Chapter 10
Depoliticization and the Structure of Engineering Education

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Abstract The need for engineering students to develop nuanced understandings of the cultural, social, and political contexts of socio-technical systems has never been more obvious to engineering leaders and decision-makers. Yet, engineers often have obtuse definitions of their responsibilities to the public and seem to engage with the socio-cultural contexts and consequences of their work only in times controversy. A central underlying factor in this disengagement from considerations of social justice and equality is the *ideology of depoliticization*, the belief that engineering is a purely "technical" space in which engineers design technological objects and systems stripped of political and cultural concerns. In this chapter, we ask, what role does the culture and structure of engineering education play in promoting depoliticization? After elaborating the ideology of depoliticization, we argue that the culture of engineering pedagogy and the traditional curricular structure of engineering education (both its accreditation process and its intra-program curricula) help support and promote an ideology of depoliticization in engineering and train students to adopt this ideology within their own understandings of their professional roles and responsibilities. We end by discussing the consequences of having depoliticization embedded in the culture and structure of engineering education, and suggest possible policy solutions to *re*-politicize engineering education.

Keywords Depoliticization • Culture of engineering • Engineering education • Professional socialization

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S.H. Christensen et al. (eds.), *International Perspectives on Engineering Education*,
Philosophy of Engineering and Technology 20, DOI 10.1007/978-3-319-16169-3_10

Introduction

Engineers design technological objects and systems in an era when those objects and systems have never been more far-reaching. Large-scale sociotechnical systems, which engineers have a unique and socially validated hand in creating, touch nearly every corner of our most powerful social institutions (Verbeek 2006; Zimmerman 1995) and can reinforce (or possibly undermine) existing social inequalities along the lines of class, race/ethnicity, gender, sexual identity, and disability (Cech and Waidzunas 2011; Nye 2006; Riley 2011; Rolston and Cox 2015; Slaton 2015). Yet, the complexity of these sociotechnical objects and systems have long exceeded the ability for most "lay" individuals to fully understand them and have become "far too complex to be governable by ordinary citizens" (Zimmerman 1995, p. 89). Engineers not only engage in designing these complex socio-technical systems, but are increasingly relied upon to play the role of "public welfare watchdogs" (Cech 2014).

Accordingly, the need for young engineers to develop nuanced understandings of the cultural, social, and political contexts of socio-technical systems has never been more pertinent. Engineers' grasp of the co-construction of technical and socio-cultural realms is important for their sensitivity to how their work contributes to power hierarchies and processes of social inequity and their ability to uphold ethical standards in times of crisis. Yet, despite formal commitments to fostering engineering students' engagement with social welfare concerns, decades of literature has critiqued engineers' often obtuse definition of their responsibilities to society (Layton 1971; Petroski 1994). Engineers seem to actively engage in discussions of the contexts and consequences of their profession only in times of controversy, such as the Event Horizon oil spill (Catalano 2011).

Recent efforts in engineering education and policy (e.g. National Academy of Engineering 2004) have strived to nurture such sensitivity among future members of the profession. Engineering education, as a central place where aspiring engineers are explicitly taught their responsibilities of their professional roles, is a social location that theoretically allows for the development of engineering students' engagement with these socio-cultural contexts. Yet, mirroring cultural patterns in engineering more broadly, a study of students in four diverse U.S. engineering programs found that students' interest in public welfare actually declined over the course of their engineering education (Cech 2014). This lack of public welfare concern included factors such as whether students were interested in helping society, promoting racial understanding, and understanding the consequences of technology.

A central underlying factor in engineers' seeming disengagement from considerations of social justice and inequality is the ideology of depoliticization. As we describe in more detail below, the ideology of depoliticization is the belief that engineering is a purely "technical" space and political and cultural concerns can—and *should*—be removed from that space. This ideology emerges out of dualistic styles of thought that characterize the professional culture of engineering more broadly (Faulkner 2000) and has important consequences for the understanding that

aspiring engineers develop about their professional responsibilities and how considerations of social justice fit into these responsibilities. In this chapter, we ask, what role does the culture and structure of engineering education play in promoting depoliticization? How does engineering education help reproduce this ideology among new generations of engineers?

We argue that the process of socializing students into the culture of engineering and the curricular structure of engineering education—both its accreditation process and its intra-program curricula—helps support and promote the ideology of depoliticization in engineering and train students to adopt this ideology within their own understandings of their professional roles and responsibilities. After describing depoliticization in more detail and presenting these arguments, we discuss the consequences of having depoliticization embedded in the culture and structure of engineering education, and suggest possible policy solutions to re-politicize engineering education.

Engineering Culture and the Ideology of Depoliticization

In contrast to popular belief, professional occupations are not simply collections of people who share technical expertise on a set of topics. Around—and even embedded within—this professional expertise are intricate cultural systems of meanings, practices, and epistemologies (Abbott 1988; Knorr Cetina 1999). Like other professions, engineering has its own unique, semi-autonomous culture that encompasses the beliefs systems, values, and myths built into and around engineering knowledge, practice, and tools (Cech 2013; Trice 1993). The professional culture of engineering serves to unite engineers together into a single social group, even though they may work in vastly different industries on very different projects. The culture of engineering may vary slightly by subfield, industry, and geographic region, but it is built into virtually all corners of the engineering profession.

Within this professional culture of engineering, particular ideologies serve as orienting frameworks for how engineers understand both the relationship of their profession to society and their own roles as individual professionals. Such ideologies also inform what generally counts as "legitimate" engineering work (Cech 2013). Such ideologies not only shape how individual engineers think about and enact their day to day professional work, but also the decisions profession leaders make about the direction of engineering in the future (see, for example, the National Academy of Engineering's *Grand Challenges* report [Cech 2012]).

Depoliticization in Engineering

A prominent ideology within the culture of engineering is the ideology of depoliticization (Cech 2013). Depoliticization is deeply entrenched in the professional culture of engineering and is the belief that engineering is a purely "technical" space in which engineers design technological objects and system—a space devoid of

socio-cultural complexities. Depoliticization promotes an approach to engineering that assumes that political and social contexts *can* be separated out from the technical and, more importantly, that such contexts *should* be removed from engineering work. As such, this ideology may be a central factor in engineers' seeming disengagement from considerations of the co-construction of the technical and the socio-cultural.

Depoliticization is the opposite pendulum swing from ideas of technocracy that reached prominence in the 1920s (Jordan 1994). It has its roots in expressions of disillusionment and skepticism with technology brought on by WWII and the environmental movements of the 1970s (Florman 1994; Slaton 2011). The siloing of "technical" and "social" or "political" knowledge and considerations reflects a more overarching trend toward dualistic styles of thought in engineering (Faulkner 2000). In particular, Sally Hacker (1981) introduced and Wendy Faulkner (2000) expanded the idea of a "technical/social dualism" in engineering, where technical and social forms of knowledge are differentiated and separated. Depoliticization captures the notion that the separation of technical and social issues is not just a cognitive act, but a *moral* one—depoliticization prescribes how engineering work should be conducted and how engineers should approach their work.

Of course, depoliticization is an unobtainable ideology rather than a stylized notion of reality: political and cultural contexts can never be removed from technological design (e.g. Faulkner 2000; Latour 1999). Depoliticization, nonetheless, helps frame social justice concerns—such as how technology retrenches poverty, marginalizes disabled individuals, or builds sexism, racism and heteronormativity into physical objects and systems—as irrelevant to the work of engineering (Cech 2013, 2014) and delegitimizes the very socio-cultural context that provides the necessary basis for engineers' enactment of their responsibilities to the public, such as whistle blowing. In other words, depoliticization prevents engineers from understanding their work as Science and Technology Studies (STS) scholars do: as part of socio-technical systems.

In this chapter, we are thus interested in articulating the role that engineering education can play in promoting depoliticization. In particular, we focus on the culture of engineering as it manifests within the socialization of students, and the structure of engineering education via accreditation processes and engineering program design. We end by discussing the consequences of having depoliticization embedded in the culture and structure of engineering education, and suggest possible policy solutions to challenge this ideology.

Professional Socialization in Engineering Education

Depoliticization, as a prominent ideology within the culture of engineering, likely permeates engineering education programs as well (Cech 2013). As engineering programs seek to transform neophytes into practicing engineers, they not only impart upon them the intellectual tools of the trade, they also teach students how to

be engineers—or, in common engineering parlance, how to "think like engineers." This process, called professional socialization, has been well-documented in other professions such as law, medicine and management, and is a central mechanism through which professions reproduce themselves from generation to generation (Becker et al. 1961; Costello 2005; Schleef 2006). Through their experiences in classrooms, residence halls, laboratories, study groups, assignments and internships, engineering students learn responsibilities of the engineering profession to society and what it means to be an individual representative of that profession (Dryburgh 1999).

During professional socialization, students learn, and learn to take on as their own, the beliefs and values of the culture of the profession to which they aspire. The adoption of this professional culture is not simply the adoption of a set of abstract ideologies, however. Socialization into the professional culture of engineering means that ideologies within that culture manifest in a variety of more concrete ways in students' understandings of what it means to be an engineer.

First, cultural ideologies present in engineering education can manifest in students' epistemological understandings of engineering—their definitions of what counts as reasonable and legitimate engineering knowledge, tools, and practices. In theory, a host of factors could be considered valid inputs in engineering problem-solving and design. Engineering epistemologies serve as rules for what information and practices are considered important in engineering problem definition and problem solving (Knorr Cetina 1999; Petroski 1994) and what are considered irrelevant. Ideologies within the professional culture of engineering inform these epistemologies by providing criteria for relevant inputs and outputs. The ideology of depoliticization, for instance, promotes the bracketing of information that is not strictly technical, such as questions about access and unequal burdens and benefits, from problem definition and design practices. This bracketing is illustrated in the typical structure of assignments in engineering courses, which often provide specifications for the size, shape, and mechanical functionality of the process to be designed, but little information about who will use it or what it will be used for. As engineering students learn the epistemologies of their profession, the ideology of depoliticization is likely built into what they come to understand about what counts as "real" engineering knowledge and design work.

Second, socialization means that cultural ideologies like depoliticization inform students' overall understanding of the role of their profession in society. Learning to become a professional means learning the profession-sanctioned definition of the responsibilities of one's profession in society, particularly the jurisdiction of the profession's socially-sanctioned and monopolized expertise (Abbott 1988). Jurisdictional boundaries are constantly negotiated among different professions, and must be defended from encroachment by other interested parties (Abbott 1988). As such, neophytes learn both these jurisdictions and arguments to defend (and even expand) those jurisdictions. Here, ideologies such as depoliticization influence the definitions students form about what is inside the jurisdiction of engineering. Depoliticization emphasizes a narrowly technical jurisdictional realm for engineering: if engineers do not claim jurisdiction over social issues such as the consequences

of their work for public welfare, then they may not hold themselves responsible for those consequences. This has important implications, especially if these neophytes eventually become profession leaders: the notions that aspiring engineers develop about the responsibilities and jurisdictions of their profession may inform the direction they lead the profession in the future.

Third, through the socialization process, depoliticization is likely inflected in the very identities students develop as engineers. During professional socialization, neophytes usually develop a personal identification with and commitment to their profession (Becker et al. 1961; Ibarra 1999). But, the ideologies of their profession are not just layered on top of students' existing identities, these ideologies often appear in students as *personal* traits (Costello 2005). The dominant cultural ideologies in the profession serve as touchstones for the professional identities that students develop as they go through engineering training. Depoliticization within engineering education, in other words, manifests in engineering students' budding professional identities, informing the things they are *personally* committed to in their professional careers. Specifically, depoliticization may discourage new engineers from elevating considerations of social justice and public welfare to the level of technical considerations such as size, speed, and efficiency.

In sum, through professional socialization, overarching cultural ideologies within engineering such as depoliticization shape the epistemologies engineering students develop to solve problems, their overarching understanding of the responsibilities of their profession to society, and the professional identities aspiring engineers develop. Socialization in engineering education is thus a powerful process through which depoliticization is folded into engineering students' understandings of what it means to be engineers. The responsibility that accompanies the professional socialization process thus also comes with great opportunity: engineering education is an important site where depoliticization may be interrupted. However, as the next section discusses, the structure of engineering education means that such dismantling of depoliticization would be difficult to accomplish under current curricular arrangements and priorities.

Curricular Structure of Engineering Education

In addition to the professional socialization process, the very structure of the engineering curriculum may reinforce the ideology of depoliticization. Through both accreditation processes and the day-to-day pedagogical practices of engineering faculty, the typical arrangement of engineering education in the U.S. may promote the bracketing of social and political issues and the labeling of such issues as irrelevant to "real" engineering practice. We now discuss how these processes can build depoliticization into the structure of engineering education and make *re-politicization* difficult.

Although they have little formal power to shut down non-compliant engineering programs or to facilitate change in the profession beyond engineering education, the

formal accreditation processes of ABET, Inc. carry tremendous *symbolic* significance: in order for engineering programs to be recognized as legitimate purveyors of engineering training, they must be accredited. Unaccredited engineering programs are disadvantaged in competing for the top students, and students without degrees from accredited programs are disadvantaged in securing top engineering jobs and professional licensure. As such, the values and commitments built into the accreditation processes can help shape the values and commitments of engineering education.

ABET, Inc., formerly known as the "Accreditation Board for Engineering and Technology, Inc.," has served as the accreditation authority in engineering for over 80 years. As an organization, ABET is composed of a board of directors, plus representatives of professional organizations from all sub-specialties of engineering. The accreditation activities themselves (site visits to schools, reviewing of program self-studies, etc.) are conducted by teams of volunteer evaluators who are usually engineers from academia and industry (abet.org). ABET's stated mission is as follows: "ABET serves the public globally through the promotion and advancement of education in applied science, computing, engineering and engineering technology" (abet.org). Alongside accrediting educational programs and evaluating quality, ABET's core mission is to "stimulate innovation" in engineering education. In practice, however, accreditation procedures tend to serve a conservative, rather than innovative, function (Abbott 1988).

Accreditation is voluntary and engineering education programs must request to be evaluated by ABET. There are several quality standards against which engineering programs are evaluated, ranging from lab space to computer facilities, faculty adequacy and program curricula. In the late 1990s, in response to criticisms about the rigidity of prior accreditation requirements, ABET changed from "bean-counting" accreditation requirements to a new set of criteria based on student outcomes; a set of competencies that students who graduate from accredited engineering programs are supposed to display, referred to as EC2000 (EC2000 report). Responding to increasing internal and external pressure to include socio-cultural concerns as accreditation requirements, ABEt also added the criteria that students graduate from their programs being able to "understand [their] professional, ethical responsibility," have a "broad education to understand social context" and have "knowledge of contemporary issues."

Although ABET's reconfigured accreditation requirements purport to make the socio-cultural context of technology more prominent in engineering education, by demarcating these contexts as separate outcomes, this reconfiguration actually may help *reproduce*, rather than undermine, depoliticization. Because socio-cultural competencies are understood as separate accreditation outcomes from more technical competencies, teaching socio-cultural contexts is effectively siphoned off from more technical training and contained within separate courses, or separate modules within existing courses. For example, a recent study (Barry and Ohland 2012) assessed the impact of curriculum reform following these changes in the ABET criteria, seeking to determine the level of professional and ethical curriculum content in place after the implementation of EC2000. While the *content* offered on

topics like ethics increased within many engineering programs, engineering students did not appear to develop additional reflexivity about their ethical and social responsibilities. Of course, a nuanced understanding of socio-cultural context of technology requires that those contexts are *not* divorced from the technical considerations in which they are actually embedded. By peeling off ethics training into a separate course and codifying the relative unimportance of professional/ethical responsibilities by requiring students to take only one course on the topic, this arrangement likely reinforces, rather than undermines, the ideology of depoliticization.

Third, as noted above, accreditation evaluators are usually practicing engineers from industry and academia; few are formally trained in the socio-cultural contexts of technology. Except for their own idiosyncratic experiences, few may have the academic background necessary to judge whether students really do have "an understanding of professional and ethical responsibility," and "the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context" (abet.com). Thus, the very definitions of credibility in engineering as culturally defined by ABET undervalues the importance of socio-cultural context simply because accreditation evaluators are often not well-trained to identify and articulate the socio-cultural contexts and consequences of technology.

Through these processes, the ideology of depoliticization is threaded throughout formal procedures of accreditation and helps reinforce this ideology within the culture of engineering education. But, accreditation is not the only avenue through which the curricular structure of engineering education reproduces depoliticization. Equally consequential are widely-shared practices of curricular arrangements within engineering programs.

First is the problem of engineering faculty's own pedagogical training: even if faculty wanted to integrate socio-cultural contexts into their courses, many may lack the pedagogical tools to do so. Few faculty have ever taken a service learning, cooperative learning, or active learning course, let alone have the training to integrate socio-cultural contexts into educational spaces that otherwise promote depoliticization (Barry and Ohland 2012). Traditional engineering textbooks are also usually not written with support for dynamic modes of instruction (see Riley (2011) for a notable exception).

Second, one of the biggest challenges to undermining depoliticization in engineering education is crowding of the engineering curriculum. Faculty are under great pressure to squeeze an ever-increasing amount of content into their courses. Feedback from industrial advisory board members encourage engineering curricula to incorporate more business concepts, more inter-disciplinary cooperation, and more technological solutions into their classes (National Academy of Engineering 2004). Parallel pressures for replacing or omitting antiquated technical content are rarely expressed. As such, content not considered directly relevant to technical content are easy targets for omission. Furthermore, required courses are rigidly sequenced and tightly packed, leaving students with little flexibility to explore professional enrichment in non-engineering courses (Culver et al. 2005). As such, the typical arrangement of engineering courses not only *reflects* the ideology of depoliticization, it also *reinforces* it.

Third, and perhaps most importantly, depoliticization often looms over faculty promotion and tenure processes in engineering departments. Even if effective teaching is emphasized in promotion and tenure considerations, attempting to integrate socio-cultural contexts into otherwise technical courses is not usually the sort of effective teaching that is meant by promotion and tenure committees. Faculty who engage in pedagogical innovations may be penalized, both because the time and effort required to integrate socio-cultural contexts into their courses takes time away from research, and also because such politicization may cast those faculty as less "serious" engineers in the eyes of their colleagues (Lattuca et al. 2006). Such penalties may be particularly consequential for junior faculty.

By divvying up engineering content by technical subspecialty, by making the outcomes of those courses predominantly about technical mastery, and by devaluing socio-cultural contexts in promotion and tenure decisions, engineering programs promote a vision of engineering where technical mastery is sufficient to earn an engineering degree and competence in the socio-cultural contexts of technology is superfluous to "real" engineering work. These pedagogical and curricular structures may undergird the professional socialization process discussed above to create an educational environment where depoliticization is reinforced at multiple levels and through both formal and informal institutional processes.

Consequences of Depoliticization in Engineering Education

What are the potential consequences of a curricular structure that deemphasizes socio-cultural contexts of technology, and of professional socialization processes that embed depoliticization into aspiring engineers' epistemologies, professional identities, and their broader understandings of the responsibility of their profession to society? First, it means that engineering students may be trained with an understanding of their future roles as engineers that belies the full extent of what those roles will actually entail: engineering education presents an overly-abstracted, simplified, and decontextualized picture of the engineering profession. Contrary to the ideology of depoliticization, practicing engineering is a messy and politicized endeavor—by being trained in a social space permeated by the ideology of depoliticization, engineering students not only leave their training unprepared to deal with socio-cultural complexities inherent in "real world" engineering, but also lack the intellectual tools and epistemological scaffolding necessary to clearly recognize such complexities. As reflected in the work of Science and Technology Studies scholars (Bereano 1976; Bijker and Law 1992; Bucciarelli 1994; Faulkner 2007), engineering work is never as decontextualized as it is portrayed in engineering classrooms and textbooks. Whether they are trained to or not, engineering students who graduate and enter engineering jobs must contend with a myriad of "political" concerns such as uncertainty, regulation, public welfare, and conflicts of interest.

Second, like other ideologies at the core of cultural belief systems, the ideology of depoliticization in engineering education is likely very difficult to undermine.

Because depoliticization is codified in multiple dimensions of the culture and structure of engineering education, it is reinforced and reproduced anew through the overlapping and interdependent processes of socialization, accreditation, and pedagogy. Re-politicizing engineering education would require not only cultural shifts but systemic changes in the structure of engineering accreditation and pedagogy.

Can Engineering Education Be Re-politicized?

We have argued in this chapter that the professional socialization of engineering students and the curricular structure of engineering education impart the ideology of depoliticization into several dimensions of engineering training. Students do not just learn to value depoliticization as an abstract ideal; depoliticization comes to be a part of what it means to them to "think like engineers" and *do* engineering work. Given the cycle of influence that passes this ideology from faculty to neophytes, how might engineering education be *re-politicized*?

Recently, several schools have sought to reconfigure their curriculum to challenge depoliticization. However, institutional isomorphism makes it difficult to create lasting changes to engineering education (DiMaggio and Powell 1983). Essentially, new programs that attempt to innovate face the challenge of convincing prospective students, peer universities, and potential employers of the graduates of those programs that they are not *too* innovative. Thus, isomorphism can marginalize innovative programs that attempt to alter their pedagogical cultures and curricular structures to promote training in the social and political contexts of engineering design.

Despite these challenges, we believe there are several changes that might help to re-politicize engineering education. First, the ideology of depoliticization must be deliberately and repeatedly deconstructed in engineering classrooms and in the planning and implementation of engineering curricula (Cech 2013). Deconstruction involves overt discussions of this ideology and clear explanations of *why* it is problematic. By openly articulating the contours of this ideology, students may learn to recognize depoliticizing forces and even attempt to re-politicize their own educational spaces.

Furthermore, re-politicizing the epistemologies of engineering would help alter how students learn to "think like engineers." Such an alteration might involve pushing students to recognize and deliberate on the socio-cultural aspects of problem definition and solution. Extracurricular activities such as "Engineers Without Boarders" are also a step in the right direction. It is important that students learn that considering the social contexts and impacts of their design work is not a separate, expendable step that happens *after* a design is complete, but rather an iterative process involved at the beginning, middle, and end of design.

We also suggest several changes to the curricular structure of engineering education. First, relating to accreditation, ABET's criteria should be more specific in its expectations for outcomes related to socio-cultural contexts. While EC2000

removed the rigidity of the previous criteria, it replaces rigidity with vagueness. ABET leaders and evaluators need to be able to clearly recognize and articulate what it means to teach engineers to be competent in the social and cultural contexts of their work.

Second, as noted above, ABET evaluators are usually individuals trained as engineers. In order to competently judge whether engineering students are indeed emerging from their programs able to conceptualize socio-cultural contexts of technology, it is necessary to include among the evaluators individuals who have expertise in those contexts. We acknowledge that adding an evaluator increases the financial commitment from institutions for accreditation procedures. If this aspect of engineering education is a priority, it should be supported and embedded in the ABET evaluation process. Furthermore, the feedback ABET evaluators provide to programs after site visits need to include constructive, concrete feedback on how to improve in the areas relating to socio-cultural context (Lattuca et al. 2006).

Third, in order to undermine depoliticization, the organization of and emphases within engineering courses must shift. While we recognize that a drastic reorganization of the way engineering training is carved into courses is unlikely, technical courses could be re-politicized by introducing socio-cultural considerations in the way that engineering problem-solving is taught. In order for such content to be taken seriously by students who are steeped in depoliticization in most other realms of their engineering education, students must be held *accountable* for that knowledge: full credit on an exam question might require, for example, not only deriving the correct numerical solution to a design problem but thoughtfully articulating socio-cultural considerations of access, power, stereotypes, and unequal burdens embedded in the definition and solutions to this problem. Of course, a simple addition of content to existing course material would only exasperate the curricular crowding problem discussed above. Put bluntly, if engineering curricula is to be re-politicized, it must cover less technical content. This is a radical suggestion. But, it is widely acknowledged that engineering students rarely use *all* the content they learn in engineering courses (cf. Barry and Ohland 2012), and a great deal of the technical knowledge engineers need to do their work is learned on the job. As Culver et al. (2005, p. 19) suggest, learning the socio-technical contexts of engineering work "may be more important than learning all the power cycles." We contend that being able to recognize and articulate the socio-cultural contexts of engineering work will serve students better in the future than learning "all the power cycles."

Finally, and perhaps most importantly, depoliticization in formal and informal promotion and tenure requirements needs to be addressed. While quality teaching is usually considered important for promotion and tenure in the abstract, efforts put toward curricular innovations that integrate socio-cultural contexts into the teaching of engineering problem definition and problem solving is often considered extra and may not count as promotion-worthy activities (Lattuca et al. 2006). More consequentially, the ubiquity of depoliticization likely means that faculty who express commitment to re-politicizing engineering classrooms may *themselves* be consid-

ered less serious scholars by their colleagues. In order for engineering education to be re-politicized, faculty must be rewarded—or at least not penalized—for articulating and integrating socio-cultural contexts of engineering design.

Depoliticization is a deeply ingrained ideology within engineering. Through its integration into engineering education, this ideology is passed on to new generations of engineers. Engineering education, as the training ground for future engineering professionals, may have the strongest role in reproducing the ideology of depoliticization. But, engineering education also provides the greatest opportunity for interrupting this cultural cycle, and re-politicizing engineering for the newest generations of engineers who will lead their profession into the future.

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