

TO: 2021-22 Senate Executive Committee  
FROM: Sarah S. LeBlanc, Chair, Curriculum Review Subcommittee  
DATE: November 22, 2021  
SUBJECT: Bachelor of Applied Science with a Concentration in Industrial Engineering  
Technology

The Curriculum Review Subcommittee supports the proposal from the Unit of Affiliated Programs, specifically General Studies, for their proposed Bachelor of Applied Science with a Concentration in Industrial Engineering Technology. We find that the proposal requires no Senate review.

Approving

Not Approving

Absent

Laurel Campbell

Jaiyanth Daniel (sabbatical)

Behin Elahi

Haowen Luo (Parental Leave)

Teresa Hogg

Shannon Johnson

Sarah LeBlanc

Terri Swim, exofficio (non-voting member)

**Degree/Certificate/Major/Minor/Concentration Cover Sheet**

Date:

Institution: Purdue

Campus: Fort Wayne

School or College:

Department:

Location:                      80% or more online: Yes      No

County:

Type:

Program name:

Graduate/Undergraduate:

Degree Code:

Brief Description:

Rationale for new or terminated program:

CIP Code:

Name of Person who Submitted Proposal:

Contact Information (phone or email):

## Request for a New Major or Concentration

I. Name of proposed major, or concentration

Bachelor of Applied Science with a Concentration in Industrial Engineering Technology

II. Title of degree to be conferred

Bachelor of Applied Science with Concentration in Industrial Engineering Technology

Students will have option of choosing to complete two certificates as part of their elective choices: Quality Management Certificate and Advanced Manufacturing Management Certificate.

III. Field of study, department, and college involved

General Studies, Unit of Affiliated Programs

IV. Objectives of the proposed major or concentration

In addition to the learning outcomes associated with the Bachelor of Applied Science degree program, the proposed concentration in Industrial Engineering Technology shares the following student learning outcomes with Industrial Engineering Technology majors.

Students will be able to

- apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
- design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
- apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and an ability to function effectively as a member as well as a leader on technical teams

V. Proposed Date of Initiation

Fall 2022

VI. Describe the relationship of the proposed major or concentration to the mission of the campus or the department

The proposed concentration is an area of demand from local community colleges. The Bachelor of Applied Science with an Industrial Engineering Technology concentration

prepares a student for employment in the primary sectors of manufacturing, transportation, healthcare, and engineering. The Indiana Department of Workforce Development (IDWD) employment projections 2018-2028 for region 3 (Northeast Indiana) projects a sustained or steady growth in all these sectors. Graduates of the program would have perspective titles of Manufacturing Technician, Quality Assurance Inspector, Industrial Mechanic or Electrician, Industrial Designer, Manufacturing Production Supervisor, Supply Chain Analyst, Cost Estimator, Mechanical Designer, Quality Engineer or Industrial Engineer. The graduates could hold a wide range of employment titles but the IDWD projects an annualized growth rate of 1.1% for Industrial Engineers, .5% for Industrial Engineering Technicians, .4% for Industrial Designers, 1.1% for Industrial Engineer Mechanics, .7% for Logisticians and .4% for Industrial Production Managers. Each of these employment areas are expected to see steady growth and rate a 3-4 out of 5 in demand outlook [INDemand rankings identify high-wage, high-demand occupations in Indiana based on wage levels and projected growth] by the IDWD.

<https://www.hoosierdata.in.gov/infographics/occupational-projections.asp>

VII. Describe any relationship to existing programs within the campus

The proposed concentration has been developed in collaboration with the College of Engineering Technology and Computer Science and is based on two certificates in Quality Management & Advanced Manufacturing Management. BAS students with a concentration in Industrial Engineering Technology will also have the option of taking additional courses in the discipline and related fields to earn one or both certificates to further support their academic and career goals.

VIII. Describe any cooperative endeavors explored and/or intended with other institutions or organizations

No such efforts are currently planned.

IX. Describe the need for the major or concentration

The Bachelor of Applied Science (B.A.S.) serves as a clear pathway for students who have earned Associate of Applied Science (A.A.S.) at a community college or other accredited institution to continue their education and earn a bachelor's degree. PFW has created a number of articulation agreements with several community colleges as a way to increase opportunities to earn a bachelor degree as well as increase enrollments. The current BAS degree offers a prescribed concentration in an area that gives students the ability to design a curriculum that will meet their academic and career objectives. The proposed concentration in Industrial Engineering Technology will provide students who have earned an A.A.S. in a technical field to further their education and advance their career objectives by pursuing a bachelor degree with a technical focus and advanced skill level.

- X. Describe the resources required over and above current levels to implement the proposed major or concentration\*

The proposed concentration is based on the two existing certificates –Quality Management & Advanced Manufacturing Management and fully supported programs on this campus. No additional resources will be required to support it.

- XI. A Liaison Library Memo

See attached.

- XII. Proposed curriculum

The proposed curriculum is based on the two certificates Advanced Manufacturing Management and Quality Management with a supporting writing course that is required of all BAS concentrations. Students do not earn the certificates as part of the concentration but can choose to take additional courses to complete the one or both certificates as part of their elective choices.

**Industrial Engineering Technology 30 credit hours**

| <b>PREFIX</b>                | <b>TITLE</b>                                  | <b>CREDIT HOURS</b> |
|------------------------------|---|---------------------|
| MA 15400                     | Trigonometry                                  | 3                   |
| IET 10500                    | Industrial Management                         | 3                   |
| IET 20400                    | Techniques of Maintaining Quality             | 3                   |
| IET 20500                    | Applied Statistics for Engineering Technology | 3                   |
| IET 22400                    | Production Planning and Control               | 3                   |
| IET 26700                    | Work Methods Design                           | 3                   |
| IET 35000                    | Engineering Economy                           | 3                   |
| IET 45400                    | Statistical Process Control                   | 3                   |
| IET Elective Choice          | Choice of any IET course that meet pre-req    | 3                   |
| Choose one of the following: |   | 3                   |
| ENG 23301                    | Intermediate Expository Writing               |                     |
| or                           |   |                     |
| ENG 23401                    | Technical Report Writing                      |                     |
| Total:                       |   | 30                  |

***When developing a new degree program, major, certificate, minor, concentration, track, or specialization please review the questions below when developing your response to the library or additional resources sections. Please consult your liaison librarian for assistance.***

### **Library Resources**

Address the following issues regarding the impact of the new program on the library's budget and personnel. Please respond to each item below indicating the library sources and services required to support the proposed program.

- Which databases/indexing sources will be used by the courses in this program?
  - ACM Digital Library
  - IEEE Xplore
  - ASTM Compass
  - Science Direct
  - Compendex
  - Scopus
  - Business Source Complete
  - Academic Search Premier
  
- What are the journals that will be used by students completing library research in this program? Please list three to five titles. Is there an expectation that access to new journals will need to be purchased for students in this program?

The following journal titles were selected based on their high rankings in the disciplines related to industrial engineering technology, according to Scimago Journal Rankings.

- *Advanced Materials Technologies*
- *International Journal of Industrial Organization*
- *IEEE Industrial Electronics Magazine*
- *IEEE Transactions on Industry Applications*

The journals listed above and others related to engineering materials are covered in databases subscribed to by the library. The library performs an annual review of journal titles and databases subscription to consider adding or discontinuing subscriptions. The library will need to consider maintaining these subscriptions in upcoming budget requests in order to retain the same level of support for the program.

- Are there any specific reference sources (e.g. encyclopedias, handbooks, standards, etc.) required to support the new program?

At this time, no new references sources will be required to support the new concentration. The primary reference source likely to be used by this concentration are the ASTM standards, which are included in the library's subscription to the database ASTM Compass. The addition of this concentration does underscore the need to maintain this subscription.

- Is there an expectation for additional books to be purchased? What about DVD or audio/visual materials? What is the estimated dollar amount needed yearly to support this program with new books and media materials?

This concentration includes existing courses in production planning and control, work methods, metrology, and lean manufacturing, among others. These areas have basic coverage in the library's print and electronic collections and a modest amount of new purchases could be accommodated within the current monograph budget.

- Will the new program use the Library's Document Delivery Services? Costs for this service come out of the Library's budget. What types of materials would the program be requesting through DDS?

The addition of the concentration should not significantly impact Document Delivery Services.

- Who is the liaison librarian for this program? The liaison librarian provides support through involvement in Blackboard-supported classes, one-on-one research consultations, in-class instructional sessions, and tailored course guides for research assignments. Which of these librarian services do you anticipate will be utilized in the new program?

Sarah Wagner, [wagners@pfw.edu](mailto:wagners@pfw.edu), is the liaison librarian for this program. The liaison librarian will be able to provide all of the services listed above. New services may be added as recommended by the liaison librarian.

- Memo from Liaison Librarian regarding resources.

See attached document.

- Is there an accrediting body that will be overseeing this program? What are the statements of the accrediting body related to the library, e.g. holdings, personnel, services?

While this concentration is not with the College of ETCS, separately the Polytechnic programs are accredited by ABET.

## Liaison Librarian Memo

Date:

From:

To:

Re:

Describe availability of library resources to support proposed new program:

Comments:

*Sarah Wagner*

*Liaison Librarian Signature*

*6-25-2021*

*Date*