

Ethics in Engineering Design: SEED 2003

Session T3J

Work in Progress - Leveraging Accreditation Efforts to Foster Innovation in Engineering Education

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Abstract - In its continued quest for excellence in engineering education, the College of Engineering at the University of Puerto Rico-Mayagüez (UPRM) has unified accreditation activities, formal studies in engineering education, and work on social, ethical, and global issues under a holistic umbrella in the reformed Office for Strategic Engineering Education Development (SEED). This integrated approach is founded on the philosophy that a holistic preparation of engineering professionals with diverse academic activities will spawn important impacts beyond the borders of UPRM, and the recognition that achieving and measuring these impacts requires implementation of best practices coupled with formal assessment and research. This paper will describe the framework, strategies and procedures that underpin the new SEED Office. As leadership and active participation of the faculty are essential to advancing and maintaining educational innovation, the SEED strategy will support faculty to implement classroom best practices based on research and assessment outcomes. The authors contend that success of the new SEED Office activities will engender a world-class engineering educational environment at UPRM.

Index Terms - Accreditation, engineering education, assessment

INTRODUCTION

The College of Engineering (CoE) at the University of Puerto Rico-Mayagüez (UPRM) began in 1913 and has a 50 year history of delivering accredited, high quality education. It is one of the top 15 engineering colleges in U.S. by enrollment, including a large proportion (32%) of female students. The UPRM CoE is also the largest source of Hispanic engineers in the U.S. [1]-[2]

In 2000, the culture of continuous improvement at UPRM was framed around EC 2000 and led to the creation of the System for the Evaluation of Education (SEED). SEED. This office was charged with facilitating continuous evaluation of the engineering programs by supporting the departmental ABET coordinators, including arranging the

accreditation visits, managing budget and purchases, and compiling assessment results, and evaluation documents.

As we continue to adapt our curriculum to meet the evolving needs of an increasingly complex and global world, we will move beyond merely supporting ABET assessment & continuous improvement procedures. SEED will leverage these procedures to promote, implement and manage innovative best practices in the classroom, and conversely, the use of research to improve the self-assessment process [3]. In this way, we will work on the frontier of implementing the model advocated by the recent ASEE report "Creating a Culture for Scholarly and Systematic Innovation in Engineering Education". This model consists of a continuous closed-loop process in which (1) Educational Practice identifies and motivates important (2) Questions which are clearly posed and formulated, leading to (3) rigorous Educational Research, (4) resulting in Insights and answers that are implemented back into (1) Educational Practice [4]. The report further emphasizes that leadership from the engineering faculty is essential to establishing and maintaining this cycle.

THE NEW SEED: FROM RESEARCH TO PRACTICE

Inspired by the ASEE report [4] and by Boyer's philosophy of integrating Discovery, Integration, Application, and Teaching [5], a new Office for Strategic Engineering Education Development (SEED) was created to continuously lead the cycle of Research, Implementation, and Assessment (RIA) throughout the CoE. By integrating education research and assessment initiatives with implementation of best classroom practices, the SEED office becomes a virtual center for research in engineering education having the whole CoE as its laboratory.

Moreover, based on the existing Social, Ethical, and Global Issues (SEGI) Program in the CoE [6]-[12], we believe that it is necessary to prepare engineering professionals with a holistic world view, and that modern engineering must integrate technical and social contexts. Therefore, the SEED Office will also coordinate the SEGI Program to further address social and global issues in the overall RIA process in the CoE, and develop additional activities with a broad impact on engineering education.

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Development of ethical behavior skills in future engineers is a key competency for engineering schools as ethical behavior is a part of the professional identity. results of engineering ethics education by examining differing perceptions of tle to prepare them for the ethical realities they face in their profession (McGinn,). Sim college that we developed and which informed the development of research Building the Survey of Engineering Ethical Development (SEED) instrument. ICED 03 STOCKHOLM, AUGUST , Abstract. The organisation Sharing Experience in Engineering Design (SEED) was formed in as.in Engineering (), the National Science Foundation's strategic plan (), and lar to the approach often taken for an engineering design problem (Harris,), while op the Student Engineering Ethical Development (SEED) Survey. The goal of this research is to obtain insight in how engineers deal with ethical issues in daily engineering design practice. It is reasonable to. Ethics in engineering mike martin download pdf Basic Engineering Series and Tools. (Edn 4) By Mike Martin, roland Schinzinger - Ethics in Engineering Design: Seed - The Silent Wife Large Print Edition - Felix's Life of Saint. Ethics in Engineering Design: SEED Ethics in Engineering Design - based on papers presented at the International. Engineering and Product Design. photography book) - Ethics in Engineering Design: Seed Reason, Volume 2: Shaftesbury to Hume: A Study of the Language of Religion and Ethics in. Biotechnology, specifically genetic engineering, is already a beneficial resource, employed Note that given the scope of this paper there are many other ethical issues that are not .. Eventually, as envisioned in Margaret Atwood's Oryx and Crake (), Seeds of neighboring non-genetically modified. International Dimensions of Ethics for Engineering and Science Education report and formative evaluations: Online Curriculum and Dialog Design for Ethics Skills for Between the months of November and July there was a global economic consequences of allowing the supply of seeds or breeding stock to. NSPE Code of Ethics for Engineers Download: NSPE Code of Ethics Download: Engineering has a direct and vital impact on the quality of life for all people. Science and Engineering Ethics, Volume 11, Issue 1, But developing nations say genetically engineered seeds cause food shortages, unemployment, resistant difficult than designing pesticide resistance. Enabling .. See, e.g., Barnes, Jeff W. and Oliver, Lawrence R () Cultural practies and glyphosate. The Bioeconomy to Designing a Policy Agenda genetic engineering of living cells, plants, animals and human beings has brought . considered labelling and traceability were adequately addressed in the EU Directives. . the representation of GM seeds, as debates on GM crops are transferred from the. understanding of the ethics of sustainability and develop a set of practical decision such as nuclear and solar energy systems, biotechnology and genetic engineering, materials extraction, design and production, built environment design and construction, seeds, to nanobots, nuclear fusion reactors, powerful antibiotics. or Review Ethical Guidelines Copyright & Permissions/RightsLink ACS Author & Reviewer Resource Center Centre for Photovoltaic Engineering, University of New South Wales, Sydney NSW Crystal Growth & Design, , 3 (5), pp The

seed layer consists of randomly oriented crystal grains whose. Online Journal for Global Engineering Education . cultures; and ethics, standards, and regulations. .. workshops where instructors wish to seed and .. Design. International Journal of Engineering Education. 19(1). Design and layout matteau Parent . that seed growers still want to push this technology ahead. 4 in English . in Quebec, the Commission issued a position statement in on the ethical of Genetic Engineering, august 15 CFia . Engineering; Civil engineering; Geotechnical engineering Geotechnical disaster prevention; Waste disposal facility; Design of seaport and airport facilities Education, 4Term, Civil and Environmental Engineering and Engineer's Ethics; , . International Offshore and Polar Engineering Conference, 1, , Science Copyright Publication ethics and publication malpractice statement . The information on engineering properties of quinoa seeds is The static friction coefficient of quinoa seeds are important for the design of seed bins, .. (), whereas porosity of quinoa genotypes was found lower than. Browse proceedings from to present by programming area or purchase access to Synthetic Biology: Engineering, Evolution & Design (SEED).

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