

## Global Development Engineering and its Discontents: an interdisciplinary project-based course

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Recent discussion in engineering has focused on the importance of preparing students for a global future, but rarely do we examine the profession's role in globalization with a critical eye. An interdisciplinary project-based course and upper-level engineering elective, open to students in a variety of disciplines, seeks to initiate critical study of the technological, cultural, and policy aspects of international development. Rather than working from a common base of introductory knowledge, this course requires students to share sophisticated knowledge in their discipline with others from different backgrounds.

Developed through a collaboration between an engineering professor and a sociology student/alumna, the course wrestles directly with the differences in perspective that create gulfs in understanding between social scientists and engineers, and between development workers and intended beneficiaries of development projects. Students grapple early on in the course with the promises and limitations of technology for development, with the meanings of capitalism, colonialism, and globalization, and with the implications of engaging in development work from places of privilege.

Case studies in appropriate technology highlight the importance of communication, leveling power relationships, anticipating the social impacts of technology, and meaningful involvement of end users in technology development. Cases address topics including water quantity and quality, food production and preparation, and energy. Through class discussion and short assignments students analyze the role of technological, economic, cultural, and governmental factors in helping or hindering the success of development projects. Two multidisciplinary team-based design projects allow students to construct prototypes (of a slow-sand water filter and a child's crutch) using hand tools and scavenged objects. Students experience in a very real way how technical, economic and social considerations are inextricably linked in design.

We are working to establish meaningful two-way relationships with communities both locally and abroad in hopes of creating a community-based project connected to the course. We discuss some of the concerns that have arisen to date and the ethical guidelines we believe are necessary for appropriate community collaborations.