

Engineering Curricula: Evolving to Meet Global Needs

Consider the baccalaureate engineering degree as having bookends made up of K-12 education and post graduate studies or the workforce. We could also consider the two bookends as the input conditions and output requirements, respectively, to our portion of the education system. Regardless of the image chosen to convey the position of engineering education study in educating a technical workforce, high expectations exist for engineering schools to make the most of the preparation of the incoming students, advance their education, provide opportunities for students to develop valuable skills so that in a few short years they will be in a position to use their advanced technical knowledge and skills to contribute to our global society. The effective design and implementation of engineering curricula is dependent on sufficient level of understanding of both of the bookends—the student preparation and skills and the workforce expectations and society needs. Because both the input and output are dynamic, the baccalaureate curricula have also been dynamic—influenced by partnerships with industry and K-12 educators. Nevertheless, evolving expectations continue to challenge engineering educators to deliver curriculum that is recognized for a consistency of technical preparation and flexibility to respond to evolving needs. This presentation will provide a snapshot of some key elements in each realm—pre-college and workforce—to illustrate how engineering curricula have evolved, what changes are on the horizon, and where that evolution can be accelerated.