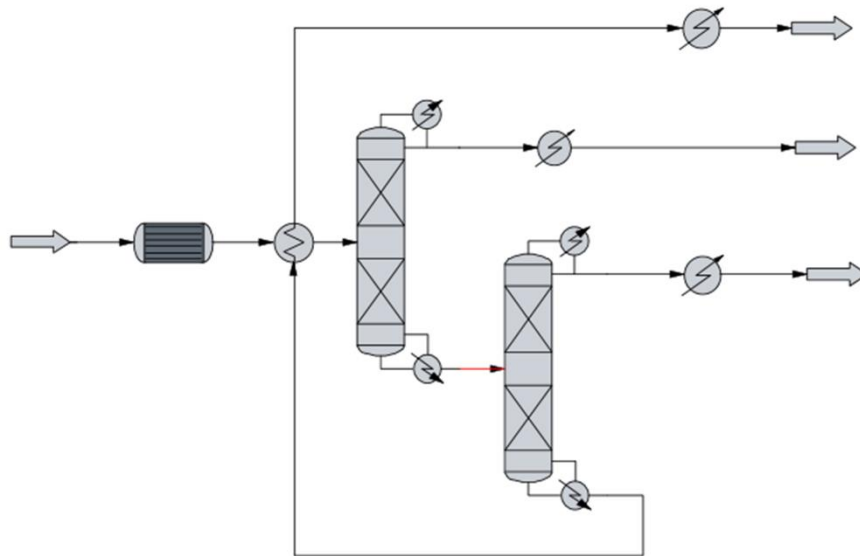


2020 UC Chemical Engineering
Senior Design Exposition

April 2020
First-Ever UC CHE Virtual Design Exposition!



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Department of Chemical and Environmental Engineering
American Institute of Chemical Engineers
Ohio Valley Section

2020 PROJECTS

Utilization of Ohio Coal/CO₂ Capture

2001: Large Scale, Continuous Process for Producing Syngas from Ohio Coals Using Chemical Looping – Shawn Layden, Jessie Mootz, Michael Pileggi, Hannah Schyllander, Mitchell Stammen; Faculty Sponsor: Dr. Panagiotis Smirniotis

2002: Acid Gas Removal from Syngas Produced from Ohio Coal – Connor Applegate, Macen Cancino, Cassidy Carey, Kevon O’Hanlon, Garrett Schrum; Faculty Sponsor: Dr. Panagiotis Smirniotis

2003: Synthesis of Oxygenates from Syngas – Turki Busaidi, Ah Ra Cho, Sundas Khan Farooq, Sook Kuan Goh, Paige Martin, Parker Smith; Faculty Sponsor: Dr. Panagiotis Smirniotis

2004: Production of Phenolic Resins from Formaldehyde – Cory Chisholm, Linh Do, William Hobart, Alexandria Holton, Madison Summers; Faculty Sponsors: Dr. Panagiotis Smirniotis and Dr. Stephen W. Thiel

2006: Membrane Capture of Carbon Dioxide – Grant Powers, Jacob Jarrett, Kurt Lentz, Jacob Miller, Maria Novak; Student-proposed project

2025: Syngas Production from Methane Dual-Reforming – Muhannad Al Hadhrami, Mohanad Al Maqbali, Maathar Al Balushi, Meera Al Hooti, Scott Shilling; Faculty Sponsor: Panagiotis G. Smirniotis

Consumer Products

2007: Design and Optimization of a Brewery – Matt Kurrass, Nick Okada, Lincoln Parsley, Sam Willis, Grace Winckowski; Student-Proposed Project

2008: The Process of Aging Whisky for Profitability – Ben Balster, Calum Finch, Rachel Henderson, Jenna Knirnschild, Susan Moore; Student-Proposed Project

2005: Ultra-Sonic Spirit Aging vs. Traditional Barrel Aging – Noah Abbott, Frank Ellert, Trieu Nguyen, James Patterson III, Ryan Rhad; Student-Proposed Project

2009: Industrialization of Refining Cannabis Concentrates – Brad Homan, Nicholas Patel, Nicholas Stevens, Alexis Von Holle, Emily Wyatt; Student-Proposed Project

Water and Wastewater

2010: Design Proposal for a Desalination Plant on the Decommissioned San Onofre Nuclear Generating Station with a Capacity of 50 MGD – Simon Anthony, Connor Chu, Rachel Darrah, Caroline Kelley, Caleb Lay; Student-Proposed Project

2024: An Alternate Wastewater Treatment Process for Shepherd Chemical – Jennifer Adams, Michael Bonamer, Jace Bovenzi, John Nordloh, Zachary Zablo; Industrial Sponsor: Shepherd Chemical

Use of Renewable Energy and Greener Alternatives

2011: Production of Chemical Intermediates from Renewable Hydrogen and Captured Carbon Dioxide – Luisa Anaya, Adam August, John Civin, Allyson Hummel, Andrew McClure

2013: Production of Succinic Acid by Fermentation of Glycerol – Ryan Durham, Hung Nguyen, Sara Martin, Joseph Papa, Olivia Roll

2014: Evaluation for the Production of Dimethyl Carbonate (DMC) through a Catalytic Reaction – Nicholas Brown, Kevin Ballachino, Clay Barr, Alex Gunther, Carrie Vennefron

Commodity Chemicals

2016: Process Design for Synthesizing and Purifying Dimethylacetamide from Dimethylamine – Tyler Cowans, Jeremy Daum, Victoria Detcher, Leah Pickner; Student-proposed project; Industrial sponsor: DuPont

Products from Waste Streams and Materials

2018: Production of Yellow Grease from Sewer Waste Grease – Mehak Chawla, Siqu Chen, Matthew Nichols, Andy Troyan, Madisson White; Faculty sponsors: Dr. Mingming Lu and Dr. Stephen W. Thiel

2019: Biochar and Coffee Oil Production from Spent Coffee Grounds – Lillian Ashworth, Cassie Packis, Zach Spoelstra, Matthew Stockman, Sean Weddell; Student-proposed project, Faculty sponsor: Dr. Mingming Lu

2020: Purification and Reaction of Phosphogypsum with Lithium Carbonate to Produce Lithium Sulfate and Calcite – Patrick Beer, Frank Bolek, Brayden Hurd, Ahmed Musaitif

2021: Conversion of Cyanobacteria Blue-Green Algae to Bioethanol via Fermentation – Braydon Boyd, Michael Frederick, Maximilian Maher, Kolawole Omoyosi, Cameron Richards, David Schroeder

2022: Recycling Polyethylene Terephthalate Waste into Dimethyl Terephthalate via Methanolysis – Bryce Hardin, Kevin Murray, Chris Gilyon, Bély Stockman

2023: Design of Acetic Acid Production Plant from Pyrolysis of Medical Waste – Cameron Beck, Grant Gallagher, Dominick Forlenza, Anya Jolicoeur, Daniel Matthews; Student-proposed project