

The state of the College of Engineering

On August 24, 2020, the college welcomed back over 1,300 students and 62 faculty to campus for the start of the fall semester. Fall classes are currently being delivered via a mix of online, hybrid, and face-to-face formats, following strict social distancing and safety regulations for on-campus interactions. Under the leadership of Dean Brennon Morioka, faculty and staff remain committed to serving their students and providing the same quality education while adjusting to ever-changing conditions.

SAVE THE DATE!

Join the college online for the following events in fall 2020. You may learn more by visiting [eng.hawaii.edu/allevnts/](http://eng.hawaii.edu/allevvents/).

Engineering Talk Story Sessions, for prospective students – Saturday, September 12 from 9:00-10:00am and Thursday, September 17 from 7:00-8:00pm via Zoom.

Fall Career Day – Wednesday, September 23 from 9:00-12:00pm and 1:00-4:00pm via virtual platform. Employers, students, and alumni may register to participate through the above event website.

College of Engineering Faculty & Staff Awards Ceremony - Friday, September 25 from 3:30-4:30pm via livestream from Holmes Hall.

ALOHAnet IEEE Milestone Dedication Ceremony – Tuesday, November 10 from 10:30-11:30am via livestream from Holmes Hall.

Fall Convocation – Friday, December 18 at 5:30pm. More details to come.

Read on for highlights from the college for the 2019-2020 academic year.

FACULTY

New faculty – due to the State's hiring freeze, no new faculty were hired in the last fiscal year. However, the college has established its hiring priorities for the future, with plans to add faculty positions in all departments when economic conditions allow.

October 2019:

Phillip Ooi received the Transportation Research Board's 2019 Geotechnical Engineering Section's Best Paper Award for his team's paper, "Long-Term Behavior of a Geosynthetic Reinforced Soil Integrated Bridge System in Hawaii."

Yi Zuo invented a groundbreaking method allowing for easy determination of the surface free energy of particles as a quantitative measure of particle hydrophobicity, and his research was showcased on the cover of Analytical Chemistry.

December 2019:

The National Science Foundation awarded technology company Adnoviv, co-founded by electrical engineering professors **Olga Boric-Lubecke** and **Victor Lubecke**, an additional \$150,000 grant to their previous \$750,000 grant to develop a battery-operated version of their low-cost sensor capable of sensing the presence and number of individuals in a room.

A team lead by **Sayed Bateni** was awarded a \$900,000 grant by the USDA's Natural Resources Conservation Service (NRCS) through a program that supports the conservation of private lands through funding projects centered in technology and innovation. Their goal is to demonstrate how farmers can conserve water and be more effective in utilizing water resources by utilizing an innovative new method to model and forecast daily rainfall and evaporation in irrigation areas.

February 2020:

A study by **Guohui Zhang** and **David Ma** focused on extreme-weather car-crash injuries was awarded the 2020 Best Young Researcher Paper by the Transportation Research Board Transportation Safety Management Committee.

April 2020:

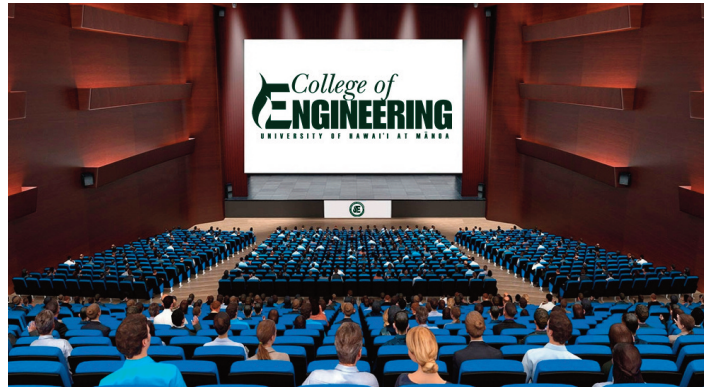
Roger Babcock was awarded a Board of Regents Medal for Excellence in Teaching from UH Mānoa, out of nearly 300 campus-wide nominations.

Tao Yan received an NSF grant for more than \$150,000 to conduct local wastewater testing with the goal of determining the community disease burden of COVID-19.

Mechanical Engineering Associate Professors **A Zachary Trimble** and **Scott Miller** helped develop an innovative technique to treat up to four COVID-19 patients with a single ventilator, which was tested with partners at the Kapi'olani Medical Center for Women and Children.

May 2020:

Sayed Bateni was awarded a Fulbright scholarship to conduct water research in Qatar, aiming to predict heat wave duration and intensity by merging remotely sensed land



The state of the College of Engineering-Virtual Auditorium

surface temperature and meteorological data within machine learning approaches.

Three faculty members received Hi Chang Chai Faculty Teaching Awards, one from each department as voted on by the students: **Ian Robertson** (CEE), **Aaron Ohta** (EE), and **Scott Miller** (ME).

Associate Dean **David Ma's** project that generates electricity from water drops was published in Nano Energy — one of the top journals in energy, electrical engineering and renewable energy & sustainability.

June 2020:

With **David Ma** at the helm, the college partnered with the Hawai'i Department of Transportation, Federal Highway Administration, Econolite, and Goldwings Supply on a \$6 million pilot project expected to greatly improve traffic flow through a critical Honolulu corridor. This unprecedented initiative along Nimitz Highway and Ala Moana Boulevard will utilize "Vehicle-to-Everything" communication technology, connecting vehicles, pedestrians and bicyclists to the infrastructure.

The college received \$1.2 million of a total \$1.8 million award to UH from the Office of Naval Research to evaluate and study issues related to the Red Hill Fuel Tanks in Hawai'i.

STUDENTS

November 2019:

The Entrepreneurs' Organization Hawai'i named ME undergrad **Austin Yoshino** the winner of the qualifier for the Global Student Entrepreneur Awards for his company, Manaola Innovations, Inc. Founded in dedication to Yoshino's younger brother, who has cerebral



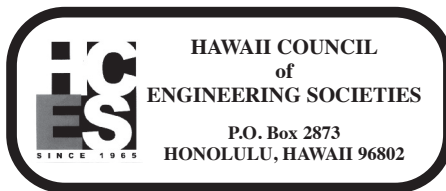
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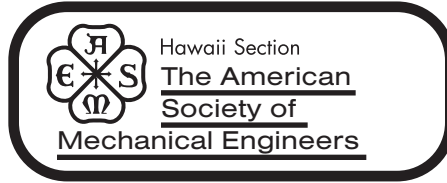


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NEXT ASME-HAWAII GENERAL MEMBERSHIP MEETING

Date: Date yet to be determined depending on COVID-19 status and State Social Distancing proclamation relaxation and depending if remote-virtual meeting conducted.

Time: usually from 5:30 pm to 6:45 pm

Place: Pre-COVID-19: at Johnson Controls, 550 Paiea Street (map and parking instructions found on the Hawaii Section website)

Agenda: A copy of the agenda will be on the Section website.

As usual, all members, students and guests are invited and encouraged to attend our meetings. Please contact Chairman Froilan Garma for directions and for more information.

2020 FRANCIS RHODES MONTGOMERY DESIGN COMPETITION (FRMDC) REVIEW

The completed May 2020 FRMDC will be critiqued during future Section meetings especially if future virtual conferencing competitions are necessary. The comments and recommendations of instructors, students and judges are solicited in hopes of making improvements. The results of the 2020 Francis Rhodes Montgomery Design Competition appeared in the June 2020 Wiliki.

Looking back at the completed competition, the three awards were based mainly on presentation, such as how much knowledge of subject was exhibited, were facts developed in a logical and organized sequence, was team able to respond to technical questions. The projects were all outstanding. In review of the subject-matter taken by the teams, a brief summary of the team affiliations are noted following.

Of the nine projects five dealt with autonomous vehicles. The Wayfinder was developing a subterranean vehicle system; Kanaloa, a surface and/or underwater vehicle system; Bowbot, an electric vehicle system; NaviKai, an underwater vehicle; and UHDT, an unmanned aerial vehicle. They all had a connection to the Robot Autonomy and Navigation (RAN) Lab.

Two projects Team Hokulele and Makani were aligned with the field of Aerospace Technology, a field that many mechanical engineers enter, such as working for Boeing.

For added incentive and guidance, five projects were affiliated with national competitions. Team Hokulele purpose was to provide students the opportunity to collaborate and compete in an intercollegiate aerospace engineering competition. Kanaloa is aligned

with RobotX competition; NaviKai, RoboSub competition; UHDT, the AUVSI SUAS competition; RWR, the Formula SAE competition; and Makani, the Friends of Amateur Rocketry (FAR) competition. The competitions provide rules and a goal to strive for.

The Integrated Industrial Automation of a Pneumatic System (IIAPS) team was mentored by local businesses Diamond Bakery and Victor Industries.

The FRMDC is ASME-HI's most important event, besides giving the senior students an avenue to show off their abilities after four years of engineering education, it gives the senior section an opportunity to meet and mingle with the graduating students and associate with the Department of Mechanical Engineering faculty.

MATHCOUNTS 2020-2021 COMPETITION

MATHCOUNTS® Hawaii is Hawaii Society of Professional Engineers (HSPE) sponsored. ASME members are on the MATHCOUNTS HAWAII Steering Committee and provide the competition results for the Wiliki. The following is a brief summary of details reported by Nhut Pham, Hawaii State and Oahu Chapter MATHCOUNTS Coordinator.

Due to the continuing COVID-19 Pandemic concerns the majority of MATHCOUNTS events will be held in an online format for the rest of 2020 and for 2021, except for the National Competition on May 9 – 10, 2021, in Washington, D.C., with current plans for an in-person event.

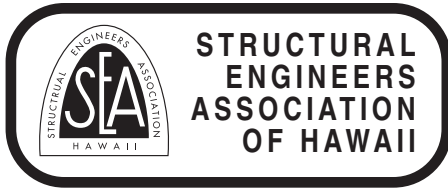
Modifications to the 2020-2021 season starts off with online practice competitions in October, November, December and January. Students can practice with the online platform, ensuring they have set up their user accounts, and test their Internet capabilities.

The Chapter Competition, an online event, is planned for February 5 - 6, 2021, with as much as 40,000 participants nationwide. Only the individual rounds (Sprint & Target) will be used. Qualifying students (as much as 13,500 students) will next compete in the February 25, 2021 Chapter Invitational, another online event with individual rounds only. The online State Competition is planned for March 25, 2021, with as much as 3,500 students. Finally, the National Competition is planned for May 9-10, 2021, with as many as 224 student competing in-person in Washington, D.C.

Specific conditions for 2020-2021 MATHCOUNTS:

- None of the competitions will have an official team or countdown round, all advancement is based on individual merit,
- There may be some sort of proctoring for the State Competition,
- Advancement:
 - o Chapter Competition: Top 20% advance to Chapter Invitational,
 - o Chapter Invitational: Top 5 from each Chapter and next 10 highest competitors advance to Hawaii State Competition,
 - o Hawaii State Competition: Top 4 highest ranked competitors advance to National Competition.





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 Web Page URL <http://www.seaoh.org>

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pukapig@yahoo.com

SEAOH Annual Convention

The 2020 SEAOH convention has been cancelled over COVID-19 concerns. SEAOH is considering partnering with another organization on a hybrid event with in-person sessions and on-line technical presentations in October 2020. More information to follow.

SEAOH Golf Tournament

The annual golf tournament, reduced in size and scope, is still planned for October 23, 2020. Contact Craig Meierhoffer (*cmeierhoffer@baseengr.com*) for additional information.

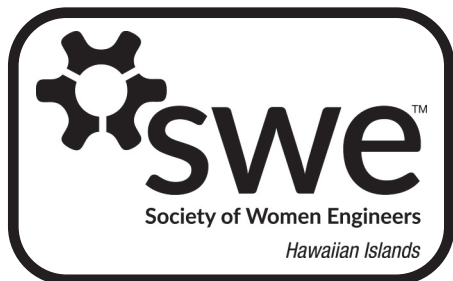
SEAOH Scholarship

2020 Scholarship application forms are available for download at www.seaoh.org. Application deadline is September 25, 2020.

Membership Applications

An application was received from Doren Santoki, Iwamoto Engineering Consultants, Student member. Please contact any SEAHO Board Member by October 1, 2020 to file comments regarding the application.

Brian Sekiguchi of Ronald N.S. Ho & Associates has been approved for Affiliate membership.



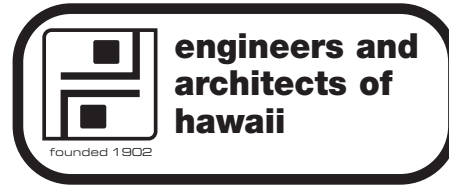
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The mission of the Society of Women Engineers is to empower women to achieve full potential in careers as engineers and leaders, expand the image of the engineering and technology as a positive force in improving the quality of life, and demonstrate the value of diversity and inclusion.

Next Meeting on September 2, 2020. For information, contact SEAHO President Danny Fujioka.



PO. Box 1901, Honolulu, HI 96805-1901
An association for Hawaii's Engineers and Architects
WEB address: www.eahawaii.org

EAH 2020 Officers

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FRIDAY: 24 JULY 12:00 pm Zoom Meeting
Speaker: Terry McFarland from AHL Design, with team members

Topic: Aloha Stadium Redevelopment and Current planning studies

Terry and his team presented the details on the current Redevelopment and planning studies for Aloha Stadium and nearby communities.

Watch on YouTube

https://www.youtube.com/watch?v=nZ7s-P_XvI8&feature=youtu.be or Search for Aloha Stadium Redevelopment.

August 21st, 2020 Zoom Meeting
Speaker: Ellie Graeden, PhD biologist Center for Global Health Science and Security
Topic: Using Analytic Technology to Comprehend Covid 19 Spread

Dr. Graeden is a biologist with the Center of Global Health Science and Security, which conducts original research to help decision-makers worldwide build sustainable capacities to prevent, detect, and respond to public health emergencies. They explore the growing demands on the world's public health infrastructure, from policies intended to contain transnational disease threats to the economic benefits of promoting health in the world's poorest nations and the changing roles for health in domestic and international security and diplomacy. Dr. Graeden is also the founder of Talus Analytics in Boulder, Colorado. Ellie will illustrate the power to comprehend the behavior of virus spread using today's analytic technologies.

Visit EAH WEB page for September Programs eahawaii.org.



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 YMF President: Kapiolani Street, P.E.
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EXECUTIVE COMMITTEE MEETING

Last held: August 6, 2020

Next meeting: September 3, 2020

2020 OUTSTANDING CIVIL ENGINEERING ACHIEVEMENT AWARDS VIRTUAL CEREMONY

Date: September 24, 2020

Time: 12:00PM to 1:00PM HST

Format: Virtual presentations & ceremony online via Zoom. An email will be sent out to our membership that will provide more information on how to join in.

For additional information, please visit <http://www.ascehawaii.org/ocea-home.html>

ASCE HAWAII SECTION DINNER MEETINGS

The continued health and safety of our membership is our top priority and we will continue to monitor the COVID-19 pandemic. Future in-person ASCE Hawaii Section events, including our section dinner meetings, are still temporarily on hold. We will keep you informed via e-blasts and/or notices posted on our website at [ascehawaii.org](http://www.ascehawaii.org) when they will be scheduled. Please continue to stay safe, watch out for each other, especially our kupuna, and continue to be vigilant about best health practices.

COMMITTEE POSITIONS

ASCE Hawaii is looking for volunteers to fill the following committee positions: One (1) Student Practitioner Advisor (Senior Engineer, Life Member, or Retired professional preferred). If you are interested or have questions on any of these positions, please contact President Jason Kage, jkage@ascehawaii.org.

MEMBERSHIP

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

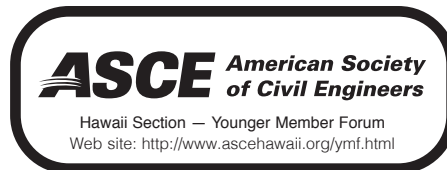
ASCE JOB LISTINGS

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

- **AECOM** (Civil Engineer II)
- **Booz Allen Hamilton** (Senior Civil Engineer and Wastewater Specialist)
- **City and County of Honolulu** (Civil Engineer III, IV, V, Mechanical Engineer V, & Electrical Engineer V)
- **G70** (Civil Designer, Civil Engineer, Civil Project Manager, Construction Manager)
- **HDR** (Senior Civil Engineers, Senior Federal Project Manager, Project Manager – Transportation Group, & Water/Wastewater

Engineer)

- **Hirata & Associates** (Geotechnical/Civil Engineer – Project Engineer)
- **Jacobs** (Civil Engineer)
- **Kennedy/Jenks Consultants** (Project Manager, Staff Engineer for Honolulu Office and Staff Engineer for Hawaii Office)
- **Nagamine Okawa Engineers Inc.** (Structural Engineer)
- **PGH Wong** (Change and Claims Manager, Change and Claims Specialist, Civil/Building Inspector, Office Engineer, & Scheduler)
- **Stantec** (Task Order Manager, Office Engineer, Junior Office Engineer, Lead Engineer-Assistant Resident Engineer, Track Inspector, Sr. Project Scheduler)
- **SSFm** (Civil Engineer V, Structural Engineer IV)
- **US Army Corp of Engineers** (USACOE) (Interdisciplinary Project Manager, GS-12)
 For further information, please visit <http://www.ascehawaii.org/job-listings.html>.



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YMF General Meeting

The next YMF general meeting is TBD. Due to COVID-19 and social distancing mandates, YMF general meetings will remain on hold for the foreseeable future. Please be sure to check out our website and social media channels for the most updated information and for details on virtual 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.

Mini Game Night

On June 20th, eight of our ASCE YMF members joined together on zoom for our first ever virtual mini game night. The competition began with the toothpick bridge building, where contestants had 5 minutes to construct the sturdiest and most aesthetic bridge made out of just toothpicks and tape. The games continued with a construction plan drawing contest where contestants used their expertise in their field to draw the most accurate representation of specific sheets from construction plans. Next, the contestants raced for a minute where they had to draw as many things of a specific topic in under one minute. Everyone had a good laugh when Shane drew multiple

circles and argued that each one represented a different local food (manapua, loco moco, malasada, etc.). The mini games concluded with a paper tower building contest where contestants were to build the tallest tower using just paper. After the games, all participants joined for some pau hana time and enjoyed each other's company.

Thank you to all the participants for attending and connecting even during this social distancing time!

ASCE YMF Hawai'i Virtual Mentorship Mixer

On July 2, 2020, the ASCE Hawai'i YMF hosted its first virtual mentorship mixer! This speed networking event was developed to provide an opportunity for students and recent graduates to learn more about the civil engineering profession from working professionals while being done completely online. Participants were placed in a series of one-on-one video chat sessions, each session lasting 5 minutes. During each video chat session, the student participants were able to learn more about each mentor's specific engineering discipline, company, and job responsibilities. Thank you to all participants for taking the time to be a part of the YMF virtual mentorship mixer.



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On July 23rd, AAACE Hawaii Section held a webinar, Parametric Contingency Estimating on Small Projects by Matthew Schoenhardt. Mr. Schoenhardt presented that while mega-projects capture the attention of executives, shareholders, media and researchers, the sheer quantity of many companies' "small projects" can eclipse the capital spend of a single mega-project. For most companies, these small projects are the foundation of sustained and incremental profitability. The size of "small projects" often precludes detailed contingency assessments by project managers while their puny stature renders them unattractive to academic research. As a result many firms solve this problem by simply applying 10% contingency across the board to small projects, regardless of the project's actual risk profile.

For more information, please visit our local website www.aacehawaii.com.

State of College, continued from Page 1

palsy, the company develops innovative products including a technologically enhanced walking assistant device.

December 2019:

Engineering student **Josh Renzo Claudio** was selected as the UH Mānoa fall 2019 commencement student speaker.

February 2020:

Wahine volleyball player and engineering student **Rika Okino** was named the 2020 Hawaii Council of Engineering Societies Student Engineer of the Year.

April 2020:

Nicholas Yama, a senior, and **Kevin Kam**, a recent graduate, were each awarded a \$135,000 National Science Foundation Graduate Research Fellowship. They were two out of only 59 electrical engineering students selected nationwide.

Environmental engineering PhD candidate **Sabrina Diemert** was named this year's recipient of the Frances Davis Award for Excellence in Undergraduate Teaching for a Graduate Assistant.

May 2020:

Three seniors received Outstanding Graduating Senior recognitions: **Rika Okino** (CEE), **Nicholas Yama** (EE), and **Kayli Chun** (ME). At the graduate level, **Yeon Sang You** received the Outstanding Teaching Assistant award and **Kareem Elassy** received the Outstanding PhD Student award. The EE Department's first ever Bruce Liebert award went to **Kai Outlaw-Spruell**.

To celebrate spring graduates who would not experience an in-person graduation, masters student **Brianne Tengan** built a virtual composite of the UH campus in the game Minecraft and planned and executed a commencement ceremony in the virtual world, streamed live.

June 2020:

ME undergrad **John Sadorra** was awarded the 2020-2021 Chancellor Virginia S. Hinshaw Scholarship in Sustainability.

July 2020:

Arif Rahman, a 2018 University of Hawai'i at Mānoa electrical engineering PhD graduate, received a two-year, \$120,000 postdoctoral fellowship to develop a space medical oxygen delivery system.

A group of four UH students, including

engineering majors **Jonathan Wallen** and **Maddyson Jesketook**, the top prize in the U.S. Department of Energy 2020 Marine Energy Collegiate Competition for their underwater vehicle charging station.

August 2020:

Under the guidance of Professor **Albert Kim**, CEE students **Mia Fong**, **Brenton Sasaoka** and **Seth Colburn** designed a predictive model that forecasts COVID-19 cases and deaths.

COLLEGE-WIDE

2019-2020 was an impressive year for research, with the college bringing in a record of **over 17 million dollars in research awards** across departments – which doubles the amount from the year prior, and quadruples the amount from the year before that.

Many long-standing college events went **virtual** this spring, including the Annual Banquet fundraiser, which surpassed its goal of raising \$100,000 for student projects and clubs, the Open House for admitted students, and the Order of the Engineer ceremony for graduating students.

Industry-integrated courses have become widely popular at the college, allowing students to earn college credit for tackling real-world problems alongside industry professionals. The college has partnered with organizations such as DataHouse, Hawai'i Dental Service and Pearl Harbor Naval Shipyard to offer these unique courses to both undergraduate and graduate students.

The college recently underwent a **deep cleaning** in an effort to utilize its facilities more efficiently and accommodate its expanding list of classes and programs. Faculty, staff, and students joined forces to clean labs and offices, sorting through inventory and filling up dumpsters with discarded items.

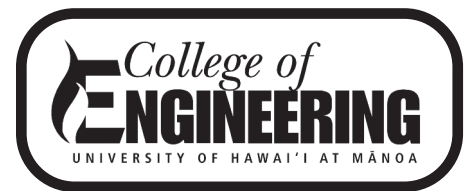
New **administrative improvements** to help the college become more effective and efficient included: a strategic communications plan, updated policies and procedures, and enhanced training on customer service, cultural sensitivity, leadership, and fiscal processes.

Through a partnership with the Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility (PHNS), students and faculty now have access to a state-of-the-art **3D metal printer** for educational and research purposes (valued at roughly \$250,000).

The college is playing a leading role in driving the O'ahu **Engineering Sector Partnership**, a group designed to foster cross-sector dialogue and collaboration between industry and

education to better understand Hawai'i's current engineering talent pipeline and develop strategies to improve student preparedness for careers in engineering. Along with the Chamber of Commerce Hawai'i, UH helped plan a solutions-focused virtual strategy session in July that drew 40 business leaders and educational partners.

Like other universities across the globe, UH Mānoa is bracing for significant **budget cuts** this fiscal year due to the economic impact of the COVID-19 pandemic. More than ever, the college will be looking at ways to cut costs in the upcoming year, with as little impact as possible to students and their educational experience. Despite the economic challenges, the college is confident that it will still be able to fulfill its mission of providing students with an exceptional education with the support of its faculty, staff, industry partners, and the community at large.



2540 Dole Street, Holmes Hall
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- | | |
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| Assistant Dean | Song K. Choi |
| CEE Chair | Ian Robertson |
| EE Chair | Wayne Shiroma |
| ME Co-Chairs | Lloyd Hihara and Weilin Qu |
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Website: hawaii.apwa.net

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