

History of the Summer Schools for Chemical Engineering Teachers (Faculty)

Deran Hanesian

Master Teacher and Professor of Chemical Engineering

New Jersey Institute of Technology

Newark, NJ 07102

Ralph A. Buonopane

Associate Professor Emeritus of Chemical Engineering

Northeastern University

Boston, MA 02115

Angelo J. Perna

Master Teacher and Professor of Chemical Engineering and Environmental Engineering

New Jersey Institute of Technology

Newark, NJ 07102

The Summer Schools for Chemical Engineering Teachers (Faculty) are a unique educational experience developed as a means of transferring the latest educational methods and technical information by experienced faculty to new, younger faculty, in essence, a mentoring process to improve teaching. Its impetus came from the Summer Schools for Engineering Teachers program developed by the Society for the Promotion of Engineering Education (S. P. E. E.). However, it all started with engineering.

The Summer Schools for Chemical Engineering Teachers are a unique event designed to have a major impact on the profession by:

1. Disseminating information to improve teaching and course content.
2. Furthering the development of individual chemical engineering educators.
3. Introducing new applications of chemical engineering.
4. Building bridges between industry and the academic world.

These purposes are accomplished through the formal and informal interaction of representatives from departments of chemical engineering with each other and with invited industrial representatives. The academic attendees to the Summer School were at the discretion of individual Chemical Engineering Department Heads. How did it all begin?

The concept of Summer Schools for Engineering Faculty began to germinate in 1925 by the Society for the Promotion of Engineering Education. William E. Wickenden, a former engineering teacher and later acting Vice President, American Telephone and Telegraph, was engaged in investigating and coordinating the educational activities of the Bell System. He became the Director of the S. P. E. E., Board of Investigation and Coordination and was assisted by Professor H. P. Hammond, as the Associate Director. Studies of Engineering Education commenced in 1923 with the financial support of the Carnegie Foundation of \$108,000 for a three year study.

In 1925, Professor Wickenden was aware of a recent survey of technical education in Europe, which showed that there were possibilities of direct borrowing from the Europeans. He went to England and was very impressed with what he observed and felt that this concept could be transplanted to America and would *"take root in American soil"*.

Two professional societies led to the Summer Schools for Chemical Engineering Faculty. One was, "The Society for the Promotion of Engineering Education", founded in 1893 by 70 men who met and discussed educational papers. These men were very interested in enhancing the important issues of engineering education, in general, for all engineering disciplines.

Similarly, the other was, the “American Institute of Chemical Engineers” founded in 1908 by 40 men with the purpose of enhancing the chemical engineering profession. The founding leaders of the American Institute of Chemical Engineers knew that their hope for acceptance as a distinct profession was through education. This controversy lasted 22 years until 1930, when the chemical engineering professionals proved to be the leaders, among all professional societies, in accreditation of university programs.

The Summer School for Engineering Teachers program in the United States was inaugurated by two sessions in 1927. The sessions were under the jurisdiction of the Board of Investigation and Coordination of SPEE, but Local Arrangements Directors were named at each university. It was proposed that the Summer Schools be held immediately after the 35th Annual Meeting of the Society at the University of Maine, Orono, Maine, which was scheduled for June 27-30, 1927. The duration of the summer school would be two and one-half to three weeks long. The first school was to be held at Cornell University, Ithaca, New York with Dean Dexter S. Kimball in charge and the second at the University of Wisconsin at Madison, Wisconsin with Dean F. E. Turneure in charge. The subject of the summer schools was to center around a particular subject with the attendees being the younger teachers. *“The number of each session will be limited to an efficient working group. There will be a staff of outstanding teachers and the work will be conducted on an intimate basis; much of it by the seminar method”*. The subject selected for these first two sessions was Mechanics, both pure and applied because it was felt that this subject was basically important for all branches of engineering. It was felt that the subject of mechanics would provide an ideal test case for this trial year. The subject is *“taught in every curriculum; it occupies the pivotal position between the general sciences and the more specific technical subjects; it runs a constant risk of becoming conventionalized; and it is capable of becoming notably serviceable to subjects which follow if taught with vision and vigor”*

“The bringing of groups of the ablest and most promising younger teachers into contact with the leaders having different points of view and different methods of presentation with adequate opportunity for free discussion promises a forward step in methods of teaching, in developing and holding the interest of the student, and in putting new life and inspiration into this department of engineering training”. Hence, the first step had been taken for the improvement of teaching methods and the training of engineering teaching personnel.

As a result of these summer schools, committees with a secretary were formed to act for the entire group until the next summer school for teachers of the same subject to maintain continuity.

Following the successful experience with the first two Summer Schools, others followed under the leadership of the S. P. E. E. These were:

1928	Physics	Massachusetts Inst. of Tech.
1928	Electrical Eng,	University of Pittsburgh and Westinghouse Electric and Manufacturing Company
1929	Mechanical Engineering	Purdue University
1930	Civil Engineering	Yale University
1930	Drawing and Des. Geometry	Carnegie Inst. Of Tech.

1931	Chemical Engineering	University of Michigan
1931	Mathematics	University of Minnesota
1932	Economics	Stevens Inst. Of Tech.
1932	English	Ohio State University
1933	Mining and Metallurgical Engineering	University of Wisconsin

This completed the cycle of sessions that was begun when the Summer School was established in 1927. SPEE gave the responsibility of future Summer Schools to the professional societies. The professional societies did not conduct Summer Schools regularly after 1933 but reverted to professional conferences at the SPEE meetings.

Committee 22 for Chemical Engineering had been formed in about 1927 and then in 1938 it became the Chemical Engineering Division (CHED). However, the first Chemical Engineering Summer School was by a petition to SPEE from the Board of Directors of the American Institute of Chemical Engineers (AIChE). This was the beginning of a long term interaction between CHED and AIChE.

The Summer Schools for Chemical Engineering Teachers have listed the following objectives over the years for the fourteen (1931-2007) Summer Schools for Chemical Engineering Teachers. The importance of the Chemical Engineering Division, ASEE Summer School for Chemical Engineering Faculty is:

- it is essential to timely progress in chemical engineering education
- it is unique to the discipline of chemical engineering and involving 100 educators
- it is offered only every five years
- its emphasis on new faculty hired within the last five years
- it is targeted to provide innovative and effective teaching methods
- it provides educational classroom materials on latest technologies and research
- its participation by exceptional mid-career and senior faculty as mentors
- that all chemical engineering departments are invited to send participants
- the support and participation by major corporations and federal agencies to accomplish through the formal and informal interaction of representatives from departments of chemical engineering with each other and with invited industrial and government representatives.
- its results and materials will be widely distributed by the latest available methods of improved, advanced communication.

The dates and locations of these events were:

1 st	June 22–July 9, 1931	University of Michigan, Ann Arbor, Michigan
-----------------	----------------------	--

Alfred H. White, Professor of Chemical Engineering at the University of Michigan, was Director and W. L. McCabe, Assistant Professor of Chemical Engineering was Secretary.

2nd June 23–June 30, 1939 Pennsylvania State University, State
College, Pennsylvania

R. C. Kintner of the Armour Institute of Technology was the Director and F. C. Whitmore and D. S. Cryder both of Penn State were in charge of local arrangements.

3rd August 30–September 4, 1948 The University of Wisconsin, Madison,
Wisconsin

The Executive Committee of CHED of ASEE for 1947-48 undertook the responsibility of organizing and operating the 3rd Summer School. The committee consisted of

R. A. Ragatz, University of Wisconsin, Chairman
E. M. Schoenborn, North Carolina State College, Past Chairman
W. A. Koehler, University of West Virginia, Vice Chairman
J. D. Lindsay, A & M College of Texas, Vice Chairman
F. M. Taylor, Tulane University, Secretary
J. H. Koffolt, Ohio State University, Member of ASEE General Council

Theme **“What Should We Teach And How Can We Teach It”**

4th June 27–July 2, 1955 Pennsylvania State University, State
College, Pennsylvania

Kenneth A. Kobe, University of Texas, General Chairman and F. L. Carnahan of Penn State served as Local Arrangements Chairman.

Theme: **“What’s Ahead in Chemical Engineering Education?”**
5th August 20–August 25, 1962 University of Colorado, Boulder, Colorado

Lloyd Berg, Montana State College, Director and General Chairman
B. E. Lauer of the University of Colorado was the Chairman of Local Arrangements.

Theme: **“Advances in Chemical Engineering Education”**

6th June 20–June 24, 1967 Michigan State University, East Lansing,
Michigan

Lloyd Berg, Montana State University, General Chairman
D. K. Anderson of Michigan State University was Chairman, Facilities and Housing.

Theme: **“Dynamic Objectives of Chemical Engineering Education”**

7th August 13–August 18, 1972 University of Colorado, Boulder, Colorado

L. Bryce Andersen of Newark College of Engineering was the Chairman of a Planning Committee

8th July 31–August 5, 1977 Snowmass, Colorado

Co-chairmen: C. Judson King and Michael C. Williams of the University of California, Berkeley.
J. Peter Clark, Virginia Polytechnic Institute and State University, Local Arrangements

Theme: **“New Applications of Chemical Engineering”**.

9th August 1–August 6, 1982 University of California, Santa Barbara, California

Co-chairmen: T. W. Fraser Russell and Stanley T. Sandler, University of Delaware at Newark, Delaware.
D. E. Seaborg, University of California, at Santa Barbara, Local Arrangements

Theme: **“Chemical Engineers Need to Have an Impact on Society in a Broader Sense”**.

10th August 9–August 15, 1987 Southeastern Massachusetts University, North Dartmouth, Massachusetts

Co-Chairman: Glenn L. Schrader and Maurice A. Larson, Iowa State University in Ames, Iowa

L. Bryce Anderson, Dean of Engineering at Southeastern Massachusetts University and Stanley M. Barnett of the University of Rhode Island, Local Arrangements

Theme: **“The Revitalization of the Chemical Engineering Curriculum”**

11th August 9–August 15, 1992 Montana State University, Bozeman, Montana

Ralph Buonopane, Northeastern University, Chairman
John T. Sears and Ron Larson, Montana State University, Local Arrangements

Theme: **“Frontiers in Chemical Engineering Education—Curriculum and Needs for the Next Century”**

12th August 10–August 16, 1997 Snowbird, Utah

Bruce Finlayson, University of Washington, Director
Lamont Tyler and Edward Trujillo, University of Utah, Local Arrangements

13th July 27–August 1, 2002 University of Colorado, Boulder, Colorado

Co-chairmen: Scott Fogler and Michael Cutlip

14th July 28 – August 2, 2007 Washington State University, Pullman,
Washington

Co-chairmen: Kirk Schulz, Mississippi State University and Steve LeBlanc,
University of Toledo

Richard Zollars, Washington State University and Douglas K. Ludlow, University of
Missouri, Rolla

Each of the Summer Schools, generally, has a memorable event associated with it that remains in the attendees' mind over the years.

Despite the natural changes that have occurred in Summer Schools over the years, Hammond, in his final report on the Summer Schools from 1927-1933, correctly stated, *"throughout the undertaking, however, the aim has been the attainment of one principal purpose: the improvement of classroom teaching"*.

Over the seventy seven years of the Chemical Engineering Summer Schools, the goals have remained consistent in promoting excellence in teaching, introducing the new areas of chemical engineering, development of camaraderie among chemical engineering faculty, and furthering the development of the younger chemical engineering faculty by mid-career and senior Faculty members,