Engineering Educators Bringing the World Together
2025 ASEE Annual Conference & Exposition
Palais des congrès de Montréal, Montréal, QC • June 22–25, 2025 ASEE
Paper ID #48670

Scoping Review: Understanding the Place of Justice, Equity, Diversity, and Inclusion in Engineering

Ms. Nyna Jaye DeWitt, University of Georgia

Nyna, born and raised in Durham, North Carolina, obtained her Bachelor's degree in General Engineering with a concentration in Biomedical Engineering in 2022 from Wake Forest University. Following her undergraduate degree, she received her Master's degree in Biomedical Engineering with a focus in Immunoengineering from Johns Hopkins University. Nyna has a strong interest in increasing diversity in biomedical engineering spaces and she intends to research this by focusing on inclusive classroom spaces and diversifying research models.

Mr. Animesh Paul, University of Georgia

Animesh was born in Tripura, India, and raised in a liberal modern "brown" military upbringing. He prefers the pronouns "He/They" and considers himself a creative, sanguine, and outgoing individual. He graduated with a bachelor's degree in Technology focusing on Electronics and Electrical Engineering from KIIT University. He is now a part of the Engineering Education Transformation Institute as a Ph.D. student under the advisement of Dr. Racheida Lewis. His research is in Engineering Education, focusing on equity, inclusion in the classroom, and easing student transition to the workforce catering to STEM graduates.

Dr. Racheida S Lewis, University of Georgia

Racheida S. Lewis, Ph.D. is an Assistant Professor at the University of Georgia in the Engineering Education Transformations Institute (EETI) and the School of Electrical and Computer Engineering. Dr. Lewis believes in creating a diverse engineering field and strives to do so through connecting with teaching and mentoring future engineers. She has devoted her life to this mission through her leadership and lifetime membership in NSBE, SWE, & SHPE. Ultimately, Dr. Lewis aspires to bridge together research and pedagogy within the academy to improve engineering education within the field and across disciplines.

Scoping Review: Understanding the Place of Justice, Equity, Diversity, and Inclusion in Engineering

Background

As engineering educators and researchers, we are motivated by the pressing need to bridge the gap between technical expertise and social responsibility in engineering education. Engineering is not just about designing systems and solving technical problems; we argue that it is inherently a service-oriented discipline that impacts diverse communities.

Working with diverse communities requires historical context, ethical reasoning, and the inclusion of marginalized voices in the engineering design process [1]. However, traditional engineering curricula have often prioritized technical competencies and failed to integrate Justice, Equity, Diversity, and Inclusion (JEDI) principles in meaningful ways. This omission limits students' ability to engage with ethical reasoning, historical context, and the lived experiences of marginalized populations [2].

With the recent ABET accreditation criteria update emphasizing awareness of diversity, equity, and inclusion in professional practice , we recognize a critical opportunity to examine how these principles have historically been incorporated into engineering education and how they can be more effectively implemented moving forward [3].

This scoping review is driven by our commitment to understanding how engineering programs have embraced JEDI frameworks, the successes and challenges they have encountered, and how we can build on existing efforts to create a more inclusive and socially responsible engineering education. Hess et al. and Lafferty et al. suggest that incorporating the principle of justice is crucial, as it serves as a foundation for upholding DEI and is closely tied to the ethical responsibilities of engineers [2], [4].

At a time when DEI initiatives face increasing scrutiny and resistance in public higher education, particularly in the current sociopolitical climate, this research serves as an essential tool to inform educators, policymakers, and accreditation bodies on best practices for embedding JEDI principles in engineering curricula. Ensuring that future engineers are equipped to serve and advocate for diverse communities is imperative. Furthermore, this research challenges dominant narratives in the literature, which have historically gone unquestioned, and seeks to foster a more critical and inclusive discourse in engineering education.

Purpose

Engineering is a highly technical field that is not often associated with concepts outside of the STEM realm, however, it is also a service-oriented field in which engineers must be trained to work with diverse populations. Working with diverse communities requires historical context, ethical reasoning, and the inclusion of marginalized voices in the engineering design process [1]. To include these aspects in the engineering curriculum, ABET, Inc. proposed accreditation criteria change for the 2023-24 accreditation year. Criterion 5d states, “[curriculum must include] Content that ensures awareness of diversity, equity, and inclusion for professional practice consistent with the institution’s mission.” [3]. We present this full theory scoping review paper to understand how similar approaches to this criterion have already been implemented in engineering curriculum, and

to answer the research question, **"What strategies found in literature have engineering programs used over time to integrate Justice, Equity, Diversity, and Inclusion (JEDI) frameworks into their curricula?"**

Themes surrounding diversity, equity, and inclusion (DEI) started to emerge during the 1980's due to a push to dismantle equality and affirmative action laws [5]. Because of this historical period, we have decided to conduct our search beginning in 1980 to signify the genesis of DEI and related principles. To expand our search, we included literature that also highlighted the theme "justice". The Brittanica Dictionary defines justice as, "the quality of being fair or just" [6]. Incorporating the principle of justice is important as it is seen as a precursor for upholding DEI, and it is heavily associated with the ethical responsibility of an engineer [2], [4].

This review paper will be conducted using the Arksey and O'Malley Five-Stage Framework for Structured and Systematic Scoping Reviews, which includes the stages: question, searching, selection, charting, and reporting [7]. The Joanna Briggs Institute (JBI) defines a scoping review as,

> "a type of evidence synthesis that aims to systematically identify and map the breadth of evidence available on a particular topic, field, concept, or issue, often irrespective of source (i.e., primary research, reviews, non-empirical evidence) within or across particular contexts.[8]"

Our work aims to satisfy this definition by identifying successes, limitations, and changes when including JEDI principles in engineering curriculum to inform further implementation of the newly introduced criterion. For the purpose of this paper, we will identify themes in the abstracts to help answer the research question. The abstract review and analysis will contribute to a large project, where the full texts of the chosen abstracts will be review and analyzed.

Methods

This scoping review was guided using the Arksey and O'Malley Five-Stage Framework for Structured and Systematic Scoping Reviews. **Stage one** of the framework requires identifying a research question, which went through a series of iterations. Initially, the research question *"How do engineering programs integrate Justice, Equity, Diversity, and Inclusion (JEDI) frameworks into their curriculum to meet the needs of the diverse populations they serve?"*, was posed to get a general understanding of the place that JEDI frameworks have in engineering programs. After further consideration of the question, it was decided that it needed a better-defined goal and more narrow focus leading to our finalized research question. Reviewing studies over time, provided the objective of seeing how the integration of JEDI principles has changed within engineering curricula, along with assessing if successful strategies had continued use.

Stage two included searching for studies that align with the research question. Searches were separated into three concept line categories that were derived from the Population/Concept/Context (PCC) framework as illustrated in Table 1. Pollock and Peters both recommend this mnemonic for describing clear objectives, developing a title, and creating eligibility criteria for scoping review searches [9], [10]. Following the guidance of a scoping review conducted by Paul and Lewis, after searching each database for the concept lines individually, we connected these concept lines using the "AND" Boolean operator to make the

search more specific to the research question [11]. This search was conducted using five databases: ERIC, Web of Science, ProQuest Dissertations and Theses, Engineering Village, and IEEE Xplore. ERIC is a large educational database sponsored by the Institute of Education Sciences within the U.S. Department of Education. ERIC offers a substantial amount of literature and has functions such as a thesaurus and scope note that helped us better define our search terms. For this reason, ERIC was used as the start of our search. Web of Science is a database that covers articles and reviews from peer-reviewed science and social science journals. This database is cross-referenced with Google Scholar to provide a comprehensive collection of literature. ProQuest Dissertations and Theses is a comprehensive database of multi-disciplinary dissertations and theses offering global perspectives from rising scholars. The incorporation of this database appealed to inclusion of gray literature, therefore lessening the bias of this review. Engineering Village is an online database providing access to engineering research presented in peer-reviewed articles and conference proceedings encompassing papers from IEEE Xplore and The American Society for Engineering Education, which is the premier conference for engineering education research. Lastly, IEEE Xplore is an online platform with access to many literature types such as engineering and technology articles, journals, and conference proceedings.

Table 1. Concept lines and search terms using the PCC framework

	Concept Line	Rational	Search Terms
Population	Engineering	Searches including all engineering disciplines	"engineering education" OR "engineering programs" OR "engineering curriculum"
Concept	JEDI	Searches about the inclusion of justice, equity, diversity, and inclusion	"justice equity diversity inclusion" OR "social justice" OR "diversity" OR "equity" OR "inclusion" OR "diverse populations"
Context	Curriculum	Searches pertaining to educational material	"curriculum integration" OR “Integrated Curriculum” OR "curriculum design" OR "curriculum development" OR "instructional design" OR curriculum*

Stage three is characterized by a selection process. Studies are selected from inclusion and exclusion as described in Table 2. Studies fitting all the descriptions listed in the inclusion criteria are moved to the next level of the review, while studies including a minimum of one of the exclusion criteria are removed from the review. Each study went through two phases of review. The first review phase accessed titles. If the title included any variation of the search terms in the appropriate context, it moved on to the abstract review phase. In reviewing the abstracts, if the abstract discussed the integration of JEDI principles within an engineering course, program, or overall curriculum, without any of the exclusion criteria, it was accepted for a full article review. For analysis, inductive analysis was used to identify patterns within the abstracts. Review data resulted in four thematic categories that abstracts appealed to including developing workshops, curriculum integration alongside technical content, pedagogical strategies enacted by faculty, and implementing additional courses. **Stage four** involved organizing the remaining studies into a chart to advance the scoping review process leading to the remaining stage of reporting. To

enhance the transparency of the review, the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Review (PRISMA-ScR) was used to structure the data.

Table 2. Inclusion and exclusion criteria for study review

Inclusion	Exclusion
• The article discussed at least one of the four principles of justice, equity, diversity, and inclusion or elements thereof. • The article was published in English. • The article was published in 1980 or later • The article specifically focuses on engineering programs or engineering courses of all disciplines.	• Outside of the United States context • Article focus is on K-12 learning and/or teaching • The articles highlight other STEM (science, technology, engineering, and mathematics) disciplines besides engineering

Results and Discussion

PRISMA-ScR were the reporting guidelines used for this scoping review as illustrated in Figure 1. This reporting method is composed of identification, screening, eligibility, and inclusion (include). Using the three concept lines (engineering, JEDI, Curriculum) and a filter for literature published in the year 1980 or after, we were able to produce 6,188 results from 5 databases (ERIC n=445, Web of science n=664, ProQuest Dissertations and Theses n=794, Engineering Village n=3,683, and IEEE Xplore n=602) to satisfy record identification section of the reporting guidelines. Articles were then moved to the screening phase. To assist with record management, Rayyan, an AI-powered platform used to review and organize citations, was used to identify any duplicates. The platform identified 904 records, which were excluded for the following stages of the review process. Eligibility was assessed on two levels: title and abstract review. During the title review, 5,083 records were excluded due to not being related to the research question. Many of the titles indicated that the articles were about creating inclusive classrooms, increasing diversity in their student populations, and ethics courses. While ethics courses can contain content related to JEDI themes, articles were not included unless that was explicitly stated. Only 201 articles were eligible for abstract review, in which 83 records were excluded for failure to address the research question. Many of the excluded articles were outside of the United States context, which is one of the inclusion criteria. Additionally, JEDI and similar language are primarily used in the United States making this the geographical focus of the scoping review [2]. Other articles were excluded due to focusing on building diversity and/or inclusion in engineering education spaces, not within the curriculum. This screening process left 118 articles to be included for a full article analysis.

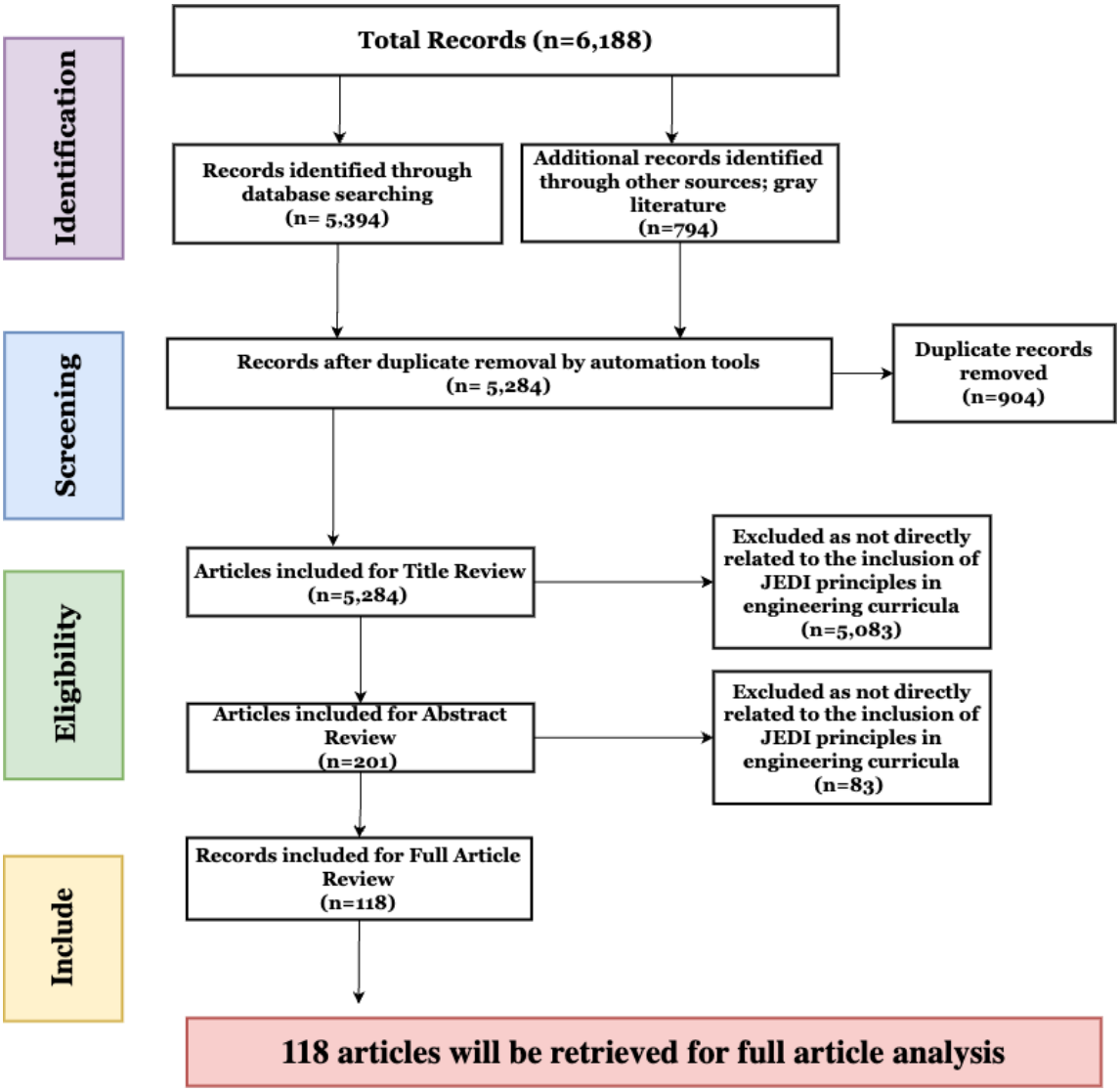

Figure 1. PRISMA-ScR diagram mapping literature review process

During the abstract review process, several pieces of literature showed similar approaches to incorporating JEDI principles into engineering curricula. We identified four categories for how this was accomplished: curriculum integration alongside technical content, workshops, implementing an additional course, and using various pedagogical strategies. Some of the abstracts suggested the use of more than one of these strategies, and this will be analyzed upon the review of the full text. The literature associated with each strategy is detailed in **Appendix A**. Examples of each of the strategies found in the abstracts are described in the following paragraphs.

The most prominent strategy found in the reviewed abstracts was teaching about JEDI principles alongside technical content, in which students are learning through interdisciplinary teachings aimed at increasing sociotechnical skills. This strategy was suggested in more than two-thirds of the reviewed abstracts (n=81). When considering integrating coursework, homework, readings, and/or discussions in with traditional technical coursework, many of the approaches decided to address JEDI concepts by introducing justice adjacent themes such as social justice. Casper et al. used this strategy by implementing social justice assignments in first and third-year civil

engineering courses, where students had to consider social and technical factors that led to Hurricane Katrina [12]. This was done to serve as an example to students of how social systems are factors that need to be considered in engineering work. Very similarly, Storm et al. introduced health equity concepts using Python and machine learning in a biomedical engineering course [13]. While learning computational methods, students exercising their knowledge of health inequities and how their roles as biomedical engineers can contribute towards them. This approach proved effective as the abstract stated that students felt they could better define and ideate solutions to address health inequities. The remaining abstracts in this category covered a variety of engineering disciplines that approached the integration of JEDI principles alongside technical content in a similar manner. The primary goal of this strategy was to not compromise any of the traditional course material, while also introducing students to social science concepts.

Another approach to integrating JEDI principles in engineering curriculum was the development of workshops for faculty and/or students (n=6). In the workshops for faculty, they work on developing best teaching practices for integrating JEDI principles in their courses. In the workshops for students, they learn ways to naturally engage in diverse, equitable, and inclusive engineering design while in the classroom. Wilson et al. utilized workshops in an introductory infrastructure course to teach about social justice in infrastructure [14]. As a result of their workshop, a course module was developed to emphasize JEDI aspects related to infrastructure. This was done to educate students on historical examples of infrastructure issues, so they are not repeated in the future. Murray and Kwaczala also utilized workshops to enhance the integration of JEDI principles in a first-year engineering design course [15]. The authors used a design for additive manufacturing (DfAM) workshop to engage students in historical and cultural themes. Student perceptions of the workshop were measured through Computer Aided Design (CAD) module outcomes and workshop pre- and post-surveys. The overarching goal for the abstracts that used workshops, is to prompt both students and faculty to consider JEDI principles in either their teachings, coursework, or future careers. Developing a space outside of the course to advance skillsets and highlight historical underpinnings related to JEDI allows for students and faculty to enter back into the classroom space with different worldviews.

To incorporate the integration of JEDI principles directly back into the classroom, several abstracts spoke to the creation of a course focused solely on topics related to JEDI (n=12). Dodson et al. employed this approach in their course “Humanitarian Engineering Past & Present: Worcester, 1885”, where they leverage role-playing of people living in an industrial city in central Massachusetts [16]. Students get to experience the lives and perspectives of different stakeholders during that period, while engaging in class assignments related to ethical reasoning, building empathy, and social justice. A slightly different approach was taken by Heising and Goodwin in their undergraduate course entitled, "Women and Men in the Engineering Workplace" [17]. While much of the reviewed literature discussed how to increase students’ awareness of JEDI amongst the populations they will be serving, this abstract focused on diversity in the engineering workplace. Not only did the course focus on gender, but the intersections of race and class were also prominent subjects covered. The course was also intentionally structured to be equally men and women to be more representative of each genders experience. The objective for the abstracts in this strategy category is to introduce a structured learning environment where students can exclusively learn about JEDI concepts. While students have the incentive to get credit for such courses, the limitation to this approach is that many of the abstracts did not mention that they were required courses indicating that students would have to elect to take them.

Lastly, pedagogical strategies were used by faculty to indirectly teach students about JEDI concepts (n=31). Cantilina explored the use of culturally sustaining pedagogy (CSP) to reduce harm and violences against equity-minded students [18]. By emphasizing different cultural practices in engineering, the goal of this work is to sustain equity-minded students so that they can become equity-minded practitioners. Siller et al. took the pedagogical approach of using the sustainable design rating system in their civil engineering course [19]. The use of this rating system influenced students to consider sustainable approaches to engineering challenges. The intention of abstracts in this strategy category is to use teaching techniques to engage students in JEDI concepts, while not explicitly embedding it in the coursework.

Conclusion

Understanding this topic is important because of the rise of conversation around cutting DEI initiatives and excluding educational material related to the concept in public higher-education institutions. While several state legislators have proposed laws prohibiting accreditation bodies from requiring DEI in their accreditation standards, ABET, Inc. has stated that the new criterion should not have a direct impact [20]. Although the accreditation body is not concerned about new legislation, outlining the themes found in literature will provide insight on how the integration of JEDI has already been achieved and how these methods have progressed in different political contexts.

The final phases of this scoping review will include reviewing the remaining articles in their entirety and accessing the ways in which JEDI has been implemented in engineering curriculum. 118 articles will be sent to our librarian for full-text retrieval. An expected challenge to the next step in the review process is the quantity of articles included in the full text review. While this number is larger than expected, we plan to develop a set of inclusion and exclusion criteria specific to the full-text analysis. Along with lessening the number of records, the inclusion and exclusion criteria will provide us with the most adequate literature for addressing our research question. During the full-text analysis phase we will identify additional themes in the literature that discuss the integration of JEDI in the curriculum. While the review of abstracts focused of the strategies of implementing JEDI concepts in engineering curriculum, the ongoing work will analyze these strategies alongside their publication dates. This is done to completely satisfy the research question and understand how the implementation of JEDI principles has evolved in different contexts.

References

[1] S. Bansal, A. M. Kyle, A. O. Brightman, and J. R. Amos, "Approaches to Address New ABET Diversity, Equity, and Inclusion Criteria in Biomedical Engineering Curricula," *Biomed. Eng. Educ.*, vol. 3, no. 2, pp. 331–344, Jul. 2023, doi: 10.1007/s43683-023-00116-4.

[2] J. L. Hess, A. Lin, A. Whitehead, and A. Katz, "How do ethics and diversity, equity, and inclusion relate in engineering? A systematic review," *J. Eng. Educ.*, vol. 113, no. 1, pp. 143–163, 2024, doi: 10.1002/jee.20571.

[3] "Criteria for Accrediting Engineering Programs, 2023 - 2024," ABET. Accessed: Jul. 19, 2024. [Online]. Available: https://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-engineering-programs-2023-2024/

[4] D. J. R. Lafferty, E. A. McKenney, T. Hubbard, S. Trujillo, and D. E. Beasley, "A Path Forward: Creating an Academic Culture of Justice, Equity, Diversity, and Inclusion," *Bull. Ecol. Soc. Am.*, vol. 105, no. 1, p. e2117, 2024, doi: 10.1002/bes2.2117.

[5] C. L. Nittrouer, D. Arena Jr, E. R. Silver, D. R. Avery, and M. R. Hebl, "Despite the haters: The immense promise and progress of diversity, equity, and inclusion initiatives," *J. Organ. Behav.*, vol. 46, no. 1, pp. 188–201, Aug. 2024, doi: 10.1002/job.2835.

[6] "Justice Definition & Meaning | Britannica Dictionary." Accessed: Jan. 10, 2025. [Online]. Available: https://www.britannica.com/dictionary/justice

[7] H. Arksey and L. O Malley, "Scoping Studies: Towards a Methodological Framework," *INTERNATIONAL JOURNAL OF SOCIAL RESEARCH METHODOLOGY*, vol. 8, no. 1, TAYLOR AND FRANCIS, Great Britain, pp. 19–32, Jan. 01, 2005.

[8] Z. Munn *et al.*, "What are scoping reviews? Providing a formal definition of scoping reviews as a type of evidence synthesis," *JBI Evid. Synth.*, vol. 20, no. 4, p. 950, Apr. 2022, doi: 10.11124/JBIES-21-00483.

[9] D. Pollock *et al.*, "Recommendations for the extraction, analysis, and presentation of results in scoping reviews," *JBI Evid. Synth.*, vol. 21, no. 3, p. 520, Mar. 2023, doi: 10.11124/JBIES-22-00123.

[10] M. D. J. Peters *et al.*, "Updated methodological guidance for the conduct of scoping reviews," *JBI Evid. Synth.*, vol. 18, no. 10, p. 2119, Oct. 2020, doi: 10.11124/JBIES-20-00167.

[11] A. Paul and R. S. Lewis, "Understanding the Workplace Transition Experiences of Undergraduate Queer Engineering Students," presented at the 2024 ASEE Annual Conference & Exposition, Jun. 2024.

[12] A. M. A. Casper, R. A. Atadero, A. R. Abdallah, and T. Siller, "Bringing Social Justice Context into Civil Engineering Courses for First-Year and Third-Year Students," *J. Civ. Eng. Educ.*, vol. 150, no. 2, p. 04023013, Apr. 2024, doi: 10.1061/JCEECD.EIENG-1857.

[13] K. Storm, J. Zhang, and E. Haase, "Development and Implementation of a Health Equity-Focused Python and Machine Learning Module in an Introductory BME Course," *Biomed. Eng. Educ.*, vol. 2, no. 2, pp. 167–174, Sep. 2022, doi: 10.1007/s43683-022-00079-y.

[14] C. M. Wilson *et al.*, "Teaching Social Justice in Infrastructure: A Community of Practice Framework for the use of Case Studies," in *2024 ASEE Annual Conference & Exposition Proceedings*, Portland, Oregon: ASEE Conferences, Jun. 2024, p. 48067. doi: 10.18260/1-2--48067.

[15] L. K. Murray and A. T. Kwaczala, "Promoting Diversity, Equity, and Inclusion through Culture-Related Design in First-Year Engineering Curriculum: A Work in Progress," presented at the 2023 ASEE Annual Conference & Exposition, Jun. 2023. Accessed: Mar.

17, 2025. [Online]. Available: https://peer.asee.org/promoting-diversity-equity-and-inclusion-through-culture-related-design-in-first-year-engineering-curriculum-a-work-in-progress
[16] L. Dodson *et al.*, "How Role-Playing Builds Empathy and Concern for Social Justice."
[17] C. D. Heising and M. E. Goodwin, "UNDERGRADUATE ENGINEERING DIVERSITY COURSE: WOMEN AND MEN IN THE ENGINEERING WORKPLACE," in *2003 ASEE North Midwest Section Conference Proceedings*, Iowa State University, Ames, Iowa: ASEE Conferences, Oct. 2003, p. 52164. doi: 10.18260/1-2-1153-52164.
[18] K. Cantilina, "Supporting Aspirations for a More Just Future: Exploring Equity Centered Engineering and Design Practice," Thesis, 2023. doi: 10.7302/8286.
[19] T. Siller, R. A. Atadero, A. M. Casper, and C. H. Paguyo, "Leveraging Sustainability to Teach About Social Justice in Civil Engineering Curricula," *IJEE Int. J. Eng. Educ.*, vol. 38, no. 3, Jun. 2022, Accessed: Mar. 17, 2025. [Online]. Available: https://par.nsf.gov/biblio/10334937-leveraging-sustainability-teach-about-social-justice-civil-engineering-curricula
[20] S. Sullivan, "ABET's Statement on Implementing DEI Concepts Into Program Criteria," ABET. Accessed: Jan. 12, 2025. [Online]. Available: https://www.abet.org/abets-statement-on-implementing-dei-concepts-into-program-criteria/

Appendix A

Table of identified strategies for implementing JEDI principles in engineering literature

Strategy	Abstract Citation
Curriculum Integration Alongside Technical Content	*Abegunde, A., Simitz, L., Sanroman, K., Prybutok, A., Archuleta, C., & Cole, J. (2021). Integrating Anti-Racism and Social Justice throughout the Chemical Engineering Curriculum to Create More Conscious Engineers.* *Alex J. Walsh & Shreya Raghavan. (2022). Design and Implementation of Privilege for Sale, a JEDI Activity for a Biomedical Engineering Introductory Course. Biomedical Engineering Education, 2(2), 183–188. https://doi.org/10.1007/s43683-022-00070-7* *Ambikairajah, E., Atakaramians, S., & Seneviratne, A. (2022). Teaching Engineering Students Equity, Diversity and Inclusion (EDI). 190–195. https://doi.org/10.1109/TALE54877.2022.00038* *Armanios, D. E., Christian, S. J., Rooney, A. F., McElwee, M. L., Moore, J. D., Nock, D., Samaras, C., & Wang, G. J. (2021). Diversity, Equity, and Inclusion in Civil and Environmental Engineering Education: Social Justice in a Changing Climate .* *Ashish Agrawal & Hilton Heydenrych. (2024). An Epistemic Shift: Exploring Students' Learning Experiences with a Decolonisation Initiative in an Engineering Course. European Journal of Engineering Education, 49(4), 700–715. https://doi.org/10.1080/03043797.2024.2303023* *Baura, G., & Kallemeyn, L. (2019). An integrated social justice engineering curriculum at Loyola University Chicago.* *Bielefeldt, A. R. (2023). Integration of Diversity, Equity, and Inclusion Topics into a First-Year Introduction to Civil Engineering Course.* *Bielefeldt, A. R., & Silverstein, J. (2021). Environmental Justice and Equity Issues: In Our Backyards and Beyond.* *Bilgin, B. (2024). Fostering Diversity, Equity, and Inclusion in Engineering Education: A Case Study of UIC Chemical Engineering Department.* *Brit Shields. (2023). Justice, Equity, Diversity, and Inclusion Curriculum within an Introductory Bioengineering Course. Biomedical Engineering Education, 3(1), 39–49. https://doi.org/10.1007/s43683-022-00086-z* *Bullard, S. J., & Varma, K. (2024). Developing a Social Justice Biomedical Engineering Curriculum Unit.* *Campbell, R. C., Wilson, D. M., & Bell, P. L. (2016). Engineering to Care: Exploring Engineering in Humanitarian and Social Justice Contexts through a Lens of Care Ethics [University of Washington PP - United States -- Washington]. In ProQuest Dissertations and Theses (Issue 10187560). https://www.proquest.com/dissertations-theses/engineering-care-exploring-humanitarian-social/docview/1859579115/se-2?accountid=14537* *Casper, A. M. A., Atadero, R. A., Abdallah, A. R., & Siller, T. (2024). Bringing Social Justice Context into Civil Engineering Courses for First-Year and Third-Year Students. JOURNAL OF CIVIL ENGINEERING EDUCATION, 150(2). https://doi.org/10.1061/JCEECD.EIENG-1857* *Castaneda, D. I., Merritt, J. D., & Mejia, J. A. (2021). Integrating an engineering justice approach in an undergraduate engineering mechanics course. 2021, American Society for Engineering Education (ASEE) Educational Research and Methods Division (ERM); IEEE Computer Society; IEEE Education Society. https://doi.org/10.1109/FIE49875.2021.9637457* *Catalano, G., Baillie, C., Riley, D., Nieusma, D., Byrne, C., Bailey, M., & Haralampides, K. (2010). Integrating social justice ideas into a numerical methods course in bioengineering.* *Chadha, D., Heng, J. Y. Y., & Sun, E. (2023). Equality, Diversity and Inclusion (EDI) in the Chemical Engineering Curriculum: Working in Partnership with Students to Create Sustainable Practices.*

Chan, J. R., Bucholz, E. K., & Kim, C. M. (2023). Board 19: Work in Progress: Integrating Ethics Education across the Biomedical Engineering Curriculum Increases Student Awareness of Frameworks and Broader Applications to Practice.

Cook-Chennault, K. (2023). Work in Progress (Research Category): Exploring Strategies for Infusing DEI Principles Into Undergraduate Engineering Classrooms for Engineering School and Institutional Change. American Society for Engineering Education (ASEE)/Educational Research and Methods Divison (ERM); IEEE; IEEE Computer Society; IEEE Education Society. https://doi.org/10.1109/FIE58773.2023.10342962

Cooper, L. A., & Mott, J. (2021). Implementing Social Justice Projects in Thermal System and Mechanical Design Courses.

Danahy, E. E., Andrews, C. J., & Cross, J. (2024). Board 308: Improving Students' Sociotechnical Literacy in Engineering.

Das, S. (2023). Incorporating Design Justice Activities in Engineering Courses.

David A. Rubenstein. (2024). A Practical Approach to Incorporating Diversity, Equity, and Inclusion Practices into Biomedical Engineering Undergraduate Courses. Biomedical Engineering Education, 4(2), 429–432. https://doi.org/10.1007/s43683-024-00149-3

Davishahl, J., & Grubb, C. (2021). Engineering Faculty Experiences Teaching Social Justice to First Year Students. 2021, American Society for Engineering Education (ASEE) Educational Research and Methods Division (ERM); IEEE Computer Society; IEEE Education Society. https://doi.org/10.1109/FIE49875.2021.9637225

Dibiasio, D., Blaisdell, S., Hill, C., & Mello, N. (2005). Integrating ethics, socio/cultural awareness, diversity, and contemporary global issues into the introductory chemical engineering curriculum. 3733.

Drzymalski, J. (2023). Integrating Equity in the Systems Engineering Curriculum: A Pilot Study.

Forin, T. R. (2018). Development of inclusive freshmen engineering assignments.

Halada, G. P. (2023). Redesign of an Engineering Failure Course to Incorporate Learning Objectives in Diversity, Ethics and Inclusivity.

Hammond, M., Martinez, J., & Ziff, E. (2022). Driving the conversation of social and educational influences in human-centered design biases among first-year engineering students.

Handley, H. A. H., & Marnewick, A. (2022). A Diversity, Equity, and Inclusion Model for Engineering Curriculums. IEEE; IEEE Systems Council; Intel. https://doi.org/10.1109/RASSE54974.2022.9989693

Henderson, M., Trotz, M. A., Wells, E. C., Carrasquillo, M. E., Sears, R., Alfredo, K. A., & Cobb-Roberts, D. (2024). Integrating Environmental Justice into Civil and Environmental Engineering Curricula.

Holles, C. E., Heller, L., & Mancus, S. (2022). Centering Social Justice and Diverse Voices in Engineering Ethics Curricula.

Hunter, M. A., Albers, L. A., & Rojas-Murillo, S. (2023). Building Awareness of Inclusivity through Scalable Hands-On Activities.

Hyslop-Margison, E. J. (1999). Alternative Curriculum Evaluation: A Critical Approach To Assess Social Engineering Programs. https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,shib&db=eric&AN=ED435824&site=ehost-live&scope=site&custid=uga1

Ihsen, S., & Gebauer, S. (2009). Diversity Issues in the Engineering Curriculum. European Journal of Engineering Education, 34(5), 419–424. https://doi.org/10.1080/03043790903137551

Jahan, K., Farrell, S., Hartman, H., & Forin, T. (2022). Integrating Inclusivity and Sustainability in Civil Engineering Courses. International Journal of Engineering Education, 38(3), 727–741.

Johnson, K., Leydens, J. A., Moskal, B. M., Silva, D., & Fantasky, J. S. (2015). Social justice in control systems engineering. 122(122).
Jordan, S. S., Foster, C. H., Anderson, I. K., Betoney, C. A., & Pangan, T. J. D. (2019). Learning from the Experiences of Navajo Engineers: Looking toward the Development of a Culturally Responsive Engineering Curriculum. Journal of Engineering Education, 108(3), 355–376. https://doi.org/10.1002/jee.20287

Judge, P. K. (2021). Diversity and Inclusion Lessons that Support the Traditional Civil Engineering Curriculum.

Kabo, J., & Baillie, C. (2009). Seeing through the Lens of Social Justice: A Threshold for Engineering. European Journal of Engineering Education, 34(4), 317–325. https://doi.org/10.1080/03043790902987410

Kaitlyn Storm, Jerry Zhang, & Eileen Haase. (2022). Development and Implementation of a Health Equity-Focused Python and Machine Learning Module in an Introductory BME Course. Biomedical Engineering Education, 2(2), 167–174. https://doi.org/10.1007/s43683-022-00079-y

Kim, C. (2022). Work-in-Progress: Ethical, Legal, and Social Implications of Emergent Biotechnologies: Distributive justice and dual-use technology in the engineering design cycle curriculum.

Kurban, E. R., & Smith, P. E. (2018). Exploring the incorporation of diversity and inclusion curriculum in engineering living and learning community programs: A work in progress.

LaChance, A. M., Pascal, J., Gan, D., Welsh, J. J. P., Pauly, T. J., & Paul, P. (2021). Teaching Environmental Justice Principles to Chemical Engineering Seniors: An Antiracist, Collaborative Approach.

Leutenegger, S. T., & Paguyo, C. H. (2021). Using a Text Mining Assignment as an Intervention to Promote Student Engagement with DEI Issues. 934–938. https://doi.org/10.1145/3408877.3432557

Leydens, J. A., & Lucena, J. C. (2016). Making the invisible visible: Integrating engineering-for-social-justice criteria in humanities and social science courses. 2016.

Lutz, B. D., & Peuker, S. (2022). Preliminary Development and Validation of the Engineering Social Justice Scale.

Mejia, J. A., Chen, D., Chapman, M. A., & Fledderman, B. (2021). "Drugs, Alcohol, Joblessness, and Lifestyle": Engineering Students' Perceptions of Homelessness and Implications for Social Justice Education.

Mollica, M. Y., Olszewski, E., Kiyohara, C. L., Matusalem, D. D., Ochs, A. R., Imoukhuede, P. I., Regnier, M., & Yasuhara, K. (2024). Incorporating Diversity, Equity, and Inclusion Content Into Bioengineering Curricula: A Program-Level Approach. Journal of Biomechanical Engineering, 146(5). https://doi.org/10.1115/1.4063819

Murad, M. (2004). Course and syllabus change to incorporate aspects of diversity in engineering and engineering technology courses. 2439–2448.

Murphy, C., Mushakevich, A., & Park, Y. (2021). Incorporating Readings on Diversity and Inclusion into a Traditional Software Engineering Course. https://doi.org/10.1109/RESPECT51740.2021.9620660

Murray, A. K., & Chase, L. A. (2024). Recentering the User: How an Inclusive Design Class Pushes Students to See Beyond Their Own Experiences.

Murray, L. K. (2024). GIFTS: Transforming First-Year Engineering Curriculum with Diversity, Equity, Inclusion, and Entrepreneurial-Minded Learning.

Nelson, T. N. T., Poleacovschi, C., Appelgate, M., Drake, R., Swalwell, K., Jackson, C., Svec, J., & Cetin, K. (2024). Making Social Justice Central to Construction Engineering: Testing Interventions for Educating Reflexive Engineers. Journal of Construction Engineering and Management, 150(10). https://doi.org/10.1061/JCEMD4.COENG-13745

Olson, R., Lord, S. M., Camacho, M. M., Huang, M. Z., Perry, L. A., Przestrzelski, B., & Roberts, C. A. (2019). Developing changemaking engineers—Year four.

Oulton, R., Gallagher, T. G., & Anovick, C. K. (2021). Efficacy of Curricular Enhancements to Address Social and Environmental Injustice in Civil Engineering.

Painter, R. (2012). Engineering ethics, Environmental Justice and Environmental Impact Analysis: A synergistic approach to improving student learning.

Painter, R., & King, L. (2005). The role of environmental justice issues in environmental engineering ethics (rayyan-123628670). 12439–12446.

Perez, G., Danner, P. M., Gilmartin, S. K., Muller, C. B., & Sheppard, S. (2020). Developing contextual social awareness in engineering: Placing human diversity and social justice at the center of the engineering process. 2020, Abet; Engineering Unleashed; et al.; Gradescope; IEEE Xplore; Keysight Technologies.

Potts, L., & Jin, H. (2022). Diversity, Equity, and Inclusion (DEI): A Conceptual Framework for Instruction and Learning the Geospatial Technology Competency Model (GTCM).

Prybutok, A. N., Leonard, J., & Bagheri, N. (2022). Enabling Exploration of Car T-Cell Design and Integration of Social Justice Context into Chemical Engineering Courses [Northwestern University PP - United States -- Illinois]. In ProQuest Dissertations and Theses (Issue 29206531). https://www.proquest.com/dissertations-theses/enabling-exploration-car-t-cell-design/docview/2672375858/se-2?accountid=14537

Pucha, R., Kundalia, S., & Sullivan, C. S. (2023). Culture-inspired creative design projects increase students' sense of belonging in freshman engineering design course.

Revelo, R. A., & Mejia, J. A. (2017). Social & critical consciousness across the engineering curriculum.

Rogers, C. C., & Valdez, R. S. (2021). Designing for Diversity, Equity, and Inclusion in Systems Engineering Education.

Scheel, I., Verdi, G., & Letaw, L. (2022). Novel multimodal framework for embedding social justice education in technical engineering coursework.

Sheppard, S. (2020). Confronting a Double Pandemic of COVID-19 and Racial Injustice: Identifying Opportunities for Redesign and Reinvention. Advances in Engineering Education, 8(4). https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,shib&db=eric&AN=EJ1287261&site=ehost-live&scope=site&custid=uga1

Siller, T., Atadero, R. A., Casper, A. M. A., & Paguyo, C. H. (2022). Leveraging Sustainability to Teach about Social Justice in Civil Engineering Curricula. International Journal of Engineering Education, 38(3), 742–755.

Snyder, K., & Verma, A. (2024). Nuclear Engineering and Community-Engaged Design: Mapping Energy Justice Across a First-Year, Design-Build-Test Course. 612–620. https://doi.org/10.13182/PBNC24-45069

Sonia Bansal, Aaron M. Kyle, Andrew O. Brightman, & Jennifer R. Amos. (2023). Approaches to Address New ABET Diversity, Equity, and Inclusion Criteria in Biomedical Engineering Curricula. Biomedical Engineering Education, 3(2), 331–344. https://doi.org/10.1007/s43683-023-00116-4

Spyridakis, I. (2021a). Cross-cultural User Interface Design in a Global Marketplace: Building Appreciation for Diversity, Equity, and Inclusion.

Spyridakis, I. (2021b). Sustainable and Ethical Packaging: Designing for Environmental and Social Justice.
T. Forin, P. Bhavsar, A. Nolan, H. Pandya, & Y. Mehta. (2018). Work-In-Progress: Integration of Inclusivity Activity in Civil Engineering Materials Course. 2018 IEEE Frontiers in Education Conference (FIE), 1–3. https://doi.org/10.1109/FIE.2018.8659163

Telang, N. K., Annaluru, R. S., Julien, C., & Santacruz, P. E. (2023). Learning the Impact of Diversity, Equity, and Inclusion Modules in an Undergraduate Electrical Engineering Classroom.

Turner, S., Hancock, P., Gordon, B., Carroll, T., & Stenger, K. (2022). Scaffolding Social Justice in the Engineering Classroom: Constructing a More Restorative, Inclusive, Engineering Practice.

Vargas-Ordonez, C. E., Santagata, M., & Yu, D. D. (2023). Assessing Students' Perspectives and Attitudes Toward Social Justice and Compassion in Civil Engineering (Work in Progress).

	Wang, G. J. (2022). To Do Good, Learn Well: Engineering a Virtuous Cycle between Technical Rigor and Diverse, Equitable, and Inclusive Teaching Practice. *Waugaman, K., Tsai, J. Y., & Zarske, M. S. (2018). Connecting with first-year engineering students' interest in social justice issues through ethics lessons to sustain student retention in engineering. 2018.* *Weber, L. M., & Atadero, R. A. (2021). Work in Progress: Incorporation of Diversity and Inclusion into Undergraduate Chemical Engineering Curriculum.* *Wilson, C. M. D., Alves, T., Walton-Macaulay, C., Wang, X., Hamilton, S. R., Faraone, G., Tymvios, N., & Tefe, M. (2024). Teaching Social Justice in Infrastructure: A Community of Practice Framework for the use of Case Studies.* *Wood, L. A. H., Kim, A., Williams, A. N., Cabrera, B. A., Nielsen, H. N., Zhou, L., Agresar, G., Daly, S. R., Lattuca, L. R., Mondisa, J.-L., Mosyjowski, E., & Skerlos, S. J. (2024). WIP: Developing a Framework for Equity-Centered Engineering Curriculum and Instruction.* *Xiao, W., & Ventura, J. D. (2023). Integrating Diversity, Equity and Inclusion Concepts into an Introductory Engineering Course. 146–151. https://doi.org/10.1145/3606150.3606174* *Zappe, S. E., Litzinger, T. A., Cutler, S., & Esperragoza, I. (2022). Work-in-Progress: A Faculty Development Response to Integration of Diversity, Equity, and Inclusion into the Engineering Curriculum. 2022. https://doi.org/10.1109/FIE56618.2022.9962644*
Workshops	*Abegunde, A., Simitz, L., Sanroman, K., Prybutok, A., Archuleta, C., & Cole, J. (2021). Integrating Anti-Racism and Social Justice throughout the Chemical Engineering Curriculum to Create More Conscious Engineers.* *Alexis N. Prybutok, Ayinoluwa Abegunde, Kenzie Sanroman Gutierrez, Lauren Simitz, Chloe Archuleta, & Jennifer Cole. (2024). Creating and Implementing Course Content Contextualized with Anti-Racism and Social Justice in Chemical Engineering: How Faculty and Students Engaged in the Process. Chemical Engineering Education, 58(3), 167–178. https://doi.org/10.18260/2-1-370.660-70857* *Luchini-Colbry, K., & McDaniels, M. (2020). Equity, inclusion and ethics: Adapting a mentoring curriculum to develop an ethics workshop for engineering students (rayyan-123618843). 2020, Abet; Engineering Unleashed; et al.; Gradescope; IEEE Xplore; Keysight Technologies.* *Murray, L. K., & Kwaczala, A. T. (2023). Promoting Diversity, Equity, and Inclusion through Culture-Related Design in First Year Engineering Curriculum: A Work in Progress* *Roberts, C. A., & Lord, S. M. (2020). Making Engineering Sociotechnical—2020 IEEE FRONTIERS IN EDUCATION CONFERENCE (FIE 2020).* *Wilson, C. M. D., Alves, T., Walton-Macaulay, C., Wang, X., Hamilton, S. R., Faraone, G., Tymvios, N., & Tefe, M. (2024). Teaching Social Justice in Infrastructure: A Community of Practice Framework for the use of Case Studies.*
Pedagogical Strategies	*Aparajita Jaiswal, Muna Sapkota, & Kris Acheson. (2024). Bridging Borders: Assessing the Impact of Semester-Long Study Abroad Programs on Intercultural Competence Development in Undergraduate Engineering Students. International Journal of STEM Education, 11. https://doi.org/10.1186/s40594-024-00483-6* *Armanios, D. E., Christian, S. J., Rooney, A. F., McElwee, M. L., Moore, J. D., Nock, D., Samaras, C., & Wang, G. J. (2021). Diversity, Equity, and Inclusion in Civil and Environmental Engineering Education: Social Justice in a Changing Climate.* *Bonfert-Taylor, P., & May, V. V. (2024). Work in Progress: Launching an Equitable and Inclusive Human-Centered Pathway to Engineering.* *Bowen, C. L., Hudson, H., Austin, S. J., Landaiche, C., Peters, A. M. K., Salom, M. F. C., & Morand, B. (2022). "The Development and Implementation of "Class Community Norms" to Facilitate Learning in a Social Justice-Oriented Classroom (rayyan-123618780). 2022. https://doi.org/10.1109/FIE56618.2022.9962392* *Cantilina, K., Davis, C. H. F., & Holly, J., Jr. (2023). Supporting Aspirations for a More Just Future: Exploring Equity Centered Engineering and Design Practice [University of Michigan PP - United States -- Michigan]. In ProQuest Dissertations and Theses (rayyan-123606748; Issue 30748430).*

https://www.proquest.com/dissertations-theses/supporting-aspirations-more-just-future-exploring/docview/2869398431/se-2?accountid=14537

Chadha, D., Heng, J. Y. Y., & Sun, E. (2023). Equality, Diversity and Inclusion (EDI) in the Chemical Engineering Curriculum: Working in Partnership with Students to Create Sustainable Practices.

Cumming-Potvin, W., & Currie, J. (2013). Towards New Literacies and Social Justice for Engineering Education. INTERNATIONAL JOURNAL OF ENGINEERING SOCIAL JUSTICE AND PEACE, 2(1), 21–37. https://doi.org/10.24908/ijesjp.v2i1.3516

Das, M., Ostrowski, A. K., Ben-David, S., Roeder, G. J., Kimura, K., D'Ignazio, C., Breazeal, C., & Verma, A. (2023). Auditing design justice: The impact of social movements on design pedagogy at a technology institution. Design Studies, 86. https://doi.org/10.1016/j.destud.2023.101183
Douglas, E. P., & Britt Holbrook, J. (2020). Engineering Ethics Education for Social Justice (rayyan-123618802). 2020, American Society for Engineering Education (ASEE), Educational Research and Methods Division (ERM); IEEE Computer Society; IEEE Education Society. https://doi.org/10.1109/FIE44824.2020.9274041

E. A. Eschenbach, E. M. Cashman, A. A. Waller, & S. M. Lord. (2005). Incorporating feminist pedagogy into the engineering learning experience. Proceedings Frontiers in Education 35th Annual Conference, F4H-8. https://doi.org/10.1109/FIE.2005.1612156

Forbes, M. H., & Hoople, G. D. (2023). Work in Progress: Iterating Eco-Social Justice Learning Experiences Through Community-Partnered Capstone Design Projects.

Hancock, P. I., & Turner, S. S. (2023). Actioning social justice into the engineering curriculum. INTERNATIONAL JOURNAL OF ENGINEERING SOCIAL JUSTICE AND PEACE, 9(2), 1–37. https://doi.org/10.24908/ijesjp.v9i2.15215

Hariharan, B. (2014). Developing curriculum to prepare student engineers to engage with problems faced by underserved communities globally. Dassault Systemes (DS); et al.; Kaplan; National Instruments; NCEES; Quanser.

Henderson, M., Trotz, M. A., Wells, E. C., Carrasquillo, M. E., Sears, R., Alfredo, K. A., & Cobb-Roberts, D. (2024). Integrating Environmental Justice into Civil and Environmental Engineering Curricula.

Holles, C. E., Heller, L., & Mancus, S. (2022). Centering Social Justice and Diverse Voices in Engineering Ethics Curricula).

Hyslop-Margison, E. J. (1999). Alternative Curriculum Evaluation: A Critical Approach To Assess Social Engineering Programs.
https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,shib&db=eric&AN=ED435824&site=ehost-live&scope=site&custid=uga1

Koretsky, M., Montfort, D., Nolen, S. B., Bothwell, M., Davis, S., & Sweeney, J. (2018). Towards a Stronger Covalent Bond: Pedagogical Change for Inclusivity and Equity. Chemical Engineering Education, 52(2), 117–127.

LaChance, A. M., Pascal, J., Gan, D., Welsh, J. J. P., Pauly, T. J., & Paul, P. (2021). Teaching Environmental Justice Principles to Chemical Engineering Seniors: An Antiracist, Collaborative Approach.

Lee, T., Buchanan, E. A., & Berg, D. R. (2019). Impacts of engineering justice curriculum: A survey of student attitudes.

Lego, S. E. (2023). Work In Progress: Implementation of a Skills Based Approach to Diversity, Equity, and Inclusion in Senior Undergraduate Aerospace Capstones.

Leydens, J. A., & Deters, J. (2017). Confronting intercultural awareness issues and a culture of disengagement: An engineering for social justice framework. https://doi.org/10.1109/IPCC.2017.8013957

Nelson, T. N. T., Poleacovschi, C., Appelgate, M., Drake, R., Swalwell, K., Jackson, C., Svec, J., & Cetin, K. (2024). Making Social Justice Central to Construction Engineering: Testing Interventions for Educating

	Reflexive Engineers. Journal of Construction Engineering and Management, 150(10). https://doi.org/10.1061/JCEMD4.COENG-13745 *Ostrowski, A. K., Zhang, J., Das, M., Breazeal, C., DIgnazio, C., & Verma, A. (2023). DESIGN JUSTICE STRATEGIES FOR DESIGN EDUCATION: EVIDENCE AND RECOMMENDATIONS FROM SYLLABUS ANALYSIS. 6, Computers and Information in Engineering Division; Design Engineering Division. https://doi.org/10.1115/detc2023-115270* *Painter, R. (2012). Engineering ethics, Environmental Justice and Environmental Impact Analysis: A synergistic approach to improving student learning.* *Reynante, B. (2022). Learning to design for social justice in community-engaged engineering. Journal of Engineering Education, 111(2), 338–356. https://doi.org/10.1002/jee.20444* *Siller, T., Atadero, R. A., Casper, A. M. A., & Paguyo, C. H. (2022). Leveraging Sustainability to Teach about Social Justice in Civil Engineering Curricula. International Journal of Engineering Education, 38(3), 742–755.* *Sours, P. J., & Christy, A. D. (2023). Impacts of Engineering for Sustainable Development – Building Global Sociotechnical Competency Through Intercultural Pedagogy and Humanitarian Engineering [The Ohio State University PP - United States -- Ohio]. In ProQuest Dissertations and Theses (Issue 30725575). https://www.proquest.com/dissertations-theses/impacts-engineering-sustainable-development/docview/2866171682/se-2?accountid=14537* *Spyridakis, I. (2021). Sustainable and Ethical Packaging: Designing for Environmental and Social Justice .* *Tucker, J., & Ferguson, D. (2007). Work in progress—Incorporating ethics and social responsibility in undergraduate engineering education. F3A1-F3A2. https://doi.org/10.1109/FIE.2007.4418080* *Utschig, T. T. (2004). Work in progress—Teaching diversity one minute at a time. 3, S1G-29-S1G-30.* *Wood, L. A. H., Kim, A., Williams, A. N., Cabrera, B. A., Nielsen, H. N., Zhou, L., Agresar, G., Daly, S. R., Lattuca, L. R., Mondisa, J.-L., Mosyjowski, E., & Skerlos, S. J. (2024). WIP: Developing a Framework for Equity-Centered Engineering Curriculum and Instruction.*
Additional Course	*Catalano, G., Baillie, C., Riley, D., & Nieusma, D. (2008). Engineering, peace, justice and the earth: Developing course modules.* *Comolli, N. K., & Jamison, D. (2024). Race, Justice and Engineering Design—A pilot freshman engineering course.* *Dodson, L., DiBiasio, D., Quinn, P., Bergendahl, J., Boudreau, K., Gaudette, G., Sullivan, J. M., & Abel, C. (2017). How role-playing builds empathy and concern for social justice. 2017.* *Douglas, E. P., & Holbrook, J. B. (2020). Engineering Ethics Education for Social Justice—2020 IEEE FRONTIERS IN EDUCATION CONFERENCE (FIE 2020).* *Douglas, E. P., Holbrook, J. B., & Corbo-Ferreira, F. (2022). Engineering Ethics Education for Social Justice: Implementation and Preliminary Data. 2022. https://doi.org/10.1109/FIE56618.2022.9962711* *Heising, C. D., & Goodwin, M. E. (2004). Undergraduate engineering diversity course: Women and men in the engineering workplace. 15515–15529.* *Hendricks, D. G., & Flores, Y. (2021). Teaching Social Justice to Engineering Students.* *K. Hallinan, M. Daniels, & S. Safferman. (2001). Balancing technical and social issues: A new first-year design course. IEEE Technology and Society Magazine, 20(1), 4–14. https://doi.org/10.1109/44.913197* *Leutenegger, S. T., & Paguyo, C. H. (2021). Using a Text Mining Assignment as an Intervention to Promote Student Engagement with DEI Issues. 934–938. https://doi.org/10.1145/3408877.3432557* *Leydens, J. A., Lucena, J. C., & Nieusma, D. (2014). What is Design for Social Justice? - 2014 ASEE ANNUAL CONFERENCE).* *Onyeador, C. N., Gilmartin, S. K., Sheppard, S., Trujillo, G., & Muller, C. B. (2018). Adding diversity and culture to the engineer's toolkit: Evaluating a unique course option for engineering students. 2018.*

	Williamson, K. J., & Sanford, S. (2001). A course in difference, power, and discrimination for engineering students. 213–222.