

# Instruction for Useful Ends

## NJIT CELEBRATES 125 YEARS AT THE EDGE IN EDUCATION AND RESEARCH

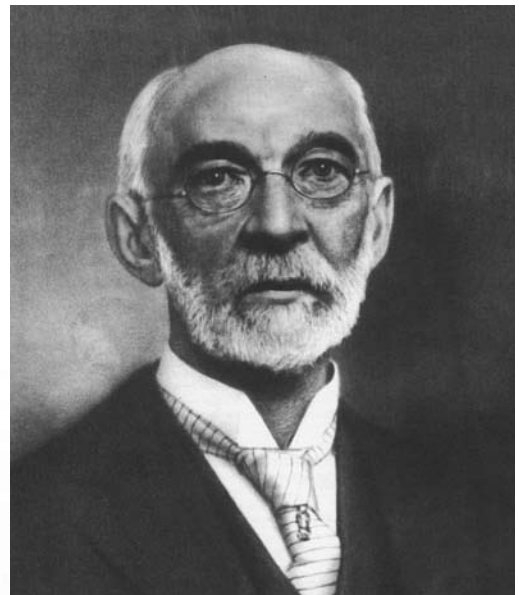
### THE NEWARK TECHNICAL SCHOOL ERA: 1881-1919

IN 1881, NEWARK WAS THE IDEAL SETTING FOR A SCHOOL THAT WOULD CONTRIBUTE GREATLY TO SCIENTIFIC, ECONOMIC AND SOCIAL PROGRESS OVER THE NEXT 125 YEARS. BY 1881, THE CITY'S TRANSPORTATION RESOURCES WERE AMONG THE BEST IN THE NATION. IT ALSO HAD A GROWING WORKFORCE ENERGIZED BY MANY THOUSANDS OF IMMIGRANTS WHO WERE CONTRIBUTING TO THE SUCCESS OF COMPANIES IN AN EXCEPTIONALLY WIDE RANGE OF INDUSTRIES. THESE INDUSTRIES MANUFACTURED LEATHER, IRON CASTINGS, JEWELRY, STEAM ENGINES, CLOTHING, FURNITURE, CLOCKS, PRECISION INSTRUMENTS, CHEMICALS, AND MUCH MORE. THERE WERE ALSO THE BREWERIES FOR WHICH NEWARK WAS NOTED.

## 1923

### CHARLES A. COLTON

"The inception of the Newark Technical School was a vision at long range... to create a school which would be of service to the industries of a manufacturing city, by educating those who were directly employed by those industries."



Charles A. Colton, first director of Newark Technical School

Newark Technical School's first dedicated building was located at High Street and Summit Place.



A center of industrial innovation, Newark saw the invention of malleable iron and patent leather. Thomas Edison had a laboratory and workshop in Newark, on Ward Street. In one year alone, 1873, more than a hundred patents were issued to people living or doing business in Newark. By 1890, Newark ranked fourth in the nation with respect to the manufacture of chemicals. The number of manufacturing plants in Newark increased from about 750 in 1860 to some 1600 by the end of the 19th century, including nearly 30 companies manufacturing products for the new age of electricity.

In addition to raw materials and manufacturing facilities, Newark's business leaders and other concerned citizens recognized that continuing prosperity depended on another key element — education. The city was already at the forefront of a national urban trend toward providing free public education at the elementary and high-school levels. Newark High School, the city's first, was established in 1854. Several decades later, with virtually all industries demanding greater technological knowledge and skills, Newark Technical School was founded to meet this demand.

Dr. Charles A. Colton, the first director of Newark Technical School, welcomed the inaugural class of 88 Newark residents to a rented building on West Park Street. Although these young men had to pay for books

and other supplies, tuition was free for those who lived in the city. One member of this class whose name would long be associated with the university was Frederick Eberhardt. According to contemporary newspaper accounts, Eberhardt and his fellow students enjoyed the benefits of studying in a building illuminated by “36 incandescent electric lamps that the instructor could control as he pleased.” The courses available were in the disciplines of “Science, Mathematics, and Drawing.”

Fred Eberhardt went on to become the president of Gould and Eberhardt, a major Newark manufacturer of machine tools. He also served Newark Technical School and Newark College of Engineering as a trustee, his service spanning nearly four decades. Like the other students in his class, he was undoubtedly inspired by the words of Colton, who described the founding of institutions like Newark Technical School as “the outgrowth of the demands of an advanced civilization, valuable in proportion to the degree to which the graduates are able to apply their instruction to useful ends.”

In many respects, Colton was a man of vision who created the groundwork for a great 21st-century university. However, there were areas where his foresight was limited by less positive mores of his time. When asked in 1896 whether Newark Technical School's new



The first students to attend Newark Technical School studied in a rented building on West Park Street.

# 1930

## “KEM LEK MEK,” NEWARK COLLEGE OF ENGINEERING YEARBOOK

“That Miss Rabbe, generally spoken of in the college as the co-ed, is imbued with great determination and moral courage as well as high mental capacity is evidenced by the fact that she is the first woman to receive a degree from the Newark College of Engineering.”



Edythe R. Rabbe

building would accommodate women, he is reported to have said:

“I would state that in planning the building it was expected that at some time women would be admitted to the school, and hence proper provision has been made for them. It has not been supposed that they would desire to pursue the same course of study as that arranged for men, and as yet there have been no indications as to what line of study women would desire to follow which the technological school can furnish.”

The following year, in 1897, Margaret Bryce did find a “line of study” that interested her. The first woman to enroll at Newark Technical School, Bryce was a high-school teacher who took the chemistry courses offered. And later in the school’s history, the first class to enroll as candidates for degrees in engineering included Shirley Dodman, though the first woman to graduate was Edythe Rabbe. She was awarded a degree in chemical engineering in 1930.

Enrollment at Newark Technical School quickly grew to the point where larger facilities were needed. Funds raised among Newark’s civic and business leadership made it possible to lay the cornerstone for the school’s first dedicated building in 1886. This three-story structure rose at the intersection of High Street and Summit Place. It was subsequently named Weston Hall in honor

of an early benefactor. A laboratory building later called Colton Hall was added to the campus in the first decade of the 20th century.

### Newark College of Engineering: 1919-1975

The administration and faculty of Newark Technical School began to discuss offering degrees in engineering shortly after the turn of the 20th century, which was reflective of national trends in technological education. The term “engineer” appears for the first time in the minutes of the Board of Trustees in 1916, with approval subsequently given for introducing university-level courses in chemical and electrical engineering during the 1919-1920 academic year. On the basis of these developments, the State Board of Education recommended that Newark Technical School be given the authority to grant degrees under the name Newark College of Technology. The college awarded its first bachelor’s degrees in 1923 — a total of three in chemical engineering, three in electrical engineering, and four in mechanical engineering.

The first half of the 20th century was a period of great challenge as well as great achievement for the school. Headed by Allan Cullimore from 1920 to 1947, Newark College of Technology was renamed Newark College of Engineering in 1930. While the college’s course offerings and academic stature increased greatly



**1934**  
**ALLAN R. CULLIMORE**  
 “With all the trouble and the unemployment, and the political muddles, and the economic and financial tangles which confront the world today, the opportunities for a well-trained engineer are greater than ever before.”



(Above) Allan R. Cullimore became the first president of Newark College of Engineering.

(Left) Some scenes around campus published in 1924.

during this period, physical expansion of the campus was limited to the 1925 opening of Campbell Hall and the 1948 acquisition of the Newark Orphan Asylum, now Eberhardt Hall NJIT Alumni Center. Campbell Hall was named in honor of Peter Campbell, a former president of the Board of Trustees.

During these decades, Newark College of Engineering weathered two great national traumas — the Depression and World War II. The Depression sharpened the school's focus on a key aspect of its educational mission that continues to be of paramount importance. In the 1930s, NCE clearly emerged as a "school of opportunity," dedicated to giving talented young people access to higher education regardless of their economic circumstances. Greatly expanded during the Depression, the college's co-op program made it possible for many students to earn the money needed to remain in school.

The scientific and technological knowledge that NCE students acquired in the 1930s and 1940s would prove crucial for the nation in World War II. Like virtually every institution in America, NCE went on a war footing when the country entered the war after December 7, 1941. Academic programs were accelerated so that as many young men as possible could complete their degrees before entering the Armed Forces. To remain in good academic standing, students had to spend their summers working in war industries. The college helped them to find such employment.

Special engineering courses for defense workers were also introduced. A college brochure listing the courses to be offered in the spring of 1942 stated that they are "designed to meet the shortage of engineers, production supervisors, chemists and physicists required by expanding war industries." The brochure made a special appeal to women, urging them to contribute to the war effort in technical fields. There was no tuition for these special courses, and students paid only for books and lab fees.

After the end of World War II in 1945, the nation's colleges and universities experienced an unprecedented increase in enrollment, and Newark College of Engineering was no exception. For veterans, the G.I. Bill opened the door to educational opportunities that the preceding generation could not have imagined. At the start of the 1949-1950 academic year, there were nearly 6000 students enrolled at NCE. Of these, more than half were veterans.

The increased enrollment at NCE sustained by the prosperity of the 1950s led to the construction of Cullimore Hall in 1958. Two years later, the old Weston Hall was demolished to make way for the seven-story structure now interconnected with New Jersey School of Architecture. Continuing physical expansion of the campus approved by the State of New Jersey in the second half of the decade led to the 1966 opening of several new buildings, including Tiernan Hall.

1951

**ROBERT W. VAN HOUTEN**

"Let us resolve to develop within ourselves the right spirit that we may accept to the fullest our responsibilities as citizens and conscientiously strive to make this country of ours a better, stronger America – an America which will be recognized by all the world as a vital dynamic force for good."



As across the nation, the call to service in the Armed Forces and defense industries was strong at Newark College of Engineering during World War II.

---

### NJIT's Heritage of Leadership

Charles A. Colton 1881-1918

Daniel Hodgdon 1918-1920

Allan R. Cullimore 1920-1947

Robert W. Van Houten 1947-1970

William Hazell, Jr. 1970-1975

Saul K. Fenster 1978-2002

Robert A. Altenkirch *Inaugurated 2003*

---

The next great wave of change for Newark College of Engineering came as the first members of the Baby Boom generation embarked on their college careers in the 1960s. It was another era of great social ferment. Many of our society's institutions were reassessed in the light of new challenges. Completed in 1970, the first phase of a master plan for higher education in New Jersey set forth a slate of goals outlining an ambitious social mission of educational opportunity, campus diversity and community involvement.

NCE moved to develop programs to meet these goals and challenges under the guidance of presidents who included Robert Van Houten and William Hazell. Indicative of the school's expanding academic scope, NCE awarded its first doctoral degree in 1964. Other academic highlights of the era included the formation of the Computer Science Department in 1969 and the founding of New Jersey School of Architecture in 1973.

### **New Jersey Institute of Technology: 1975-2006**

By the mid-1970s, the world's technological landscape was being transformed by computers and advances in numerous other fields. Researchers were at work on the technologies underlying the Internet and personal

wireless communications that would soon have a profound impact on daily life. In education and research, NCE was at the forefront of these many scientific and technological developments. The breadth of this activity and the recent founding of the school of architecture motivated discussion of a more descriptive name for the school. In September 1974, the Board of Trustees approved changing the name to New Jersey Institute of Technology, effective January 1, 1975.

The momentum of change in science and society over the past three decades has been matched by the pace of institutional evolution at NJIT. Much of the school's transformation was initiated by Saul Fenster, who became president of NJIT in 1978. His tenure saw the founding of the College of Science and Liberal Arts, the School of Management, Albert Dorman Honors College, and the College of Computing Sciences.

In 1978, NJIT had no on-campus housing. The first dorm, Redwood Hall, opened in 1979. Today, approximately 50 percent of first-year students live on campus in five residence halls. Other building projects initiated over the past 30 years reflect both the growth of NJIT's academic programs and commitment to economic development in Newark and New Jersey. Among these

### **ROBERT W. VAN HOUTEN**

# 1962

"We do not live in an easy age. Many predict that the so-called Cold War is a condition with which we may have to live for years to come. The more cynical among us, including some reputable analysts of our society, see already in our Western civilization the seeds of our ultimate decline and fall. I do not see things that way, and I trust that you do not either."

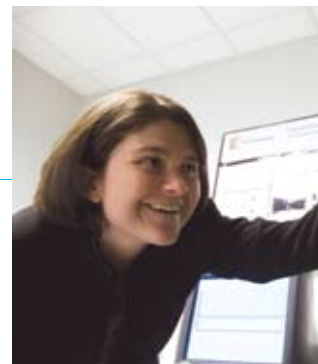


The 1960s were years of great physical change on campus, as well as a time of domestic social reassessment and international challenges.

### **SAUL K. FENSTER**

# 1993

"NJIT has a fine record of achievement in developing the human potential, witness its graduation rate of minority engineers and other professionals. With increased institutional growth and enhanced visibility, we will be in a position of increased responsibility in all our endeavors."



are the Otto H. York Center for Environmental Engineering and Science, the William S. Guttenberg Information Technologies Center, and the three Enterprise Development Centers.

In 2005, the rededication of an extensively renovated Eberhardt Hall was the capstone of a \$140-million building program that included a new Campus Center and Fenster Hall. The continuing physical transformation of the campus is an anchor of Newark's renaissance. Like Newark Technical School, NJIT is vital to the life of its host city today and part of a very positive vision for the future.

In 2006, under the leadership of President Robert A. Altenkirch, NJIT is a research-intensive university that grants doctoral degrees in more than a dozen disciplines. Research funding is well over \$70 million, compared with less than a million dollars in the 1970s. While committed to leading-edge scientific research, NJIT continues to be equally focused on its historic educational mission. That mission is to provide access to higher education to as many promising young women and men as possible. The school's student population has not only grown over the past 125 years. It has become far more richly diverse, making a clear statement about

NJIT's commitment to extending the benefits of a college degree to talented students regardless of race, gender, national origin or personal economic circumstances.

Many things have changed since Professor Colton welcomed the first students to Newark Technical School in 1881. But his words are still an apt description of the university's purpose. NJIT remains dedicated to meeting the "demands of an advanced civilization" through research and education applied to "useful ends." ■

*NJIT Magazine would like to extend special thanks to Leroy Thomas, assistant dean of students for his contributions to this article. Much of the history cited is to be found in his 2004 doctoral dissertation titled Expediency, Vision, and Leadership: Factors in the Development and Growth of the New Jersey Institute of Technology, 1881-2002.*

*For more about Frederick Eberhardt, see "Eberhardt Hall — Restored, Renovated, Rededicated" in the winter 2006 issue, available online at [www.njit.edu](http://www.njit.edu) by clicking on Publications Library and then Alumni Magazine.*



NJIT is today one of the most richly diverse educational environments in our nation with respect to its student body, range of instruction and research initiatives.

## 2006 ROBERT A. ALTENKIRCH

"NJIT's commitment to the future at the beginning of the 21st century is both local and global. Through education and research, we seek to improve life for people throughout New Jersey, across the nation, and around the globe. But we are also very mindful of our university's historic roots in Newark, our past contributions to the city's social and economic well-being, and the potential of what we can contribute to its future prosperity."