Proposal for a Master of Science Degree in Industrial Education

University of Texas at Tyler

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TEXAS EASTERN UNIVERSITY
TYLER, TEXAS

Proposal For A
Master of Science Degree
In
Industrial Education

Submitted to the Coordinating Board
Texas College and University System
July 1979
PROPOSAL FOR
MASTER OF SCIENCE DEGREE IN INDUSTRIAL EDUCATION

I. INTRODUCTION

Texas Eastern University was designated by the Sixty-second Legislature of Texas as an upper-level senior college authorized to grant bachelor's and master's degrees. As an upper-level institution, the university envisions its primary responsibility to be that of meeting the educational and career needs of those students who have completed at least the first two years of college work.

The purpose of this document is to petition the Coordinating Board, Texas College and University System, for approval of a Master of Science degree in industrial education. The proposed degree program is one of three receiving highest priority on a Texas Eastern University five-year plan on program projections. This degree will assist Texas Eastern University to fulfill its designated role.

The growth of occupational education in Texas has been phenomenal in recent years. This growth has been in keeping with the rapidly accelerating rate of economic growth which the state is currently undergoing. Increasingly, occupational educational programs in the state are becoming more diversified and are benefiting more people. The pattern of enrollment in community and junior colleges indicates that about half of the students are in areas of occupational education and technology.

The development of technical-vocational programs in the community and junior colleges and the expansion of secondary vocational complexes in East Texas have correspondingly increased demands for Texas Eastern University to provide supporting programs in industrial education. With this insight, the Coordinating Board has approved undergraduate degrees in vocational and industrial education.

The proposed Master of Science degree is designed to provide professional experiences to meet needs for graduates in the various service areas of industrial education as identified by the Coordinating Board, Texas College and University System in a report by the State 1202 Commission, March 1978.

II. DESCRIPTION OF PROPOSED PROGRAM

1. What is the title and nature of the proposed degree program?

Master of Science degree in industrial education.
The proposed degree is a comprehensive curriculum model structured to meet the needs of modern occupational education and technology. The program introduces a unified program approach for technical-vocational education and practical arts rather than the segmented approach. The premise for this design is that the substantive content of the various areas of occupational emphasis is different; however, quite a large part of the professional content should be very similar. This dimension has been emphasized by the President's Panel on Vocational Education, the Vocational Act of 1963, the Vocational Education Amendments of 1968, the Advisory Council on Vocational Education in its report, Vocational Education, The Bridge Between Man and His Work, 1968, and subsequent legislation and research in occupational education.

The degree program provides course offerings at the master's level in those areas already providing offerings at the undergraduate level which are funded under the general category of industrial education.

2. List the course offerings to comprise the program. Which of these courses will be new ones?

The Master of Science degree in industrial education will include a number of courses currently being taught by industrial education faculty for graduate credit by Texas Eastern University as vocational education and education courses. Six additional courses were developed to augment the professional and technical nature of the degree.

Existing courses are as follows:

EDVO 4325 Accident Prevention for Technical Programs
EDVO 4331 Goals and Objectives of Technical-Vocational Programs
*EDUC 5325 Administration and Supervision of Technical-Vocational Programs
*EDUC 5326 Planning and Development of Technical-Vocational Programs
*EDUC 5327 Instructional Improvement in Technical-Vocational Programs
*EDUC 5328 Topics in Technical Programs
EDUC 5334 Sponsoring Student Activity Programs
EDUC 5335 Instructional Processes for Adult Education
EDUC 5338 Implementing Career Concepts into Course Content

*To be changed to INED prefix.
New courses which will support the degree program include the following:

EDUC 5337 Concepts of Career Education
INED 5300 Inservice Workshop for Occupational Education
INED 5301 History and Philosophy of Industrial Education
INED 5303 Research Readings and Current Trends in Industrial Education and Technology
INED 5305 Seminar in Occupational Education and Technology
INED 5307 Measurement and Evaluation in Industrial Education

3. Outline a semester-by-semester curriculum for the proposed program, if applicable.

Described below are degree requirements which must be satisfied to obtain a Master of Science degree in industrial education. The curriculum is flexible enough to allow students to complete the requirements in any sequence desired so long as core courses are taken.

Recommended Degree Plan

Industrial Education Courses

<table>
<thead>
<tr>
<th>Professional core --required</th>
<th>6 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>INED 5301 History and Philosophy of Industrial Education</td>
<td></td>
</tr>
<tr>
<td>INED 5303 Research Techniques in Occupational Education and Technology</td>
<td></td>
</tr>
</tbody>
</table>

Area of concentration 18 hours

Supportive Courses 12 hours

TOTAL 36 hours

All courses must be approved by the student's advisor.

4. What special requirements are included in the degree plan? If a graduate degree is contemplated, is a thesis or dissertation required? If not, what will be substituted? Describe any innovative change in degree requirements?
The prospective graduate degree student must achieve satisfactory scores on either the Miller Analogies Test or the Graduate Record Examination. In addition, individuals without adequate preparation in their chosen area may be required to complete deficiencies.

The proposed degree is innovative in that it implements a total program for industrial education through a unified approach. The structure of the curriculum permits and encourages upward mobility within an occupation or family of occupations and provides an expanded number of choices for professional development and studies in a variety of disciplines. This mandates that the graduate student at the university level be prepared in a program whose horizons expand to include more than a single area and reflects the dependent relationships within industrial education. This model provides the needed preparation in a professional industrial education core, an area of concentration, and a supportive area. Flexibility and exchange of ideas among occupational service areas are emphasized. Although many of the courses contain elements of research which are common to graduate study, the program does not stress research and does not require a thesis or a foreign language.

5. Is the proposed program entirely new to the institution? Is it an extension of a minor field? If so, give the number of students minoring in the program during the last three years.

The proposed program is entirely new to the institution. It is not an extension of a minor field, but it is an extension of an ongoing undergraduate program in industrial education.

6. How many similar programs are there elsewhere in Texas and where? What is the nearest institution offering a similar program?

Research indicates that no institution in Texas offers a similar degree at the present time. There are several master's degree programs in various areas of vocational, technical, and industrial education. None of these degrees, however, is unified into a comprehensive core curriculum administered by one department as is the proposed degree.

East Texas State University is the closest institution offering a degree in vocational and industrial education. The degree programs at East Texas State University are segmented by content, departments, and colleges within the university.

7. Describe current manpower needs for graduates of the program. Also, describe how the proposed program strengthens the total academic program of the institution.
The proposed degree program has been planned to meet the needs, interests, and concerns of individuals who are in responsible positions in occupational education and technology. Job mobility for individuals in vocational, technical, adult, industrial, and manpower education is commensurate with the needs of the state's work force and economy.

A congressional report in 1976 cited occupational and career education as an absolutely essential part of our educational system. This program will not only help to alleviate the state and national shortage of professional leadership in the industrial related fields, it will assist administrators of public schools, community and junior colleges, and industry in the East Texas area to help meet their manpower and professional development needs.

Part one of the seventh annual report of the Advisory Council for Technical-Vocational Education in Texas to the State Board of Education, October, 1976, provided a statistical breakdown of Texas employment from 1976 to 1985. Sixty-eight percent of the job openings were projected to be related to vocational education. Subsequent data in the ninth annual report, December, 1978, continue to support previous projections. Although these reports were related to entry level employment, any increase in skill preparation also increases the need for a greater number of professionals in industry and education.

The Texas Education Agency staff reports that only half of those professionals needed in industrial education are provided by our state institutions. Professional development for industrial education teachers is even more of a problem. East Texas teachers indicate that an industrial education program within commuting distance would be of significant advantage to them for professional development.

A report by the State 1202 Commission, March, 1978, titled Post-secondary Educational Supply and Occupational Demand in Texas for the Period of 1977-83 states that in all areas of industrial education the demand for personnel is greater than the supply. The employment opportunities for graduates with advanced degrees is projected to improve for the next five years.

The proposed program will strengthen present academic offerings inasmuch as it will bring additional students into courses offered in several other departments.

8. Has the proposed program been approved by the institution's governing board? Give date of action.

The Board of Regents of Texas Eastern University approved the proposed program on
III. PROJECTED ENROLLMENT

9. Project the enrollment for the proposed program for the next five years. Explain the basis for this projection. Include majors and minors in separate columns.

<table>
<thead>
<tr>
<th>Year</th>
<th>Major</th>
<th>Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-81</td>
<td>20</td>
<td>NA</td>
</tr>
<tr>
<td>1981-82</td>
<td>40</td>
<td>NA</td>
</tr>
<tr>
<td>1982-83</td>
<td>50</td>
<td>NA</td>
</tr>
<tr>
<td>1983-84</td>
<td>60</td>
<td>NA</td>
</tr>
<tr>
<td>1984-85</td>
<td>70</td>
<td>NA</td>
</tr>
</tbody>
</table>

In the East Texas area, there are 155 vocational teachers, 75 industrial arts teachers, 240 technical-vocational teachers, and several hundred industrial employees who qualify for graduate work.

Of the 58 baccalaureate-level majors who have graduated from Texas Eastern University through the Department of Industrial Education, over half have expressed an interest in pursuing a graduate degree.

10. Describe the likely source of students who will enroll in this program. (Will they come from existing programs or will they be attracted to the institution to enroll in the proposed program?)

The enrollment in the proposed program will be primarily composed of Texas Eastern University graduates, regional professionals seeking further education, and people from other areas of the state.

VI. FACULTY

11. Give the number of persons presently on the faculty who will be most directly involved in the proposed program. List name, rank, highest degree, present course load, and estimate course load in the proposed program for each. Do present faculty meet minimal criteria for the requested program.

Faculty who will be most directly involved in the proposed program are as follows:
<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>Highest Degree</th>
<th>Course Load</th>
<th>Proposed Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mayfield, W. A.</td>
<td>Professor</td>
<td>Ed.D.</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Allen, W. Clayton</td>
<td>Assoc. Prof.</td>
<td>Ed.D.</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Garrison, H. Donald</td>
<td>Asst. Prof.</td>
<td>Ph.D.</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Gilbreath, Tommy D.</td>
<td>Assoc. Prof.</td>
<td>Ed.D.</td>
<td>12</td>
<td>3</td>
</tr>
</tbody>
</table>

Present faculty do meet minimal criteria for the program.

12. Calculate the present student-faculty ratio in the subject matter field(s) or department(s) in which the proposed program will be offered. (Divide full-time equivalent students by full-time equivalent faculty.) Also give the average teacher-student ratio in the courses given by the department (planned number of students per class).

The full-time-equivalent student to full-time-equivalent faculty ratio for the fall semester, 1978, was 13.47:1.00. Since Texas Eastern University is an upper-level institution, the ratio is derived by using only junior, senior, and graduate student full-time equivalents. During the fall semester, 1978, the average undergraduate class size was 17.65, and the average graduate class was 8.50. The planned number of students per class is 18 for undergraduate classes and 10 for graduate classes.

13. Project the need for new faculty for the proposed program for the next five years. If the teaching responsibilities for the proposed program will be absorbed in part or in whole by the present faculty, describe how this will be done.

The present faculty will absorb most of the new program requirements. Part-time faculty will teach approximately four undergraduate courses per academic year.

14. Will the acquisition of new faculty for the program require an additional outlay of funds? Explain in detail.

Since present faculty is already teaching several graduate courses, only $4,000 will be needed to support additional part-time faculty.

15. Describe the involvement of the faculty, present and projected, in research, extension, correspondence, and other activities related to the proposed program. Will this program decrease or increase the course load of present faculty?
The proposed program makes no additional demand on the present or projected faculty in research, extension, correspondence, and other peripheral activities related to the proposed program. The course load of present faculty will not be increased by the proposed program.

16. Are present library holdings in relevant fields adequate to begin the proposed program? How will the library have to be improved to meet program needs in the next four years? (Please explain need for books, periodicals, reference books, primary source materials, etc.) What are your institutional surpluses or deficiencies in holdings as measured by the Clapp-Jordan formula? How will approval of this program alter this situation?

Texas Eastern University had 217,815 volumes on January 1, 1979. The library holdings in industrial education are relatively small but have increased to a total of about 4,000 volumes in the core collection of books in technology. Related fields in management, finance, education and science contribute substantially to create strong holdings in this area. In addition, the periodicals, indexing, and audio-visual holdings have been identified. If the master's program is approved, more journal titles, retrospective journal collections, and additional books should be added in support of specific courses.

The Clapp-Jordan formula applied to Texas Eastern University Library as of December 1, 1978. This formula is calculated using both print and relevant print volumes (or microform volume-equivalents).

<table>
<thead>
<tr>
<th>Allowance Type</th>
<th>Calculation</th>
<th>Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basic collection</td>
<td>85,000 volumes required</td>
<td>85,000 vols.</td>
</tr>
<tr>
<td>2. Allowance per FTE Faculty member</td>
<td>100 vols x 77.7 FTE Faculty members</td>
<td>7,700 vols.</td>
</tr>
<tr>
<td>3. Allowance per FTE Student</td>
<td>15 vols x 1444.3 students</td>
<td>21,665 vols.</td>
</tr>
<tr>
<td>4. Allowance per undergraduate major or minor field</td>
<td>350 vols. x 50 fields (46 majors and the four support areas of physics, philosophy, geology and health education)</td>
<td>17,500 vols.</td>
</tr>
<tr>
<td>5. Allowance per Master's field when no higher degree is offered</td>
<td>6000 vols x 13 degrees</td>
<td>78,000 vols.</td>
</tr>
</tbody>
</table>

Required for 100% of formula 209,935 vols.
As of December 1, 1978, Texas Eastern University has 216,484 volumes or 101.0312 percent of volumes required by the formula. Stated another way, the university has 1.0312 percent above minimum number of volumes required to support the curriculum, faculty, students and degrees.

17. Do faculty and students now use libraries of other institutions? Could they do so in the proposed program? Explain in detail.

Library materials are currently available to Texas Eastern University students from almost all of the colleges and universities in the East Texas area. These supplementary materials will continue to be available as needed. In addition, materials from institutional libraries are available through inter-library loans.

18. Estimate the total expenditure for the last two complete fiscal years for library acquisitions in the departments or subject matter fields in which the proposed program would be offered, or in fields which are closely related to the proposed program.

Funds approximating $9,000 were expended by the library for 1977-78 in this field. In 1978-79, departmental allocations amount to $5,000. In support of indexing, periodical expense, and reference materials, the library will expend at least $3,500 additionally making a total of $8,500. Many materials from related fields will be used whose cost will be absorbed in the library allocations of other departments.

19. Project library expenditures to be budgeted annually for the next five years in supporting this program.

Acquisitions for the proposed program will depend upon funds available for total library acquisitions. The total acquisitions will depend largely upon legislative appropriations. It is the intention of the library to request a budget including the following funds for the entire industrial education program:

- 1979-80 $5,000
- 1980-81 $5,000
- 1981-82 $6,000
- 1982-83 $8,000
- 1983-84 $9,000

VI. FACILITIES

20. Describe existing facilities that are available for the proposed program. Describe the present utilization of these facilities.
What new facilities will be needed in the near future? Specify what special facilities and equipment will be needed and estimate their cost. From what source do you anticipate obtaining needed facilities and equipment? Will the approval of this program result in planning for the addition of new facilities?

Texas Eastern University has a new campus with approximately 300,000 gross square feet of building space located on 200 acres of land in southeast Tyler, Texas. By the fall of 1980, Part A of the Learning Resources Center will be completed which will add 72,000 gross square feet to the physical plant. Current and projected facilities will be more than adequate to house the proposed program and to accommodate student growth. The approval of this program will not result in planning for new facilities in addition to those contained in the university's Campus Plan.

VII. ADMINISTRATION OF PROPOSED PROGRAM

21. Will the proposed program affect the administrative structure of the institution? If yes, describe how. In what department, division, school, or college will the proposed program be administered? If the program is to have inter-departmental or inter-unit administration, explain in detail.

The proposed program will be administered by the Department of Industrial Education in the School of Applied Studies and will not affect the administrative structure of the institution or the school.

VIII. ACCREDITATION

22. Describe the requirements for accreditation, if the program is eligible to be accredited. What is the name of the accrediting agency? What will be the initial cost of accreditation and the subsequent annual costs to maintain it? Identify basic criteria for accreditation and describe how well these are presently being met.

Accreditation for the proposed program will be determined by overall accreditation of the university. Texas Eastern University has been fully accredited by the Southern Association of Colleges and Schools. At some future time the Texas Education Agency will be involved in accrediting the options of the department that relate to teacher preparation.

IX. SUPPORTING FIELDS

23. Evaluate the subject matter fields at your institution which may be considered as necessary or valuable, in support of the proposed program. Will these fields need improvement or expansion? If so, how, to what extent, and at what cost? Be specific.
At the present time, Texas Eastern University offers graduate degrees in all six schools of the university. These are as follows: School of Applied Studies, School of Business Administration, School of Education and Psychology, School of Fine and Performing Arts, School of Humanities and Social Sciences, and School of Sciences and Mathematics. There are adequate course offerings in the various subject matter fields of these schools to serve as support areas for the proposed program. General growth of the institution, however, should account for substantial expansion in all areas in the near future.

X. COSTS OF PROPOSED PROGRAM

24. Estimate the initial (first year) costs of the proposed program. If this is an extension of an ongoing program, what will be the cost differential?

The estimated first year (1980-81) costs of the proposed program are as follows:

<table>
<thead>
<tr>
<th>Faculty Salaries</th>
<th>Operating Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>$32,000</td>
<td>1,000</td>
</tr>
</tbody>
</table>

TOTAL $33,000

No additional full-time faculty will be required to initiate this program. However, part-time faculty may be required to cover the instruction of selected undergraduate courses per semester. Considering the graduate program as an extension of an existing undergraduate program, the cost differential will be approximately $4,000.

25. Estimate the annual cost of the program for the three years following the first year. (Use current formulas in arriving at your estimate.) Explain the rationale for your estimate. If this is an extension of an ongoing program, what will be the cost differential?

Based upon current formulas for faculty salaries and departmental operating expenses, the estimated annual cost of the program for the three years following its first year are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Faculty Salaries</th>
<th>Departmental Operating Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981-82</td>
<td>$23,181</td>
<td>$3,983</td>
</tr>
<tr>
<td>1982-83</td>
<td>$27,045</td>
<td>$4,647</td>
</tr>
<tr>
<td>1983-84</td>
<td>$30,908</td>
<td>$5,311</td>
</tr>
</tbody>
</table>

The above estimates were obtained using projected annual semester credit hour production for the graduate courses in industrial education and current Coordinating Board formulas.
Some additional funds would be generated by the semester credit hour production in other areas of cost such as, library, general institutional expense, and instructional administration.

26. **Departmental Costs:**
   
   a. **Show the departmental operating expenditures for the last two fiscal years for the departments which will contribute significantly to the support of the proposed program.**
   
   b. **How will the proposed program affect the allocation or distribution of these funds?**

<table>
<thead>
<tr>
<th></th>
<th>1977-78</th>
<th>1978-79</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Salaries</td>
<td>$57,018</td>
<td>$75,537</td>
</tr>
<tr>
<td>Part-Time Faculty</td>
<td>8,000</td>
<td>16,000</td>
</tr>
<tr>
<td>Operating Expenses</td>
<td>2,917</td>
<td>2,447</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$67,935</td>
<td>$93,984</td>
</tr>
</tbody>
</table>

   The proposed program would not alter the structure of the department or the allocation of departmental funds.

27. **What additional funds for research will be needed to support the proposed program? Explain.**

   No additional research funds are needed to support the proposed program.

28. **How many graduate assistantships are considered desirable to begin the program? Estimate the amount of funds required for these assistantships over the next four years. What sources are available to support these assistantships? Will student aid funds be needed for undergraduates other than those provided for all undergraduates? Explain in detail.**

   No graduate assistantships will be required for the proposed program.

29. **Describe briefly the sources of financial support for this program and evaluate the adequacy of funds for the inauguration and support of the program. Does the program give the indications of becoming self-supporting within three years in terms of formula-generated income?**

   The anticipated sources of financial support for this program will be primarily legislative appropriations for the general academic program at Texas Eastern University. No additional support other than that for existing programs will be required.
During Texas' growth toward a more complex industrial society in recent years, the technical and vocational needs of its young people have changed significantly. Technical and vocational programs in the community and junior colleges and in the secondary schools have been created to assist in meeting these needs. The rapid growth of these programs in the past decade has also resulted in the hiring of teachers and administrators on an emergency basis who have had less than optimum preservice training. Although many of these people have a baccalaureate degree and the required occupational skill, there is a need for updated teaching skills and competencies that meet the requirements of today's educational system. Pressures for improvement have been brought to the forefront by two major factors:

1. a shortage of adequately prepared technical and vocational teachers

2. increased demands for highly qualified personnel in technical and vocational areas.

Increased emphasis in teacher education has been placed on developing competency-based programs. Task force groups organized on the national level to develop curriculum models for the 1970's have identified elements that should be incorporated into graduate level programs in technical and vocational education. These elements are as follows:

1. history and development of technical and vocational education, including the impact and implication of various legislation

2. philosophy of technical and vocational education

3. elements of a total program in technical and vocational education and their relationship to each other (nature and scope of programs represented by the various vocational service areas and units)

4. curriculum planning and developing for a total program in technical and vocational education

5. evaluation of programs in technical and vocational education

6. research in technical and vocational education

7. technical competencies in specialty area.

The proposed and existing offerings for industrial education include these elements. Combining professional courses with those of a technical nature, Texas Eastern University will be able to offer a comprehensive program to meet the needs of the various service areas of industrial education.