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New Jersey Institute of Technology

Self-study

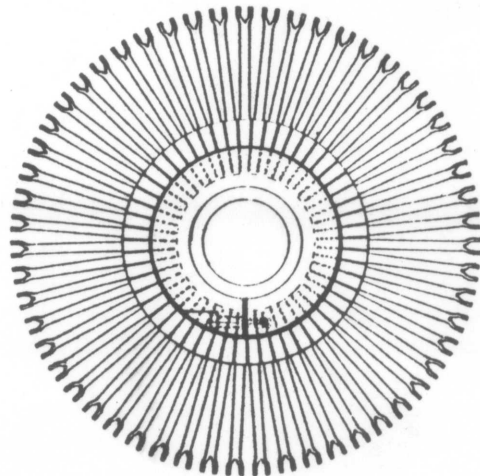
A Selected Topics Report

for the

Middle States Association Visitation

February 14-17, 1982

Newark, New Jersey



Cover Design: Commutator for Incandescent Light Machine, c. 1881. A patent drawing from the Edward Weston Collection at New Jersey Institute of Technology. Edward Weston (1850-1936), scientist, inventor, and charter trustee of the Institute founded in 1881.

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NEW JERSEY INSTITUTE OF TECHNOLOGY

SELF-STUDY REPORT

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ANNUAL INSTITUTIONAL DATA SUMMARY - 1981-82

DUE DATE: DECEMBER 1, 1981

COMMISSION ON HIGHER EDUCATION
Middle States Association
of Colleges and Schools
3624 Market Street, Philadelphia, PA 19104
(215) 662-5606

New Jersey Institute of Technology

Name of Institution

323 High Street

Address

Newark New Jersey 07102

City

State

Zip Code

(201) 645-5321

General Institution Telephone Number

Saul K. Fenster

Name of Chief Executive Officer

(201) 645-5101

Direct Telephone Number

Gary Thomas

Name of Second Chief Administrative Officer

Charles R. Bergmann

Name of Board Chairman

YEAR OF INITIAL ACCREDITATION 1934

IF CANDIDATE FOR ACCREDITATION

YEAR OF LAST REAFFIRMATION 1972

Month _____ Year _____ accepted for Candidacy

SEE INSTRUCTIONS/ILLUSTRATIONS FOR SECTIONS I, II, IX, X, XI

I. GENERAL INFORMATION AND INSTITUTIONAL DESCRIPTION (see Illustration I)

New Jersey Institute of Technology is a public technological university which provides instruction, research, and public service in engineering, computer science, industrial administration, management, architecture, engineering technology, applied sciences, and related fields. Degrees awarded in 1981: Doctor of Engineering Science 9, Master of Science 151, Bachelor of Science 560, Bachelor of Architecture 50.

Professional or Specialized Accreditation (cite program or school, degree level -- see Illustration I)

- A. Accrediting Board for Engineering and Technology, Newark College of Engineering.
1. Bachelor of Science - Chemical, Civil, Electrical, Industrial, and Mechanical Engineering.
2. Bachelor of Science in Engineering Technology: Construction/Contracting Engineering Tech., Electrical Systems Engineering Tech., Environmental Engineering Tech., Manufacturing Engineering Technology, Mechanical Systems Engineering Tech. B. National Architecture
II. ENROLLMENT (see Instruction II) Accrediting Board - N.J. School of Arch., Bachelor of

Fall 1981 Full-time 2973 M; 387 W; Total 3360 Architecture
Part-time 1342 M; 115 W; Total 1457
Full-time Equivalent Enrollment 4770 (Actual reported to Dept. of Higher Ed. (4300 on 1980 summary was budgeted figure.) 458 V

III. STUDENTS Required for Admission: ACT No / SAT Yes Average Score: ACT _____ SAT 574 M.
Math Level I for Eng. Science & regular
Other (please specify) Comp. Science Open Admissions No admits
High School Standing: 1st 5th 46 % 2nd 5th 39 % 3rd 5th 14.7 % 4th/5th .3 %
Geographic Distribution of Current Total Enrollment:
County 23 % State 95 % Out-of-State 3 % Foreign 2 %

IV. FINANCIAL AID Percentage of Fall 1981 enrollees receiving aid:

Full-time 60 % M; 60 % W; Total 2900 Federal Funds 36 %
Part-time 0 % M; 0 % W; Total 0 State Funds 59 %
Institutional Funds 5 %

V. FACULTY (Full Professors 73 Instructors 0 Percent tenured:
 Number of: (Associate " 96 Adjunct Professors 125 68 %
 (Assistant " 58 Other (e.g., unranked) 40
 Number full-time 267 Part-time (listed as adjunct)

VI. LIBRARY Number of: Volumes 127,410 Subscriptions 1457 Special Collections 3 (1
 Audio/Visual Materials 641 tapes 72 Computer Terminals 35 (3)
 Cooperative arrangements (describe) Students and staff may routinely borrow materials from the libraries of Rutgers Newark, the College of Medicine & Dentistry of N.J., Essex County Community College, and the Newark Public Library
 Annual Library Budget (excluding salaries) \$ 297,000
 Percentage of Institutional Operating Budget (including salaries) 2.6 % (including Media Center)

VII. FINANCES Total Institutional Operating Budget \$ 29,807,200
 Income: Tuition 20 % Endowment - % Gifts - %
 Public Appropriation 65 % Other 15 %
 Accumulated Surplus or (Deficit) shown on Balance Sheet:
 \$ 201,589 as of end of most recent fiscal year.
 \$ 692,286 as of end of prior fiscal year.
 Expected Outcome of Current Fiscal Year:
 Surplus of \$ 0 in total Institutional Operating Budget.
 (Deficit)

VIII. PHYSICAL PLANT Book Value \$ 35,000,000 as of end of most recent fiscal year.
 Recent or planned improvements or additions:

1. Construction of new Physics Laboratories for first and second year courses (completed).

IX. OFF-CAMPUS ACTIVITIES/SPECIAL EDUCATIONAL PROGRAMS/CONTRACTUAL RELATIONS
 (Type and location--see Instruction/Illustration IX - attach separate sheet if necessary)

A. Programs

1. M.S. in Computer Science at Moorestown, New Jersey. (4)
2. M.S. in Computer Science at Drew Universtiy, Madison, N.J.

X. SIGNIFICANT CHANGES DURING PAST YEAR (see Instruction/Illustration X)

- Added:
1. A Toxicology Option under the Masters Program in Environmental Engineering.
 2. A Bio-Medical Engineering Option under the undesignated Masters Program.

XI. SIGNIFICANT CHANGES PLANNED DURING CURRENT OR NEXT YEAR (see Instruction/Illustration XI)
 New Programs submitted to the New Jersey Department of Higher Education for approval:

1. Bachelors Degree in Actuarial Science
2. Bachelors Degree in Applied Chemistry
3. Bachelors Degree in Industrial Design

SIGNED: Chief Executive Officer
 Saul K. Fenster, President
 Title

All Statistics as of: 9/81
 Month/Year

CONTINUATION SHEET

VIII. continued

2. Construction of a new Materials Science Laboratory (completed).
3. Extensive renovation and relocation of classrooms and offices in the Cullimore/Eberhardt buildings (in process).
4. Construction of new Computer Operations Center and offices (completed).
5. Total renovation of building at 200 Central Avenue into Mechanical Engineering Center (bid to be awarded shortly).
6. Purchase of additional properties to provide for: dormitory conversion of an existing building (purchase completed), additional parking (400 spaces added), and land for future construction.

IX. continued

B. Course offerings

1. Engineering Technology courses at Camden County College, Blackwood, New Jersey
2. Engineering Technology courses at Mercer County College, Trenton, New Jersey

Special Programs - Cooperative Education (5 year work/study engineering programs).

Educational Opportunity Program for students who are economically and educationally disadvantaged.

Honors Courses for qualified students.

Combined Masters/Bachelors Degree Program - normally completed in five years.

NUMBERED FOOTNOTES

- (1) Special Collections include:
 - A. The Edward Weston Collection of Personal Papers, Books and Original Equipment maintained in the Rare Book Room.
 - B. The Edward C. Molina Collection of 1200 books on Mathematics, probability and astronomy is maintained in the library.
 - C. The New Jersey School of Architecture maintains a collection of 54,000 slides for student use.
- (2) The Instructional Media Center located in the library is a central source for audio-visual materials and equipment for faculty, staff and students. Production services are available in eight different formats.
- (3) There are currently 35 terminals available for student use. Twenty are "public" terminals in the Computer Center and the remainder are distributed with at least one in each academic department. Plans call for the installation of new terminals during the year which will bring this total to 74 by the fall of 1982. All tie in to the UNIVAC 90/80-3 mainframe in the Computer Center.
- (4) Courses are offered at RCA Moorestown, RCA Computer Science Corporation, Moorestown and Moorestown public high school.

INSTITUTE SELF STUDY

At the time of the previous Middle States visit in 1972, a planning document was prepared by the institution dealing with an anticipated transition from an engineering college to a technological university. That document, A Broadening of Mission, the Development of a Technological University, was the basis of a Middle States Case Study that year.

Organizational restructuring was a natural consequence of the decision of the State Board of Higher Education to locate the proposed New Jersey School of Architecture on this campus (1973) and the subsequent naming of the overall institution New Jersey Institute of Technology in 1975.* (The former name, Newark College of Engineering, now refers only to the engineering unit). Shortly thereafter, the State Department of Higher Education asked that the Institute provide an updated "development plan" reflecting the changed status. This request resulted in the NJIT Master Plan Phase I which was completed in June of 1978. As this institutional document was being completed, the State Board of Higher Education embarked upon a system-wide planning effort which would, over a period of years, produce a comprehensive planning document for the state and an institutional master plan for each college or university in New Jersey.

On June 16, 1978, the Board of Higher Education formally approved the "Call for the Preparation of the 1980 New Jersey Higher Education State-wide Plan." Statewide Task Forces were established, members appointed and activities initiated by the Fall and Winter of 1978. The clarification and

*For a more detailed description of this transition, see NJIT Master Plan Phase I, pp. 2-7.

coordination of distinct institutional missions was an important goal of this planning activity.

The Statewide Call described a series of documents to be developed at the institutional level. In June, 1978, the "development plan" of NJIT was submitted to the Department of Higher Education as NJIT Phase I Master Plan. The following statement appears in the Introduction of that Plan:

"This effort is the Institute's first attempt at comprehensive planning in which all segments of faculty and staff were involved. It represents much more a consensus than it does the judgement of a few senior faculty and administrators. Depicted here are paths along which the Institute may develop in the changing milieu uncertainly predicted for the future, not a straitjacket within which change is difficult or impossible."

NJIT Master Plan Phase I contains two major segments, one dealing with mission and enrollment trends and the other with resources. Two interim documents were produced by the Institute's Long Range Planning Committee during the two years following Phase I:

1. A Programmatic Overview produced in May, 1979, examines more closely the concept of the technological university. This overview also appears as an appendix to Master Plan Phase III.
2. A Summary Institutional Planning Statement was issued in March, 1980. This document, which contains much descriptive material concerning the Institute, was largely incorporated into the Master Plan Phase II of NJIT.

The Phase II document, completed in March, 1981, represents the current comprehensive planning statement of NJIT. In July of 1981, the Master Plan Phase III of NJIT was completed. It represents a response to the Statewide Plan (adopted by the New Jersey Board of Higher Education in April, 1981) and a resource document which seeks to relate a number of existing institutional policies and documents to the planning goals of the State

and the Institute. In a sense, these documents complete one full planning cycle begun in 1972 when the transition to a technological university was first studied at length.

It was with this background of ongoing planning in mind that President Fenster, in the Fall of 1980, designated the existing Long Range Planning Committee of the Institute the Self-Study Steering Committee responsible for designing an appropriate approach to the Institutional Self-Study. Moreover, it was in the context of the recently completed master planning documents that the Committee recommended the "Selected Topics" approach to the Self-Study. NJIT Master Plans I, II, and III, together with a Facilities Master Plan Phase II, completed in April of 1981, were deemed appropriate statements of the Institute's mission and a comprehensive plan for the short to intermediate term. There was also reaffirmation of the concept of planning as a continuing university function.

It was felt that the Self-Study effort would best build upon existing plans, focusing on specific areas of major concern. In a series of meetings during the Fall of 1980, the Steering Committee identified four such areas for concentration:

- I. Institutional Accountability.
- II. The Role of Extension Programs at NJIT.
- III. Human Resources: Faculty Recruitment, Retention and Development.
- IV. Development of a Community Service Mission at NJIT.

Reference to these areas may be found throughout the master planning documents of the Institute. Thus, they are clearly areas of recognized interest or concern, but until this time they had not received exclusive study.

The issue of accountability reflects an emerging social theme for all of education. As governmental appropriations come under closer scrutiny and competition for scarcer resources becomes more apparent, the allocations for education which grew so dramatically in the past few decades must increasingly meet tests of accountability. The measuring of program effectiveness and assuring high quality and fidelity to stated institutional missions are areas of activity in which all involved in higher education are engaged. Specific responses and opportunities for NJIT are addressed by the Task Force on Accountability.

A similarly broad issue is addressed in the study of human resource utilization and development. This topic deals principally with faculty, again in the context of the increasing scarcity of this most valuable of institutional resources.

Topics II and IV -- the Role of Extension Programs and the Development of a Community Service Mission evolve more directly from growth in these directions projected in existing plans. The self-study effort provides the forum to consider opportunities for and impact of growth in these areas. It is expected that by asking questions and examining appropriate rationale now, problems and uncertainties can be minimized as growth proceeds.

This Self-Study plan was submitted to the Middle States Association staff December 3, 1980. Task Force leaders designated in the initial plan met with Dr. Fenster during January, 1981, and discussed the charge to each group. Committees began to meet to review background materials and data needs during the Spring Semester.

Institutional Research staff collected information on available outcomes studies and instruments, and in May the Accountability Task Force recommended to the Steering Committee that the Student Outcomes Information System be utilized. The Committee endorsed this recommendation and implementation began during the Summer of 1981. May graduates and recent alumni were sent appropriate questionnaires with a covering letter from Dr. Fenster. All incoming freshmen participated as a part of the routine testing program of the Institute.

In December, a sampling of 600 continuing undergraduate students were sent the questionnaire and 225 "Former Student Questionnaires" were mailed to students who had withdrawn from the Institute.

Task Force drafts and sub-committee reports were prepared and reviewed during September and early October. At two lengthy meetings in December, the full Steering Committee worked with persistence and candor to bring the content and tone of the various reports into the context of a single document.

In view of its focus on the human resources which must carry out the objectives of the report and of the Institute, much of the committee discussion focused on the draft of the Human Resources Task Force.