Proposal for a Bachelor of Science Degree in Industrial Technology

University of Texas at Tyler

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Proposition for A
Bachelor of Science Degree in Industrial Technology

Submitted to the Coordinating Board,
Texas College and University System
February 18, 1976
PROPOSAL FOR

BACHELOR OF SCIENCE IN INDUSTRIAL TECHNOLOGY

I. INTRODUCTION

Texas Eastern University serves higher education needs in East Texas by providing the opportunity for community-junior college graduates to continue their education and by assisting industry in satisfying its needs for skilled personnel. The pattern of enrollment in community and junior colleges indicates that about half of the students are in the vocational and technical area. The junior colleges in this immediate area have a current vocational-technical enrollment of approximately 6,500 students. The deans of these programs have expressed a need for the proposed Bachelor of Science Degree in Industrial Technology at Texas Eastern University.

In the fall of 1974, the School of Technology and Applied Studies at Texas Eastern University conducted a survey to determine educational needs of industry in the East Texas area. The purpose of the survey was to determine courses, content, programs, and degrees that were relevant to these needs. Ninety-three percent of the responding industries indicated a need for a Bachelor of Science Degree in Industrial Technology. The proposed program is reflective of suggestions provided by the community-junior colleges and industry.

The proposed program implements the cluster concept. The term cluster has been used to describe many different kinds of content organization associated with career education, industrial technology, and various forms of skill groupings. Such variations in the use of the term makes it imperative that the particular use of the word cluster in this proposal should be clarified as early as possible.

The cluster concept (presented in this proposal) is a form of industrial education which prepares the individual to enter into gainful employment in a number of occupations which have sufficient commonalities in human requirements and kinds of work to permit a high degree of mobility within, as well as job entry into, the occupations associated with the cluster.

The cluster concept is not intended to be an in-depth preparation for any single occupation. The initial goal of the concept is to provide a broad field of employment opportunity for the individual. It also serves the very useful dual function of an exploratory experience coupled with direct occupational preparation.

The cluster concept stresses the element of breadth as it bridges over into skills and information appropriate for a series of related occupations. The element of depth is minimal in the cluster and is usually confined to those skills required for performance on the job.
II. DESCRIPTION OF PROPOSED PROGRAM

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

The title of the proposed degree program is Bachelor of Science Degree in Industrial Technology.

The purpose of the proposed Industrial Technology program is to prepare individuals for supervisory positions in industry. Examples of these positions are plant manager, maintenance supervisor, industrial supervisor, coordinator of personnel training programs, production manager, industrial purchaser, and operational analyst. The breadth and depth of this program provide a wide range of job and advancement opportunities.

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

The Bachelor of Science Degree in Industrial Technology will include a number of technology courses presently being offered by Texas Eastern University as part of the Bachelor of Applied Arts and Sciences Degree. These courses include the following:

*TEC 3311
Manufacturing Technology
Study of manufacturing technology, management technology, production technology and personnel technology.

TEC 3312
Industrial Maintenance
Study of procedures basic to the maintenance and operation of industrial facilities.

TEC 3334
Recycling Technology
Study of the processes of recycling materials, products and by-products of industry for conservation purposes and for environmental control.
Prerequisite: TEC 3311

*TEC 3344
Industrial Safety
Study of plant layout and safety procedures, including information for employees, emergency procedures, fire prevention, and plant environmental conditions.
*TEC 4301
Foremanship
Designed to inform foremen and supervisors of their relationship to management, employees, unions, and special personnel, emphasizing activities associated with production, quality control, personnel training, materials, equipment, records and reports.

*TEC 4320
Job Analysis Techniques
Provides a systematic procedure for identifying and analyzing tasks related to specific jobs.

TEC 4321
Product Servicing
Methods of preventive maintenance and repairing of industrial products.

TEC 4330
Occupational Safety and Health
A study of standards, requirements, guidelines, forms, inspection kits, and corrective actions that are described within the William-Steiger Occupational Safety and Health Act of 1970.

TEC 4332
Industrial Environmental Problems
A study of the industrial environment as it relates to undesirable health conditions that affect the employee.

TEC 4348
Warehousing
Concerns organizing, stocking, inventorying, scheduling, transporting, packaging, receiving, loss accounting and fire protection for warehouse operation.

TEC 4360
Coordinating Cooperative and Continuing Education Programs
Designed to develop techniques in the research, promotion and program design for conferences, institutes, short courses, workshops, seminars and special training programs.

TEC 4370, 4371
Undergraduate Internship Program
An 8 to 16-week program providing for a learning experience in an off-campus environment. Prerequisite: Consent of department chairman.

* These courses will serve as core courses for the proposed program.
TEC 4198, 4298, 4398, 4199, 4299, 4399
Independent Study
Independent study in special areas of technology not covered by organized undergraduate courses. A maximum of 6 hours for 498 and 499 courses may be applied to an undergraduate degree. Prerequisite: Consent of Department Chairman

New courses which will broaden the scope of technology offerings will include the following:

TEC 3313
Construction Technology
Designed to acquaint the student with construction systems, materials, equipment, municipal inspections, building codes, related service industries, and problems related to financing construction.

TEC 3314
Transportation Technology
Study of transportation systems related to water, air, land, pipeline, and fixed public conveyance.

TEC 4316
Time and Motion Study
Time and motion studies necessary to analyze industrial operations, ratings, allowances, data, formulas, work samples, and jobs.

TEC 4323
Production Technology
Applications of assembly-line scheduling, automated systems, quality control, dispatching, inventory control, and product forecasting to production technology.

TEC 4346
Energy Systems
Determining the power unit requirements for industry and analyzing the problems related to basic energy systems. Prerequisite: 8 hours of physics.
3. Outline a semester-by-semester curriculum for the proposed program, if applicable.

The curriculum is flexible enough to allow students to complete the requirements in any sequency desired so long as core courses (TEC 3311, TEC 3344, TEC 4301, TEC 4320) are taken. (See Question 4 and attachments "A" and "B", for examples of program possibilities.)

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.

No special requirements are included. Texas Eastern University has an institutional requirement of 124 semester hours for completion of the baccalaureate degree. At least 60 semester hours must be earned at the upper-division with the last 30 to be completed at Texas Eastern University.

All of these credits must have a cumulative grade-point average of 2.0 (4.0 basis).

All prospective students should have an associate degree or equivalent and meet admission requirements of Texas Eastern University.

Lower Division Preparation

It is recommended that a student complete the following general education courses at the Freshman-Sophomore level before entering Texas Eastern University.

(a) 9 semester hours of English
(b) 3 additional semester hours of English or 3 semester hours in Liberal Arts or Humanities
(c) 6 semester hours of national and state government
(d) 6 semester hours of mathematics (college algebra and trigonometry)
(e) 8 semester hours of physics
(f) 8 semester hours of chemistry
(g) 6 semester hours of United States history or 3 semester hours of United States history and 3 semester hours of Texas history

* These requirements for industrial technology are different from institutional requirements of 6 semester hours of mathematics and/or science and are subject to approval by the department of technology.
In addition to these requirements students should have a minimum of 24 semester hours' credit in four different areas of technology at the lower-division level. Examples of these areas are electronics, construction technology, metals technology, power technology, mechanical maintenance, drafting, and manufacturing technology. Students must have broad laboratory experiences rather than a single area of specialization. Applicants should have an associate degree or an approved equivalent.

Bachelor of Science Degree Requirements for Industrial Technology

(a) General baccalaureate degree requirements at Texas Eastern University.

(b) A minimum of twenty-four semester hours of approved upper-division courses in the industrial technology program.

(c) A minimum of eighteen semester credit hours of approved courses in a supporting field for industrial technology, of which twelve must be upper-division.

(d) Additional upper-division electives to complete the minimum 124 hours. Electives should be chosen in consultation with the department chairman. Total: 60-64 semester hours depending on the number of hours transferred from the lower-division.

(e) Completion of lower-division mathematics, science, and technology requirements.

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 Texas Eastern University even though it incorporates existing technology course offerings. It would not be an extension of a minor field.

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

There are five similar programs in the state.

The programs at Texas A & M University and the University of Houston are in industrial technology departments. Programs at Sam Houston State University, East Texas State University, and West Texas State University evolve from industrial education programs. East Texas State University is the closest institution with a similar program.
The five programs in the state do not fulfill the need for specialists in the field of industrial technology. Texas has developed into a highly industrialized area during the past decade. Educationally, Texas has not met the industrial demands for technical skills. Therefore, leadership positions are often filled by out-of-state recruitment.

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 program was developed because of the national, state, and local needs in industry. One out of every six industrial employees is found in three states—Texas, Florida, and California. Texas is the fastest growing industrial state in the southwest. Federal statistics show that in the present decade the need for technologists and skilled workers will exceed that of almost all other occupational groups. Recent data also indicate that even during times of recession there is usually a shortage of workers in the skilled and technical areas. Industry and junior colleges have indicated a definite need for the proposed program in this immediate geographical area to provide leadership for the increasing numbers of skilled workers in industry.

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 proposed program was approved by the Board of Regents of Texas Eastern University on February 18, 1976.

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.

The junior colleges in this immediate area (Tyler Junior College, Henderson County Junior College, Navarro Junior College, Kilgore College, and Panola Junior College) have approximately 6,500 students enrolled in the industrial technology areas. There are other junior college students beyond this area who are interested in the technology program because it will be the closest program of this type.
Within the East Texas area there are some 15,000 industrial employees. A large percentage of these employees do not have degrees. From a survey in the fall semester, 1975, 93 percent of industry favored a program in industrial technology. The number of industrial employees and the continuous enrollment growth at the junior college level indicates the probability of an upward trend in enrollment growth for a baccalaureate degree program during the next five years. This trend is evidenced at Texas Eastern University by the number of students pursuing technology as an emphasis in the Bachelor of Applied Arts and Science Degree program. Enrollment has increased from 17 students in the spring semester of 1975, to 87 during the fall of 1975. The 1976 spring semester enrollment indicates a 20 percent increase over the fall semester of 1975.

**PROJECTED ENROLLMENT**

<table>
<thead>
<tr>
<th>Year</th>
<th>Major</th>
<th>Minors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976-77</td>
<td>75</td>
<td>N.A.</td>
</tr>
<tr>
<td>1977-78</td>
<td>100</td>
<td>N.A.</td>
</tr>
<tr>
<td>1978-79</td>
<td>125</td>
<td>N.A.</td>
</tr>
<tr>
<td>1979-80</td>
<td>150</td>
<td>N.A.</td>
</tr>
<tr>
<td>1980-81</td>
<td>175</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

These figures are very conservative as they include less than two percent of junior college students now in technology programs and less than 1 percent of potential students from industry. After two years the pre-service potential is expected to exceed the in-service potential.

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?)

It is unlikely that any students would come from existing programs at Texas Eastern University. Although the Bachelor of Applied Arts and Science Degree and the proposed industrial technology programs service vocational/technical students, the nature of the programs reflects a different source of students. The major source of students enrolling in the proposed program will be community/junior college students who have a broad technical background and who wish to pursue a career in industrial technology. This will not be an inverted degree program.
IV. 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?

Presently 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>Assoc. Prof. of Ed.</td>
<td>Ed. D.</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Allen, W. Clayton</td>
<td>Asst. Prof. of Tech.</td>
<td>Ed. D.</td>
<td>12</td>
<td>12</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 present student-faculty ratio in technology is 17:1. In organized classes, the ratio is 20.75:1.

13. Project the need for new faculty required 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.

One additional faculty member will be required to implement this program. If the other three proposed areas of the cluster (see attachment "B") are added with corresponding faculty additions no additional industrial technology faculty should be required during the next five years.

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

Yes, acquisition of new faculty for the program will require an additional outlay of funds. One new faculty member will be utilized for implementation of the proposed program. Additional funds would be required to support operational and normal growth expenses.
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 affected by the proposed program.

V. LIBRARY

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 Library had 142,699 volumes as of November 30, 1975. The library holdings in technology are small (1,200 volumes), but adequate. Since Texas Eastern University is a new institution, the library is relatively small. It is, however, growing rapidly. Normal growth permits addition of necessary materials, so no special funds should be required for materials for the proposed degree program.

The Clapp-Jordan formula applied to Texas Eastern University Library is:

a. Basic collection, 85,000 volumes

b. Allowance per FTE Faculty (100 x 57 FTE Faculty), 5,700 volumes

c. Allowance per FTE Students (15 vols. x 752 Students), 11,280 vols.

d. Allowance per undergrad major or minor field (350 vols. x 45), 15,750 volumes

e. Allowance per Masters field, when no higher degree is offered (6,000 vols. x 11 Master's), 66,000 volumes

Total volumes needed, 183,730

The Library, as of November 30, 1975, has 142,699 volumes, 22.3 percent below the Clapp-Jordan formula.
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 presently 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 loan.

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.

Technology is a new area of emphasis at Texas Eastern University; therefore, library allocations have no real historical foundation for these programs. An estimated $5,000.00 will be expended during 1975-76 for library materials in industrial technology.

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

Acquisitions for the proposed program will depend largely on 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 all the industrial technology program:

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976-77</td>
<td>$5,000.00</td>
</tr>
<tr>
<td>1977-78</td>
<td>$2,500.00</td>
</tr>
<tr>
<td>1978-79</td>
<td>$2,500.00</td>
</tr>
<tr>
<td>1979-80</td>
<td>$3,000.00</td>
</tr>
<tr>
<td>1980-81</td>
<td>$6,000.00</td>
</tr>
</tbody>
</table>

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?

All classes are presently taught in the temporary facilities located at 100 East Berta Street. The facility contains over 50,000 square
feet, is air-conditioned, and has ample parking space. Texas Eastern University will occupy permanent campus facilities during the summer of 1976. These facilities will include four buildings containing approximately 200,000 square feet of floor space. Planning for Phase II of the campus master plan is in progress. The permanent campus facilities should be adequate for support of the proposed program. The School of Technology and Applied Studies has been scheduled for special facilities in Phase III of the master plan.

In comparison with technical, vocational, and industrial technology facilities and equipment at other institutions, the facility needs at Texas Eastern University will be minimal. Texas Eastern University has a working relationship with the public schools, junior colleges, and industries in the East Texas area that will make possible on-site use of special equipment or facilities needed by the proposed program. The cluster concept in program design will permit taking advantage of existing facilities and equipment in the area, with additional on-campus facilities and equipment provided in Phase III in a general comprehensive laboratory.

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 clustered with other projected programs to form a department of technology in the School of Technology and Applied Studies.

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. The University has been fully accredited by the Southern Association of Colleges and Schools.
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.

Presently there are adequate course offerings in the subject matter fields which serve as support areas for the proposed program. They include computer science, physics, finance, chemistry, management, general business, psychology, sociology, journalism, and speech. These areas will not be expanded solely 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 appointment of one additional faculty member is anticipated. Costs for one faculty member and operating expenses anticipated for this program for the first year are estimated to be $22,000. This cost is in addition to salaries of existing faculty who will be involved in the program to some extent.

25. Estimate the annual cost of the program for the three years following its 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?

Since no formula for funding upper-level institutions has been developed, only an estimated cost can be provided. Estimated expenditures for faculty and operating expenses for the next three years are based upon the phase-in of the other three clusters. They are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977-78</td>
<td>$45,000</td>
</tr>
<tr>
<td>1978-79</td>
<td>$69,000</td>
</tr>
<tr>
<td>1979-80</td>
<td>$94,000</td>
</tr>
</tbody>
</table>

The rationale for the minimal increase in cost per year relates to the cluster concept. If the other three areas of the cluster are added in 1977 (industrial distribution, industrial safety, and industrial arts)
there will be no need for additional faculty or major expansion in operating expenses for the proposed program. Implementation of each of the other areas of the cluster will require the addition of one new faculty member.

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?

a. The Industrial Technology Department will not be implemented until the fall of 1976, so this question does not apply.

b. The proposed program will cost approximately $2,000 per faculty member for operating expenses.

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. No special student aid funds would be needed beyond those provided for all undergraduates.

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?

Sources of financial support for this program will be legislative appropriation, student tuition, and fees.
The interest in this program indicates sufficient student input from industry and junior colleges to make it self-supporting within three years. This is especially true if other cluster areas are implemented to increase the educational opportunities.

30. Add any comments which would be helpful to the Coordinating Board in evaluating this program request.

Texas Eastern University as an upper-division institution is in a unique position of giving primary consideration to programs meeting the educational and career needs of community and junior college graduates. The technical educational offerings in the East Texas community are in need of expansion to serve an expanding job market.

Rationale for the Cluster Concept:

The cluster concept in education is designed to broaden the student's career perspective and opportunities in our technological society. Texas Eastern University proposes the industrial technology cluster of programs to reflect recent trends in industry. This concept produces more employable individuals who have the basic education and the flexible job entry skills which prepare them to adapt rapidly to changes in technology.

Advantages of clustered educational programs are multiple. Among these are the following:

1. Making education more realistic in terms of the world of work;
2. Providing a greater variety of cluster options for students;
3. Reducing the physical plant and equipment requirements for the institution;
4. Integrating the community into the university program;
5. Providing career mobility and a basis for immediate earning power for the individual;
6. Reducing number of courses required in single areas of specialization;
7. Reducing administrative organization and number of faculty employed.
PROPOSED
INDUSTRIAL TECHNOLOGY PROGRAM
CURRICULUM MODEL
FALL 1976

Core Courses - Required

TEC 3311 Manufacturing Technology
TEC 3344 Industrial Safety
TEC 4301 Foremanship
TEC 4320 Job Analysis Techniques

Industrial Technology Courses - 4 Required

TEC 3312 Industrial Maintenance
TEC 3313 Construction Technology
TEC 3314 Transportation Technology
TEC 3334 Recycling Technology
TEC 4316 Time and Motion Study
TEC 4321 Product Servicing
TEC 4323 Production Technology
TEC 4330 Occupational Safety and Health
TEC 4332 Industrial Environmental Problems
TEC 4346 Energy Systems
TEC 4348 Warehousing
TEC 4360 Coordinating Cooperative and Continuing Education Program
TEC 4370, 4371 Undergraduate Internship
TEC 4198, 4298, 4398, 4199, 4299, 4399 Independent Study

Elective Areas - Approved by Major Advisor and Course Advisor

Computer Science, Physics, Finance, Chemistry, Management, General Business, Psychology, Sociology, Journalism and Speech.
School of Technology and Applied Studies

Examples of course usage in Cluster Options

Required Cluster Core

<table>
<thead>
<tr>
<th>1st Semester Jr.</th>
<th>CH</th>
<th>2nd Semester Jr.</th>
<th>CH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supporting Fields</td>
<td>6</td>
<td>Supporting Fields</td>
<td>6</td>
</tr>
<tr>
<td>TEC 3311</td>
<td>3</td>
<td>TEC 4301</td>
<td>3</td>
</tr>
<tr>
<td>TEC 3344</td>
<td>3</td>
<td>TEC 4320</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Senior Year

Industrial Technology Option

| Supporting Fields | 3  | Supporting Fields | 3  |
| TEC              | 6  | TEC               | 6  |
| Elective         | 6  | Elective          | 6  |
|                   | 15 |                   | 15 |

Technical-Vocational Option

| Supporting Fields | 3  | Supporting Fields | 3  |
| VOC              | 9  | VOC               | 9  |
| Electives        | 3  | Electives         | 3  |
|                   | 15 |                   | 15 |

Industrial Distribution Option -- (Projected)

| Supporting Fields | 3  | Supporting Fields | 3  |
| IND              | 6  | IND               | 6  |
| Electives        | 6  | Electives         | 6  |
|                   | 15 |                   | 15 |

Industrial Arts Option -- (Projected)

| Supporting Fields | 3  | Supporting Fields | 3  |
| INA              | 9  | INA               | 9  |
| Electives        | 3  | Electives         | 3  |
|                   | 15 |                   | 15 |

Industrial Safety Option -- (Projected)

| Supporting Fields | 3  | Supporting Fields | 3  |
| INS              | 6  | INS               | 6  |
| Electives        | 6  | Electives         | 6  |
|                   | 15 |                   | 15 |

TEC - Industrial Technology
IND - Industrial Distribution
INS - Industrial Safety
VOC - Vocational Education
INA - Industrial Arts