DOCUMENTS OF THE GENERAL FACULTY

REPORT OF THE MEMORIAL RESOLUTION COMMITTEE FOR
DAVID M. HIMMELBLAU

The special committee of the General Faculty to prepare a memorial resolution for David M. Himmelblau, professor emeritus, chemical engineering, has filed with the Secretary of the General Faculty the following report.

Sue Alexander Greninger, Secretary
The General Faculty

IN MEMORIAM
DAVID M. HIMMELBLAU

The chemical engineering community and The University of Texas at Austin lost one of its greatest when Professor Emeritus David M. Himmelblau, Ph.D., passed away at the age of eighty-seven on Wednesday, April 27, 2011. Known for his integrity, sincerity, intelligence, and distinctive wit, David was an inspiration to students for forty-two years as a professor in the Department of Chemical Engineering. At the time of his death, he was the Paul D. and Betty Robertson Meek and American Petrofin Foundation Centennial Professor Emeritus in Chemical Engineering. A pioneer in process fault detection and diagnosis, a leader in the introduction of computing into chemical engineering, the author of eleven books and over two hundred articles on process analysis, process optimization, and fault detection using artificial neural networks, Dr. Himmelblau had a significant impact on the chemical engineering profession.

David M. Himmelblau was born in Chicago, Illinois, the son of David and Rhoda Mautner Himmelblau. In 1947, he earned his B.S. in Chemical Engineering from the Massachusetts Institute of Technology after serving as an intelligence officer in the U.S. Army during World War II. The following year, he married Betty Hartman, whom he first met in elementary school. Over the next decade, David worked in industry, completed a master's degree in business administration from Northwestern University, and served as a military instructor at Fort Riley, Kansas, during the Korean War. He went on to earn his M.S. and Ph.D. from the University of Washington in 1957. In 1961, he and his family moved to Austin, Texas, where he joined the chemical engineering faculty at The University of Texas at Austin.

Dr. Himmelblau authored five outstanding chemical engineering textbooks: Basic Principles and Calculations in Chemical Engineering (in its 8th edition) with J.B. Riggs (B.S./M.S. from UT Austin, retired from Texas Tech University); Process Analysis and Simulation (1968) with K. Bischoff; Process Analysis by Statistical Methods (1970); Applied Non-Linear Programming (1972); and Optimization of Chemical Processes (2001) with Tom Edgar and Leon Lasdon, both of UT Austin. In 2010, the American Institute of Chemical Engineers (AIChE) recognized Basic Principles and Calculations in Chemical Engineering as one of the most important textbooks in the field of chemical engineering. Throughout the world, chemical engineering students have become associated with him through the teaching conveyed in his many books, but David Himmelblau's work extended far beyond the classroom.

His pioneering work in the period from 1960 to 1980 in the mathematics of simulation and in the use of computers in education is well recognized. In the 1980s and 1990s, he moved into developing the areas of fault detection and artificial intelligence and studied new applications of computers to educational endeavors. In 1988 (with Josiah Hoskins), he published the first paper in the area of chemical engineering describing the potential of artificial neural networks. He was the inventor of one of the principal penalty function methods for nonlinear programming (with Newell), which is still used today, and he developed one of the key methods of estimating parameters in nonlinear differential equations. Because of his expertise in the area of nonlinear optimization and process modeling, he consulted with several companies on the meshing of optimization, process simulation, and experimental design for parameter estimation.
David Himmelblau stood out as an educator. He earned the highest respect from his students as well as his peers around the world. His work over the years to make the chemical engineering education process more efficient and effective has contributed significantly to the advancement of the profession. David was prominent in the development of educational tools for chemical engineering, demonstrating his unselfishness and willingness to take on demanding, time-consuming (and sometimes thankless) tasks. The products he developed were of the highest quality, and, as a result, he was a leader in the modern evolution of technical and educational computation. He was a fine and dedicated teacher whose lectures appealed to both students and professionals. David was able to present the right mix of theory and practice that meshed well with the audience. He experimented with various classroom techniques and is one of the professors who led the development of self-paced courses in chemical engineering. His self-paced courses dealing with FORTRAN programming and advanced statistical analysis at UT Austin were quite successful, presaging current efforts in distance education courses. He made computer usage an essential part of his statistical analysis course even before computers were easily accessible to students and developed a number of interactive programs for this course.

David Himmelblau was a leader in the transfer of computing technology to faculty and departments of chemical engineering via his role in the Computer Aids for Chemical Engineering Education (CACHE) Corporation. This organization was founded to accelerate the introduction of modern computing software and hardware into the academic area. He served this organization in a number of capacities, including president, vice-president, trustee, and executive officer. This last responsibility was a major professional service activity involving relations with over one hundred and fifty chemical engineering departments in promoting educational aids for computing in chemical engineering. CACHE, a 501(c)(3) not-for-profit corporation, is the preeminent organization of its type in engineering and is strongly supported by industry. David served in this position for sixteen years and was succeeded by his colleague, Tom Edgar.

Dr. Himmelblau has directed several large programs funded by the National Science Foundation and industrial companies through CACHE, which focused on the development and enhancement of tools used by chemical engineering faculty in their curriculum. He served as editor of two hundred and fifty AICHE modular instruction units for students in the seven core courses in chemical engineering (AICHEMI). He has also served on the executive committee of the Industrial and Engineering Chemistry Division of the American Chemical Society (ACS). In addition, he served as chair of the Austin Section of the ACS, director of the AIChE, and past chair of the Department of Chemical Engineering at The University of Texas at Austin. During his career, he was recognized with the grade of Fellow in the AIChE, the AIChE's Computing and Systems Technology (CAST) Division Computing in Chemical Engineering Award, the AIChE Founders Award, the American Society for Engineering Education (ASEE) Joseph Martin Award, the CACHE Award from the chemical engineering division of the ASEE, and the Joe J. King Professional Engineering Achievement Award given by UT Austin. AIChE CAST Division now presents a David Himmelblau Award for Innovations in Computer-Based Chemical Engineering Education in his honor.

David is survived by his wife of sixty-two years, Betty Hartman Himmelblau; his children and their spouses, Margaret and Don Nellor of Austin and Andrew Himmelblau and Ellen Hurley of Bedford, Massachusetts; his grandchildren, Travis Nellor of Austin and Stacie Nellor of Portland, Oregon; his brother, Leo Himmelblau and family of Chicago, Illinois; and his sister-in-law, Barbara Hartman of Wilmette, Illinois, and family.

This memorial resolution was prepared by a special committee consisting of Professors Thomas F. Edgar (chair), John G. Ekerdt, and Donald R. Paul.

Distributed to the dean of the College of Engineering on October 11, 2011, and posted under "Memorials" at: http://www.utexas.edu/faculty/council/.