

Incorporating Ethics in Biomedical Engineering: A Joint-Venture Approach

Xavier Jackson, Zachary Jasensky, Vivian Liang, Melvin Moore, Jake Rogers

Advised by Geoffrey Pfeifer and Kristen Billiar

Educating engineering students on how to recognize and navigate ethical situations can increase their awareness of and ability to analyze ethical issues they will encounter in their professional fields. Many engineering programs do not have a systematic incorporation of ethics in their curricula, which may leave students without an appreciation of the significance of ethics in everyday engineering decisions. The goal of this project is to develop a system of ethics modules that can be efficiently incorporated into engineering courses. Three methods of teaching ethics were implemented in a sophomore level biomechanics class, in which the majority of students felt they learned the most from a joint-venture method over alternative methods. The joint-venture module incorporates an ethics professional as a guest lecturer who exposes students to a variety of tools to better understand professional and ethical responsibilities. Further assignments were given to the students to reinforce their new found knowledge in biomedical engineering ethics. Joint-venture modules, customized to course content, were then piloted in three biomedical engineering courses at the freshman, sophomore, and senior level. The professors indicate that the ethics analyses are easy to incorporate into their curriculum without distracting from the engineering content, and 90.5% of the participating students agreed that the ethics guest lecture was helpful in understanding the ethical material.