the Info Kiosk personnel on site for details.
- Hotel rooms can be reserved through the link <https://www.eiseverywhere.com/asee2020>

CUT-OFF DATE

The ASEE Hotel rates are available until Wednesday, May 20, 2020. Be sure to make your reservations before that date to secure the rate.

Full payment for accommodation will be made on site at the hotel desk upon your arrival.

RESERVATION GUARANTEE

A credit card is required to book and guarantee the reservation. Reservations booked without a credit card will not be processed.

EARLY DEPARTURE

An early departure fee may apply based on the individual hotel policy. It is recommended to reconfirm your departure date upon arrival in order to avoid this fee.

CHANGES

All hotel reservation changes must be sent to JPdL International – 2020 ASEE Annual Conference & Exposition Housing Bureau in writing at aseehousing2020@jpdL.com prior to May 27, 2020. After this date, changes may be redirected to the hotel.

CANCELLATION POLICY/DEPOSIT

Reservations may be cancelled without penalty 72 hrs prior to arrival date. All cancellations must be sent to the JPdL International – 2020 ASEE Annual Conference & Exposition Housing Bureau in writing no later than May 27, 2020. After May 27, 2020, you may have to contact the hotel directly to cancel your reservation. If you do not cancel your reservation in writing in advance, the cost of the room will be charged in full by the hotel on the credit card on file.

A deposit of the first night stay might be taken by the hotel after the cut off date.

RATES- IMPORTANT NOTICES

Rates are quoted in Canadian Dollars (CAD) and are subject to all applicable taxes. Rates are applicable three (3) days prior and three (3) days after the congress, subject to availability.

Your credit card may be charged if:

- You do not check in at the hotel on the scheduled arrival day (no show)
- You shorten your scheduled departure after checking-in

- You do not cancel your reservation within the set cancellation policy
- **Questions or concerns?** Contact us at aseehousing2020@jpdL.com

- **Your account info:**
Be advised, the system only allows one e-mail address to be used one time. Attendee won't be able to make more than one reservation with their e-mail. If you need to book more than one room, please add a note in the comment field or e-mail the request

- **Warning regarding Non-official Housing Services (Housing “Pirates”)**
Room pirating is a practice carried out by third-party companies that act as travel agencies to solicit attendees and exhibitors for room reservations.

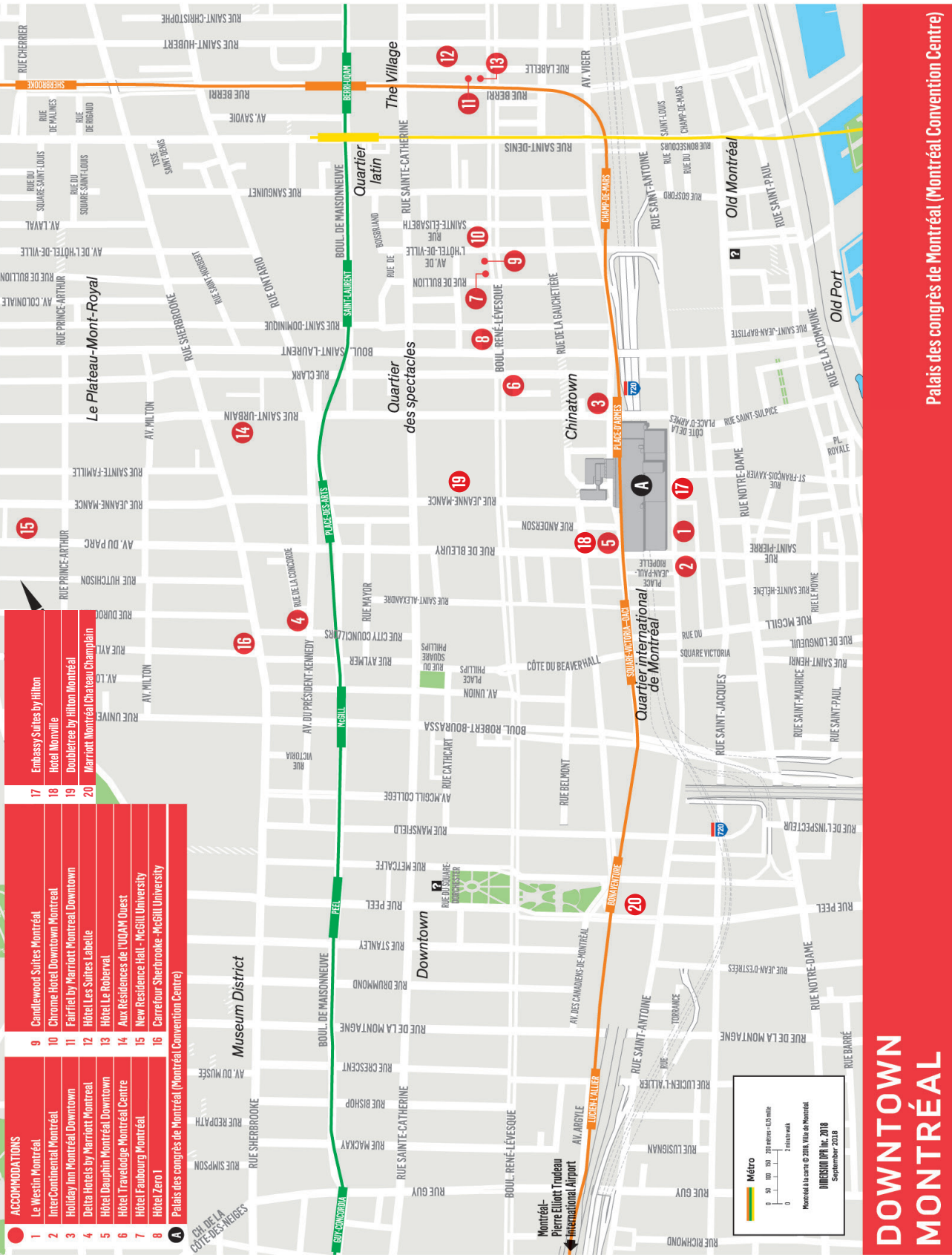
Please be vigilant if approached by any company.

Hotel booking is recommended to be done through the 2020 ASEE Conference's official housing provider, JPdL International.



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2021
June 27 - 30
LONG BEACH, CALIFORNIA

2023
June 25 - 28
BALTIMORE, MARYLAND

2022
June 26 - 29
MINNEAPOLIS, MINNESOTA

2024
June 19 - 22
PORTLAND, OREGON