

First lecture – Part I (1 hour)

## PROBING THE FUTURE: ON THE ROLE OF UNIVERSITIES, INDUSTRY ENTREPRENEURS, AND PROFESSIONAL SOCIETIES

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A unique aspect of Engineering practice is " ...the process of creating, developing, integrating, sharing and applying knowledge ...for the benefit of humanity & the profession" (from IEEE Mission Statement), or in other words, "...the practice of making good on the promise of technology". It is the integration of academic-based theory as applied to the "real world." Engineering practice, however, to remain relevant, must be innovative. Engineering is therefore, the evolution of progress to what we have today, with the promise of making a better world, a better future, to mankind. This creates a challenge for the ability of either academia or industry on their own to adequately "teach Engineering". The increased cost of continuing, life-long education of practicing engineers makes it even a greater challenge, of course. The typical consequence is that in academic setting, either theory is emphasized, with little association to applications, or in an industry setting only the "practical" applications are considered and those become a "cookbook" approach for all engineering issues. Bridging the gap between the knowledge in academia and applications in industry is critical to any successful Engineering practice. Academia can advance innovation with a responsible vision, while industry entrepreneurs develop new applications for the newly developed science and technology. IEEE and similar professional societies, provide a broad spectrum, global platform, for discussing the manner of application of technology, encompassing the technological, scientific and ethical considerations, thus helping build a successful global society, encompassing science, technology, business and government.