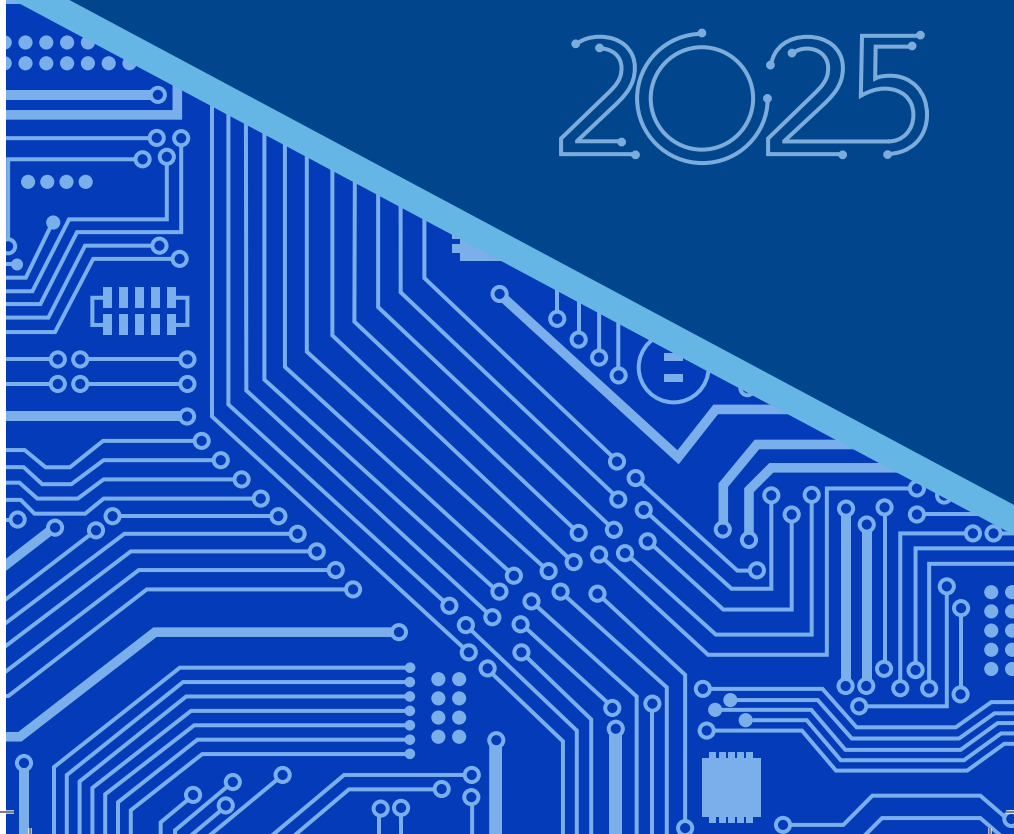


DESIGN+ RESEARCH CONFERENCE

2025





WELCOME

Dear Students, Faculty, Alumni, and Distinguished Guests,

It is my honor to welcome you to the 2025 Engineering and Design Showcase, a testament to the intellectual rigor, creativity, and technical excellence embodied by our students. As Dean of the College of Engineering and Science (COES), I am proud to present this year's Senior Design Capstone Projects, which represent the culmination of extensive academic inquiry, collaboration, and innovation.

These projects not only reflect the deep knowledge our students have acquired but also their ability to apply that knowledge to address complex, real-world challenges. They exemplify the high standards of our COES programming and the transformative potential of the next generation of engineers and scientists.

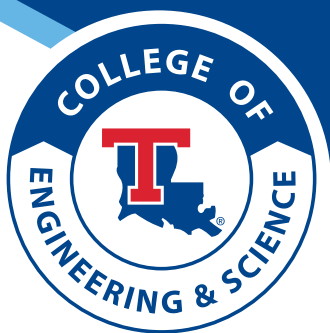
I extend my gratitude to the students, faculty mentors, and industry partners whose collective efforts have brought these projects to fruition. As you explore the showcase, you will witness a wide-ranging array of approaches and solutions that demonstrate the future impact of these innovations on both technology and society.

Congratulations to all participants for your remarkable accomplishments. I look forward to the continued influence you will have as you embark on your professional journeys.

Sincerely,

Collin Wick, PhD
Dean & Daniel D. Reneau Eminent Scholar Chair
College of Engineering and Science

DIRECTORY OF PRESENTATIONS



BIOMEDICAL.....	IESB 214
CHEMICAL ENGINEERING.....	IESB 124, 126 (3PM)
CHEMISTRY.....	IESB 318
CIVIL ENGINEERING.....	IESB 224, 212 (3PM)
COMPUTER SCIENCE.....	IESB 216, 218, 220
CONSTRUCTION ENGINEERING TECHNOLOGY.....	IESB 222, 226
CYBER ENGINEERING.....	IESB 126
ELECTRICAL ENGINEERING.....	IESB 210, 228
INDUSTRIAL ENGINEERING.....	IESB 212
INSTRUMENTATION & CONTROL SYSTEMS ENGINEERING TECHNOLOGY.....	IESB 105
MATHEMATICS & STATISTICS.....	IESB 110
MECHANICAL ENGINEERING.....	IESB 112, 114, 122
NANOSYSTEMS ENGINEERING.....	IESB 228
PHYSICS.....	IESB 308



Scan the QR code to read abstracts of these projects.

BIOMEDICAL ENGINEERING



1:00 IESB 214

NESTLE (Neonatal Enhanced Supportive & Therapeutic Lifted Equipment)

Team Members: Amelia Boudreau, John Neill, Brianna Poole,
Reeya Shrestha

1:30 IESB 214

VOLT Plating System In-Situ Bending Device

Team Members: Jenna Carballo, Colin Doherty, Madison Enfinger

2:00 IESB 214

Dock Ock: An Intervertebral Disc Removal Device

Team Members: Raegan Hartdegen, Caleb Neal, Allie Smith

2:30 IESB 214

Refreshment Break

3:00 IESB 214

Assistive Lap Desk for Reducing Dystonic Movements in Upper Extremities

Team Members: Katie Cooley, Rory Mullins, Eliziah Riley,
Ashok Sigdel

3:30 IESB 214

Electric Spinal Rod Cutter

Team Members: Parker Dubois, Madison James,
Cynthia Langkamp, Hannah Madden

CHEMICAL ENGINEERING



1:00 IESB 124

Cumene Production from an Aromatics Complex

Team Members: Ruthie Benson, Rylan Coe, and Carly Osburn (1A)

1:30 IESB 124

Hydrogen and Olefins Production from Louisiana Shale Gas

Team Members: Hannah Parker, Garrett Bakanovic, and Spring Christ (2A)

2:00 IESB 124

Fuels and Lubricants Production via Hydrocracking

Team Members: Gregory Allen, Nathan Massey, and Devin Lawrence (3A)

2:30 IESB 124

Cumene Production from an Aromatics Complex

Team Members: Jacob Michelli, Jackson Still, and Ryan White (4A)

3:00 IESB 124

Olefins Production from Methanol

Team Members: Mohammad Tarikuzzaman and William Stilson (5A)

3:30 IESB 124

Cumene Production from an Aromatics Complex

Team Members: Louis Clark, Robert Martin, and Sean Nash (1B)

4:00 IESB 124

Hydrogen and Olefins Production from Louisiana Shale Gas

Team Members: Kadie Peyton, Zachariah Burns, and Viridiana Arellano (2B)

3:00 IESB 126

Fuels and Lubricants Production via Hydrocracking

Team Members: Garrett Sepulvado and Kade Esquivel (3B)

3:30 IESB 126

FCC Gasoline Desulfurization

Team Members: James Cole, Chase Senac, and Logan Pertuis (4B)

CHEMISTRY



1:00 IESB 318

Characterization of GeoPolymer electrochemically treated with CsOH solution

Team Member: Benjamin Walker Haley

1:20 IESB 318

Electrochemical Corrosion Studies of 17-4 PH Stainless Steel

Team Member: Sallie Snellings

1:40 IESB 318

Alanine Directed Anti-inflammatory Peptide in Human Brain Endothelial Cells

Team Member: Catherine Janie Douglas

2:00 IESB 318

Determining selectivity for cations with O- and N-containing macrocycles through competition experiments

Team Member: Taylor James

2:20 IESB 318

Acidic Deep Eutectic Solvents for the Extraction of Cellulose Nanocrystals from Sweet Potato Vines

Team Members: David Bowen

2:40 IESB 318

Mechanochemical Synthesis of Ln Bedi-Dketonate Complexes with Ln₂O₃

Team Member: Eric Lockton

CHEMISTRY



3:00 IESB 318
Refreshment Break

3:20 IESB 318
Comparison of QuEChERS and Water Based Extractions on Caffeine from Raw Cacao
Team Member: Catherine Young

3:40 IESB 318
CuMOFs: Synthesis, Properties, and Applications into Drug Delivery
Team Members: Jessica Upshaw

4:00 IESB 318
Effects of RR on antimicrobial activity of AMPs
Team Member: Scotland Loupe

4:20 IESB 318
Optimizing synthesis of copper high-aspect ratio structures (CuHARS) by altering metal solution concentration
Team Member: Emma Grace Marlowe

4:40 IESB 318
Effects of Arginine on Antimicrobial Activity of the RIKA AMP
Team Member: Ian Armstrong

5:00 IESB 318
Cationic Peptide Substitution and Computational Docking for Selective MK2 Inhibition in Inflammatory Pathways
Team Member: Cameron Guzzetta

CIVIL ENGINEERING



1:00 IESB 224

The design of a proposed roundabout

Team Members: Zoria Deville, Ezra Esquivel, Matt Hein, Clay Ray

1:30 IESB 224

Improvement of LA 5 in Desoto Parish

Team Members: Trent Dixon, Tanner Metzger, John Peters

2:00 IESB 224

Twelve Mile Bayou Boat Launch

Team Members: Christian Delbasty, Darwin Ebare, Benjamin Henry, Cameron LeBlanc

2:30 IESB 224

Design of Downsville Cafeteria Safe Room

Team Members: Shashwat Baral, Charity Durr, Hannah France, Arin Miles

3:00 IESB 224

Refreshment Break

3:30 IESB 224

LA 17 Pavement Preservation

Team Members: Trevor Fortier, Stuti Khatiwada, Thomas Murphy, Taylor Rachal

4:00 IESB 224

Town of Basile Wastewater Treatment Plant Improvements

Team Members: Cameron J. Cormier, Maggie E. Gilmore, Dylan C. Lashley, Cody P. Lauret

CIVIL ENGINEERING



3:30 IESB 212

Sparks-Davis Bridge Replacement

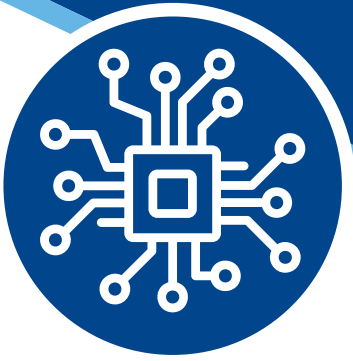
Team Members: Eric "Trey" Davidson, Justice Groom, Gavin Lingefelt, Nicholas Russell

4:00 IESB 212

Designs of the Marine Offloading Facility (MOF)

Team Members: Dereck DeAgano, Liliane Lavine, Karissa Sherwin, Macy Thibodeaux

COMPUTER SCIENCE



1:00 IESB 216

Training Arc

Team Members: Ethan Ennis, Braden Nickel, Jayden Raynes, Dipesh Shah

1:30 IESB 216

ArKea

Team Members: Aiden Plauche, Cullen Duval, Alexander Jose, Samuel Johnston

2:00 IESB 216

SimPlay Fit

Team Members: Quentin Quarles, David Mains, Keldrick Whitfield, Kiefer Armand

2:30 IESB 216

Refreshment Break

3:00 IESB 216

Varsity Metrics

Team Members: Dillan Mickel, Zachary Browning, Sam Vandiver, Conner Angelle

3:30 IESB 216

Skriptor

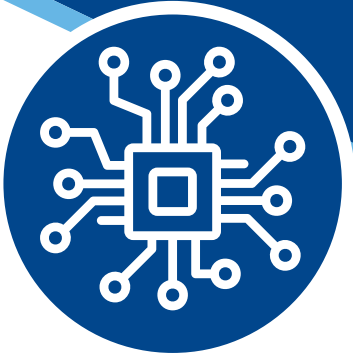
Team Members: Chad Auchard, Stephan Johnson, Caleb Matherne, Daniel Roy

4:00 IESB 216

J.A.N.A. (Just Another Networking Assistant)

Team Members: Kenneth Bores, Cory Strickland, Tyler Tran, Dalton Michiels

COMPUTER SCIENCE



1:00 IESB 218

IRL Inventory

Team Members: Kaleigh Powell, Zachary Dulaney, Colby Willman, Jacob Yee

1:30 IESB 218

Basalt

Team Members: Hayden Pott, Jack Branch, Austin Adams, Erik Claros

2:00 IESB 218

BRAVE

Team Members: Chase Stephens, Lucas Alvarado, Austin Erhart

2:30 IESB 218

Refreshment Break

3:00 IESB 218

Tasking

Team Members: Ani Baker, Bryce Bailey, Jesse Mitchell, Will Coker

3:30 IESB 218

Copper 2 Gold

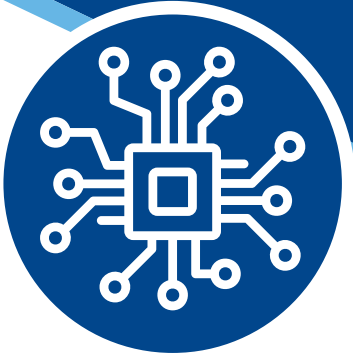
Team Members: Lily Derosa, Connor Ettinger, Coby Taylor, Coleman Zuehlke

4:00 IESB 218

Internal Representation

Team Members: Calvin Idom, Trisha Carter, Sam Chen, Holden Wells

COMPUTER SCIENCE



1:00 IESB 220

PandaProfessor

Team Members: Nicholas Cervantes, Senmi Rai, Tori Geipert,
Logan Knies

1:30 IESB 220

LaTech Chem Labs

Team Members: Mason Maddox, Evan Matherne, Brilanne Bays,
Elizabeth Alberty

2:00 IESB 220

ServeWell

Team Members: Hayley Owen, James McMahan, Sean Bell,
RJ Banks

2:30 IESB 220

Refreshment Break

3:00 IESB 220

CoMMS

Team Members: Michael Lee, Cameron White, Jason LeBlanc,
Lee Wycoff

3:30 IESB 220

DBMeister

Team Members: Jadyn Falls, Jacob Stein, Luka Ratiani,
Patrick McCoy

4:00 IESB 220

NoRush

Team Members: Isaac Guidry, Cooper Rachow, Nikolas Nash,
Joseph Newman

CONSTRUCTION ENGINEERING TECHNOLOGY



1:00 IESB 222

LA 1: Port Allen Canal Bridge Replacement - Team 1

Team Members: Devin Powell, Joseph Nolen, Micah Lamb, Eli Carr, Regie Williams

1:30 IESB 222

LA 1: Port Allen Canal Bridge Replacement - Team 2

Team Members: Jack Flynn - Captain, Leila Gonzales, Jaden Patel, Luke Landry, Trent Langlinais

2:00 IESB 222

LA 1: Port Allen Canal Bridge Replacement - Team 3

Team Members: Read Areingdale, Trey Young, Wesley Dinh, Zach Fuller, 'Jai'den Clark

2:30 IESB 222

BREAK

3:00 IESB 222

LA 1: Port Allen Canal Bridge Replacement - Team 4

Team Members: Colby Comeaux, Christian Dufour, Alex Patin, Landon Shively, Nakhaia Tanner

3:30 IESB 222

LA 1: Port Allen Canal Bridge Replacement - Team 5

Team Members: Jacob Murray, Paxton Pace, Tucker Tedeton, William Varnado, Colby Staffier

4:00 IESB 222

LA 1: Port Allen Canal Bridge Replacement - Team 6

Team Members: Noah Young, Hayden Wright, Jose Zuniga, Clint Lasiter, Julianne Cyprian

CONSTRUCTION ENGINEERING TECHNOLOGY



1:00 IESB 226

LA 1: Port Allen Canal Bridge Replacement - Team 7

Team Members: Hunter Sanford, Brody Green, Cooper Arthur,
Angel Espinoza, Dylan Wilson

1:30 IESB 226

LA 1: Port Allen Canal Bridge Replacement - Team 8

Team Members: Evan Layssard, Hunter Soulie, Garrett Accardo,
Grant Lesage, Matthew Neibel

2:00 IESB 226

LA 1: Port Allen Canal Bridge Replacement - Team 9

Team Members: Skylar Belt, Thomas Howell, Francisca Gutierrez,
Ethan Clark, Beau Romero

2:30 IESB 226

REFRESHMENT BREAK

3:00 IESB 226

LA 1: Port Allen Canal Bridge Replacement - Team 10

Team Members: Tim Hammond, Kolbe Smith, Gavin Randolph,
Hudson Brakefield, Sam Davidson

3:30 IESB 226

LA 1: Port Allen Canal Bridge Replacement - Team 11

Team Members: Joseph Richard, Dayne Gary, Alex Sharp,
Sebastian Falls, Jackson Powell

CYBER ENGINEERING



1:00 IESB 126

Contract Compliance Monitor (CCM)

Team Members: Benjamin Biscomb, Connor Gwatney,
Abram Bender, Cade Ruttley

1:30 IESB 126

gOT network?

Team Members: Carson Barnhill, Jeremy Fountain, Cameron McCarthy,
Mason Sanchez, Christina Simino

2:00 IESB 126

SLaP-E (Small Language Prompt Engineering)

Team Members: Stone Gorman, Jordan Williams, Vito Mumphrey,
Nathaniel Mitchell, Thomas Rodgers

ELECTRICAL ENGINEERING



1:00 IESB 210

Substation Intrusion Detection System

Team Members: Justin Bramlett, Hebane Guehi,
Ethan Roberts, Reese Seals

1:30 IESB 210

High Line Values

Team Members: Allen Barnard, Aaron Bender, Garret Bussey,
Andrew Tamburo

2:00 IESB 210

Automatic Card Identification & Sorting Machine

Team Members: Daniel Taylor, Matthew Dickerson, Andrew Finch,
Elijah Tomlin

2:30 IESB 210

Refreshment Break

3:00 IESB 210

Solar Powered Charging Station

Team Members: Gabriel Monterrosa, Norma Olinde, Ethan Rachal,
North Smith

3:30 IESB 210

Static VAR Compensator

Team Members: Grayson Cary, Daniel Eymard, Manuel Sandoval

4:00 IESB 210

ThermaJump

Team Members: John Peshoff, Reid Firmin, Nathaniel Dubois

NANOSYSTEMS & ELECTRICAL ENGINEERING



1:00 IESB 228

Development of Novel Nanomaterials for Rare Earth Element Resource Recovery

Team Member: Taylor Massey

1:30 IESB 228

Lantharion – Using UV LEDs to Identify Fluorescent Compounds

Team Members: Ben Allen, MyLe Hoang, Gavin Soniat, Jake Stelly

2:00 IESB 228

StairSafe Wheelchair

Team Members: Brody Barnhill, Jacob Carter, Ryder Naquin

2:30 IESB 228

Refreshment Break

3:00 IESB 228

Selective Hearing

Team Members: Lucas Burns, James Clack, William Blaise Olinde, Nathaniel Terrbonne

3:30 IESB 228

Impedance-Based Viscometer

Team Members: Bryton Breeding, Joseph Johnson, Mason Triplett, Taj' Wills

4:00 IESB 228

EcoScan: A Sensor-Based Solution for the Probable Detection of Bacteria

Team Members: Nicholas Dismer, Alexandros Maldonado, Brett Weindel

INDUSTRIAL ENGINEERING



1:00 IESB 212

Lean Manufacturing Project

Team Members: Connor Alford, Kade Klink, Kirsten Nugent

1:30 IESB 212

Optimization of Production Process for Specialty Components

Team Members: Camille Coco, Zachary Hebert, Annie Mouton

2:00 IESB 212

Hydrocrackin' Down on Preventative Maintenance

Team Members: Bryan Jose, Caden Edwards, Riley Edmondson,
Hannah Riddick

INSTRUMENTATION & CONTROL SYSTEMS ENGINEERING TECHNOLOGY



1:00 IESB 105

Thermal Analysis Control System

Team Members: Simon Moodie, James Bickham, Chloe Ducote, Jason Dixon

1:30 IESB 105

GPA Allen Bradley Training Test Fixture

Team Members: Preston Madere, Garrett Ferris, Luke Beamesdurger, Nicholas Stephens

2:00 IESB 105

3D Cement Printer

Team Members: Gavin Marolla, Cory Boast, Matthew Boyea, Sean Dean, Charles Pealer, Da'Voznik Armstrong

2:30 IESB 105

Refreshment Break

3:00 IESB 105

Fire Sprinkler System

Team Members: Zachary Hebert, Erlinda Azores, Kaci Wright, Colin Clement

3:30 IESB 105

Industry 4.0 Factory

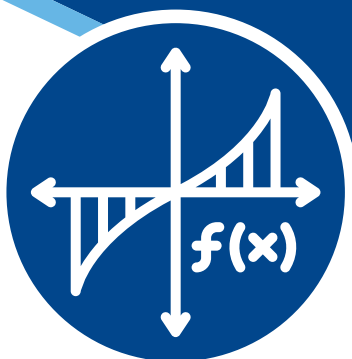
Team Members: Jack Holliman, Grayson Schnaible, Kadin Ohmer, Austin Follmer

4:00 IESB 105

South Campus Environmental Chamber

Team Members: Joseph Williams, Zachary Fendley, Austin Johnson, Hunter Picard

MATHEMATICS & STATISTICS



1:00 IESB 110

Internal Consistency in NCAA Gymnastics Scores

Team Member: Jordan Williams

1:30 IESB 110

Handle Number of Toroidal Graphs

Team Member: Clay Cook

2:00 IESB 110

**Faculty Diversity and Minority Enrollment in
Advanced STEM Courses: A Case Study at
Neville High School**

Team Member: Anaya Cormier

2:30 IESB 110

Refreshment Break

3:00 IESB 110

Quarterback Statistics vs. Season Success

Team Member: Brendan Woods

3:30 IESB 110

An Analysis of the Alaskan Salmon Harvest

Team Member: Carson Allen

4:00 IESB 110

Explorations of Plane Graphs with No Odd Faces

Team Member: Collyn Valentine

MECHANICAL ENGINEERING



1:00 IESB 112

Utility Pole Turn Roller

Team Members: Jacob Allbritton, Britton Evans, Alexis Haley, Kate McLoughlin

1:30 IESB 112

Lathe Feeding System

Team Members: Dustin Boudreaux, Ethan Falgout, Christophe Kaplinsky, Steven Lewis

2:00 IESB 112

Facility Ventilation System

Team Members: Xavier Brumley, Samuel Klenke, Kieron Montgomery, Levi Savercool

2:30 IESB 112

Refreshment Break

3:00 IESB 112

Countertop Salad Bar

Team Members: Zoey Broussard, Valeria Encina, Blake Inzinna, Oghenemine Regha

3:30 IESB 112

Mobile Log Cleaning System

Team Members: Justin Borne, Seth Odum, Dempsey Parden, Nick Parker

MECHANICAL ENGINEERING



1:00 IESB 114

Ergonomic Right-Angle Adapter for Compressed Gas Fittings

Team Members: Jackson Mayeux, Logan Pertuis, Rhett Finley, Gabriel Robichaux

1:30 IESB 114

High Speed Crack Arrest Electrode System

Team Members: Emma Agan, Afinju Bailey, Zachary Barron, Erin Peco

2:00 IESB 114

Cooling Water Intake Plant Removal System

Team Members: Dawson Mulkey, Parker Robertson, Ana Rodrigues, Norman Pritchard

2:30 IESB 114

Refreshment Break

3:00 IESB 114

Interactive Pulley Chair Station

Team Members: Jobie Cheramie, Joseph Estopinal, Douglas Graham, Kevin Parnell

3:30 IESB 114

Semi-Automated Tank Car Blast Media Sweeper

Team Members: Andrew Ivey, Andrew Harris, Tyler Walker

4:00 IESB 114

Sprocket Testing System

Team Members: Tyler Cochran, Carter Duet, Brayden Hermes, Caleb Phillips

MECHANICAL ENGINEERING



1:00 IESB 122

Ultra-light B-2 Bomber Wheel Chocks

Team Members: Hylie Holloway, Steven Montgomery, Ethan Roussel, Tyler Wendling

1:30 IESB 122

B-2 Intake Inspection Tool

Team Members: Carin Angelle, Laney Fouts, Justin Green, Emily Wines

2:00 IESB 122

B-52 Parachute Packing System

Team Members: Harrison Dougherty, Ashley Dourrieu, Justin Smith, Ian Swanson

2:30 IESB 122

Refreshment Break

3:00 IESB 122

B-2 Pump Removal Tool

Team Members: Jude Roger, Mason Dondieu, Kyle Adams, Brandon Terrace, Gavan Hawks

3:30 IESB 122

B-1 Storage Bay Travel Pod

Team Members: Thomas Frayne, Caige Greis, Chandler Achord, Wyatt Barbe

PHYSICS



1:00 IESB 308

Lantharion – Using UV LEDs to Identify Fluorescent Compounds

Team Members: Ben Allen, MyLe Hoang, Gavin Soniat, Jake Stelly

1:30 IESB 308

Investigating the Non-Linear Dynamics of Hurricanes and Their Intensification

Team Member: Breyana Adams

2:00 IESB 308

White Dwarf Formation Modeling with MESA

Team Member: Madison Bernice

2:30 IESB 308

Refreshment Break

3:00 IESB 308

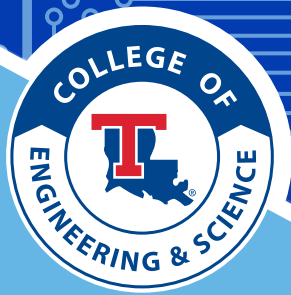
DSLR Photometry of Variable Stars

Team Member: Thomas Matthew Palmer

3:30 IESB 308

Determination of the Strong Coupling Through Measurement of Jet Azimuthal Decorrelation

Team Member: Jesse Webb



@LATechCOES