

NATIONAL TECHNOLOGICAL UNIVERSITY (UNITED STATES)

Not to be confused with National Technological University (Argentina)

National Technological University (NTU), Fort Collins, Colorado, was founded in 1984 as a non-profit organization offering graduate courses leading to a Master of Science (M.S.) degree. It was a collaborative effort among many major engineering and management colleges in the United States to meet the graduate and continuing education needs of “engineers, technical professionals and managers using advanced educational and telecommunications technology.”[1] Graduate and non-credit courses were sourced from a number of distinguished universities and were delivered through NTU to working technical professionals and managers at corporate and government sites across the United States and at international locations as well.

HISTORY

The founder and president of National Technological University (NTU) was Dr. Lionel V. Baldwin. Dr. Baldwin had been the Dean of Engineering at Colorado State University for more than 20 years and was well-connected in both the academic world and the corporate world. “These connections provided an excellent springboard from which to launch the fledging institution.”[2]

Beginning in 1982, “major corporations and the Department of Defense funded a two-year planning process involving numerous consultants. These sponsors provided technical advice and met regularly to help shape the plan. By the fall of 1983, the decision to proceed was made....These efforts led to the incorporation of the National Technological University (NTU) in January 1984.”[3]

NTU’s vision statement was “simple and straightforward. ‘Enabling working professionals and managers to share premier educational resources globally via telecommunications.’”[4]

NTU was governed by a Board of Trustees comprised primarily of senior technical managers at major corporations and senior administrators at major colleges of engineering.

Students participated through the sponsorship of their employers and these employers included “...technology-based corporations and government agencies such as ‘AT&T, IBM, 3M, Hewlett-Packard, Lucent Technologies, Motorola, Texas Instruments, Boeing, and the U.S. Departments of Defense and Energy’ (National Technological University Corporation Business Plan, July 2, 1997).”[5]

U.S. engineering educators were early adopters of telecommunications technologies for course delivery anytime and anywhere. Nell Eurich, in a 1985 study of education in the workplace, observed that engineering faculty were “light years” ahead of other academic disciplines in the use of technology to serve working adult learners.[6]

Initially, NTU courses were delivered via videotape but within two years the content was broadcast by satellite on a single analog channel. "By 1985, NTU's place as a technological leader was beginning to take shape. In that year it became the first university to offer educational services via a telecommunication satellite." [7] An NTU innovation soon made it possible to broadcast two analog channels on the same transponder and a few years later (1991) NTU pioneered the transition on satellite networks from analog to digital video achieving a sixfold increase in channel capacity. "By 1992...NTU could state that it was the first university or broadcast network to convert its satellite network from analog video to compressed digital video, thus pushing the boundaries of what was possible in satellite transmission." [8]

Qualified students, who were sponsored by their employers, were admitted to NTU and then could register for courses from any of the participating universities. Thus they could work with a faculty adviser to build a program best fitting their individual needs by drawing on the "best of the best" from multiple universities. "Many felt that the structure of the organization afforded its students the finest quality engineering education in the world since it could 'cherry pick' the finest courses and professors in the country." [9] Each degree program was created, maintained and updated by a faculty committee from a range of member universities. Although each course was being taught on its home campus, it was selected by the faculty committee to be integrated into the NTU program with appropriate courses from other member schools. This approach offered NTU students an unprecedented multi-university array of courses from which to select. When their Master's program was completed, they received their degree from National Technological University (NTU), even though their courses may have come from a half dozen different schools.

National Technological University (NTU) was first accredited by the North Central Association of Colleges and Schools (NCA) in 1986. M.S. Degree programs included: Business Administration, Chemical Engineering, Computer Engineering, Computer Science, Electrical Engineering, Engineering Management, Environmental Systems Management, Information Systems, Management of Technology, Manufacturing Systems Engineering, Materials Science and Engineering, Mechanical Engineering, Microelectronics and Semiconductor Engineering, Optical Science, Project Management, Software Engineering, Systems Engineering, Telecommunications, and Special Majors Programs. [10]

The first NTU graduate was Michael Reiss, a software analyst at the Cambridge, Ohio, facility of NCR Corporation. [11] From that first commencement in 1986 until 2002, the number of graduates grew to a total of more than 1,750 from a large number of corporate, government, and community sites in North America and in Southeast Asia. [12]

The number of participating universities steadily grew until more than 50 were offering courses through National Technological University (NTU). They included schools such as the University of Illinois, Georgia Tech, University of Massachusetts, University of

California at Berkeley, North Carolina State University, Oklahoma State University, Northeastern University, Purdue University, University of Maryland, Southern Methodist University, and another 42 public and private accredited universities.

Comparison studies were done over the years of "...grades earned by NTU students, NTU admitted students, on campus students and local ITV students....and NTU students consistently outperform the on campus and regional ITV students by as much as 0.3 of a grade point. Even the local ITV students perform better than the on campus students. Why is this? Obviously, NTU students are mature, full-time working adults as usually are the local ITV students. All NTU students have undergraduate Bachelor's degrees from many of the finest universities and institutions in the world. Maturity and motivation are certainly the key factors, but it does illustrate that televised learning for engineering education for working adults is effective and distance learning for these students meets their academic needs." [13]

National Technological University (NTU) also broadcast a daily schedule of non-credit short courses enabling working technical professionals and managers to update their skills or acquire new ones required by rapidly changing technologies or new business developments. NTU produced some of these courses itself, sourced others from the member universities, and included a large number from individual faculty, consultants and training organizations. By 1998-99, almost 500 short courses were delivered to over 35,000 participants. [14] In 2000, NTU acquired The Business Channel from PBS and dramatically enlarged the scope of its professional development offerings.

In the 1980s, satellite-delivered education was so expensive that individual universities could not or would not elect that option. But, they could join NTU, a relatively large consortium, and reduce the individual institution's cost to an affordable level. For almost 20 years the NTU model functioned extremely well for the schools, the students, and the corporate and government sponsors. But, by the turn of the century, the Internet was well-developed, virtually free, and universal. Individual universities could now establish their own individual networks, which is exactly what many of them did. But, the pioneer was definitely NTU which built the bridge from a strictly on-campus model to a new hybrid on-campus/on-line model. But it should be noted, those new online credit programs were largely single institution entities. They were not multi-institutional like the NTU program was, which offered a selection of credit courses from an array of well-respected universities.

"The higher education environment had evolved and the NTU partners had initiated their own distance education programs, changing the fundamental nature of their relationships with NTU. As this environmental change unfolded, NTU was continually challenged to remain a financially viable, small, stand-alone university. As a result, Laureate Education, Inc. (then Sylvan Learning Systems) purchased the institution..." [15] The purchase was made in 2002 and two years later NTU was folded into a for-profit online university (Walden University) in Minneapolis, Minnesota.

PARTICIPATING UNIVERSITIES [16]

Arizona State University
Auburn University
Boston University
Carnegie Mellon University
Clemson University
Colorado State University
Columbia University
Florida Gulf Coast University
The George Washington University
Georgia Institute of Technology
Illinois Institute of Technology
Iowa State University
Kansas State University
Kettering University
Lehigh University
Massachusetts Institute of Technology
Michigan State University
Michigan Technological University
New Jersey Institute of Technology
New Mexico State University
North Carolina State University
Northeastern University
Oklahoma State University
Old Dominion University
Purdue University
Rensselaer Polytechnic University
Southern Methodist University
The University of Alabama in Huntsville
The University of Alabama
University of Alaska Fairbanks
The University of Arizona
University of Arkansas
University of California, Berkeley
University of California, Davis
University of Colorado at Boulder
University of Delaware
University of Florida
University of Idaho
University of Illinois at Urbana-Champaign
University of Kentucky
University of Maryland, College Park
University of Massachusetts Amherst
University of Minnesota

University of Missouri-Rolla
University of Nebraska-Lincoln
The University of New Mexico
University of Notre Dame
University of South Carolina
University of Southern California
The University of Tennessee
University of Washington
University of Wisconsin-Madison
Vanderbilt University

REFERENCES

- [1] *National Technological University Bulletin*, 1998, p.4.
- [2] Marilyn Elaine Mays, *The Historical Development and Future of The National Technological University*, Dissertation, University of North Texas, August 1988, p.28.
- [3] Lionel Baldwin and Gearold Johnson, *NTU: The Working Professional's University*, (Fort Collins, CO: National Technological University, p.5.
- [4] *Ibid.*, p.5.
- [5] Daniel M. Carchidi, *The Virtual Delivery and Virtual Organization of Postsecondary Education*, (New York: Routledge Falmer, 2002), pp. 59-60.
- [6] Nell P. Eurich, *Corporate Classrooms: The Learning Business*, Carnegie Foundation for the Advancement of Teaching Special Report, (Princeton University Press, 1985).
- [7] Carchidi, *op.cit.*, p. 65.
- [8] *Ibid.*, p. 82.
- [9] *Ibid.*
- [10] *NTU Class Schedule Fall Term 2002*, National Technological University, Fort Collins, CO, 2002.
- [11] Mays, *op.cit.*, p. 73.
- [12] *NTU Class Schedule Fall Term 2002*, *op.cit.*
- [13] Baldwin and Johnson, *op.cit.*, p. 15.
- [14] *Ibid.*, p. 19.

[15] www.ntu.edu

[16] *NYU Class Schedule Fall Term 2002, op.cit.*