

A Unique University-Professional Society Partnership

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Abstract

This paper describes the unique partnership between the University of Houston-Downtown (UH-D) and the Society of Piping Engineers and Designers (SPED). UH-D offers a four-year program in piping design. The program leads to a BS degree in Engineering Technology with a major in Process and Piping Design. The program is TAC/ABET accredited. The program meets the special needs of the Houston-Gulf coast area, which is a center for Engineering, Procurement and Construction (EPC) companies, as well as chemical and petrochemical industries. SPED was founded in 1980 to promote the piping profession and to meet the education and training needs of piping engineers and designers. Because of the uniqueness of the piping profession and its special educational needs, SPED and the piping program at UH-D share many common objectives. As a result, there is tremendous synergy in this partnership. Both SPED and UH-D have exploited this synergy and used it to their mutual benefit. This has resulted in a win-win situation for both SPED and UH-D. This paper describes the origin and growth of this partnership. The future potential of this partnership is also explored. Finally, the importance of such partnerships in the success of specialized, market-niche programs is explained.

Origin of the Partnership

The University of Houston-Downtown (UH-D) offers a unique baccalaureate degree program in Process and Piping Design. When this degree program was created in 1977, an industry advisory committee was established. The members of this advisory committee were senior managers and supervisors in the piping design and engineering field. The advisory committee provided valuable guidance in the development of courses for the program so as to meet the needs of the industry. The committee also articulated very well the need for such a program in the Texas Gulf-Coast area which has a high concentration of professionals engaged in the design, construction, operation, and maintenance of piping systems for the chemical and petrochemical industry. Thus, the

support of the advisory committee was crucial in getting the piping degree program at UH-D off the ground. The Society of Piping Engineers and Designers (SPED) is a spin-off from the advisory committee for the piping degree program. While discussing the needs of the piping profession, the advisory committee was struck by the lack of a professional organization focused on meeting the needs of piping designers and engineers. To fill this void, SPED was created and incorporated as a professional society in 1980. Two key founding members of SPED were Dr. Haku Israni, former Chair of the Engineering Technology department at UH-D and Dr. Stanley G. Ebner, former Dean of Business and Technology at UH-D. Dr. Israni was appointed as SPED's first Executive Director and Dr. Ebner was appointed as its Treasurer, a post he held until he retired in August 1999. UH-D provided office space and limited clerical assistance and also acted as a fiscal agent for SPED. Thus, UH-D played a crucial role in the formation of SPED. It is very clear that the industry advisory committee for the piping degree was really the seed for this long and successful partnership. The rest of the paper describes how both the piping degree program and SPED have benefited and flourished because of this unique partnership.

Growth and Synergy of the partnership

SPED and the piping program at UH-D share the common goal of education and training of piping professionals. Their activities have a synergistic effect and significantly benefit each other. The graduates of the piping program are highly sought after by the industry and many of them have progressed rapidly in their careers. The program received its initial accreditation in 1984 and was re-accredited in 1990 and 1996. SPED has grown to be a well-recognized international organization and includes members from Canada, UK, Venezuela, Mexico and Australia. Educational videotapes produced by SPED have been sold all over the world. A description of how SPED and UH-D support each other's activities follows.

- UH-D has provided office space for SPED. In addition, UH-D is the fiscal agent for SPED. Some SPED funds are maintained in an agency account at UH-D. These funds are used in paying office staff salaries, operating expenses and salaries for instructors of SPED courses. SPED benefits from this set up because of the fiscal controls like monitoring and auditing associated with the agency account. The agency account also takes care of all payroll issues.
- A faculty member from the Engineering Technology department at UH-D usually functions as the Executive Director/Treasurer of SPED. This makes it convenient for the Treasurer to interact with the financial entities in the university and monitor the financial documents related to SPED. One of the co-authors of this paper, Prof. N. S. Nandagopal, is currently the Executive Director/Treasurer of SPED. Prof. N. S. Nandagopal is also the coordinator of the piping program at UH-D. His interactions with the SPED Board of Directors provide him with valuable input for the piping degree program. His activities related to SPED provide him with opportunities to learn about the status of the piping industry and its future trends.

- SPED shares a percentage of its net income with the Engineering Technology department. The department has used this resource to fund various activities like equipping laboratories and faculty development. In addition to sharing of the net-income, SPED has contributed towards scholarships for students enrolled in the piping program and has also responded to ad-hoc requests for financial assistance to upgrade the computer labs in the ET department. Contributions from SPED to the ET department have easily exceeded several hundred thousand dollars.
- Intergraph Plant Design System (PDS)TM Laboratory: The PDS software is widely used in industry for design of chemical/petrochemical facilities and also in the design of offshore platforms. Specifically, the software is extensively used in the design of piping systems for such facilities. SPED sensed a need for piping designers in the Houston area to be trained in the use of the PDS software. To meet this need, SPED, working together with UH-D, established a PDS Lab with fifteen (15) seats and a server. The lab is located at UH-D. Dr. Alberto Gomez-Rivas, currently the chair of the ET department, networked the computers in this lab. To date, several hundred piping designers and engineers have been trained in the use of PDS software due to the joint efforts of SPED and UH-D. This is an example of a professional organization and a university working together to successfully meet the training needs of industry. The usefulness of the PDS lab at UH-D is further maximized by the use of the lab to teach the Piping Models course as part of the piping curriculum at UH-D. To meet the increasing demands for PDS training, a second lab was established by SPED at the facilities of a local engineering company. This lab had to be closed because of subsequent space constraints in the engineering company. However, the PDS lab at UH-D is still operational. This illustrates the stability and support a university partnership can provide to a professional organization.
- Piping Design Summer Institute: In order to encourage local high school students to pursue a career in piping design, UH-D offers an intensive, 5-week academic program called the Piping Design Summer Institute. In this program, students take courses in Pipe Drafting and CADD and receive college credit. Upon graduation from the Summer Institute, students can obtain entry-level positions in Pipe Drafting and are encouraged to complete their baccalaureate degree in piping at UH-D. SPED has always funded scholarships for the Summer Institute. SPED awards a grant and UH-D contributes a matching amount. Because of this collaboration between SPED and UH-D, every student in the Summer Institute has received a scholarship in recent years. This scholarship pays for their tuition to attend the Summer Institute. Just recently, SPED expanded its scholarship program to any qualified student pursuing an education in piping design and engineering. During the fall 1999 semester, SPED awarded scholarships to four (4) students enrolled in the piping program.
- Other SPED Courses: In addition to courses in PDS, SPED offers courses in Process Plant Layout and Piping Design and in ASME B31.3 Chemical Plant and Petroleum Refinery Piping. Both courses have been very successful and have benefited several hundred piping engineers and designers. Videotapes of these courses have been sold

around the world. SPED has been able to offer these courses because of the support it receives from UH-D in advertising and managing these courses.

- Other benefits to the university: The industry contacts generated by UH-D's partnership with SPED have been invaluable. Through these contacts, UH-D has been able to recruit members for the Advisory Committee as well as outstanding professionals to serve as adjunct faculty members. The partnership has also created opportunities for the piping faculty members at UH-D to acquire state of the art knowledge and skills in piping design and engineering. The piping program has gained great visibility because of this partnership.
- During the recession in the chemical/petrochemical industry in the early 80's, the membership and interest in SPED declined and its financial position was very weak. SPED was able to survive this difficult period only because of the support it received from UH-D. As a consequence of this recession, the enrollment in the piping program also declined. UH-D was seriously contemplating phasing out the program. Several leaders in the industry, who were also SPED Board members, convinced UH-D administrators to give the program an opportunity to turn around. When the industry bounced back from the recession, enrollment in the piping program was stable. Thus, SPED and UH-D survived the difficult times only because of their mutual support.
- Future Plans: SPED and UH-D plan to work together and increase cooperation in developing programs to meet the needs of the piping industry. As an example, SPED and UH-D plan to jointly develop a course in "Design of Piping Systems for Offshore Platforms". SPED will continue to be supportive of the piping degree program at UH-D and UH-D will continue to provide infrastructure facilities for operating SPED.

Conclusions

The partnership between SPED and UH-D is a natural fit because UH-D offers the only four-year baccalaureate accredited degree in piping design and SPED is the only professional society exclusively for piping designers and engineers. SPED and the piping program at UH-D share many common goals. The activities of both partners in this partnership are mutually beneficial. There is tremendous synergy in the partnership and it is a win-win situation for both partners. SPED and UH-D have derived many benefits from this partnership. The piping program at UH-D is a highly specialized program and serves a specific niche in the job market. Such a program needs strong industry support to succeed. The partnership with SPED has provided that support and much more. Because of the educational programs of SPED and UH-D, Houston has a very skilled and qualified workforce in piping design and engineering.

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ROBERT SUMRALL

Robert Sumrall is a Senior Piping Designer at Brown & Root Energy Services (BRES). He has over thirty (30) years experience in the piping design field including extensive experience in the development and implementation of design practices and procedures using CADD systems. He has served as the lead piping designer in several projects. He is currently the President of SPED.