

**ARTICULATION AGREEMENT**  
**FOR**  
**ENGINEERING and ENGINEERING TECHNOLOGY PROGRAMS**  
**(other than Plastics Engineering Technology)**  
**BETWEEN**  
**BUTLER COUNTY COMMUNITY COLLEGE**  
**AND**  
**PENN STATE ERIE, THE BEHREND COLLEGE**

**I. PURPOSE**

Penn State Erie, The Behrend College, and Butler County Community College (BCCC) together establish this articulation agreement allowing graduates of BCCC's Associate in Applied Science programs entry into Penn State Behrend's Engineering and Engineering Technology programs. Upon completion of one of these associate degree programs at BCCC, the student will enter Penn State Behrend's School of Engineering to complete the upper division engineering or engineering technology course requirements as specified by that institution. Successful completion of these requirements will lead to a baccalaureate degree from Penn State Behrend. The agreement is being created in an effort to fulfill the following objectives.

1. To provide an educational pathway leading to a baccalaureate degree for the diverse body of associate degree students enrolled at BCCC.
2. To allow a student who has not yet decided among various disciplines additional time to decide while completing an associate's degree from the variety of the programs offered at BCCC. During this time the student may also ascertain whether their abilities and interests lie in their chosen field of study.
3. To provide the student with a planned sequence of courses which, if completed successfully, would guarantee the student acceptance at a baccalaureate level, degree granting engineering school. By following the planned sequence the student can normally expect to complete the baccalaureate degree in five semesters at Penn State Behrend. In some instances the student may also obtain a business minor in the same period.
4. To allow those qualified students to receive an advanced technical education at lower cost.

**II. PROCEDURES**

Counseling, admission, and the transfer of students in this program will be proposed through the application of the following procedures and policies:

1. Upon completion of the associates degree program, a student becomes a candidate for transfer if the student has maintained a quality point average of 2.7 or better (4.0 = A) at BCCC and is recommended (by letter) for transfer by BCCC. In special cases a recommendation from the Dean at BCCC may be considered. Penn State Behrend may require a higher quality point average because of space availability or changes in programs. The change in quality point average will take effect with those students entering BCCC in the fall semester after the institution has been notified.
2. The individual student requests an application from the Admissions Office of Penn State Behrend in September of the student's second year at BCCC. The request should include a statement identifying the

program of admission. The application should clearly indicate that the student is applying for a particular program and should be submitted no later than November 30. The completed application should be supported by the following credentials: final high school record; two copies of the official BCCC transcript including all grades earned through the second semester; a schedule of courses for the third and fourth semesters; a recommendation by a designated official of BCCC that the student should be admitted to the requested program. The application and supporting credentials will be evaluated by the Admissions Office and the School of Engineering office at Penn State Behrend. If the applicant meets the minimum requirements, the applicant will be offered conditional admission to Penn State Behrend commencing with the subsequent fall semester.

- Upon completion of the associate degree program at BCCC, two copies of the final official transcripts of work taken at BCCC should be forwarded to the Admissions Office. The applicant's admission to Penn State Behrend will be changed from a conditional basis to a permanent basis if: the student has maintained an overall average of 2.7 or that which is required by the Agreement at the time the student enters the program at BCCC; is in good standing at BCCC; and has fulfilled all conditions, if any, specified in the student's provisional admission.
3. An entering student at BCCC who plans to follow the designated articulation program will be enrolled in either the chemistry, engineering, or math associate degree curriculums at BCCC and should complete the associate degree program prior to matriculation at Penn State Behrend. The tables below indicate how courses successfully completed at BCCC with a C or better will be applied in the designated engineering or engineering technology curriculum. Descriptions of these courses are published in the BCCC and The Pennsylvania State University catalogs. These courses must be completed by all students transferring to Penn State Behrend seeking an engineering or engineering technology baccalaureate degree with a grade of "C" or better.
  4. Penn State requires all students admitted to baccalaureate degree programs to have completed two (2) units of a foreign language at the high school level. Students entering the School of Engineering programs under the guidelines of this agreement who have not met this language requirement will be required to satisfy the language requirement before they will be eligible to graduate.
  5. The BCCC will promptly notify Penn State Behrend upon any substantive curriculum modification to the above mentioned associate programs, and further agrees that the terms of this agreement will no longer apply unless Penn State Behrend provides written approval that the curriculum changes do not alter the intent of this agreement.
  6. The Agreement should be reviewed every five years and the tables in Item 3 revised as necessary. All revisions are to be agreed to by each institution's institutional representatives.
  7. The terms of this agreement shall remain in effect, except as stipulated in certain previous terms listed herein, until terminated by either party. Any party may terminate the agreement, with or without cause, on the provision of 120 days written notice to the other parties.
  8. This agreement constitutes the entire agreement and terms of understanding among parties named herein, and supersedes any other prior agreements or understandings among parties.

## Articulation

### BC3 A.A.S. Engineering Technology with CADD → Penn State Erie Mechanical Engineering Technology

The following list of courses should be completed at Butler Community College prior to transferring to Penn State Behrend. The tables below indicate how the credits will be applied in the Mechanical Engineering Technology program at Penn State Erie, The Behrend College.

#### Mathematics

| BC3 COURSE                                   | PENN STATE BEHREND EQUIVALENT                                    |
|--|--|
| MATH 101 (3) – College Algebra               | MATH 21 (3) – College Algebra                                    |
| MATH 102 (3) – Trigonometry and Functions    | MATH 41 (3) - Trigonometry and Analytic Geometry                 |
| MATH 221 (4) – Calc and Analytic Geometry I  | MATH 083 (4) – Technical Calculus                                |
| MATH 222 (4) – Calc and Analytic Geometry II | MATH 210 (4) – Calculus with Engineering Technology applications |

Note: Completing MATH 221 and MATH 222 at BCCC is recommended, but not required

#### Science: Physics and Chemistry

| BC3 COURSE                 | PENN STATE BEHREND EQUIVALENT   |
|----------------------------|---|
| CHEM 101 (4) – Chemistry I | CHEM 110 (3) Chemical Principles<br>CHEM 111 (1) – Experimental Chemistry |
| PHYS 101 (4) – Physics I   | PHYS 250 (4) – Introductory Physics I                                     |
| PHYS 102 (4) – Physics II  | PHYS 251 (4) – Introductory Physics II                                    |

#### Engineering Technology

| BC3 COURSE  | PENN STATE BEHREND EQUIVALENT  |
|---|--|
| DRFT 108 (3) - 3-D Geometric Modeling/SolidWorks® or<br>DRFT 115 - Engineering Graphics | EG T 120 (3) – Intro to Graphics & Solid Modeling<br>EG T 121 (3) – Applied Solid Modeling |
| DRFT 112 (3) - Geometric Dimensioning and Tolerancing (GD & T)                          |  |
| MECH 115 (3) – CAM Programming  | IET 216 (2) – Production Design Lab  |
| MECH 202 (3) – Mechanics I  | MCH T 111 (3) – Mechanics for Technology: Statics  |
| MECH 208 (3) – Strength of Materials  | MCH T 213 (3) – Strength/Properties of Materials   |

Note: Completing MECH 115 at BCCC is recommended, but not required

#### English Composition, Technical Writing, and Speech Communications

| BC3 COURSE                      | PENN STATE BEHREND EQUIVALENT           |
|---------------------------------|---|
| ENGL 101 (3) – College Writing  | ENGL 015 (3) – Composition and Rhetoric |
| ENGL 102 (3) – Research Writing | ENGL 202C (3) – Technical Writing       |
| COMM 201 (3) – Speech           | CAS 100 – Speech Communications         |

## Social Science, Humanities, and Arts

Penn State requires that students complete 18 credits of Social Science (GS), Humanities (GH), and Arts (GA) credits. It is recommended that the following list of courses be taken at Butler County Community College prior to transferring to Penn State Behrend. However these courses, if taken at Penn State Behrend, would still allow for completion of the MET program requirements in the two and one-half years after transfer to Penn State Behrend.

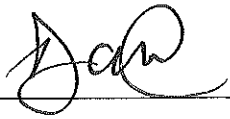
| BC3 COURSE                                | PENN STATE BEHREND EQUIVALENT                         |
|---|---|
| ECON 101 (3) – Principles of Econ – Macro | ECON 004 (3) – Macroeconomics (GS)                    |
| ECON 102 (3) – Principles of Econ – Micro | ECON 002 (3) – Microeconomics (GS)                    |
| ARTS 101 (3)                              | ART H 100 (3) – Intro to Art (GA, IL)                 |
| HIST 201 (3)                              | HIST 020 (3) - American Civilization to 1877 (GH, US) |

## Phys Ed and Health

| BC3 COURSE                     | PENN STATE BEHREND EQUIVALENT                  |
|--------------------------------|--|
| HLTH/PHED (3) – Take 3-credits | BB H/KINES (3) – Health and Physical Education |

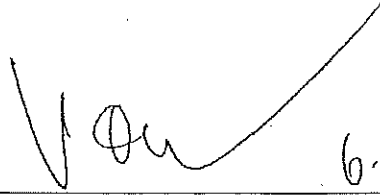
### III. AGREEMENT SIGNATURES

The Pennsylvania State University and BCCC have entered this agreement on the indicated dates and witnessed by the signatures below:



21-JUL-23

Dave Callejo  
Interim Vice President for Commonwealth Campuses  
The Pennsylvania State University



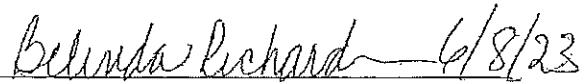
6.9.23

Nicholas C. Neupauer  
President Butler County Community College



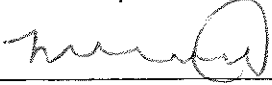
7-27-23

Jeff Adams  
Interim Vice Provost and Dean, Undergraduate  
Education  
The Pennsylvania State University




6/8/23

Belinda Richardson  
Provost and Vice President for Academic Affairs  
Butler County Community College



7/19/2023

Ralph M. Ford  
Chancellor  
Penn State Erie, The Behrend College



6/8/2023

Matt Kovac  
Dean of STEM  
Butler County Community College



7/18/23

Timothy Kurzweg  
Director, School of Engineering  
Penn State Erie, The Behrend College

# **Appendices – Recommended Scheduling Patterns**

## Recommended Scheduling for 2½ Years at Penn State Behrend

### BC3 A.A.S. Engineering Technology with CADD → Penn State Behrend Mechanical Engineering Technology

The following is a recommended scheduling pattern to completing the Mechanical Engineering Technology Degree at Penn State Behrend, assuming the student has completed most of the recommended courses prior to transfer. [Note: With summer classes (6-9 credits) and a slightly higher semester credit load, this plan could be completed in two years]

#### Fall Semester -- Junior Year

|       |     |          |   |
|-------|-----|----------|---|
| EGT   | 205 | 1        | Transition from 2-D CAD to Solid Modeling             |
| IET   | 215 | 2        | Production Design                                     |
| ART H | 100 | 3        | Intro to Art (ALT: MATH 083 4 cr. Technical Calculus) |
| MCH T | 214 | 1        | Strength and Properties of Materials Laboratory       |
| MET   | 107 | 3        | Computer Applications for Technologists               |
| MET   | 206 | 3        | Dynamics  |
| MET   | 320 | <u>3</u> | Strength of Materials                                 |
|       |     | 16 cr.   | (ALT: 17 cr)  |

#### Spring Semester -- Junior Year

|      |      |          |   |
|------|------|----------|---|
| EET  | 100  | 3        | Electric Circuits, Power, and Electronics                       |
| ECON | 002  | 3        | Microeconomics (ALT: MATH 210 3 cr. Calculus w/ET Applications) |
| MET  | 210W | 3        | Machine Design  |
| MET  | 306  | 3        | Computer-Aided Design   |
| MET  | 330  | <u>3</u> | Thermodynamics  |
|      |      | 15 cr.   |   |

#### Fall Semester -- Senior Year

|      |      |          |  |
|------|------|----------|--|
| MATH | 211  | 3        | Intermediate Calculus and Differential Equations with Applications |
| MET  | 331W | 4        | Heat Transfer  |
| MET  | 341  | 3        | Mechanical Measurements & Instrumentation                          |
| MET  | 415  | 3        | Finite Element Analysis Applications I                             |
| MET  | 470  | 3        | Materials Engineering  |
| MET  | 480  | <u>1</u> | Senior Capstone  |
|      |      | 17 cr.   |  |

#### Spring Semester -- Senior Year

|               |     |            |   |
|---------------|-----|------------|---|
| MET           | 425 | 3          | Finite Element Analysis Applications II |
| MET           | 432 | 3          | Fluid Power                             |
| MET           | 485 | 3          | Senior Industrial Project               |
| MGMT          | 409 | 3          | Project Management for Engineers        |
| Tech Elective |     | 3          | select from School/Program list         |
| BB H/KINES    |     | <u>1.5</u> | Health and Physical Education           |
|               |     | 16.5 cr.   |   |

#### Fall Semester -- Senior Year+

|               |  |            |   |
|---------------|--|------------|---|
| S/H/A         |  | 3          | select from University General Education list (be sure to satisfy "Other Cultures") |
| S/H/A         |  | 3          | select from University General Education list (be sure to satisfy "Other Cultures") |
| Tech Elective |  | 3          | select from School/Program list   |
| ECON 004      |  | 3          | Macroeconomics  |
| HIST 020      |  | 3          | American Civilization to 1877   |
| BB H/KINES    |  | <u>1.5</u> | Health and Physical Education   |
|               |  | 16.5 cr.   |   |