



SEAS Center for Women in Engineering

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Best Practices for Diversity and Inclusion in Engineering Education

What is diversity, equity and inclusion – The first answer that pops into one’s mind is addressing gender, culture and ethnicity. But it is far more than that. Diversity, equity and inclusion also means addressing the different modalities by which we learn – are we visual learners, auditory learners, etc. Bottom line, even the ways in which we absorb, accept and implement the concepts of diversity, equity and inclusion are themselves diverse.

The following are links to journals and websites to provide topics and background materials in increasing diversity and inclusion in engineering education.¹

Teaching and Learning

- **Why Diversity and Inclusion:** <https://web.uri.edu/teach/multicultural/>
- **Diversity in CS:** https://ieeexplore.ieee.org/abstract/document/8725134?casa_token=8A82KCsWPigAAAAA:iAYYm3LlaYH7bKvijPBitqPEOJFNBnoeQvt0msTbXNc-nEb8degdDTAw2xlep7FKoqaC1HBIfw
- **Examining the Effects of Equity, Inclusion, and Diversity Activities in First Year Engineering Classes:** <https://peer.asee.org/promoting-inclusive-engineering-identities-in-first-year-engineering-courses>
- **Engineering writ large:** <https://ece.engin.umich.edu/about/outreach-diversity/dei-resources/>

Active Learning

- **Implementing inclusive practices in an active learning STEM classroom** <https://journals.physiology.org/doi/full/10.1152/advan.00045.2019>

¹ Note this is not intended as an exhaustive repository

Teaching Practices

- **5 Principles as Pathways to Inclusive Teaching;**
<https://www.insidehighered.com/advice/2020/02/19/practical-steps-toward-more-inclusive-teaching-opinion>
- **Designing inclusion into engineering education: A fresh, practical look at how diversity impacts on engineering and strategies for change:**
<https://www.raeng.org.uk/publications/reports/designing-inclusion-into-engineering-education>
- **Teaching strategies for almost all disciplines:**
https://projects.iq.harvard.edu/files/eijc/files/inclusive_teaching_strategies_reflecting_on_your_practice.pdf?m=1525282190
- **Teaching strategies including a one-pager:**
<https://www.ctl.upenn.edu/evidence-based-strategies-and-practices>

Discipline-Specific Resources

- **Biomedical Engineering:**
<https://www.mccormick.northwestern.edu/biomedical/diversity-equity-and-inclusion/>
<https://link.springer.com/article/10.1007/s10439-019-02223-2>
- **Computer Science: Microsoft Guide to inclusive computer science education. How educators can encourage and engage all students in computer science:** <https://www.ncwit.org/resources/guide-inclusive-computer-science-education-how-educators-can-encourage-and-engage-all>
- **Infusing inclusion, diversity & social justice into the undergraduate Computer Science curriculum at Boise State University:**
<https://www.asee.org/public/conferences/113/papers/21436/view>
- **Civil Engineering:** <https://cee.stanford.edu/our-culture/diversity-equity-inclusion>
<https://cee.engin.umich.edu/about/diversity-equity-and-inclusion/>
<https://www.ce.washington.edu/current/diversity>
- **Electrical Engineering:** <https://www.mccormick.northwestern.edu/electrical-computer/diversity/>
- **Energy** <https://par.nsf.gov/servlets/purl/10109375>
- **Mechanical Engineering:**
<https://www.me.washington.edu/about/diversity><https://enr.udel.edu/about/diversity-inclusion/>

Creating Learning Objectives

- **Generic on creating learning objectives BUT features various learning modalities:** <https://www.northwestern.edu/searle/assessment-of-student-learning/assessment-process/developing-objectives.html>

- **Diversity at the syllabus level:**
https://journals.sagepub.com/doi/full/10.1177/0098628320959979?casa_token=IYsyVwSMVa0AAAAA%3A5Fe7ST5kQWMmkp8LOitrINzzNz9WeseN2IipKLGf2Ks-XcGZfeoH9IkZqsF8fxSDzS4z4iOj31DMOQ

The Culture of Engineering

- **Uncovering Latent Diversity: Steps Towards Understanding 'What Counts' and 'Who Belongs' in Engineering Culture:**
<https://www.asee.org/public/conferences/106/papers/22357/view>
- **European Engineering Society – Addressing engineering culture:**
https://www.tandfonline.com/doi/full/10.1080/03043797.2017.1396287?casa_token=5gaLKz2bHZ8AAAAA%3AacdSP5JKq-IRmObe9rMDosxyTO7lhqVQ2zzlCgVDP2xnvaAqEoiXZoDndL6-pyEYFBjB-M0gswMpSAw
- **Changing Faculty Culture to Promote Diversity, Equity, and Inclusion in STEM Education:** <https://www.emerald.com/insight/content/doi/10.1108/978-1-78743-405-920191004/full/html>