Exploring Anti-Racism and Social Justice in Engineering Curricula

What do systemic racism, social justice and Black Lives Matter (BLM) mean for engineering faculty in terms of our teaching? Historically, issues of social justice have not been part of the curriculum however engineering practice involves not only technical dimensions but also a recognition of the complex social systems embedded into the profession. It is important for faculty to recognize the opportunities that exist to embrace and integrate the sociotechnical complexity of engineering into our instruction, including the ways in which engineering promotes or prevents injustice through the designed world. We will discuss why we need to do this work, what we do in our courses, and how we can sustain this work. Participants will have the option to choose from several breakout sessions that have been designed to meet participants where they are in this journey.

Susan M. Lord is Professor and Chair of Integrated Engineering at the University of San Diego. She received a BS from Cornell University in Materials Science and Electrical Engineering (EE) and MS and PhD in EE from Stanford University. Her research focuses on the study and promotion of diversity in engineering including student pathways and inclusive teaching. She coauthored The Borderlands of Education: Latinas in Engineering. She has won best paper awards from the Journal of Engineering Education and IEEE Transactions on Education. Dr. Lord is a Fellow of the IEEE and ASEE and is coPI on “Developing Changemaking Engineers”, an NSF-sponsored Revolutionizing Engineering Education (RED) project. She received the 2018 IEEE Undergraduate Teaching Award.

J. Alex Mejia is an Assistant Professor of Integrated Engineering at the University of San Diego. His research has contributed to the integration of critical theoretical frameworks and Chicano Cultural Studies to investigate and analyze existing deficit models in engineering education. Dr. Mejia’s work also examines how asset-based models impact the validation and recognition of students and communities of color as holders and creators of knowledge. His current NSF CAREER project seeks to analyze and describe the tensions, contradictions, and cultural collisions many Latinx students experience in engineering through testimonios. He is particularly interested in approaches that contribute to a more expansive understanding of engineering in sociocultural contexts, the impact of critical consciousness in engineering practice, and development and implementation of culturally responsive pedagogies in engineering education.

Diana A. Chen is an Assistant Professor of Integrated Engineering at the University of San Diego. She earned her BS in Engineering from Harvey Mudd College, and MS and PhD in Civil Engineering from Clemson University. In collaboration with colleagues, Chen is designing a new engineering curriculum to educate changemakers who understand that engineering is an inherently socio-technical activity. Her scholarly interests include engineering education that contextualizes engineering sciences and design, exploring engineering boundaries for inclusive pedagogy, and sustainability and bio-inspired design in the built environment. She is particularly interested in the experiences and challenges faced by underrepresented faculty in inclusive teaching due to power dynamics within engineering higher education.

Gordon D. Hoople is an Assistant Professor of Integrated Engineering at the University of San Diego. He earned his BS in Engineering from Harvey Mudd College and MS and PhD in Mechanical Engineering from UC Berkeley. His research in engineering education focuses on developing pedagogies that help students develop a critical understanding of the ways in which engineers impact society. He is the principal investigator on the National Science Foundation Grant “Reimagining Energy: Exploring Inclusive Practices for Teaching Energy Concepts to Undergraduate Engineering Majors.” His recently co-authored book, Drones for Good: How to Bring Sociotechnical Thinking Into the Classroom, provides faculty with a hands-on approach for engaging students in challenging conversations at the intersection of technology and society.