

# Melinda Eve Keller, P.E.

Cal Poly, Mechanical Engineering Department  
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## Experience

- 1/03 - present **Professor**, Cal Poly, San Luis Obispo, CA  
Lecturer Range C for the Civil, Mechanical, and Aerospace Engineering Departments  
Classes: Alternative Energy, Controls, Descriptive Geometry, Dynamics, Elements of Rocket Propulsion, Experimental Aerothermodynamics, Fluids I and II, Heat Transfer, Propulsion Systems, Solid Modeling, Statics, Strength of Materials, Thermal Systems, Thermodynamics I and II, Vibrations.
- 1/04 - present **Energy Analyst**, Central Coast Home Energy, San Luis Obispo, CA  
Sole Proprietor calculating energy requirements for new residential and commercial structures.  
California Association of Building Energy Consultants (CABEC) recognized Certified Energy Analyst (CEA), former Certified Energy Plans Examiner (CEPE), Home Energy Rating Systems Rater (HERS Rater) LEED GA. Two time member of State Board of Directors, CABEC.
- 7/16 – 6/17 **Senior Technical Manager**, Benningfield Group, Folsom, CA  
Responsible for developing the design portion of the California CEA Exam. This is the 8-hour exam all energy consultants in California take for certification. It is divided into a morning multiple-choice section, and an afternoon design section.
- 1/04 – 9/06 **Mechanical Engineer**, Taylor and Syfan, Los Osos, CA
- 6/16 – 9/18 Responsible for professional mechanical engineering needs for commercial and residential structures, supporting computer systems, and monthly billing at structural engineering company. Recently updated company on-boarding, off-boarding, and review policies and practices, as well as developed training program as company migrated to new software.
- 12/00 -11/02 **Systems Engineer**, Boeing Satellite Systems, El Segundo, CA (SSBI clearance)  
"GOES" Bus Test Development Lead, "GOES" Systems Verification, "GOES" Performance Verification.  
"TDRS" Mission Assurance, and "Spaceway" Mixed Simulation Test.
- 7/98 - 9/99 **Production Control Manager**, D.H. Morgan Manufacturing, La Selva Beach, CA  
Scheduling production, parts flow, purchasing, and troubleshooting on amusement park rides.

## Education

### **University of California, Santa Barbara, CA. 3.7 GPA**

PhD. Mechanical Engineering, Advanced to Candidacy March 2012 (ABD)

Renewable Energy Interest. Focus in heat transfer for collected solar with both experimental and numerical work.

### **Cal-Poly State University San Luis Obispo, CA. 3.8 GPA**

M.S. Mechanical Engineering, 2000, With Distinction.

Thesis: Develop new state space and time domain methods for analyzing flight-handling qualities.

B.S. Mechanical Engineering, Conferred March 1998, Dean's List.

Senior Project: Design, build, and test a roller coaster wheel and carriage assembly.

Senior Design Project: Design a flying carpet for a Disney stage show.

### **Claremont McKenna College (CMC) Claremont, CA. 3.1 GPA**

B.A. Management Engineering, Conferred March 1998 (3+2 Dual Degree Program). Dean's List.

## Professional Involvement

**"Most Supportive Professor"** – Society of Women Engineers, 2018-2019

**Terrance Harris Excellence in Mentorship Award** – PolyReps, 2019

**Cal Poly Rotoract – Faculty Advisor.** 2018-present. Service Above Self: fellowship, outreach and charitable works.

**Design for America – Faculty Advisor.** 2017-present. Engineering solutions for underprivileged people in the U.S.

**Indian Student Association – Faculty Advisor.** 2016 – present. Cultural club celebrating the Culture of India.

**CAPED (Cal Poly Amusement Park Engineering and Design) Faculty Advisor.** 2012-2018 (Projects listed below)

**Men's Intramural Beach Volleyball – Faculty Advisor.** 2018-present.

**Girls Who Code** – Started and lead a coding club for elementary children mentored by university students. 2014-2017

**Girl Scouts** – Troop 40930 Leader. Also: Troop First LEGO League team coach. 2015-2018

**SWE Team Tech** – Technical Faculty Advisor

2018-2019 for Combined Treadmill and Flight Attendant Seat

2013-2014 for Slip Resistant Navigation Subsystem

**Lawrence Livermore National Labs (LLNL)** – Independent study advisor with student researcher investigating "splash" effects from asteroid hyper velocity cratering. Fall 2013.

**Munich University of Applied Sciences Exchange Faculty** – Developed Alternative Energy technical elective course taught at international energy summer program in Germany. 2013

**Nominated for Faculty Advisor of the Year.** Recognized at the University level by students and administration as being an exemplary academic and extracurricular advisor to the students. 2013, 2015, 2017, 2018

**Cultures of Equity and Diversity Fellow.** Title granted for work in promoting diversity at Cal Poly. 2012

**PRIDE Ally.** Trained to raise awareness of issues of gender identity and oppression. Office identified as an SAFE office.

**Distinguished Lecturer Award.** Lecturer of the Year 2009. Presented by the California Faculty Association, Cal Poly, SLO.

**Engineering Possibilities in College. (EPIC).** 2007 – 2012. Developed Rocketry Engineering Lab for disadvantaged and minority high school students to inspire them to pursue engineering in college.

**Order of the Engineer.** Joined 2009. Speaker at 2010-present presentations to new members.

**Professional Licensure.** Passed Mechanical Professional Engineering Exam 2002, Fundamentals Exam 1997.

**Certified Energy Analyst (CEA).** Residential and Non Residential Construction. License 2004, 2007, 2013.

**CABEC Board of Directors.** California Association of Building Energy Consultants. Elected 2007, 2013.

**Certified Energy Plans Examiner (CEPE).** Residential and Non-Residential. License 2004, 2007.

**California Home Energy Efficiency Rating System (CHEERS).** Certified HERS rater, 2007. Resnet member.

**High Performance Vehicle IRA.** Faculty Advisor supporting research in high performance electric motors. 2008-2012.

**Society of Women Engineers (SWE).** Charter Member, Central Coast Section. Secretary '04-'05. Member started 1999.

**Association of Energy Engineers.** Charter Member. Speaker.

**PolyCon Committee, Faculty Advisor.** Organize game conventions. Won Pepsi Grants, "Expand Your Role" Grant, ASI Co-Sponsorship Grant. Faculty Advisor '03-'14. Head Coordinator '02,'03,'10,'11. Producer 2007. On Staff 1996-'17.

**Game Theory Chapter 2, Faculty Advisor.** Cal Poly's Game Club. Advisor '04-'17.

**Cal Poly Star League, Faculty Advisor.** Cal Poly's Intercollegiate StarCraft League. Advisor '12-'14.

## Teaching, Learning, and Service

**Mechanical Engineering Diversity and Inclusivity (D&I) Committee.** 2017-present. Co-Chair 2018-2019  
**CENG D&I Committee, Climate, Culture, and Retention.** 2018-2019  
**Cultures of Equity Community of Practice.** 2016-2019  
**Critical Thinking Institute.** 2018  
**Flipping Your Classroom.** 2018  
**IDEA – Institute for Diversity in Education & Advocacy.** Course (Re)design Workshop to Enhance D&I Goals. 2016  
**Affordable Learning Solutions.** 2014  
**ME Scholarship Committee.** 2013-2019. Chair 2015-2016.  
**Reflections and Transformative Learning Consortium to Promote Reflection in Engineering Education.** 2016  
**Creating an Inclusive Classroom Environment.** 2013  
**Fostering a Culture of Equity, Diversity, and Inclusivity in STEM Education at Cal Poly.** 2012

## Grants Received for PhD Research Project in Collected Solar

**Bently Fellow, Research Grant.** 2012-2013  
**Public Interest Energy Research, California Energy Commission (PIER CEC).** 2011 – 2013  
**California Central Coast Research Program, Office of Naval Research (C3RP).** 2011 - 2012  
**Chancellor's Doctoral Incentive Program (CDIP)** 2009, 2010, 2011, 2012.

## Senior Projects / Master's Projects Advised

**2018-2019. SURP Altair Hyperworks, Human Powered Vehicle Frame Design. Mimosa Pudica Biomimicry Model.**  
**2017-2018. Three Degree-of-Freedom Parallel Actuator Telescope Control System.** Thesis committee member for Mechanical Engineering Masters' student.  
**2016-2017. Computational Heat Transfer Using Game Engine To Simulate Space Radiation On A Modular Satellite Architecture.** Thesis committee member for Mechanical Engineering Masters' student.  
**2014-2015. Evaluating the Cal Poly Creamery's Energy and Water Usage.** Thesis committee member for Integrated Technology Management Masters' student.  
**2013-2014. Sustainable Energy Evaluation of Breweries.** Thesis committee member for Integrated Technology Management Masters' student.  
**2013-2014. Thermophilic Algae.** Multidisciplinary team of three seniors and two grad students investigating the use of thermophilic algae within a cycling heat exchanger system.  
**2012 -2013. Multi- Source Stirling Engine.** Three person senior project team building a steam engine that can use a wide range of different fuel inputs.  
**2011-2012. Poly Pond Team.** Three person senior project research team investigating instrumentation and data acquisition for air flow in a collected solar dry cooling heat exchanger.  
**2010-2011. Extreme Exchangers.** Four person senior project research team designing and building a heat exchanger to investigate dry cooling in Collected Solar applications.  
**2009-2012. Peregrine Motors.** Six person masters/seniors research team designing a carbon fiber electric motor, regenerative braking system, and battery pack management for a go-kart race team.

**Current Projects:**

- FLAME - Female Leadership Advancing Mechanical Engineering
- D&I Catalog - Cataloging Efforts in D&I in department, college and university levels
- D&I Workshops - Developing workshops for Diversity Statements, Engineering Inclusive Classrooms
- Learn By Doing - (on hold) Travel to Iraq to meet with Universities about modifying learning styles
- CAPED - Redesign Universal Studio's Transfer Track for Jurassic Park ride
- Develop ASTM F-24 standard for Zip Line deceleration
- Harry Potter and the Forbidden Journey Technical Ride Consultant
- Design and Development of Cal Poly Animatronic Dragon
- Fluids design projects - Fountain design for UU Plaza
- Cal Poly Pipe Flow Rate Iterative Solution Techniques for Water Force Main
- Dynamics projects - Pinball kinetics and kinematics
- Data Driven Amusement Park Ride Analysis
- At-risk Students - Identify and get aid to students you are likely to fail courses earlier in the term
- Thermo Virtual Lab - Virtual lab ideas and experiments brought to a lecture style course