Executive Summary

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1. Organizational Information

The university is now organized into five colleges: the Newark College of Engineering, the School of Architecture, the College of Science and Liberal Arts (which houses large and growing programs in computer and information sciences), the School of Management, and a new addition, the Albert Dorman Honors College.

While engineering remains NJIT's largest single unit, the non-engineering programs produced 44% of the undergraduate degrees and 64% of the graduate degrees conferred in AY1996. The School of Architecture is the fifth largest in the nation. NJIT's total enrollment of full- and part-time graduate and undergraduate degree-seeking students taking courses at nine sites in New Jersey and through electronic media around the world stood at an all-time record of 7,885 in Fall 1995 and held steady at 7,837 in Fall 1996. NJIT also makes available not-for-credit programs for working professionals and non-matriculating students, both on campus and at sites throughout the state. Over the past five years, the Division of Continuing Professional Education has served almost 15,000 participants.

2. Major Affiliations

NJIT is engaged in many kinds of partnerships. A total of 21 programs are offered at 13 sites in 8 New Jersey counties. Extension sites include the campuses of other New Jersey institutions of higher education and the facilities of businesses and governmental agencies. Most recently NJIT and Burlington County College (BCC) have jointly established a branch campus at the Technology and Engineering Center, a new facility in Mount Laurel where BCC offers associate degree programs and NJIT offers bachelor's and master's degree

programs in engineering, computer science, and related fields along with continuing professional development courses.

NJIT is a member of the Council for Higher Education in Newark (CHEN): a partnership with Rutgers-Newark, the University of Medicine and Dentistry of New Jersey (UMDNJ), and Essex County College to encourage inter-institutional cooperation in academic programming, research activities, student services, administrative services, economic and community development, and public safety. NJIT has program articulation agreements with 16 New Jersey colleges and one in Pennsylvania to facilitate the process of student transfer. NJIT has joint admissions agreements with 6 New Jersey community colleges.

NJIT participates in research consortia with numerous other universities including MIT, Princeton, Caltech, Rutgers, Tufts, UMDNJ, Ohio State, Penn State, and Stevens. In most of these consortia, NJIT serves as the "lead" institution.

3. Commitment to Diversity

As an urban institution, with a long history of commitment to serving diverse populations, NJIT is a national leader. The Fall 1996 full-time undergraduate student enrollment included representation of the major racial and ethnic groups as follows: Black (12%), Asian (20%), Hispanic (14%), and White (48%); international students account for the remainder (6%). NJIT's Newark College of Engineering ranks among the top ten percent of engineering schools in the nation in the annual number of baccalaureate degrees awarded to African Americans and Latinos. One hundred nineteen nations are represented in the university's student population. NJIT's Center for Pre-College Programs, established in 1978, continues its efforts to increase access to scientific and technological fields among traditionally underrepresented populations and to improve the teaching of science and mathematics in elementary and high schools. Today, 4,500 students in grades K through 12 and their teachers participate in its various programs annually.

A special effort in recent years has focused on improving the campus climate for women. As of Fall 1996, women constitute 26.7% of total graduate enrollment, 19.2% of full-time undergraduate enrollment at NJIT, and 16.2% of enrollment in undergraduate engineering programs. In furtherance of NJIT's long standing commitment to make the campus inviting and hospitable to women, the Constance A. Murray Women's Center was officially opened in March 1996. A new day care center began operations in a new building in Fall 1996. Expansion of NJIT's residence hall capacity and enhancements in the university's security systems have also improved the environment for women.

4. Reforms in Undergraduate Education

The central purpose of undergraduate education at NJIT is to prepare students for careers as "complete professionals" with the potential for leadership in their chosen fields of endeavor. The term "complete professional" is intended to describe a person who embodies honesty and integrity, embraces responsibility, is technologically proficient, communicates effectively,

comprehends the interdisciplinary nature of innovative thinking, can see the totality of an enterprise and the inter-relatedness of its goals, understands the competitive nature of the marketplace, is entrepreneurial, respects the environment, adapts to change with flexibility, is a productive and cooperative team member, appreciates and respects diversity, and continues to learn throughout life.

The goal of NJIT's baccalaureate programs is to provide a comprehensive, well-rounded education that maximizes _all_ of these characteristics. The package is incomplete if scientific and technical excellence is sacrificed; but it is also inadequate if the pursuit of scientific and technical expertise precludes attention to the broad context within which the science and technology enterprise functions. Therefore, throughout its curricula NJIT seeks to provide integrated learning experiences that provide a foretaste of the complexities of the workplace. Students should realize _before_ they graduate that professional success depends upon the ability to organize a variety of human resources as well as the ability to apply science and mathematics. The objective is to teach science, mathematics, architecture, management, engineering, and engineering technology _"in context."_

In order to fulfill this objective, NJIT has embraced changes in curricular design and course content, introduced new technological applications to support pedagogy, encouraged the integration of research into undergraduate teaching, and recognizes faculty excellence in undergraduate education. The National Science Foundation has served as a powerful catalyst for many of these changes. Through the NSF's Gateway Coalition and two major grants under the Technology Reinvestment Program, NJIT is in the midst of reconfiguring the shape and content of its undergraduate curricula.

5. *Progress in Graduate Education*

NJIT has made rapid progress in developing the quality, depth, and breadth of its graduate programs. The number of Ph.D.'s awarded by NJIT grew from 15 in AY1992 to 40 in AY1996. The growth of doctoral programs and the number of degrees awarded resulted in NJIT's reclassification to "Doctoral University II" designation in the Carnegie Classification system in 1994, several years ahead of plan. The achievement of "Research University II" designation is now within reach.

Between Fall 1992 and Fall 1996, overall graduate enrollment grew from 2,634 to 2,830. The graduate catalogue issued in Fall 1996 lists eleven new Master's and Ph.D. degree programs and ten new certificate programs. Three additional graduate programs have been initiated since publication of the catalogue. Students may pursue multiple degrees through a B.S./M.S. or M.S./M.S. program designed to encourage further education and accelerate degree completion. The distance learning format and off-campus program delivery has become increasingly popular. The Executive Program leading to the M.S. in Management represents yet another approach tailored to meet industry's needs.

Graduate enrollments are notable for the diversity of the student body. Within NJIT's full-time graduate student population the proportion of U.S. citizens and permanent residents,

which typically is relatively low at research and technological universities, has increased from about one quarter to one third. Targeted support programs that began several years ago have shown signs of success with ethnic minorities and women, traditionally underrepresented in science and engineering at the graduate level.

6. Research and Public Service

NJIT's academic culture is defined by the presence of a faculty engaged in undergraduate and graduate teaching, research, continuing education, and professional practice. Faculty members' experience in research and professional practice adds freshness and excitement to the classroom, the seminar, and the laboratory. New graduate courses incorporate the results of current faculty research, and the fundamentals are often integrated into undergraduate courses long before they appear in textbooks. The unity of teaching and research is a way of life at NJIT precisely because it contributes powerfully to excellence in professional education.

NJIT conducts research in areas of critical concern to New Jersey and the nation such as environmental engineering and science; manufacturing productivity; infrastructure design, planning, and management; computing; and telecommunications. The university seeks to transfer newly developed technologies to industry. NJIT's research agenda has a strong applications orientation responding to state, federal, and industrial initiatives by seeking solutions that are socially responsible while encouraging economic growth. Recent research, often carried out by interdisciplinary teams of investigators, has focused especially on protecting the environment and increasing the nation's competitive position through the use of advanced, environmentally sound manufacturing technologies.

NJIT has moved from a less than half-million dollar externally supported research enterprise in the '70's to an estimated expenditure level of $31 million in FY1997. Last year, NJIT's faculty engaged in 510 externally funded research projects as compared with only 30 in 1972.

In addition, faculty, administrators, and students engage in a broad range of educational, cultural, and economic development activities in fulfillment of NJIT's public service mission. NJIT has recently played an important role in public policy analysis. Three research studies commissioned by the New Jersey Legislature provided sound science-based advice during legislative deliberations and contributed to an informed public dialogue on issues such as regulatory reform and cost reduction in the delivery of health services through the use of technology. Emphasis is also placed on programs serving NJIT's community neighbors in Newark and vicinity.

7. Economic Development

Economic development is now a formal part of NJIT's mission, having been added to its mission statement in 1996. Business and higher education are natural partners because economic growth takes place when research leads to the development of commercially viable products and processes. Large corporations are applying solutions developed by NJIT

research teams. For small businesses, NJIT is a provider of the latest technical information and advice -- in effect transferring technology and knowledge from academe to industry. The university also serves as a business "incubator," hatching new private enterprises based on recent inventions and patents. NJIT is home to the largest such effort in the state, currently housing 33 start-up firms in various technology businesses. A second enterprise development facility opened in Fall 1996. When fully occupied, it will permit NJIT to house a total of 60 such firms.

Students and employers alike benefit from NJIT's research and economic development partnerships. Faculty engaged in cutting-edge research, often in cooperation with industry, can offer students state-of-the-art instruction and better career counseling. Students get hands-on experience of the work environment as an integral part of their education, thereby gaining an advantage when they seek employment after graduation. Employers and entrepreneurs have direct access to faculty expertise and to students who can provide the skills they need. NJIT itself benefits from the opportunity to attract and retain excellent faculty members.

8. Academic Support: the Library and Computing

A number of significant improvements have been made in the library over the last five years. A new Van Houten Library building has been constructed, furnished, equipped, and opened for operation. The first phase of the architecture library's expansion is complete, and a second phase is planned. Professional librarians with strong subject domain knowledge have been recruited. A flatter, team-oriented organizational structure is in place. The information revolution and budgetary limitations have greatly accelerated changes in library services. New article retrieval services, new databases some of which can be searched remotely, and a Library Home Page are available. Continuation of the trend away from large-scale storage of printed material is planned.

NJIT has a computing-intensive campus. Beginning with the distribution of microcomputers to all incoming freshmen in the 80's, the university has steadily expanded its networking capacity, integrated computing into all facets of the curriculum, provided students access to campus and Internet services, and upgraded its hardware and software systems and on-line services. With the advent of the "information age," NJIT is providing leadership in the educational uses of computing. Plans include enhancing the university's network communications capabilities, equipping faculty and other employees' workstations with software to enhance productivity, and providing appropriate training opportunities for users.

9. Physical Plant

The physical development of NJIT's campus has paralleled the transformation of the institution's mission and the growth of its programs. Each programmatic element of NJIT's expanded role -- graduate education, research, public service, economic development -- requires specialized facilities, sophisticated equipment, and more space. The population of students living on campus has grown with the construction of three residence halls -- soon to

be four -- creating a need for additional student services and facilities. The emphasis on facilities projects to keep up with NJIT's programmatic quality and growth will continue.

10. Finance and Fund-raising

Public sources of funding are providing a declining fraction of the total resources needed to support the university, and the level of uncertainty about the future of public funding is higher than it has been in recent memory. Meanwhile, NJIT's endowment still remains in the bottom quartile among U.S. colleges and universities. In order to gain a firmer control over its destiny, the ability to plan new initiatives with confidence, and achieve a vital margin of excellence, NJIT is undertaking the largest fund-raising campaign in its history. The centerpiece of the $120 million "Campaign for NJIT: Design for the Future" is the effort to build a substantial endowment that will serve as a stable source of additional funds and will continue to grow. Successful completion of the Campaign will enable the university to invest further in undergraduate scholarships and graduate fellowships, endowed chairs and professorships -- all vital to the improvement and enhancement of current programs.

11. Outcomes Assessment and Planning

NJIT has an on-going system of institutional and student outcomes assessment. It is intended to provide timely data and information for two essential purposes: (1) measuring the degree to which NJIT is making progress toward meeting a set of quantitative goals, and (2) gauging how NJIT compares to a group of benchmark institutions that set high standards of excellence for technological universities. The assessment system is designed to produce a balanced evaluation by using multiple measures, both qualitative and quantitative, related to the specific components of the university's mission. Results are used in the processes of resource allocation, planning, and setting of new goals at the institutional level and at the college, department, and program levels. An active planning process is focusing on implementation strategies that will support institutional objectives in enrollment, academic program development, facilities development, computing, library development, and finance.

12. Recognition and Visibility

Since 1992, national recognition of NJIT's academic quality and rapid institutional development has come from a range of external sources, confirming the impression that the university is moving forward. In 1994 the Carnegie Foundation reclassified NJIT as a "Doctoral University II" replacing its prior designation in the category of "Professional Schools and Specialized Institutions." *Money Magazine* currently ranks NJIT number three in the nation as a "best buy" among scientific and technological institutions, following California Institute of Technology and Georgia Institute of Technology. And *U.S. News and World Report*, in its "Annual Guide to America's Best Colleges," places NJIT among the top one hundred "national universities."

In the Higher Education Restructuring Act of 1994, the State Legislature conferred on NJIT statutory designation as a "public research university." Subsequently, New Jersey recognized

NJIT as "essential" and "necessary for the welfare of the state and the people of New Jersey" in legislation signed by Governor Whitman in January 1996. The New Jersey Institute of Technology Act provides an updated statutory basis for the university and asserts NJIT's status and role as one of the state's three public research universities, similar to Rutgers University and the University of Medicine and Dentistry of New Jersey in its relationship to the state.

NJIT is accredited through the year 2002 by the Commission on Higher Education of the Middle States Association of Colleges and Schools. Appropriate units and programs are accredited through the Accrediting Board for Engineering and Technology (ABET), the National Architectural Accrediting Board (NAAB), the American Assembly of Collegiate Schools of Business (AACSB), and the Computing Sciences Accreditation Board (CSAB). The Bachelor of Science program in Nursing, offered jointly with the University of Medicine and Dentistry of New Jersey, has been inspected by a visiting team from the National League for Nursing (NLN) and received a positive recommendation; the NLN's decision on accreditation is expected in the near future.

13. Conclusion

Today New Jersey Institute of Technology can look back upon a 25-year process of redefinition and evolution. No institution, especially an institution of higher education, changes its essential character easily or quickly. That happens only when careful planning is followed by consistent decision-making over a long period of time, or when catastrophe strikes. Fortunately, NJIT's transformation has come as a result of deliberate planning. Despite recent volatility in the economic, social, political, and regulatory environment for American higher education, NJIT's path remains clearly defined.

The NJIT community looks to the future with confidence. Partly because of prudent planning and sound execution, partly because of positive environmental factors, NJIT finds itself well positioned for the challenges of the time. The university offers programs in areas of strong and growing demand. It serves populations that look to higher education as the way to improve their lives. It enjoys stable or growing enrollments. It is recognized as an important contributor to the state's economic development. It has maintained a healthy financial structure and set an ambitious agenda of further fund-raising. It deliberately seeks rejuvenation and improvement through vigorous self-assessment and planning processes. As a result, we believe that NJIT stands on the threshold of joining the ranks of the nation's leading technological universities.