SENIOR DESIGN SYMPOSIUM

MAY 4, 2017
UNIVERSITY EVENT CENTER
LAMAR UNIVERSITY
1. Crude Expansion  
   Group: Melei Victorine A Akpa, Majdi Alharbi, Almuhannad Basuni, Jesus McKinnon, Luis Villa, Daniel Wilkinson  
   Description: 325,000 BBL/DAY Crude Expansion Project including crude still, vacuum tower, and reformer area equipment

2. Ethanol Fermentation, Distillation and Recovery  
   Leader: Aaron Gauthier  
   Group: Micah Murdock, Chad Miller, Chris Cheek, Chase Pinder  
   Description: Making beverage, fuel and industrial ethanol

3. Crude Expansion  
   Leader: Shannon Kruger  
   Group: Aishah Alfarhan, Progga Chirontoni, Ryan Null, William Shipp IV, Sean Treese  
   Description: 325,000 BBL/DAY Crude Expansion Project including crude still, vacuum tower, and reformer area equipment

4. Roku Petrol Crude Expansion  
   Leader: Alaina Cole  
   Group: Donald Dobson, Erin May, Austin Ross, Erika Salinas, Artur Tkachevl  
   Description: Design of crude refinery unit expansion

5. Advanced Enterprises  
   Leader: Joanna Chavez  
   Group: Andrew Allgeyer, Madison Hardy, Manisha Patel, Ashley Trahan, Kyle Zygula  
   Description: Simulating crude expansion project

6. BMS-CJS Expansion Team  
   Leader: William Kelly  
   Group: Joseph Amoabeng, Cole Clabough, Tuyet Nguyen, Masy Nwosu, Sabrina Smith  
   Description: Designing a 325 MBD Crude and Reformer area expansion

7. Crude Expansion  
   Group: Abed Aicha, Mohanad Alhamdan, Connor McBride, Roerto Obregon, Enrique Salazar, Samuel Stratton  
   Description: 325,000 BBL/DAY Crude Expansion Project including crude still, vacuum tower, and reformer area equipment

8. Crude Expansion and Optimization  
   Leader: Rachel Thompson  
   Group: Trenton Allen, Steven Beagle, Ismael Ochoa, Ryan Trahan, Shreah Whitlock  
   Description: Design of crude tower distillation and naphtha processing complex
9. Modern Round About
   Leader: Joanne Scarf
   Group: Ahmad Alzahrani, Madison Floyd, Diego Ordonez, Tyler Skinner
   Description: A circulatory roadway will be designed in a rural area in order to
decrease traffic congestion and increase safety on the existing highway

10. Erosion Mitigation at FM 787 and the Trinity River
    Leader: Nicholas Lutz
    Group: Zachary Ferguson, Travis McCawley, James Horne, Eric McGuire,
    Matthew Shelton
    Description: The purpose of this project is to mitigate erosion occurring at FM787
    and the Trinity River

11. Development of an Optimized Compressed Earth Block for the Southeast Texas Area
    Leader: Molly Ross
    Group: Mariam Abedelwahab, Kyle Edwards, Johnita Goodman, Julie Hammond,
    Brandon Watkins, Kyle Edwards
    Description: Compressed Earth Blocks (CEB), will be designed, manufactured
    and tested using various stabilizers in order to develop a sustainable building
    material applicable to the Southeast Texas area

12. The Meadows Subdivision
    Leader: Kassie Kolander
    Group: Holden McCollum, Bernice Villapando, Cameron Meyer, Clint Dailey,
    Colin King, Eric Wooten
    Description: To expand the design of a current subdivision as well as determine
    solutions for adequate drainage so as to accommodate future development

13. Multistage Lead Acid Battery Charger
    Leader: Nicholas Davis
    Group: Cody Allen, Daniel Nguyen
    Description: Design and build a system which can safely charge and maintain
    any 12V lead acid battery

14. RFID Controlled Electronic Door Lock
    Leader: Jonathan Taylor
    Group: Nicholas Carter
    Description: Design an RFID activated electronic door lock mountable to any
    household door for both security and convenience

15. Arduino Pill Counter
    Leader: Levi Boullion
    Group: Caleb Buxie, Omar Enriquez, John Pickren
    Description: To create an external module that can count and sort objects based
    on a list of pre-selected criteria
16. Touch Screen for Ophelia
   Leader: Mason England
   Group: Megan Kemp, Abdullah Al Issa
   Description: Create an augmentative and alternative communication (AAC) device for Ophelia’s wheelchair

17. Liquid Release System
   Leader: Paul Falgout
   Group: Darren Easley, Saleh Al Olaimi
   Description: Create a proof of concept demonstrating a low-cost solution for level control in natural gas scrubbers.

18. Spherical Robot
   Leader: Jesus Diaz
   Group: Jordan Johnson, Angel Rodriguez
   Description: Create a robotic sphere that is able to move in all directions with a dynamic feedback system to adjust its balance

19. Electronic Tray with Communications
   Leader: Mohammed Alqattan
   Group: Hassan Alzaki, Gabriel Espinosa
   Description: Develop a speech application that incorporates a touch screen integrated into a wheelchair

20. Fingerprint Recognition Operated Door Opener
   Leader: Ivan Barragan
   Group: Taylor Bellard, Chigozirim Ike
   Description: Incorporate a low cost, user-friendly fingerprint recognition module to open a vehicle door

21. Mechanical Cow
   Leader: Trenton Moore
   Group: Ethan Ellender, James Struble
   Description: Design and construct a remote-controlled cow that utilizes a cable, a pulley system and a motor

22. Near Infra-Red Spectroscopy Designed with Digital Cameras
   Leader: Robert Perry
   Group: Conan Semien, Steven Nguyen
   Description: Design and build a functional near infra-red (FNIR) brain imaging system with digital cameras

23. Automated Home System
   Leader: Denys Wade
   Group: Mark Fanos, Megan Mahana
   Description: Develop an automated home system that sends mobile notifications, uses timers and provides mobile remote control

24. SmartKnock
   Leader: Patrick Taggart
   Group: Travis Moore, Justin Wilkinson
   Description: Create a lock that is more useful and convenient than digging keys out of a pocket or a purse
25. Lamar Array of Microphones for Deciphering Audio (LAMDA)
   Leader: Lukas Moravits
   Group: Mitchell Davis, Jesse Wells
   Description: Create a proof of concept demonstrating a microphone array capable of both hands-free communication and monitoring

   Leader: Jessica Rowell
   Group: Abdullah Alhabidi
   Description: Implementing cost estimation solutions for Cogbill Construction’s fabrication process. We focused on the plate roller process, collected time studies and analyzed our findings. We developed a formula based on statistics that can project the time needed to roll plate based on the dimensions of the product. We designed a calculator that will allow Cogbill Construction to input dimensions and find the time needed in this process for their cost estimation purposes. Researched professional software programs that would be beneficial to the company to give them more options for their cost estimation needs

27. Water Clarifying System Automation at XYZ Chemical Plant
   Leader: Kaitlin Wolford
   Description: This project will improve the automation and reliability of a water clarifying system by implementing new instrumentation

28. Facility Layout Project
   Leader: Saleh Alsenani
   Group: Mahdi Hejazi, Hashim Almaghrai
   Description: Focusing on Cogbill Company in need of a layout redesign. We will focus on reducing the traveling distance from each department to another department. By reducing the traveling distance, the traveling time will be reduced, and the cost of material handling will be reduced as well

29. Port of Beaumont
   Leader: Veronica Ochoa
   Group: Kaley Sanford, Daliwealth Chou, Erica Borel
   Description: Designed a cargo location assignment system for the Port of Beaumont. Currently, there is no system for cargo allocation so with the use of an optimization mode, a simulation and ArcGIS we have created a system for them

30. Routing Optimization for FedEx
   Leader: Nadiya Kulibaba
   Group: Nikita Lis, Faith Baha Omeroglu
   Description: Develop alternatives for routing optimization for a local FedEx Contractor who is lacking everyday scheduling for drivers. The company is facing a problem of misdelivered packages which our team is currently working on
31. Signal Level Analysis  
Leader: William Watson  
Description: Four high volume parts of the Signal Level Control line have increased in production time by an average of one hour. This project analyses the causes of increase, and makes recommendations for decrease of time using industrial engineering tools that lead to a projected annual savings of $300,000.

32. Alpha Rescue  
Leader: Nancedalia Duarte  
Group: Jarrod McFee, Samuel Walker, Anas Subki  
Description: Alpha Rescue is an ambulance company based out of Silsbee Texas. We were given the tasks of: Organizing their storage room, developing a more efficient process for restocking the ambulances, creating a system to know when/how much inventory to order and submitting a preventative maintenance program for the vehicles.

33. Designing a Windshield Manufacturing Facility  
Leader: Rocio Hart  
Description: Design a replacement windshield manufacturing facility that has the ability to produce a minimum of 5,000 and maximum of 10,000 windshields per month. Choose machinery that will be used, design an efficient layout for the facility, complete a financial analysis and personnel requirements for employees.

34. Designing a Windshield Manufacturing Facility  
Leader: Mohammed Rahad Hossain  
Description: Design a windshield manufacturing facility, manufacturing equipment, support equipment, personnel requirements, and manufacturing support areas. The plant should be able to produce a minimum of 5000 windshields per month and up to 10,000. The product should be ready to be sold as a replacement parts in the most common brands in North America.

35. TSGC-11 Alternative Sanitation Methods for Long Duration Space Missions  
Leader: David Michaelsen  
Group: Federico Gasbarri, John Gust, Chris Stelse, Wesley Wilson  
Description: The Lamar Launderers have developed a lightweight, inexpensive and energy-efficient method for sanitizing clothing for repeated use on long-term space missions.

36. SAE Mini Baja  
Leader: Tyler Downs  
Description: Design, build, and test an all-terrain vehicle for SAE Baja Collegiate Competition.
37. Mars Sample Return System
   Leader: Tommy Wendling
   Group: Luke McCall, Alan Godinez, Travis Miller, Matthew Hunt
   Description: The goal was to design a device that could efficiently pick up and contain sample caches that would be on the surface of Mars

38. EcoCardinals Urban Concept Car
   Leader: Justin Amedee
   Group: Mary Bergman, Bryce Boyette, Richard Bradley, Robert Brush, Steven Do, Emmanuel Flores, Aaron Lavergne, Andres Torres, Edgar Trevino, Brian Turner, Holly Washburn, Kamdon Weaver
   Description: To design and build an economical diesel powered vehicle that includes street legal components such as headlights, taillights, mirrors and windshield wipers

39. Shell Eco Marathon Prototype Design
   Leader: Abdullah Altoom
   Group: Mario Guzman, Abdulmuhsen Alnajjar, Anthony Malish, Devin Allen, Diego Valasquez, Humberto Zepeda-Lopez, Jeandre Hoogenboezem, Noah Roberson
   Description: Design, build, and test a highly fuel efficient vehicle for Shell EcoMarathon Prototype Diesel Competition

40. Theo Jansen Walking Machine
   Leader: Evelyn Williams
   Group: Israel Pipkinst
   Description: Design, build, and test a walking robot based on Theo Jansen mechanism

41. MATE ROV
   Leader: Mary Ray
   Group: Koby Couron, Christian Dao, Ryan Fregia, Quade Robertson, Rashaan Webster, Brent Janak, Brannon Beaton
   Description: Designed an underwater remotely operated vehicle that will be required to complete four task within fifteen minutes at competition. Each task is different and therefore the ROV will be versatile and build within required boundaries to complete each task

42. Human Powered Vehicle, Team 2
   Leader: Logan Rhame
   Group: Manuel Medina, Logan Rhame, Chris Sweat, Connor Allen, Bryce Whaley, Paul Hillyard
   Description: Design an aerodynamic efficient, high speed, impact resistant human powered vehicle through the use of scientific principles

43. Human Powered Vehicle, Team 1
   Leader: Matthew Kelm
   Group: Justin Doolittle, Jose Quarta, Matt Broussard, Garrett Glatfelter, Brian Stafford
   Description: Build a recumbent style bicycle

44. Electronic Cooling System
   Leader: Christopher Alger
   Group: Justin Ho, Amanda Xu, Jack Zhao
   Description: Observation and measurement of various electronic cooling system
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