The University of Jordan
School of Engineering
Department of Chemical Engineering

Under-Graduation Project Proposal (I & II)

Course Number: 0975599

Supervisor: Prof. Menwer Attarakih

Semester/Academic Year: Second semester (Spring) /

Student Names:

1. **3.** **5.**
2. **4.**

Project Title: Computer-Aided Process Design and Economic Evaluation of Glycerol Etherification Process

Specific Objectives

Computer-aided M & E balances, screening of process alternatives, sizing of major pieces of equipment, energy integration and economic evaluation of the final proposed process flowsheet to produce di- and tri- tert-butyl ethers of glycerol.

General Approach

1. Literature survey: To set design basis (plant capacity and product purity), discover chemical pathways and give insight into available process technologies for producing tert-butyl ethers of glycerol.
2. Development of a simulation flowsheet for glycerol tert-butyl alcohol etherification process using CHEMCAD.
3. Parametric optimization of the HEN for the tert-butyl alcohol etherification process.
4. Integration of Safety into process design.
5. Preparation of the PFD according to ASME standards and process description.
6. Performing major equipment sizing using the optimal flowsheet in step 5.
7. Site location and plant layout.
8. Economic and profitability analysis of the final optimal flowsheet.
9. Written report & Oral presentation.

Design/Analysis Tools and Methods

Use of available computer flowsheeting package CHEMCAD and PFD drawing software.

Project Deliverables & Outcomes (Related to ABET 1 TO 7 & ChE Program)

An optimized simulation flowsheet for glycerol tert-butyl alcohol etherification process using CHEMCAD.

Relationship to ABET Program Outcomes 1 TO 7.

1	2	3	4	5	6	7
X	X	X	X	X	X	X

Relationship to ChE Program Objectives

PEO1	PEO2	PEO3	PEO4
√	√		

Applications of project

Simulation of chemical processes is currently in high demand for understanding process behavior, design, control, troubleshooting, debottlenecking and operator training.

Time Schedule

Project I **:** 2nd semester (Spring) 2018/2019

Project II: 1st semester (Fall) 2019/2020

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