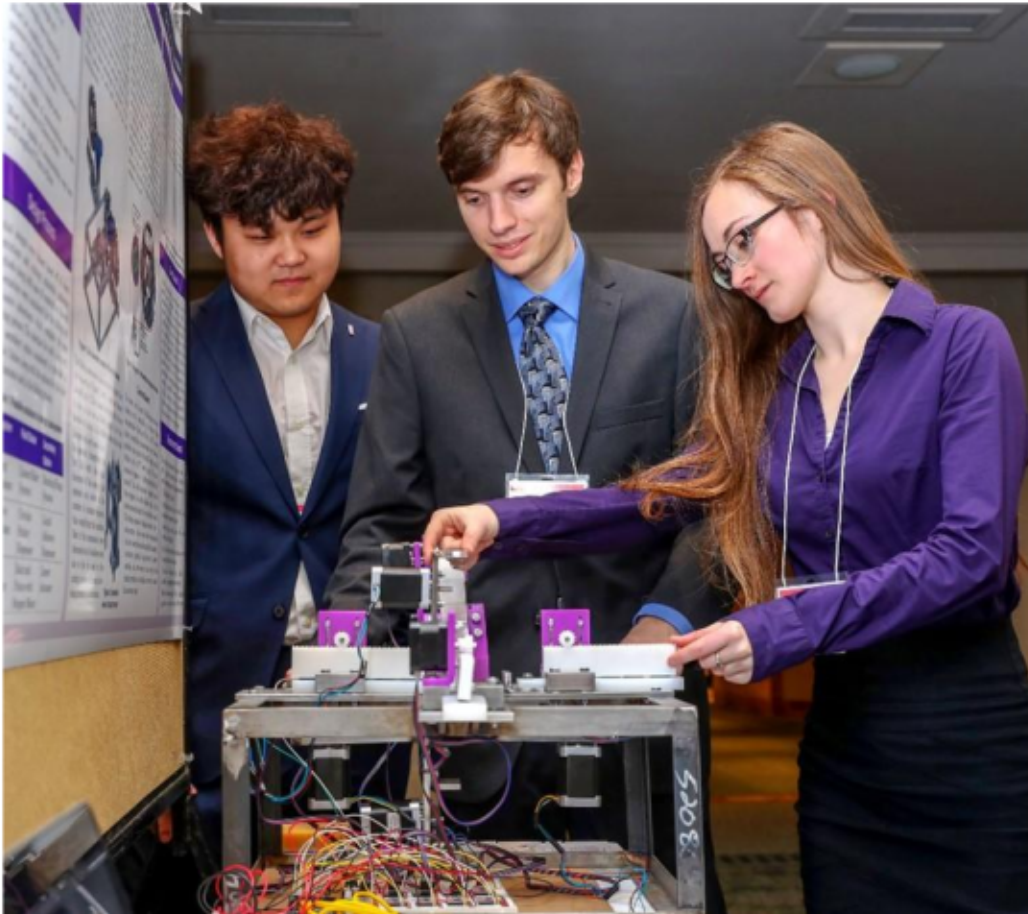




DALHOUSIE
UNIVERSITY

Engineering

Capstone Conference



DALHOUSIE
UNIVERSITY

FACULTY OF ENGINEERING



April 8th, 2021

Welcome to the 2021 Dalhousie Engineering Capstone Conference Sponsored by Shell

We are delighted to once again host our annual senior design engineering conference, and thank you for your participation. This year's conference is hosted virtually using the online platform Hopin. We regret that we cannot gather with you in person, but we remain proud to continue the tradition of celebrating our capstone students' achievements.

The capstone program in the Faculty of Engineering at Dalhousie gives students the opportunity to draw together all of their previous years' studies and apply their knowledge to solve a design problem. All engineering students participate in an eight-month capstone project in their final year of studies.

Most of our capstone projects are sponsored by clients from industry who have presented a current problem of theirs which requires a technical solution. Capstone is a meaningful program to both students and industry because it integrates students' course work and engineering design skills, while providing innovative solutions for many local industry partners.

The DECC would not be possible without the support of Capstone instructors, faculty advisors, technical and administrative staff, industry project sponsors and advisors, event sponsors and the organizing committee.

We hope that you enjoy the DECC, and wish the best of luck to all of our senior year engineering students.

Schedule Overview:

8:00 am – 8:30 am	Opening Remarks (Main Stage)
8:30 am – 11:30 am	Morning Capstone Presentations (Sessions) <i>See Following Session Schedules</i>
11:30 am – 12:00 pm	Conference Break
12:00 pm – 1:00 pm	Poster Expo (Expo)
1:00 pm – 4:00 pm	Afternoon Capstone Presentations (Sessions) <i>See Following Session Schedules</i>
4:00 pm – 4:05 pm	Announcement of Poster Expo Winners (Main Stage)
4:05 pm – 4:10 pm	Closing Remarks (Main Stage)
4:10 pm – 5:00 pm	Networking Session (Networking)

The Online Platform:

Migrating the Dalhousie Capstone Conference online required a flexible platform with support for the formal presentations and poster exhibitions our graduating students work so hard to produce. We know moving online brings new challenges for both our students and guests, but we hope to learn from this experience to continue improving the conference for all.

To help you engage with this new platform, a short guide has been prepared below which overviews the various areas of the event. Once you have entered the online conference, you may navigate between these areas using the menu on the left.

Areas of the Hopin Platform



Reception

The Reception area is the homepage of the event, where attendees may learn more about the conference, view a list of our sponsors, and find a link to re-download this event programme.



Stage

The Stage area is where attendees may view keynote content such as the morning greeting and the afternoon poster judging.



Sessions

The Sessions area is where attendees may view the various presentation sessions. If you have questions for the presenters, use the session-specific chat on the right, and a moderator will relay them to the students during the Q&A period of each presentation.



Networking

The Networking area is for student-professional networking. To participate, simply click "Ready" and you'll be entered into a queue to match with an appropriate partner for a short period.



Expo

The Expo area is where you may view the capstone posters created by each capstone group. You may sort posters by discipline using the tags at the top of the screen. Each poster booth has an open video session where you may ask questions live; scroll down or select "View Poster as PDF" to view the poster.

Room Name	MECH Session 1	MECH Session 2	CHEE Session 1	CHEE Session 2	ECE Session 1	ECE Session 2	IENG Session	
Sponsorship	Michelin	Nova Scotia Transportation and Active Transit	Shell	Springboard	Emera Newfoundland and Labrador	CBCL	Davis Pier	
8:00	Opening Messages							
8:30	MECH24	MECH07	CHEE02	CHEE09	ECED01	ECED06	IENG15	
8:40								
8:45								
8:50								
8:55							5 Minute Break	
9:00	MECH19	MECH23	CHEE04	CHEE15	5 Minute Break		IENG11	
9:05								
9:10					ECED02	ECED07	5 Minute Break	
9:15								
9:20								
9:25	5 Minute Break					IENG13		
9:30	MECH22	MECH03	CHEE03	CHEE16	5 Minute Break			
9:35								
9:40					ECED03		ECED08	
9:45								
9:50								
9:55	5 Minute Break					IENG06		
10:00	MECH11	MECH04	CHEE13	CHEE01	5 Minute Break			
10:05								
10:10					ECED04		ECED09	5 Minute Break
10:15								
10:20								
10:25	5 Minute Break					IENG01		
10:30	MECH01	MECH09	CHEE10	CHEE14	5 Minute Break			
10:35								
10:40					ECED05		ECED10	
10:45								
10:50								
10:55	5 Minute Break					IENG08		
11:00	MECH12	CHEE012	CHEE06	5 Minute Break				
11:05								
11:10				ECED05	ECED10		5 Minute Break	
11:15								
11:20								
11:25	5 Minute Break					IENG05		
11:30	Break for all Disciplines							
12:00	Poster Expo							
13:00	MECH13	MECH21	CHEE07		ECED16		ECED11	IENG02
13:05								
13:10								
13:15								
13:20						5 Minute Break		
13:25	MECH14	MECH08	CHEE08		5 Minute Break		IENG12	
13:30								
13:35					ECED17	ECED12	5 Minute Break	
13:40								
13:45								
13:50	5 Minute Break					IENG10		
13:55	MECH20	MECH10	CHEE05		5 Minute Break			
14:00								
14:05					ECED18		ECED13	
14:10								
14:15								
14:20	5 Minute Break					IENG03		
14:25	MECH15	MECH16	CHEE17		5 Minute Break			
14:30								
14:35					ECED19		ECED14	5 Minute Break
14:40								
14:45								
14:50	5 Minute Break					IENG16		
14:55	MECH17	MECH02	CHEE11		5 Minute Break			
15:00								
15:05					ECED20		ECED15	
15:10								
15:15								
15:20	5 Minute Break					IENG07		
15:25	MECH18				5 Minute Break			
15:30								
15:35					ECED20		ECED15	5 Minute Break
15:40								
15:45								
15:50	5 Minute Break					IENG14		
15:55	Announcement of Poster Expo Winners (Main Stage)							
16:00	Closing Remarks (Main Stage)							
16:05	Networking Event							
16:10	Conference Officially Ends							
17:00								

Session Schedules:

Industrial Session

Sponsored by Davis Pier

DAVIS PIER

Vanity Fashion's Inventory Management Analysis & Returns Optimization

8:30 am – 8:50 am
IENG15

Christopher Toporowski – Saif Takroui – Jennifer Ladipo – James Ajibola – Alex
Nderitu

Sponsored by Vanity Fashions

Developing and Implementing a CFIA-Compliant Traceability System

8:50 am – 9:10 am
IENG09

Claudia Torres – Success Wokili – Christian Pozo – Nikita Wambyakaley

Sponsored by Metroworks & Stone Hearth Bakery

Storm Response Crew Planning Optimization

9:15 am – 9:35 am
IENG11

Xuanbo Liu (Lambert) – TianLang Zhao (Ryan) – Mohamed Baiomy – Junzqi Shao

Sponsored by NSPI

Optimization of Rubber Pallet Transportation

9:40 am – 10:00 am
IENG13

James Han – Amine Zeraidi – Luis Zurita – Isfan Satrya

Sponsored by Michelin AGV

Calibration Approval Process and Tool Availability Optimization at IMP

10:00 am – 10:20 am
IENG06

Ruohao Chen – Yinjia Xiao – Xinyu (Emily) Wang – Yiwei Liu

Sponsored by IMP – Precision Equipment Availability

Optimal Booking & Scheduling of Elective Caesarean Section Cases

10:25 am – 10:45 am
IENG01

Kathryn Pumphrey – Tala El-Ajou – Omar Khattab – Baraa Fath

Sponsored by IWK

Smart Drawer for Dental Inventory Tracking

10:50 pm – 11:10 pm
IENG08

Asaad Hoozeer – David Hewlett – Haolin Song – Steven Yang

Sponsored by Bluelight Analytics

Greening the Dalhousie Vehicle Fleet

11:10 pm – 11:30 pm
IENG05

Kelsea McAllister – Alec McOnie – Isaac Berry – Liam Whitman

Sponsored by Dalhousie Office of Sustainability

Lunch Break

Industrial Session (Continued)

Sponsored by Davis Pier

DAVIS PIER

Lunch Break

1:00 pm – 1:20 pm
IENG02

**Streamlining Navigation of Greening Programs for the
Community Housing Sector**

Haroon Basha – Lauren Zwicker – Taylor LeBlanc – Caitlin Singleton
Sponsored by NS Dept. of Municipal Affairs & Housing

1:20 pm – 1:40 pm
IENG04

Scheduling and Standardization of Michelin Quality Control Testing

Yousef Abou-Zidan – Ahmad Abdulah – Amr Mostafa Kamel – Roshdi Dalloul
Sponsored by Michelin – QC Test Time

1:45 pm – 2:05 pm
IENG12

**Improving Data Collection Practices and the Anticipation of
Health Outcomes in Family Medicine**

Ross Walker – James Kendall – Alex MacDonald – Anna O'Toole
Sponsored by Dr. AJ – Patient Mapping

2:10 pm – 2:30 pm
IENG10

Labatt Oland Brewery – Brewhouse Scheduling Optimization

Sohail Chopra – Matthew MacDonald – Aaron Eyking – Sam Norton – Ashwin
Girikumar
Sponsored by Labatt Oland Brewery – Brewhouse Scheduling

2:30 pm – 2:50 pm
IENG03

Keg Line Improvements at Labatt Oland Brewery

Benjamin McDow – Tomas Burke – Graeme Gillis – Josh LaFond
Sponsored by Labatt Oland Brewery – Keg Line Performance Improvement

2:55 pm – 3:15 pm
IENG16

Database Upgrading and Web Development

Shuang Zhai – Zihao Li – Yanchao Deng – Shuangming Yang
Sponsored by Mainland South Historical Society

3:20 pm – 3:40 pm
IENG07

IMP's Proactive Workload Leveling Initiative

Shreesha Sanjaya – Tianwei You – Anthony Burns – Mohammed Alwarith
Sponsored by IMP – Manufacturing Capacity & Scheduling

3:40 pm – 4:00 pm
IENG14

Development of a Generic Inpatient Hospital Simulation Model

Austen Underhill – Gavin McInnis – Susim Santra – Lawrence Schaffer
Sponsored by NSHA – Patient Flow

Mechanical Session 1

Sponsored by Michelin



8:30 am – 8:55 am
MECH24

Wheelchair to Vehicle Transfer Device
Shehab Amer – Andrew MuirLaslo – Matthew Sampson – Theodorus Andreas
Sponsored by Harding Medical

9:00 am – 9:25 am
MECH19

Respiratory Protection and Isolation System for Head Autopsies
Bijoy Sarker – Kayleigh Landers – Noah Langlois – Young Hoon Choi
Sponsored by NS Chief Medical Examiner

9:30 am – 9:55 am
MECH22

Pin Drop
Alexandra Smith – Nathan Bertram – Owen Smith – Peter Black
Sponsored by Carolyn Wren

10:00 am – 10:25 am
MECH11

Towbody for Autonomous Underwater Vehicle Docking
Amy Darrach – Ibukun Shogbamu – Jack Armstrong – Nour Houdeib
Sponsored by ISE Ltd, Vancouver

10:30 am – 10:55 am
MECH01

Halifax WWTF – Grit System Optimization
Ryan Comeau – Jason Mosher – Lian Zhen Hou
Sponsored by Halifax Water

Lunch Break

1:00 pm – 1:25 pm
MECH13

Material Handling
Yasaman Kouhifayeghdehkordi – Alexander Aghdassi – Shawn Ferguson – Zhao Yue
Sponsored by Malley Industries

1:30 pm – 1:55 pm
MECH14

Wheelchair Accessible Driving Position
Daniyal Khan – Muhammad Khalid – Skylar Riggan – Timothy Nickerson
Sponsored by Malley Industries

2:00 pm – 2:25 pm
MECH20

Engine Test Cell Improvement Project
John MacIntosh – Alexandre Mombourquette – Evyn MacAuley – Iain Grundke
Sponsored by Aerotec Engines

2:30 pm – 2:55 pm
MECH15

Tracking Devices for Those Who Wander
Eric Owen – Hannah Kaufman – Owanari Lawrence – Wang Zike
Sponsored by Greywave

3:00 pm – 3:25 pm
MECH17

Adjustable Hip Orthotic Joint for the Treatment of Canine Hip Dysplasia
Adam Zorychta – Connor Taylor – Erin Gillis – Katherine Bridge
Sponsored by K-9 Orthotics

Mechanical Session 2

*Sponsored by Nova Scotia
Transportation and Active Transit*



8:30 am – 8:55 am
MECH07

Soaker Pit Optimization Project
David Hooper – Matthew Blunston – Nicholas Green – P Taylor Roe
Sponsored by Oland Brewing / Labatt's

9:00 am – 9:25 am
MECH23

Alternative Method of Measuring Occlusal Loading Post Dental Restoration
Emma Fudge – Hannah LeBlanc – Mark MacGillivray – Yogan Parianen
Sponsored by Bluelight Analytics

9:30 am – 9:55 am
MECH03

Automation of Production Line
Ezzat Al Barazi – Guo Jianan – Jiawei Xu – Zhiren Chen
Sponsored by Neocon

10:00 am – 10:25 am
MECH04

Universal Robotic End-of-Arm Tooling
Adam Parrish – Chen Qiguang – Connor McCabe – Liam Gilbert
Sponsored by Neocon

10:30 am – 10:55 am
MECH09

Tension Sensor for a Towed Array
Alex Campbell – John Spears – Justin Thorne – Terrance Vaughan
Sponsored by Ultra Electronics

11:00 am – 10:25 am
MECH12

Vertical Growing Tower for Urban Farming
Chiranjeev Choolhun – Emily Van Den Hoogen – Logan Miller – Nicole Downing
Sponsored by Metroworks

Lunch Break

Mechanical Session 2 (Continued)

*Sponsored by Nova Scotia
Transportation and Active Transit*



Lunch Break

1:00 pm – 1:25 pm
MECH21

Manikin Transport and Storage Unit
Bobby Jamieson – Riley Kelly – Roshan Missir Gaya – Yaasir Subratty
Sponsored by C3LR

1:30 pm – 1:55 pm
MECH08

Eyeglass Mold
Puneet Sharma – Samuel Watson – Benjamin Wright – Daniel O'Brien
Sponsored by Coloursmith

2:00 pm – 2:25 pm
MECH10

Material Handling Process for Prefabricated Wall Panels
Alexander Anthony – Ally Garand – Josh Bartlett
Sponsored by ReCover Initiative

2:30 pm – 2:55 pm
MECH16

Contactless Subsea Connector Housing Design
Mathew Adolph – Devon Collard – Jazmyn Suelzle – Jingning Ma
Sponsored by MOOG Focal

3:00 pm – 3:25 pm
MECH02

Scotia-Arm Adjustable Wheelchair Push Handles
Ibrahim Yousef – Akili Cyrus – Benjamin Wilke – Blake Tannahill
*Sponsored by Division of Physical Medicine and Rehabilitation,
Dalhousie University*

3:30 pm – 3:55 pm
MECH18

Accessible Zipline
Gregory Webb – Nathan Burton – Rayan Samara – Ryan Callaghan
Sponsored by George Tasiopoulos

CHEE Session 1

Sponsored by Shell



8:30 am – 8:55 am

CHEE02

Recovery of Microplastics from Marine Sediment

Joshua Gayler – Tanner Guyaux – Cameron McPhail – Sofian Mohammed

9:00 am – 9:25 am

CHEE04

Ceiling Tiles from Recycled Plastic Product and Process Design

Tarmy Abbot – Samanta Mendez Barona – Charlese Pratt – Makayla Rozsa–Grover

9:30 am – 9:55 am

CHEE03

Recovery of Microplastics from Ship Greywater

Reid Kyle – Luke LaFond – Mumtahina Mostafiz

10:00 am – 10:25 am

CHEE13

Algal Wastewater System for the Town of Wolfville

Sara Fedullo – Andrew Furlong – Ruis MacDonald – Breton Potter
Sponsored by Town of Wolfville

10:30 am – 10:55 am

CHEE10

Constructed Wetland Value–Added Product

Ibrahim Alwahabi – Matthew Gilmore – Benjamin Kelly
Sponsored by Town of Wolfville

11:00 am – 11:25 am

CHEE12

Central Vacuum System

Simon Benetti – Shelby Reid
Sponsored by DSM Nutritional Products

Lunch Break

1:00 pm – 1:25 pm

CHEE07

Urea Production through Chemical Looping

Hashem Aisheh – Youssef Hassab El–Nabi – Damian McMaster – Rhea Storr

1:30 pm – 1:55 pm

CHEE08

Pressurized Chemical Looping Reforming (PCLR) Syngas Production

Birju Bhalodi – Evan Gallant – Evan McInroy – Carlin Newcombe

2:00 pm – 2:25 pm

CHEE05

Production of Starch-Based Bioplastics

Gabryelle Beland – Matthew Marshall – Nicholas Pichurski – Claire Stienburg

2:30 pm – 2:55 pm

CHEE17

SAGD Oxyfuel CO₂ Capture and Cogeneration Project

Olivia Field – Lauren Koskowich – Daniel Plourde – Matthew Plue

3:00 pm – 3:25 pm

CHEE11

Pulse Protein Powder Production

Cody Bowen – Raymond Gushue – Christopher Johnson

CHEE Session 2
Sponsored by Springboard



8:30 am – 8:55 am
CHEE09

Carbon Capture Facility for a Coal-Fired Power Plant
Lizzy Brown – Robert Thompson – Blake Tibert

9:00 am – 9:25 am
CHEE15

Design of a Process for Direct Air Capture in Nova Scotia
Desmond Conrod – Yuan Pang – Casey Parker – Regis Tarimo

9:30 am – 9:55 am
CHEE16

Upgrading of the C3 Stream Separation Units of an Ethylene Plant
Pierina Leon – Aaron McPhee

10:00 am – 10:25 am
CHEE01

Continuous Synthesis of Active Pharmaceutical Ingredients in a Reconfigurable, Miniscale Plant
Chew Jian Heng – Jenny MacPherson – Vanesa Nfor – Katie Sheridan

10:30 am – 10:55 am
CHEE14

Renewable Energy Generation and Storage Design for Remote Community of Rankin Inlet
Will Craik – Jay Deshmukh – Nikita Kursov – Richard Miller

11:00 am – 11:25 am
CHEE06

Beer Filtration and Filter Aid Recovery at Oland Brewery
Tareq Amasheh – Eyvindson Bjork – Kaitlin McMillan – Amir Seidshazileh
Sponsored by Labatt Breweries Canada

Lunch Break

ECE Session 1

*Sponsored by Emera
Newfoundland and
Labrador*



8:30 am – 9:00 am
ECED01

CubeSAT ADCS Hardware and Firmware
Thomas Christison – Carl Mattatall – James Smith
Sponsored by Dalhousie – Space Systems Lab

9:05 am – 9:35 am
ECED02

**Design, Fabrication, and Testing of Optimized Electrical and Acoustic
Tuning in an Ultrasonic Endoscope**
Jemma Pryde – Annika Benson – Rachel Kiefl
Sponsored by NSHA

9:40 am – 10:10 am
ECED03

Automatic Segmentation and Measurement of the Middle Ear
Celeste MacNeil – Rebecca Sutton – Nathan Sherwood
Sponsored by Audioptics Medical

10:15 am – 10:45 am
ECED04

MILTON: A Machine Learning Solution to Training Needs Analysis
Gabriel Burchat – Yang Lu
Sponsored by Lockheed Martin Canada

10:50 am – 11:20 am
ECED05

Real-time Hose Wear Analysis
Rui Jiang – Long Qin – Jiawei Wang
Sponsored by Ultra Electronics Maritime Systems, Inc.

Lunch Break

1:00 pm – 1:30 pm
ECED16

Generate Image Recognition Software for Naval Ships
Amir Aali – Sahib Jassal – Pyper Kennedy
Sponsored by Lockheed Martin Canada

1:35 pm – 2:05 pm
ECED17

Bone Loss Volume Scanner
Seinan Mandokhail – Cole Everson – Colin MacQuarrie
Sponsored by Dalhousie – Department of Surgery

2:10 pm – 2:40 pm
ECED18

Subsea Contactless Connector
Mazen Ibrahim – Khalid El Yaacoub – Connor Dawe
Sponsored by Focal Technologies Corp.

2:45 pm – 3:15 pm
ECED19

**Integration and Testing of an Autonomous Sailboat for Long-term
Survey Missions**
Garrett Jenkins – Blake Meech
Sponsored by Dalhousie – Bousquet Lab

3:20 pm – 3:50 pm
ECED20

Dalhousie Ships Of Opportunity (Dal-SOOP) System Controller
Allen Brandon – Chen Juntian – Zhai Yiwei
Sponsored by Dalhousie – Oceanography, CERC Lab

ECE Session 2

Sponsored by CBCL



8:30 am – 9:00 am ECED06	Build a Submarine Fire Control System Simulator Sakif Zaman – Fahim Galib – Derrick Yin <i>Sponsored by Lockheed Martin Canada</i>
9:05 am – 9:35 am ECED07	Micro AUV Oil Detection Shahzaib Cheema – Adil Shaikh – Walter Porcel Espinoza <i>Sponsored by Dalhousie – Oceanography, CERC Lab</i>
9:40 am – 10:10 am ECED08	Image Processing and Optimization of SPECT CT Ventilation 3D Images Yutong Wang – Canberk Bal – Jisoo Kim <i>Sponsored by Dalhousie – Biomedical</i>
10:15 am – 10:45 am ECED09	Playground Sensors Shuo Yu – Hande Yin – Boxin Zhao <i>Sponsored by Kingswood Ratepayers Association resources</i>
10:50 am – 11:20 am ECED10	Renewable Technologies from E-Waste Sam Stewart – Fadel Haidar – Justin Richards <i>Sponsored by Dalhousie – Hughes Lab</i>
<i>Lunch Break</i>	
1:00 pm – 1:30 pm ECED11	Low-Orbit Satellite EPS Design and Manufacturing Logan Wells – Lucas Rowlands – Weixuan Yang <i>Sponsored by Dalhousie – Space Systems Lab</i>
1:35 pm – 2:05 pm ECED12	Non-Invasive Assessment of Cardiac Aortic Mechanics Saif Nafea – Kosta Svolopolous – Hussain Abdelhalim <i>Sponsored by Maritime Connective Tissue Clinic</i>
2:10 pm – 2:40 pm ECED13	Remote Water Quality Analyzer for HVAC Systems Ben Winters – Katherine Lin – Matt Beitel <i>Sponsored by Canadian Water Solutions</i>
2:45 pm – 3:15 pm ECED14	Rhodamine Fluorescence Sensor Development Yuan Sun – Daicong Chen – Simon Wu <i>Sponsored by Dalhousie – Oceanography, CERC Lab</i>
3:20 pm – 3:50 pm ECED15	Fast Hardware-Based Image Processing for Agriculture Shawn Wolchyn – Scott McConnery – Brett Arthur <i>Sponsored by Dalhousie – Faculty of Agriculture</i>

Poster Index:

Industrial Engineering

Team ID	Poster Title	Industry Client
IENG01	Optimal Booking & Scheduling of Elective Caesarean Section Cases	IWK
IENG02	Streamlining Navigation of Greening Programs for the Community Housing Sector	NS Dept. of Municipal Affairs & Housing
IENG03	Keg Line Improvements at Labatt Oland Brewery	Labatt Oland Brewery - Keg Line Performance Improvement
IENG04	Scheduling and Standardization of Michelin Quality Control Testing	Michelin - QC Test Time
IENG05	Greening the Dalhousie Vehicle Fleet	Dalhousie Office of Sustainability
IENG06	Calibration Approval Process and Tool Availability Optimization at IMP	IMP - Precision Equipment Availability
IENG07	IMP's Proactive Workload Leveling Initiative	IMP - Manufacturing Capacity & Scheduling
IENG08	Smart Drawer for Dental Inventory Tracking	Bluelight Analytics
IENG09	Developing and Implementing a CFIA-Compliant Traceability System	Metroworks & Stone Hearth Bakery
IENG10	Labatt Oland Brewery - Brewhouse Scheduling Optimization	Labatt Oland Brewery - Brewhouse Scheduling
IENG11	Storm Response Crew Planning Optimization	NSPI
IENG12	Improving Data Collection Practices and the Anticipation of Health Outcomes in Family Medicine	Dr. AJ - Patient Mapping
IENG13	Optimization of Rubber Pallet Transportation	Michelin AGV
IENG14	Development of a Generic Inpatient Hospital Simulation Model	NSHA - Patient Flow
IENG15	Vanity Fashion's Inventory Management Analysis & Returns Optimization	Vanity Fashions
IENG16	Database Upgrading and Web Development	Mainland South Historical Society

Mechanical Engineering

Team ID	Poster Title	Industry Client
MECH01	Halifax WWTF – Grit System Optimization	Halifax Water
MECH02	Scotia-Arm Adjustable Wheelchair Push Handles	Division of Physical Medicine and Rehabilitation, Dalhousie University
MECH03	Automation of Production Line	Neocon
MECH04	Universal Robotic End-of-Arm Tooling	Neocon
MECH07	Soaker Pit Optimization Project	Oland Brewing / Labatt's
MECH08	Eyeglass Mold	Coloursmith
MECH09	Tension Sensor for a Towed Array	Ultra Electronics
MECH10	Material Handling Process for Prefabricated Wall Panels	ReCover Initiative
MECH11	Towbody for Autonomous Underwater Vehicle Docking	ISE Ltd, Vancouver
MECH12	Vertical Growing Tower for Urban Farming	Metroworks
MECH13	Material Handling	Malley Industries
MECH14	Wheelchair Accessible Driving Position	Malley Industries
MECH15	Tracking Devices for Those Who Wander	Greywave
MECH16	Contactless Subsea Connector Housing Design	MOOG Focal
MECH17	Adjustable Hip Orthotic Joint for the Treatment of Canine Hip Dysplasia	K-9 Orthotics
MECH18	Accessible Zipline	George Tasiopoulos
MECH19	Respiratory Protection and Isolation System for Head Autopsies	NS Chief Medical Officer
MECH20	Engine Test Cell Improvement Project	Aerotec Engines
MECH21	Manikin Transport and Storage Unit	C3LR
MECH22	Pin Drop	Carolyn Wren
MECH23	Alternative Method of Measuring Occlusal Loading Post Dental Restoration	Bluelight Analytics
MECH24	Wheelchair to Vehicle Transfer Device	Harding Medical

Chemical Engineering

Team ID	Poster Title	Industry Client
CHEE01	Continuous Synthesis of Active Pharmaceutical Ingredients in a Reconfigurable, Miniscale Plant	
CHEE02	Recovery of Microplastics from Marine Sediment	
CHEE03	Recovery of Microplastics from Ship Greywater	
CHEE04	Ceiling Tiles from Recycled Plastic Product and Process Design	
CHEE05	Production of Starch-Based Bioplastics	
CHEE06	Beer Filtration and Filter Aid Recovery at Oland Brewery	Labatt Breweries Canada
CHEE07	Urea Production through Chemical Looping	
CHEE08	Pressurized Chemical Looping Reforming (PCLR) Syngas Production	
CHEE09	Carbon Capture Facility for a Coal-Fired Power Plant	
CHEE10	Constructed Wetland Value-Added Product	Town of Wolfville
CHEE11	Pulse Protein Powder Production	
CHEE12	Central Vacuum System	DSM Nutritional Products
CHEE13	Algal Wastewater System for the Town of Wolfville	Town of Wolfville
CHEE14	Renewable Energy Generation and Storage Design for Remote Community of Rankin Inlet	
CHEE15	Design of a Process for Direct Air Capture in Nova Scotia	
CHEE16	Upgrading of the C3 Stream Separation Units of an Ethylene Plant	
CHEE17	SAGD Oxyfuel CO ₂ Capture and Cogeneration Project	

Electrical and Computer Engineering (4900)

Team ID	Poster Title	Industry Client
ECED(4900)01	Buoyancy Engine	Ultra Electronics
ECED(4900)02	Hardware Encryption Key	Cyber Clan
ECED(4900)03	Design of an Online User Interface for Informatics - Guided Classification of Miscible and Immiscible Aqueous Solutions	Frampton Lab, Dal
ECED(4900)04	IMPERISYS Quality Assurance Plan	Zinck Computer Group
ECED(4900)05	Software for In Vitro Diagnostics	Alentic Microscience
ECED(4900)06	Multi Stage Solenoid Actuator	Unifiller Systems
ECED(4900)07	Safe Sidewalk Navigation	Optimize AI Technology Solutions
ECED(4900)08	Electric Vehicles in Nova Scotia	Dr. HUGHES, ECED, Dal
ECED(4900)09	Gas Fired Generation Thermal Expansion Mismatch Control	Nova Scotia Power Inc
ECED(4900)10	Smart Cabinet	Daxsonics Ultrasound Inc
ECED(4900)11	Gig-E WiFi	NCS Managed Services Inc
ECED(4900)12	Towed Array Emergency Locator	Ultra Electronics Inc
ECED(4900)13	Wind Turbine Control Interface Upgrade	Molen Services Inc
ECED(4900)14	3D Vision and Lobster Picking	Enginuity Inc
ECED(4900)15	Signal Quality Improvement in Oscillometry/ML Methods for Disease Classification	NSERC, SBME, Dal

Electrical and Computer Engineering (4901)

Team ID	Poster Title	Industry Client
ECED(4901)01	CubeSAT ADCS Hardware and Firmware	Dalhousie - Space Systems Lab
ECED(4901)02	Design, Fabrication, and Testing of Optimized Electrical and Acoustic Tuning in an Ultrasonic Endoscope	NSHA
ECED(4901)03	Automatic Segmentation and Measurement of the Middle Ear	Audioptics Medical
ECED(4901)04	MILTON: A Machine Learning Solution to Training Needs Analysis	Lockheed Martin Canada
ECED(4901)05	Real-time Hose Wear Analysis	Ultra Electronics Maritime Systems, Inc.
ECED(4901)06	Build a Submarine Fire Control System Simulator	Lockheed Martin Canada
ECED(4901)07	Micro AUV Oil Detection	Dalhousie - Oceanography, CERC Lab
ECED(4901)08	Image Processing and Optimization of SPECT CT Ventilation 3D Images	Dalhousie - Biomedical
ECED(4901)09	Playground Sensors	Kingswood Ratepayers Association resources
ECED(4901)10	Renewable Technologies from E-Waste	Dalhousie - Hughes Lab
ECED(4901)11	Low-Orbit Satellite EPS Design and Manufacturing	Dalhousie - Space Systems Lab
ECED(4901)12	Non-Invasive Assessment of Cardiac Aortic Mechanics	Maritime Connective Tissue Clinic
ECED(4901)13	Remote Water Quality Analyzer for HVAC Systems	Canadian Water Solutions
ECED(4901)14	Rhodamine Fluorescence Sensor Development	Dalhousie - Oceanography, CERC Lab
ECED(4901)15	Fast Hardware-Based Image Processing for Agriculture	Dalhousie - Faculty of Agriculture
ECED(4901)16	Generate Image Recognition Software for Naval Ships	Lockheed Martin Canada
ECED(4901)17	Bone Loss Volume Scanner	Dalhousie - Department of Surgery
ECED(4901)18	Subsea Contactless Connector	Focal Technologies Corp.
ECED(4901)19	Integration and Testing of an Autonomous Sailboat for Long-Term Survey Missions	Dalhousie - Bousquet Lab
ECED(4901)20	Dalhousie Ships Of Opportunity (Dal-SOOP) System Controller	Dalhousie - Oceanography, CERC Lab

Mineral Resource Engineering

Team ID	Poster Title	Industry Client
MINE01	Seaboard Gold Project	
MINE02	Castle Mining Corporation	
MINE03	NevadaOre Mine	

Judging Committee:

A special thank you to all our industry judges for volunteering their time to review and evaluate our students' capstone posters.

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