



Canadian Society for Chemical Engineering  
Société canadienne de génie chimique

# Hatch Plant Design Competition

## Terms of reference

The Canadian Society for Chemical Engineering offers the Hatch Plant Design Competition for students enrolled in undergraduate chemical engineering programs at Canadian universities. Teams of undergraduate students present a plant design project, usually based on a project carried out in final year, but not restricted to this.

### Sponsor

Hatch

### Deadline

June 30, 2018

### Award

**Team Prize:** The top team will receive a cash award of \$1,000, 2nd place team will receive \$500 and the 3rd place team will receive \$300.

**Individual Prizes:** Each team member of the first-place team will receive a certificate as well as a one year CSChE undergraduate membership. (For those who are recent graduates, the prize will provide an undergraduate member discount towards your upgraded membership). Second and third place team members will receive certificates.

### Eligibility

Individuals and groups of undergraduate students registered in chemical engineering programs in Canadian universities during the academic year. As most design projects are carried out in the final year courses, recent graduates are also eligible to apply. To minimize the number of projects to be judged, each chemical engineering program may only submit one entry. No limit on the size of the team.

### Judging

The competition will be judged entirely at the Canadian Chemical Engineering Conference (CCEC), in two stages. The first stage will be a poster competition during the conference's Welcome Reception on Sunday, where every team sets up and presents their poster. The second stage is an oral competition on Monday, where the top three teams from the poster competition are asked to give a 30-minute oral presentation (including questions) about their project to a panel of judges.

Poster board dimensions can be found under Instructions for Presenters on the conference site.

### Design Topic

Please provide your project in electronic format to the Awards Manager. Entries for the competition should contain the following:

- A list of students who performed the work, with their permanent addresses and e-mail addresses
- An executive summary of the project, including a simplified flow sheet of the process
- A copy of the final report submitted to the university at the end of the project

- The name of the collaborating organization and the engineers who assisted the students and, the submitting Professor/Department must provide a 1-2 page(s) “List of Arguments” stating the reasons the project:
  - Is above level of expectations in terms of quality and/or complexity
  - Contain elements of creativity or novelty and
- Required knowledge and/or work exceeding the expected level of undergraduate chemical engineering students.
- Statements should be precisely formulated as “bullets”; generalities should be avoided.
- The ratio between process information/data given to the students by Professors and Industrial advisors versus the data and information the students had to find themselves is different for each submission. Therefore, to assist in fairly judging the competition, each submitting Professor/Department must provide a summary statement of the initial information provided to the students as well as information regarding the subject plant such as:
  - Is it an improvement/expansion of an existing plant?
  - Is it a new plant and similar or identical plant exists?
  - Is it a new plant and similar or identical plants do not exist?

## Confidentiality

Entries should be accompanied by a letter from the head of the department of chemical engineering, indicating that the information is not confidential.

## Submit

awards@cheminst.ca

## Complete list of recipients

### 2019

- First place: Samantha Stanzel, Divya Sutarwala, Mack Giles, Alexander Sorrini, University of Ottawa, Production of Diethyl Ether Plant
- Second place: Sean McGrath, Colton Smithson, Andrew Foglietta, Eduardo Meija, Chrstina Gu, Inez Tanu, Hang Nguyen, Jennifer Wytmsa, University of British Columbia, Feasibility Study of an Anaerobic Co-digestion Facility in the Fraser Valley Regional District
- Third place: Maxime Gravel, Vanessa Jutras-Concilio, Arianne Provost-Savard, Gabrielle Vicaire, Fatima Zohra-Zoui, Polytechnique Montréal, Microrefinery Unit to Produce Dimethyl Ether from Flare Gas

### 2018

- First place: Laura Fader, Alina Kunitskaya, Keith Cleland, Anh (Annie) Nguyen, University of Calgary, Production of Oxygen on Mars with In-situ Resource Utilization.
- Second place: Samantha Alkadri, Mohamed Bondok, Ahmed Elmeligy, Liana Martel, University of Ottawa, Design of an n-Butyl Acrylate Chemical Plant.
- Third place: Marie Rose Boulos, Isabelle Gilbert-Blais, Maxime Grail, Camille Langlois-Secco, Kahina Mameri, Polytechnique Montreal, A Modular Solution for Gas Flaring.

### 2017

- First place: Genevieve Groleau, Marie Beaulieu, Cyrine Ben Dlala and Tanina Hider, École Polytechnique de Montreal.
- Second place: Ramisa Chowdhury, Sophie Marcotte, Julian Montagut, Antonio Colantuoni and Rafic Osseiran, McGill University.
- Third place: Gagandip Grewal, Talal Omar, Brian Reinholt and Roch Vaillancourt, University of Ottawa.

### 2016

- First Place: Moshtagh Aljawahari, John Anawati, Josée Malette and Prashanth Srinivasan, University of Ottawa, “Design of a Chemical Plant for Production of n-butanol from propane by oxidative

- dehydrogenation and hydroformylation”.
- Second Place: Bryanna Borys, Jared Collette, Therese van der Hoorn and Waheed Zaman, University of Calgary “Re- use of Carbon Dioxide Emissions as an Industrial Feedstock”.
- Third Place: Étienne Cameron, Gabrielle Dagenais, Jade Daigle-Sam Yeng, Wilson Kao and Francis Marquis, École Polytechnique, “Recyclage chimique de Polymère”.
- Fourth Place: Garrett Bangsboll, Caroline Giacomini, Evan Veryard and Jingyuan Zhang, McGill University, “Continuous Ethoxylation Project”.

#### SCN-Lavalin Plant Design Competition

2015

- First place: Natasha Bieniek, Christopher Lock, Ryan Gerlach, Terry Milton, Kayte Sutherland, Lakehead University, “Converting Plastics Waste to Straight Run Petroleum Products”.
- Second place: Mathan Goldstein, Anand Natu, Chantelyn Pineda and Praneet Akilla, McGill University, “Carbon Capture Facility Design”.
- Third place: Nguyen Pham, Sergiy Rudy and Rana Rahmani, Ryerson University, “Design of a Bioenergy System (100kw) From Hog Waste and Grass Silage”.

2014

- First place: Nathan Blundon, Eric Czaczkowski, Travis Roske and Matthew Smith, Lakehead University, “Hydrogen Production by Sorption-Enhanced Steam-Methane Reforming”.
- Second place: Ryan Bekeris, Matthew Hudder, Robert Tyssen, University of Ottawa, “Benzyl Chloride Manufacturing Facility”.
- Third place: Nabeel Jadavji, Jelani Baptiste, Diana Jula and Evangeline Philos, University of Waterloo, “Combined- Cycle Natural Gas Power Plant with Opportunities to Reduce Environmental Impact”.

2013

- First place: Jeremy Hughes, Bruce Scott, Erin Flanagan and Cody Brown, University of New Brunswick, “The Use of Solid Catalyst Technology in the Alkylation of Refinery Grade Propylene”.
- Second place: Richard Cezar, Caroline Belzile, Jean-Raphael Boudreault, Geneviève Lecroix, Guillaume Poulin, Université de Sherbrooke, “Ingénierie préliminaire d’un procédé de récupération du phosphate tricalcique présent dans les eaux usées”.
- Third place: Seyed Nourbakhsh, Mohammad Meshkaldini, Amirsalar Yaraghi, Pantea Pourhekmata, Jad Madi, Ryerson University, “Adipic Acid Plant Production Design”.

2012

- First place: Pierre-Olivier Corcos, Marc-Antoine Lauzon, Philippe Marcotte, Samuel Mercier, François Pelletier- Bouchard, Université de Sherbrooke, Biotechnologie, “Projet sur la biométhanisation des drêches de brasserie”.
- Second place: Wendy Cheng, Kelsey Gerbrandt, Yvonne Hsieh, Heather Kempthorne, Paul Kim and Cherie Tan, University of British Columbia, “Design of a Carbonated Yogurt Beverage Production Plant in Canada”.
- Third place: Dustin MacDonald, Mike MacMillan, Nicholas Marchand, Dalhousie University, “Ethanol Production From Sugarbeets Utilizing Energy Saving Distillation Technologies”.

2011

- First place: Sophie Belley, Alexandre Martin-Dubreuil, Louis-Philippe Préfontaine-Dastous, Véronique Normand, Marie-Pier Tétreault, Université de Sherbrooke, “Conception d’une usine de production efficiente de bière”
- Second place: Gabriel Manuge, Wei Sang, and Sean Sobey, Dalhousie University, “Production of Ethylene Glycol and Ethylene Oxide”

2010

- First Place: Dominic Bellemare-St-Louis, Lee Bourgoïn, Jonathan Deschamps, Marie-Suzanne Gignac,

Nicolas Lafleur, Université de Sherbrooke, "Production contrôlée et efficace de vaccins contre la grippe basée sur une technologie de culture cellulaire"  
Second Place: Rimaz Abakar, Tariz Amir, Salim Fettaka, Matthew Galarneau, Nabil Hadj-Moussa, University of Ottawa, "HPV Chemical Plant Design Project Final Report Hydrazine Production in Sarnia, Ontario"  
Third Place: Caryn Liberman, Bikram Sandhu, Michael Chu, Pierce Kim, Ronald Tse, University of British Columbia, "Utilization of Hydrogen from Vancouver Landfill Gas".

2009 (International SNC-Lavalin Plant Design Competition held at the 8th World Chemical Engineering Conference)

First Place: Aleisha McCabe, Grant McCool, Derek Sumner, Oklahoma State University, USA, "Manufacture of Polylactic Acid — Biodegradable Plastic from Renewable Sources".  
Second Place: Tarrant Faloke, Blake Stewart, Soma Bharatiya, Curtis Landon, Reshma Pandher, Sachie Weilakala, Monash University, Australia, "Integrated Gasification Combined Cycle Power Station with Carbon Capture and Storage for Gladstone, Queensland".  
Third Place: Suanne Mahabir, Karen Lenkiewicz, Luke McIntyre, University of Western Ontario, Canada, "Manufacture of Polylactic Acid — Biodegradable Plastic from Renewable" Sources.

2008

First Place: Suanne Mahabir, Karen Lenkiewicz, Luke McIntyre, University of Western Ontario, "Manufacture of Polylactic Acid — Biodegradable Plastic from Renewable" Sources.  
Second Place: Allyse Kreiser, Kevin Mamer and Kevin Sundquist, University of Saskatchewan, "Low-Temperature Crystallization Unit for Sulphate and Perchlorate Removal from a Closed System Sodium Chlorate Plant".  
Third Place: Justin Bourret, Marie-Claude Cassista, Mélissa Gaucher, Julie Poudrier and Évelyne Smaers, Université de Sherbrooke, "Production de bactéries pour des fins de traitement des eaux usées".

2007

First Place: Audrey Bernard, Dominic St-Onge, Pierre-Luc Gagnon, Louis-Ghislain Roy, Emanuelle Plante, Université de Sherbrooke, "Usine de pâte kraft".  
Second Place: Stephanie Dadidovsky, Rami Issa, Jean-Michel Lavoie, Antonina Tosia Lapata, McGill University, "Nickel Nanopowder Production via Chemical Precipitation".  
Third Place: Mark Berscheld, Melissa Bromstar, Rihanna Vanin, University of Saskatchewan, "Bio-Diesel Production at the Lloydminster Upgrader".

2006

First Place: Jesse Berton, Karyn Ho, Karen Lau, Michael Lee, Elton Lu, Jimmy Sunaryo, Amberley Bailey-Romanko, Shaun Lamoureux, Satya Nookala, Neil Sutherland, University of British Columbia, "Acid Mine Drainage Remediation Britannia Water Treatment Plant".  
Second Place: Sura Ali, Joelle Jureidini, Léonie Rouleau, McGill University "Fiberline Upgrade".  
Third Place: Richard Roda, Michael Beresford, Jeff MacDonald, Dalhousie University, "Liquid Phase Alkylation of Benzene with Ethylene".

2005

First Place: Karyn Ho, Karen Lau, Elton Lu, Shaun Lamoureux, Jesse Berton, Jimmy Sumaryo, Michael Lee, Amberly Bailey-Romanko, Satya Nookala, Neil Sutherland, University of British Columbia, "Acid Mine Drainage Remediation Britannia Water Treatment Plant".  
Second Place: Sua Ali, Joelle Jureidini, Léonie Rouleau, McGill University, "Fiberline Upgrade".  
Third Place: Michael Beresford, Jeffrey MacDonald, Richard Roda, Dalhousie University, "Liquid Phase Alkylation of Benzene with Ethylene".

2004

First Place: Beatriz Myra Alvarade, Ethan DeFord, Rima Manneh, McGill University, "Atmospheric Hydrochloric Acid Leach of Nickel Laterite Ore".  
Second Place: Karine Belanger, Nathalie Camire, Philippe Chouinard, Jean-Philippe de Serres, Nicole Desnoyers, Catherine Dubrueuil, Maxim Duchesne, Pierre-Luc Girard, Dragana Hann, Daniel Laflamme, Francois Laflamme, Odile Lamarche, Julie Tremblay, Université de Sherbrooke, "Rapport d'ingenierie preliminaire pour la production de biodiesel".

Third Place: Khaled Abdel-Gawad, Mustafa Al-Sabawi, Wailan Chen, Derek Daniher, University of Western Ontario, "Hydrocracking of Vacuum Gas Oil".

2003

First Place: Heidi Brochu, André LeBlanc, Pierre Belleau, Université de Sherbrooke, "Étude Préliminaire Usine H<sub>2</sub>O<sub>2</sub>".

Second Place: Nusrat Choudhury, Laura DeSimini, David Shaddick, McGill University, "El-Outaya Salt Purification Plant".

Third Place: Erin Egan, Sailaja Potaraju, Mohammed Sabha, Jonathan Stoltzfus, McGill University, "Lube Oil Re- Refining Plant".

2002

First Place: Amer Ebied, M. Ali Soleymannezhad and Landry Biles, University of Western Ontario, "Polyisobutylene- Polystyrene Block Co-polymerization by Batch Process".

Second Place: Allison Flinn, Joanna Premock and Krista Pousseault, University of Western Ontario, "Production of Methanol from Heavy Oil Residues".

Third Place: Gaetan Gobeil and Karthik Selvam, University of Saskatchewan, "Fuel Ethanol Plant Design".

2001

First Place: Francis Chua, Aaron Grover, Yung Hoang and Milena Vujic, University of Western Ontario, "The Treatment of Spent Pickling Liquor".

Second Place: Mike Burgoyne, Brenda Yun Chen, Ryan Davies, Heather Dobson, Ben Goodier, Christian Hluchy, Genevieve Kenny, Mark Lee, Maninder Mangat, Edward Muliawan, Trevor Roberts, Manpreet Sidhu, Nathaniel Stoffelsma and Marnie Williston, University of British Columbia, "Design of a World-Scale Aniline Plant".

Third Place: Tim Barnstable, Cameron Brown and Ryan Spelay, University of Saskatchewan, "Retrofit of PCS Allan Mine Flotation Circuit".

2000

First Place: Ali Al Saleem and James Kokonas, University of Saskatchewan, "Installation of a Turboexpander for Power Recovery from a Natural Gas Letdown Station".

Other Finalists: McGill University and Dalhousie University

1999

Finalists: Julie Bailey and Scott Nauss, Dalhousie University; Ash/Hobin/MacIntyre, Dalhousie University and; Blok, Di Palma, Haley, McGill University

1998

First Place: Alyssa Park, Jason Tchong, University of British Columbia

Other Finalists: University of Western Ontario and McGill University (2 teams)

1997

Finalists: Université de Sherbrooke, École Polytechnique and Technical University of Nova Scotia

1996

Not available

1995

Not available

1994

Not available

1993

First Place: Randy Miller, David Scott, Nancy Irwin, Shaffiq Jaffer, University of Alberta, "Chlor-Alkali Production Using a Membrane Process".

Other Finalists: Queen's University and University of Saskatchewan

1992

Finalists: McGill University (2 teams) and University of Saskatchewan (2 teams)

1991

First Place: Kelly Knorr and Kevin Dorma, University of Saskatchewan, "Ethylene Plant".

Other Finalists: McGill University and University of Saskatchewan SNC Plant Design Competition

1990

First Place: M. Al-Jah, K. Farahbaksh and T. Moser, Technical University of Nova Scotia, "Feasibility Study for the Development of an Ethylene and Propylene Plant in Nova Scotia".

Other Finalists: McGill University and University of Calgary

1989

First Place: Yvette Bayers

1988

First Place: Paul Brown, Pak Kai Yuet and Lisa Chan, Technical University of Nova Scotia, Preliminary Study for the Production of Propylene and Ethylene in Nova Scotia".

Other Finalists: University of New Brunswick and University of Toronto

SNC FW Plant Design Competition

1987

First Place: Ian Douglas, University of Western Ontario "The POXM (Partial Oxidation of Methane)".

Other Finalists: University of Alberta and University of Toronto

CSCHE Plant Design Competition

1986

(this was a written competition only, posters were introduced in 1987)

First Place: John Garofalo, Carmine Fontana, Julia Lewis, Giancarlo Sansalone, Sherman Wu, Tacoma Zach, University of Toronto, "Feasibility/Design Student of a Heavy Oil Upgrader".