

## APL AND CAREER-LONG ENGINEERING EDUCATION

“The ability to compete in the international marketplace is determined in critical ways by a nation’s resources of engineering and scientific intellectual capital.” So opens a recent report of the National Academy of Engineering, which goes on to articulate the acute need for career-long engineering education. Particularly in these times, our nation faces a combination of circumstances that challenge its ability to remain in the forefront of technological and scientific achievement.

Formal undergraduate and graduate engineering education now produces professional engineers with the ability to function at top form in their jobs for a maximum of five to ten years after graduation. Technological change is so rapid and scientific advances are so interdisciplinary that even graduates of the best engineering schools are unable to make creative contributions in the workplace without committing themselves to professional education on a continuing basis.

Significant as these forces are, other factors intensify the engineering educational crisis. The United States now competes in an international arena that includes many highly educated players. Not since World War II has this country enjoyed unchallenged dominance in engineering competence. Even though American engineering is still the most sophisticated in the world, the litany of scientific and intellectual accomplishments of the European and Asian communities is too familiar to require elaboration here.

Although American educational problems are wide-ranging and the challenge issued by the National Academy of Engineering justifies immediate serious attention, some American colleges and universities envisioned the need for action years ago. I am happy to report on the healthy state of one of the nation’s largest graduate engineering programs for part-time students. The Continuing Professional Programs of The Johns Hopkins University G.W.C. Whiting School of Engineering represent a true success story that emerged from the initiative of APL and its staff.

APL began to offer advanced technical courses with credit toward JHU academic degrees as early as 1958. Early efforts responded to the aspirations of APL professionals to stay current in their fields through continuing technical education. By 1963 a formal center for the Evening College at APL had emerged to meet increasing demand. Administered by the Evening College of JHU, the program continued to expand the number and variety of engineering courses taught primarily by and for professional APL staff.

Although the APL part-time engineering program prospered in its early years, it became clear that a closer

association with the engineering faculty of JHU would benefit both APL professionals and engineering faculty. Increased collaboration would strengthen both the theoretical and applied thrusts of graduate education for professional engineers. Thus, when the Whiting School of Engineering was established, it was natural that graduate educational programs for engineering professionals should become an integral part of the new division. Formal integration occurred in 1982, and the relationship has grown stronger over the years. Moreover, the relationship has proved to be mutually beneficial in subtle but far-reaching ways.

The primary mission of JHU is the creation and dissemination of knowledge. Within that broad mandate, the Whiting School of Engineering is obligated to provide high-quality comprehensive engineering education to the community, particularly at the master’s level, because of JHU’s long tradition of graduate education. But the Whiting School of Engineering and most of the other academic divisions find it difficult to be as comprehensive as they would like because of their small size. Collaboration with APL has provided the Whiting School of Engineering with superb faculty members whose wide experience in research and development adds to the breadth of education of their engineering students. In turn, the relationship has encouraged more participation by APL staff in the full-time graduate and undergraduate programs at the JHU Homewood campus. Not only are APL staff teaching at Homewood, they are also engaged in collaborative research with Homewood faculty. Moreover, APL staff expertise in the management of large-scale research and development projects has produced an acclaimed program that JHU would not otherwise be able to offer—the master’s degree program in technical management.

Those of us who have observed the spectacular success of part-time engineering educational programs are grateful to the dedicated professionals who are willing to share their expertise with others after a full day on the job. The genuine professional enthusiasm for continuing engineering education shared by faculty and APL staff alike is one of the distinguishing characteristics of the relationship between APL and the Whiting School of Engineering.

Now the Homewood and adjunct APL faculty face a new challenge: providing quality graduate education for professional engineers in the technology-rich region of Montgomery County, Md. Demand is high; the need is there. JHU and Montgomery County officials have worked together to establish a satellite campus of JHU in response to the region’s economic demands. Physical

resources have been committed. It remains only for the proven success of the APL-Whiting School of Engineering partnership in Howard County and Baltimore City to expand to the nation's next high-technology hub. To-

gether, the partnership will continue to strengthen the nation's resources of engineering and scientific intellectual capital.

#### THE AUTHOR



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