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SERVING 2000 ENGINEERS

JANUARY 2024

FALL 2023 FRANCIS RHODES MONTGOMERY DESIGN COMPETITION

The Francis Rhodes Montgomery Design Competition (FRMDC) is in its 36th year since its inception in 1987. This annual event is co-sponsored by the University of Hawai'i, Department of Mechanical Engineering (DME) and the ASME Hawai'i Francis R. Montgomery Foundation. The DME Fall 2023 FRMDC was held on Friday, December 8, 2023 at the University of Hawai'i at Manoa, Holmes Hall Room 309.

The competition consisted of 4 teams from the ME 481/482 design course. Teams presented their projects, conveying the project goals, design challenges, applied engineering principles, project results, expenditures, and credit to their sponsors. Upon conclusion of the presentations, the competition moved to the Holmes Hall Room 308 where the teams were able to demonstrate their projects and provide more detailed information to the judges.

All project presentations were excellent and it is clear that Mechanical Engineering is progressing beyond materials and fabrication. Most projects included an impressive amount of electronic controls and coding. This has increased the complexity of the projects over the years and challenges the judges to make the ever more demanding determination of the team scores.

Following the ASME/FRMDC scoring rubric, the judges ranked the teams as follows with First place and \$500 was awarded to Team Super Sensor Drone,

1st Place - Team Super Sensor Drone



(L to R) Lucas Licht, Kendall Lorenzo, Masen William, Kenny Miyasato

2nd Place - Team Lava



(L to R): Jonavan Gonzalez, Precious Pangelinan, Russell Laudone, Jewel Johnston, Garett Costa, Perrine Vacher, and Michael Dodge

and in second place and receiving \$300 was Team Lava.

Thanks to the efforts of Professor John Allen and ASME's Derek Sato, the student project competition was completed with great success.

Team Project Descriptions:

First Place: Team Super Sensor Drone - Unmanned Aerial Vehicles for Marine Environmental Monitoring

The goal is to create a waterproof drone platform that integrates sensors to measure reef health indicators in realtime. The novelty is incorporating ambient acoustic sensors, as snapping shrimp sounds correlate with coral vitality. Overall, the system aims to provide an efficient, non-invasive methodology for monitoring the health of shallow reef environments.

Second Place: Team Lava - Lava Viscometer

Team Lava's mission is to improve an existing Lava Viscometer to accurately determine the viscosity and temperature of lava on the Big Island of Hawai'i, which

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Schedule of Hawaii Engineers Week Events

February 18-24, 2024 "Welcome to the Future"

Feb. 16- Special Engineers Week article in Pacific Business News

Feb. 19- Eweek Kick-off Exhibit at Windward Mall

Feb. 20- Eweek Kick-off Luncheon at Hale Koa Hotel

Feb. 20- Special Engineers Week article in Honolulu Star Advertiser.

Tbd-Engineering Career Expo at University of Hawaii College of Engineering. Main virtual edition and campus mini mini expos.

Feb. 24- Awards Banquet Event at Ko'olau Ballroom. Annual Awards Banquet recognizing outstanding accomplishments, contributions, and achievements of individuals in the fields of engineering.

Nat.Delegate:

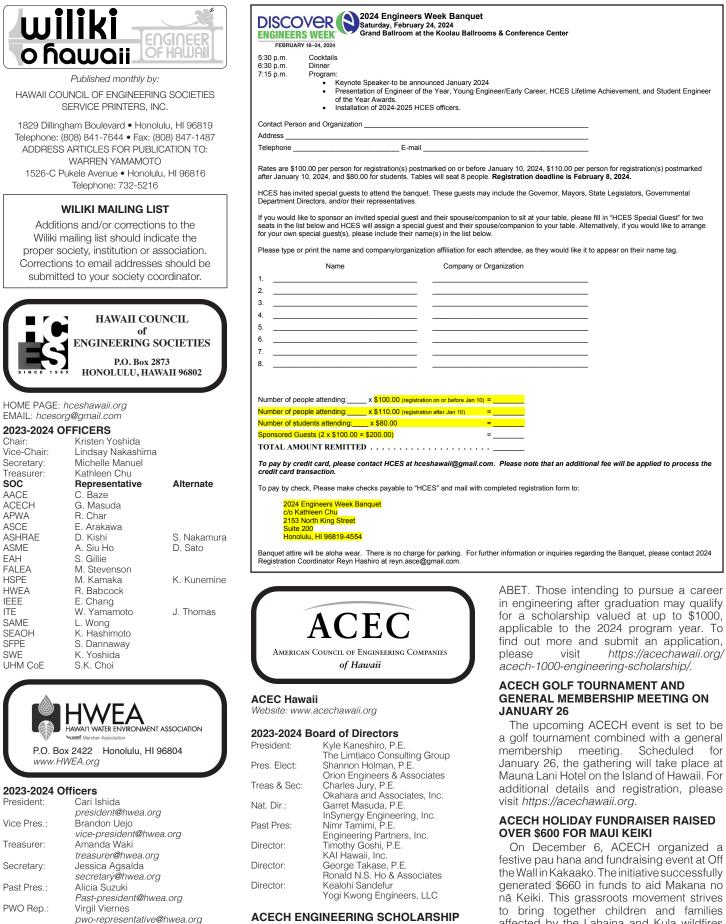
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National-director@hwea.org

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ACECH provides support to college students in Hawaii currently enrolled in an engineering program accredited by

The upcoming ACECH event is set to be Scheduled for

affected by the Lahaina and Kula wildfires on August 8th in Maui. For additional details about the event, visit https://acechawaii.org/ holiday-pau-hana-and-fundraiser/.

PSP



engineers and architects of

PO. Box 1901, Honolulu, HI 96805-1901 An association for Hawaii's Engineers and Architects

WEB address: www.eahawaii.org

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eaH January 2023 Meeting Notice

January Program Chair: Canaan Shon Friday January 5, 2024

Speaker: Paul Vierling, President, Aikahi Aloha Coins, Stamps, Jewelry and Collectibles

Topic: "The World According To Covid or NOT"

eaH Member Paul Vierling will tell his stories about business successes in the face of newfound obstacles / opportunities.

Friday January 19, 2024

Speaker: Jeff Eddo, Senior Geophysicist, Geologist, Project Manager, Tetra Tech Title: "Geophysical Methods Applicable to **Engineering and Environmental Projects in** Hawaii"

Jeff's talk provides an overview of a variety of geophysical methods that are applicable to engineering and environmental projects in Hawaii. Proper use of these methods at applicable sites has been proven to significantly reduce unforeseen site conditions, the amount of intrusive investigation or excavation required, and project costs, and improved worker and community safety.



2022-2023 Officers:

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	keoni@goldwings-supply.com
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As a reminder, applications for the ITE Annual Grants are due by January 1, 2024. Additional information is available on our website. Please be on the lookout for emails regarding this year's meetings/events.

We hope the start of the new year was great for everyone and can't wait to see you all at our first meeting

If you would like to be added to the ITE mailing list, please email Joel Thomas at jthomas@acm-eng.com.



http://www.hawaiispe.org/

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	mlum@bowersandkubota.com

For all of you Mathcounts supporters, the Oahu Chapter Mathcounts competition will be held on Saturday, February 17, 2024 at Kapolei Middle School.

Then, the Hawaii State Mathcounts Finals competition will be held on Saturday, March 9, 2024 at the Ewa Makai Middle School.

Stay tuned for more information. Thank you.



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NEXT ASME GENERAL MEETING

Friday, January 26th at 5:30 pm via Zoom. Please contact us for details at ASMEHawaii@ amail.com if interested.

FRANCIS RHODES MONTGOMERY DESIGN COMPETITION

The University of Hawai'i Department of Mechanical Engineering Fall 2023 FRMDC was held on Friday, December 8, 2023. The competition was organized by Dr. John Allen with UH COE and ASME support. The results of this competition are included in this issue of the Wiliki.

REQUEST FOR SPEAKERS

ASME welcomes guest speakers to present any topic during our general meetings. If interested in presenting, please contact us at ASMEHawaii@gmail.com.

> Wiliki **Advertisers** Wanted



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EXECUTIVE COMMITTEE MEETING

Last held: December 13, 2023 Next meeting: January 9, 2024

ASCE HAWAII SECTION DINNER MEETING

We will keep you informed via e-blasts and/ or notices posted on our website at ascehawaii. org with the meeting information and schedule. (RSVP via Eventbrite) Cost:

COMMITTEE POSITIONS

ASCE Hawaii is looking for volunteers for various committee positions, including Advocacy Captain, Report Card Committee Members, and Water Resources Chairperson. If you are interested or have questions on any of these positions, please contact President Eric Tomishima, etomishima@ascehawaii.org.

MEMBERSHIP

If you haven't already done so, please renew your ASCE membership, which includes 10 free PDHs. You can renew your membership at www.asce.org

ASCE HAWAII SECTION STUDENT **SCHOLARSHIPS**

Please help us increase our scholarship endowment so that we can recognize deserving students. We continue to accept tax-deductible donations with the goal of increasing the annual scholarships. Make your check payable to 'ASCE Hawaii Section' and include the note 'Walter Lum Scholarship Fund' and mail to: ASCE Hawaii Section, P.O. Box 917, Honolulu, HI 96808-0917. If you have any questions, please contact Steven Doo at sdoo@ascehawaii.org.

ASCE JOB LISTINGS

The following job listings are currently posted on the ASCE Hawaii Section website:

• Bowers & Kubota (Civil Designer III, Project Engineer, Project Engineer - Hilo, Project Manager)

• County of Hawaii, Department of Environmental Management Wastewater **Division** (Civil Engineer I-IV)

• EnviroServices & Training Center LLC (Environmental Engineer/ Environmental Scientist)

• Oceanit (Civil Designer or Senior Civil Designer)

For further information, please visit

http://www.ascehawaii.org/job-listings.html



2023-2024 YMF Officers

- Lance Lam, President president.ascehawaiiymf@gmail.com
- Rebecca Pitts, Vice President vicepresident.ascehawaiiymf@gmail.com
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- Christine Mau, Secretary secretary.ascehawaiiymf@gmail.com
- Brandon Uejo, Past-President pastpresident.ascehawaiiymf@gmail.com

YMF General Meeting

The next YMF general meetings will be in-person on Thursday, January 4, 2024, at 6:00PM and Thursday, February 1, 2024, at 6:00PM. Please check our website, social media channels, or weekly eblast for the latest information on our upcoming general meetings and events. If you are interested in attending and learning more about the various professional, social, and service opportunities available through YMF, please contact YMF at ymf.hawaii@gmail.com.

Girl Scouts STEM Fest

By Nick Kam, Outreach Chair

On Friday, November 10th, YMF and students from UH Manoa volunteered at the 2023 Girl Scouts STEM Fest at Chaminade University. Our activity focuses on different types of erosion. We helped each Girl Scout build a miniature beach to see how ocean waves shape our coastlines. Thank you to everyone who participated! We look forward to seeing you at the next Outreach event which will be sometime in the first quarter of 2024.



ASCE YMF Job Shadow Program

The Job Shadow Program is looking for students and industry professionals interested in becoming a mentee/mentor. Your interest and participation in this program will provide a valuable experience that will help guide students toward a successful path beyond graduation! If you have any questions and/or want to sign up*, please email the Job Shadow Program directly at ymfhawaii.jobshadow@ gmail.com

*Note: Information collected will help the Job Shadow Program pair mentor(s) and mentee(s) up based on their experience and interest.

2024 PE Exam Update

The PE Exam is now computer-based, with appointments available year-round at Pearson VUE test centers. Information about how to register for the exam can be found on the YMF website: https://ascehawaiiymf.org/ pe-exam-information

Online PE Refresher Course

The Hawaii YMF has partnered with Pathceed, an online PE Exam refresher course that covers the breadth portion of the civil engineering exam. This course features 12-hours of on-demand course materials that may be accessed for a 6-month period and a one-time free access should you not pass the exam. Curious, but want a sample of the course? You can check out a free 1-hour lesson before committing to the program! The course cost is \$289, and we offer ASCE Hawaii YMF members a \$40 discount when registering. If you are interested in signing up for this course, please contact us at ymf808.pecourse@gmail. com for more information.



PO BOX 3348, HONOLULU, HI 96801 Web Page URL http://www.seaoh.org

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Previous BOD Meeting

December 12, 2023

Upcoming Events

For all events see *seaoh.wildapricot.org*. Look for email flyers for registration of upcoming events

• SEAOH Installation Banquet – February 2024 at The Pacific Club. Details forthcoming.

2024 SEAOH Board of Directors

Congratulations to our 2024 SEAOH Board of Directors listed above!

Thank you to our outgoing SEAOH Board Members for their hard work and service:

- Craig Meierhoffer, Baldridge & Associates Structural Engineering
- Logan Lee, MKE Associates LLC
- Ryan Hobson, KAI Hawaii
- Erik Christensen, Sika Corporation
- Brian Lott, KAI Hawaii

Membership

The following membership application has been approved:

• Thukha Soe, KAI Hawaii, Associate Member

SEAOH Younger Member Group

All younger members (under the age of 35) are invited to participate in social activities, educational outreach, community service, and professional development. Please contact Justin at seach.ymg@gmail.com for more information on upcoming events.

Next BOD Meeting

For information, contact SEAOH President Tim Goshi at tgoshi@kaihawaii.com.

Fall 2023 FRM Design Competition, from Page 1

currently has two active volcanoes: Kīlauea and Mauna Loa. In 2018, Kīlauea erupted and destroyed over 700 homes. By redesigning and testing the existing prototype, the measurement accuracy and data communication will be enhanced. The viscometer would provide researchers with valuable information regarding the composition, flow speed, and temperature of Pāhoehoe and 'A'ā lava flows to improve the emergency response time and potentially mitigate property damage.

Team SPAR

Team SPAR - Reaction Stabilized Robot with Video Based Impact Detection

Sparring in striking martial arts poses a risk of brain injury, it is essential for practice, skill development and competition. By leveraging recent developments in engineering measurements and data analysis, the team have developed prototype equipment for safe and effective training. The novel device includes a striking training device stabilized by reaction wheels and an algorithm for quantifying the impact pressure distributions from synchronized video. Utilizing video analysis to quantify impact location



(L to R): Ben Ku, Cal Tashiro, Kevin Amoy, Christian Pak, Alex Lo, and Lowell Bernardo

Team Dead Water



(L to R): Isaiah Lee, Reid Goya, Susan Sammis, Zachary Sagayaga, and Joselito Macabante Jr.

and force, the team have formulated an improved impact methodology, without the need for expensive and complicated sensor systems.

Team Dead Water - The Effects of Stratified Fluid on Vessels

Team Dead Water aims to investigate the effects of dead water on seafaring vessels by exploring the impact of varying salinities and fluid depths on vessel velocity loss. The goal is to provide data for designing solutions to minimize dead water effects on vessels, through design. Dead water is a phenomenon in which fluids with varying salinity levels stack on top of each other, without mixing. Minimizing dead water effects on vessels will allow for the reduction of fuel consumption and travel time, leading to decreased carbon emissions.

Acknowledgements:

ASME Hawai'i would like to thank Professor John Allen along with the UHM DME for organizing the Fall 2023 Francis Rhodes Montgomery Design Competition. Thanks to all the Senior Design Course participants who presented their mechanical engineering projects. Finally, thank you to the judges from Hawaiian Electric: Nick Pasley, Jon Taketa, and Michael Dang who donated their time to evaluate and score the project presentations and demonstrations.



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