

Guest Editorial

CURRICULUM REFORM AND ROLE OF INFORMATION AND COMPUTER TECHNOLOGY

Agricultural Engineering (AE) is a dynamic academic discipline and a global engineering profession that has been in existence for the last 100 years. From the original emphasis placed on 'on-farm' agricultural mechanization by its forebears, it flourished in the last century and expanded its scope to include other biological and process industries. During the past two decades, however, there have been rapid and significant changes in AE Education around the globe. As a consequence of declining undergraduate enrolments and budget cuts which challenge the financial viability of academic departments and programs, many academic institutions have seen their Agricultural Engineering Departments to merge with other programs, shut down or restructure and transform themselves. We have witnessed considerable changes in curricula and expansion of research themes into new knowledge frontiers beyond agriculture. And this has been reflected over time in the name change of academic Departments and professional societies to include variants of Biology (Biological, Bioresource, Biosystems Engineering). Today, Agricultural Engineering Education is at a major crossroads and, unexpectedly, has been paving the way for Biological/Biosystems Engineering to emerge as a new global academic discipline.

This Special Edition series of the *IJEE* on Agricultural/Biological/Biosystems Engineering (ABE) Education was conceived as a contribution to the above ongoing global dialogue on the evolution and future of the Agricultural Engineering discipline; hence the choice of the by-line "Transformation and Reinvention" in the title. Indeed, this Special Edition has provided a truly global forum for a wide range of educators, researchers, and policy makers from developed, developing and transitional economies, sharing their unique experiences and insights on various aspects of ABE education.

The Call for Papers received an overwhelming response, which resulted in requests for and subsequent extension of the original deadline for submissions. Initially, a total of 96 abstracts were received, and 63 of these were invited to submit full manuscripts for consideration for review. After formal review, a total of 50 papers were accepted for publication, including 6 invited papers. Many colleagues assisted us in the review process. Each paper was reviewed by at least two referees and was assessed based on its relevance to one or more of the designated themes as well as the significance of its contribution to the advancement of Agricultural and Biological Engineering education.

The 50 manuscripts that were accepted constitute the three volumes of this *IJEE* Special Edition. Papers included in this Second Volume address the issues of curriculum reform and the application of information and computer technology in ABE education. The papers are broadly classified into two areas: Curriculum Reform, Assessment and Accreditation [12]; and, Computerised Simulation & Field Demonstration Tools [5]. A handful of papers describe the experiences of several universities in responding to the problem of declining enrolments through academic program reforms and repositioning. The increasingly pervasive impact of information and computer technologies in Agricultural and Biological (AgBio) Engineering education is also made evident by the other papers, especially through the development and application of laboratory and field simulation tools. The papers on ethics (King and Collins) and program accreditation (Shariff) highlight the challenges in educating truly 'global' AgBio Engineers. We hope that this collection of studies and analyses represents a valuable resource to guide the ongoing and future dialogue about the transformation and reinvention of AE education. We believe that the papers presented in this Special Edition may also be of interest to academic program managers beyond the confines of the Agricultural and Biological Engineering discipline.

Finally, we would like to thank the authors for making this project come to fruition through their submitted contributions and their patience during the entire review process; the reviewers for their meticulous comments and constructive recommendations; and the *IJEE* Editor, Professor Michael Wald, for his valuable support and encouragement.

Linus U. Opara, *Ph.D. CEng*
Joel L. Cuello, *Ph.D.*
Co-Guest Editors