



SENIOR CAPSTONE PROJECT PRESENTATIONS

Civil, Electrical, and Mechanical Engineering

Friday, April 29, 2022

10:30 AM – 4:30 PM

Student Center Ballroom B



COMPUTER SCIENCE AND INFORMATION TECHNOLOGY (Advisor: Dr. Li Chen)
CIVIL ENGINEERING

Planning and Design of Civil Engineering Systems for the Latitude Sub-division

Maksim Bahdanovich, Quilmar Bercian, Andrae Harris, Xavier Harris, Neokendebecke Ituka, Shehabaldin Mohamed, Moges Regassa

Natinael Zaga, **Advisors: Dr. Pradeep Behera, Dr. Ahmet Zeytinci, Dr. Bryan Higgs, Dr. Lei Wang, Dr. Hossain Azam**

Planning and Design of Civil Engineering Systems for the Boosterville Sub-division

Aldaire Bazanalegria, Richmondlin Calapan, Abdelmoughit Eljahid, Chavar Henry, Lirane Kertessee Mandjoupa, Horace Mitchell, Mehmet Ozkaraaslan, Assefa Tadesse

Advisors: Dr. Pradeep Behera, Dr. Ahmet Zeytinci, Dr. Bryan Higgs, Dr. Lei Wang, Dr. Hossain Azam

ELECTRICAL AND COMPUTER ENGINEERING

Autonomous Dry Vacuum Cleaner for Enriched Uranium Oxide

TaizeRee Walker and Ibsa Gala

Faculty Advisor: Dr. Esther T. Ososanya

External Advisor: Dr. Ashley C. Stowe

Rescue Rover AV

Luis F. Hernandez, Carlos Velazquez, and Gavin Robinson

Faculty Advisors: Dr. Esther T. Ososanya and Dr. Amir Shahirinia

MECHANICAL ENGINEERING

Design and Development of Composite Tape Spring for Deployment Mechanism of Solar Array

Evan Preller, Brandon Botchway, Joshua Dillard, Kelechi Iwuchukwu

Advisors: Dr. Jiajun Xu

Design and Development of Passive Thermal Management System for Electromechanical Actuators in All-electric Aircrafts

Andoniaina Randriambololona, Kymani Brown, Kuuku Botchway

Advisors: Dr. Jiajun Xu, Dr. Mehdi Kabir

Design of an Improved Vertical Spiral Closed Loop Geothermal Heat Exchanger

Dorian Davis, Tarun Malhotra , Orlando Bowman, Deshawn Adams

Advisors: Dr. Jiajun Xu, Dr. Mehdi Kabir

BIO-MEDICAL ENGINEERING

Design and Development of a Low-Cost Arduino Controlled Bag-Mask Ventilator

Justin An, Oshin Wilson, Tai Rosebure, Abdullah Almaghlouth

Advisors: Dr. Max Denis, Dr. Jiajun Xu

Senior Capstone Projects

Senior Capstone Projects represent the culmination of the educational experience, integrating the classroom with real world problems. The students handle open-ended engineering and computational problems whose solutions require a synthesis of engineering knowledge, computational analysis, creativity, market needs, safety and esthetics. Projects supervised by instructors and industry mentors.

Panel of Judges

Representatives from Civil Engineering, Electrical and Computer Engineering, Mechanical Engineering, Computer Science departments faculty and External Advisory Board members.

Supervising Faculty

Dr. Ahmet Zeytinci, P.E., Professor, Civil Engineering
Dr. Pradeep Behera, PE, Professor and Chair, Civil Engineering
Dr. Bryan Higgs, Assistant Professor, Civil Engineering
Dr. Lei Wang, P.E., Assistant Professor, Civil Engineering
Dr. Hossain Azam, P.E., Assistant Professor, Civil Engineering
Dr. Esther Ososanya, Professor, Electrical and Computer Engineering
Dr. Amir Shahirinia, Assistant Professor, Electrical and Computer Engineering
Dr. Jiajun Xu, Associate Professor, Mechanical Engineering
Dr. Pawan Tyagi, Associate Professor, Mechanical Engineering
Dr. Kate Klein, Associate Professor, Mechanical Engineering
Dr. Max Denis, Assistant Professor, Mechanical Engineering
Dr. Lara Thompson, Associate Professor, Mechanical Engineering
Dr. Devdas Shetty, P.E., Professor and Dean

Acknowledgements

Lockheed Martin
National Aeronautics and Space Administration
Airforce Research Laboratory
National Science Foundation (NSF)
National Nuclear Security Administration (NNSA)
Oakridge Enhanced Technology and Training center
Office of Naval Research (ONR)
Hung Ha
Pablo Sanchez Guerrero
Gebretensae Tzadu
GTA: Jaime Rios

SEAS Senior Project Presentation Schedule

Location: Student Center, Ball Room

Date and Time: April 29, 2022, 10:30 AM to 3:00 PM

Major	Time	Title of the project	Student Names
Civil	10:30 AM	Planning and Design of Civil Engineering Systems for the Latitude Sub-division	Maksim Bahdanovich, Quilmar Bercian, Andrae Harris, Xavier Harris, Neokendebecke Ituka, Shehabaldin Mohamed, Moges Regassa
Civil	11:30 AM	Planning and Design of Civil Engineering Systems for the Boosterville Sub-division	Aldaire Bazanalegria, Richmond Lin Calapano, Abdelmoughit Eljahid, Chavar Henry, Lirane Kertessee Mandjouda, Horace Mitchell, Mehmet Ozkaraaslan, Assefa Tadesse
Mechanical	1:00 PM	Design and Development of Composite Tape Spring for Deployment Mechanism of Solar Array	Evan Preller, Brandon Botchway, Joshua Dillard, Kelechi Iwuchukwu
Mechanical	1:30 PM	Design and Development of Passive Thermal Management System for Electromechanical Actuators in All-electric Aircrafts	Andoniaina Randriambololona, Kymani Brown, Kuuku Botchway
Bio-Medical	2:00 PM	Design and Development of a Low-Cost Arduino Controlled Bag-Mask Ventilator	Justin An, Oshin Wilson, Tai Rosebure, Abdullah Almaghlouth
Mechanical	2:30 PM	Design of an Improved Vertical Spiral Closed Loop Geothermal Heat Exchanger	Dorian Davis, Tarun Malhotra , Orlando Bowman, Deshawn Adams