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General Overview

- 1. NJIT: Past, Present, and Future -- A Brief History***
 - 2. Environmental Context***
 - 3. Mission Statement***
 - 4. Organizational Structure***
 - 5. Faculty Governance***
 - 6. Overall Approach to the Periodic Review Report***
 - 7. Process Used in Preparing the Periodic Review Report***
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1. NJIT: Past, Present, and Future -- A Brief History

The following list of milestones in the history of NJIT provides a chronology of significant events and indicates the relative age of the university's various constituent units.

- 1881 - founding of Newark Technical School as a "school for industrial education" of apprentices for local industries
- 1919 - New Jersey State Board of Education authorization to offer bachelor's degree programs in three fields of engineering
- 1930 - institution renamed Newark College of Engineering
- 1949 - first Master's degree awarded
- 1957 - establishment of the Foundation
- 1964 - first earned doctoral degree awarded
- 1973 - founding of the School of Architecture
- 1975 - institution renamed New Jersey Institute of Technology
- 1982 - establishment of the College of Science and Liberal Arts
- 1988 - founding of the School of Management
- 1993 - formation of the Albert Dorman Honors College
- 1994 - statutory recognition of NJIT as a public research university
- 1996 - New Jersey Institute of Technology Act signed by the Governor of New Jersey

Since its founding in 1881 NJIT has undergone two fundamental transformations of institutional mission and identity. During the initial period of its history, it evolved from a local technical school into an undergraduate engineering college serving a widening geographical constituency. That remained the institution's mission until the early 1970's when it embarked on extensive changes through which NJIT evolved into one of New Jersey's three public research universities with a statewide mission and an extensive array of professional program offerings.

The year 1997 marks the 25th anniversary of a report entitled "A Broadening of Mission: The Development of a Technological University." Prepared for a pending Middle States accreditation team visit in 1972, the report provided an impetus that set NJIT on the path toward becoming a research university. The strategic agenda it set forth was included in a comprehensive institutional master plan in 1978 and has been pursued in subsequent plans ever since.

Over the course of the past 25 years, NJIT has sought to become a force in providing excellent professional education in engineering, architecture, management, computer and information science, and a variety of related fields and to contribute significantly to the economic development of New Jersey. As this report is submitted in 1997, the vision set forth in 1972 has been realized to a large extent. The university has developed new graduate and undergraduate programs, overhauled its curricula, mobilized a research faculty and the physical facilities and equipment needed to sustain programs at a high level of quality, and developed a panoply of research and development partnerships with industrial firms and governmental agencies. The undergraduate engineering college of past generations has become New Jersey's public technological research university.

NJIT enrolls nearly 8,000 students and annually awards approximately 1,400 degrees from the baccalaureate through the Ph.D. in an array of engineering and technology disciplines, computer and information science, architecture, management, applied sciences, and mathematics. The university now offers Ph.D. programs in thirteen professional areas, master's programs in thirty-one specialties, and twenty baccalaureate degree programs, conducts research with important commercial and public policy applications, and performs a broad spectrum of economic development and public service activities. Among the nation's technological universities, NJIT's rate of growth in research ranks among the top ten. NJIT has one of the most computing-intensive campuses in America. NJIT contributes significantly to New Jersey's economy and economic development. NJIT's students have provided 70,000 hours of community service over the past five years, and the university serves more than 4,500 elementary and secondary school students and teachers annually through an array of pre-college programs.

But the past is merely prologue. Change must and will continue. Rapid development, if it is to be rational and controlled, requires careful, thorough planning. NJIT has a long tradition of being a planning-driven organization. Since the concept of a technological university for the state of New Jersey was originally broached in 1972, the cycle of strategic planning, annual budgeting, assessment of progress, and up-dating of long-range plans has gone

through many iterations. That process continues today, reinvigorated by the national recognition that NJIT has earned in recent years.

2. Environmental Context

NJIT submits this Periodic Review Report in the midst of dramatic changes in world and national affairs. Recent events have created a new context of environmental conditions for higher education in the United States and in New Jersey.

The end of the Cold War and the collapse of the Soviet Union at the end of the 1980's marked the onset of a period of instability and rapid shifts in global geopolitics, the end of which is not in sight. A new level of global economic competition has replaced military confrontation as the predominant form of international competition, bringing with it the imperative for new thinking and new organizational pressures on business enterprises. The result has been a world-wide reconfiguration of commerce and industry in the form of corporate mergers and acquisitions, downsizing and out-sourcing of certain functions, the creation of new jobs, and a rapid introduction of new technologies.

The public sector has undergone changes of comparable magnitude. Federal budget priorities are subject to reordering, sometimes dramatically so. Students of limited financial means are finding that access to public financial aid is becoming more restricted. Cuts in defense spending and other agency budgets may presage an era of reduced federal spending for university research. A secular trend of disinvestment in higher education is evident in many states. Growth in state appropriations for higher education has slowed in most states, and budgets have been cut drastically in a few, accompanied by calls for ever greater accountability and frugality. New Jersey's governance structure for higher education was recently revised by statute, leading to a burst of new program development, an attempt by some institutions to expand their missions, and heightened competition for public funds. The problems of the current municipal government administration in Newark adversely affect the environment for institutions located in the City.

The recent past has also seen a waning of public confidence in many national institutions, governmental and professional, that had traditionally been held in high esteem. Higher education has not been immune to the pressures inherent in this general crisis of confidence. Colleges and universities are subject to unprecedented scrutiny over issues of quality ranging from class size to standards of teaching, from grading practices to the quality of students' preparation for careers, and from the role of remediation to the role of research. Institutions must better address issues of efficiency and effectiveness such as faculty workload and the use of instructional technologies. And they must devote careful attention to issues of access such as affirmative action, the need for special academic support services to enhance retention, and the relationship of tuition and fees to the availability of financial aid.

Finally, higher education now finds itself subject to the healthy challenge of incipient competition from new sources that are often nimbler in taking advantage of the potential power of new technologies in reaching the marketplace: proprietary institutions, corporate

education and training centers, and the new generation of telecommunications/entertainment megaconglomerates.

Notwithstanding the challenges presented by these dramatic changes in the economic and policy environment, NJIT has not lowered its sights. The university has made gains across the board, many in response to the findings and recommendations of the 1992 Middle States visiting team. As the millennium approaches, the institution's transformation from an engineering college to a research university with a core focus on technology is essentially complete. NJIT faces the future from a position of strength.

3. Mission Statement

As the process of planning for this Periodic Review Report began, NJIT's Long-Range Planning Committee undertook a review of NJIT's mission. After consultation with the broad university community, proposed revisions were presented to the president and senior staff. Ultimately the revised mission statement was presented to the Board of Trustees.

The NJIT Mission Statement of 1996 retains the key elements included in earlier statements of mission. Its structure is designed to clarify the institution's principal purposes. Although it is not intended to alter the overall direction of the university, the new mission statement does contain one crucial change. Economic development has been added as a fourth mission element, integrally related to NJIT's educational, research, and service functions, and emphasizing the importance of economic development to the kind of technological research university NJIT is and aspires to become.

Why has NJIT chosen to place the university's role in economic development in such a prominent and visible position, and to assert unequivocally that it is central to what the institution is about?

The decision was based on the premise that two principles of political philosophy will shape national economic policy and related legislation in the current environment and for some time to come. First, economic development is best accomplished by the private sector. Second, the role of government should be to provide an economic and regulatory environment conducive to the success of private enterprise. If the premise is correct, and if the goal of enhancing the nation's competitiveness and technological leadership is to be achieved, colleges and universities should view themselves, and should be viewed by others, as essential partners of the business community.

Higher education plays several key roles that support economic competitiveness and growth. Colleges and universities prepare a work-force with the knowledge and skills needed to compete in a global economy that capitalizes market changes and technological changes with unprecedented speed, as well as preparing citizens to participate fully in the nation's civic and cultural life. In addition, higher education provides essential support to the private sector through scientific discoveries, the application of these discoveries to myriad and often serendipitous commercial uses, and the transfer of technology and human capital to business

enterprises. By producing new knowledge, university-based research is a generator of employment, income, and -- sometimes -- entirely new industries and new technologies.

Higher education and business are natural partners in the process of economic development. The synergies are readily evident in New Jersey. The state has an extensive industrial research base and the nation's highest concentration of scientists and engineers. It is home to research-driven corporations of world stature in the pharmaceutical, communications, and computer industries. Within this context, the combined intellect of university faculty and students and industry researchers is a powerful source of creative ideas.

Moreover, partnerships with industry and government in pursuit of economic development are an important potential source of revenues needed to replace declining revenues from other sources and contain the rate of increase in tuition and fees. The growth of externally-supported research at NJIT over the past two decades has been robust. The half-million dollar expenditure level of the '70's has blossomed into an enterprise of \$30 million in FY 1996. NJIT had only 30 externally funded research projects in 1972; by FY'96, the number had grown to 550.

NJIT also serves as a site for business "incubators," hatching new enterprises and hastening the exploitation of university-based inventions and patents through the development of commercially marketable products. The university has agreements with major multi-national corporations that support undergraduate and graduate education and faculty research initiatives. As a result of these activities, NJIT has become a partner of both government and industry.

NJIT is not oblivious to the hazards inherent in developing intimate relationships with entities whose central purposes are different from those of an educational institution. But the university is confident that it can maintain its independence if its partnerships are carefully structured and nurtured.

NJIT Mission Statement

NJIT is a *public, urban, research university*, committed to the *pursuit of excellence* ----

- in undergraduate, graduate, and continuing professional *education*, preparing students for productive careers and amplifying their potential for lifelong personal and professional growth;
- in the conduct of *research* in such multi-disciplinary areas as environmental engineering, materials science, manufacturing, productivity enhancement, infrastructure systems, and communications technologies;
- in contributing to the state's *economic development* through partnerships and joint ventures with the business community and through the development of intellectual property;
- in *service* to both its local communities and the broader society of the state and nation by conducting public policy studies, making educational opportunities widely available, and initiating community-building projects.

NJIT *prepares its graduates* for positions of leadership as professionals and as citizens; *provides educational opportunities* for a broadly diverse student body; *responds to needs* of large and small businesses, state and local governmental agencies, and civic organizations; and *advances the uses of technology* as a means of improving the quality of life.

NJIT offers a *comprehensive array of programs* in engineering and engineering technology, computer science, architecture, applied sciences, mathematics, management, policy studies, and related disciplines throughout New Jersey and the nation.

4. Organizational Structure

The organizational structure of NJIT is depicted in a chart that can be found in Appendix I.

Since the 1992 Middle States visit, one notable unit has been added to the backbone of the university's academic structure. The Albert Dorman Honors College was established in 1993 to supplement the four existing colleges. The basic structure has otherwise remained stable.

Reorganization of administrative functions has proceeded in deliberate fashion. Gradual shifts in the responsibilities of senior administrators have been introduced in pursuit of improved effectiveness and greater efficiency. The senior administration has been streamlined and reorganized.

The Provost and Vice President for Academic Affairs has been promoted to the rank of Provost and Senior Vice President for Academic Affairs, with responsibility for direct oversight of the intercollege, interinstitutional research centers. This has become an increasingly challenging task because of the growing number of complex relationships and the magnitude of the planning effort necessary to deal with a variety of organizational and funding issues.

The Vice President for Administration and Treasurer has been promoted to the rank of Senior Vice President for Administration and Treasurer. By assuming the responsibilities of the former Vice President for Economic Development, his assignment now includes supervision of NJIT's enterprise development centers.

The Associate Vice President for Academic Support Services has been promoted to the rank of Vice President for Academic and Student Services in recognition of the importance and breadth of his responsibilities. He now reports directly to the President while remaining under the day-to-day supervision of the Provost and Senior Vice President for Academic Affairs.

A number of interrelated functions have been reorganized and unified under the leadership of a single individual with the new title University General Counsel and Executive Director of Employment Policy and Relations. The structure is specifically designed to join the legal function with human resources and labor relations in a manner that is both efficient and effective.

The position of Executive Director for State and Federal Relations has been re-designated Executive Director for University Relations. It now encompasses state and federal relations and public relations, and in time the office will include additional functions related to university relations.

5. *Faculty Governance*

The basic document that describes NJIT's faculty governance structure is the *Faculty Handbook*. While there have been many changes during the past five years, the fundamental structure of faculty governance remains essentially unchanged. The faculty play a central role in curriculum development, in the evaluation of faculty for promotion, tenure and merit, and in university planning. As was true in the 1992 Middle States Report, faculty members have played a key role in the development of this document and in the strategic planning process.

The most significant formal changes to faculty governance occurred in the *Faculty Handbook* sections on personnel actions. During the past several years, the Faculty Council worked to prepare material for faculty vote to update and clarify sections of the *Faculty Handbook*, primarily those dealing with personnel actions such as promotion and tenure. Final approval for these changes occurred in 1994 and a new copy of the *Faculty Handbook* was issued in 1995.

The formation of a new Faculty Senate continues to be discussed.

6. *Overall Approach to the Periodic Review Report*

This document presents a comprehensive status report and update on institutional progress and plans since the 1992 Middle States team visit that resulted in the decision of the Commission on Higher Education to extend NJIT's accreditation through the year 2002.

Although a number of significant changes have taken place in the economic and political conditions that define the environment for higher education, both within New Jersey and nationally, NJIT has maintained a steady course and will continue to pursue the overall approach fully described in its self-study and strategic plan of 1992. Of course, objectives will be up-dated as necessary, and a bold agenda for the future is adumbrated in the university's new vision statement (see pp. 144-145).

The Periodic Review Report has six major parts:

- introductory material consisting of a table of contents, a schematic outline, an executive summary, and this overview which includes the university's Mission Statement;
- a summary of the specific actions taken by the university in response to the recommendations of the Middle States accreditation team in 1992 and a report on progress toward the university's planning objectives as described in the 1992 report;
- a status report on important institutional developments since 1992;
- the annual institutional profile, and a summary of recent trends based on analysis of statistical data;

- a description of the planning process and a presentation of issues currently under discussion as NJIT looks to the future; and
- supporting materials supplied in a set of appendices.

Details on the content of each major part can be found in the Schematic Outline following the Table of Contents.

7. Process Used in Preparing the Periodic Review Report

Overall direction for the preparation of this report was provided by the senior staff acting as a steering committee under the chairmanship of President Fenster. Coordination was provided by the Assistant to the President for Policy and Planning. Formal participation included faculty, students, and administrative staff through their service on the Long Range Planning Committee and a set of new subcommittees. (Complete lists of the formal participants can be found in Appendices S and T.) Dozens of other individuals provided informal comments, suggestions, and advice. Trustees provided general guidance and counsel. Thus, the Periodic Review Report is the product of a collective effort on the part of the campus community.

The essential steps in the development of this document are listed in the following chronology:

Senior Staff discussion of a preliminary outline and process
(December 1995)

Long Range Planning Committee discussion of PRR process and outline,
and appointment of subcommittee chairs
(January 1996)

Organization of subcommittees and assignment of responsibilities
(February 1996)

Periodic meetings of PRR subcommittees
(March-June 1996)

Consultation with Dr. Arturo Iriarte at Middle States headquarters
(March 1996)

Draft materials due from subcommittee chairs and other persons responsible for
drafting components
(June 1996)

President Fenster informs Board of Trustees about PRR process and outline of the report
(July 1996)

President Fenster updates Senior Staff and Committee on Academic Affairs
(Fall 1996)

Draft completed
(October 1996)

Review and comment by Long Range Planning Subcommittees, Long Range Planning Committee, and Senior Staff
(October-December 1996)

Revisions incorporated
(January-February 1997)

President Fenster reviews draft PRR for presentation to Board of Trustees
(March 1997)

Board of Trustees reviews draft PRR
(March 1997)

Final revisions completed and final document assembled
(April 1997)

President Fenster approves final document
(April 1997)

President Fenster presents final document to Board of Trustees
(May 1997)

Campus constituencies receive copies of final document
(May 1997)

Names of 2 external reviewers announced by Middle States
(May 15, 1997)

Mailing to Middle States Commission and external reviewers
(by June 1, 1997)