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 supersede any other prior agreements or understandings among parties.

Articulation

BC3 A.S. Engineering → Penn State Behrend Industrial Engineering

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 program at Penn State Erie, The Behrend College.

Mathematics and Computer Science

BC3 COURSE	PENN STATE BEHREND EQUIVALENT
COMP 230 (3) – Programming in C++ for Engineers and Scientists	CMPSC 200 (3) – Programming for Engineers with MATLAB
MATH 221 (4) – Calc and Analytic Geometry I	MATH 140 (4) – Calculus I
MATH 222 (4) – Calc and Analytic Geometry II	MATH 141 (4) – Calculus II
MATH 223 (4) – Calc and Analytic Geometry III	MATH 230 (4) – Calculus III
MATH 230 (3) – Linear Algebra	MATH 220 (2) – Matrices
MATH 224 (3) – Differential Equations	MATH 250 (3)

Science

BC3 COURSE	PENN STATE BEHREND EQUIVALENT
CHEM 101 (4) – Chemistry I	CHEM 110 (3) Chemical Principles CHEM 111 (1) – Experimental Chemistry
PHYS 221 (4) – Engineering Physics I	PHYS 211 (4) – Physics: Mechanics
PHYS 222 (4) – Engineering Physics II	PHYS 212 (4) – Physics: Electricity & Magnetism
CHEM 102 (4) – Chemistry II	Science Elective

Engineering

BC3 COURSE	PENN STATE BEHREND EQUIVALENT
DRFT 115 (3) – Engineering Graphics	EDSGN 100S (3) – Introduction to Engineering Design
PHYS 241 (3) – Statics	E MCH 211 (3) – Statics
ELEC 291 (3) – Linear Circuit Analysis	Engineering non-major elective
MECH 208 (3) – Strength of Materials	Can be used for credit in only the industrial engineering program

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. These course selections need to be balanced among the three areas, and also meet Penn State's International (IL) and US requirements. We recommend that BC3 students take 12 of these credits (4 courses) prior to transferring to Penn

State Behrend, and we recommend the following choice of courses to meet the Penn State GS, GH, GA, US, and IL requirements.

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
PHED/HLTH (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-2023

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

7-27-23

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

7/19/2023

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

7/18/23

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

6.9.23

Nicholas C. Neupauer Date
President Butler County Community College

Belinda Richard 6/8/23

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

Matt Kovac 6/8/2023

Matt Kovac Date
Dean of STEM
Butler County Community College

Appendices – Recommended Scheduling Patterns

Recommend Scheduling at Penn State Behrend

BC3 A.S. Engineering → Penn State Behrend Industrial Engineering

The following is a recommended scheduling pattern for completing the Industrial Engineering degree at Penn State Behrend, assuming the student has completed recommended courses prior to transfer.

Fall Semester -- Third Year

IE	302	(3)	Engineering Economy
IE	305	(3)	Product Design, Specification and Measurement
IE	322	(3)	Probabilistic Models in Industrial Engineering
IE	405	(3)	Deterministic Models in Operations Research
MATSE	259	(3)	Engineering Materials
		15 cr.	

Spring Semester -- Third Year

Engr Elec		(3)	Engineering (non-major) elective (3 credits)
IE	311	(3)	Principles of Solidification Processing
IE	323	(3)	Statistical Methods in Industrial Engineering
IE	327	(3)	Introduction to Work Design
IE	330	(3)	Engineering Analytics
		15 cr.	

Fall Semester – Fourth Year

IE	418	(3)	Human/Computer Interface Design
IE	425	(3)	Stochastic Models in Operations Research
IE	470	(3)	Manufacturing System Design and Analysis
IE	497	(1)	IE Capstone Design Prep.
IE Tech Elect		(3)	
S/H/A		(3)	*select inter-Domain course from Univ Gen Ed list*
		15 cr.	

Spring Semester – Fourth Year

IE	453	(3)	Simulation Modeling for Decision Support
IE	460	(3)	Service Systems Engineering
IE	480W	(3)	Capstone Design Project
IE Tech Elect		(3)	
S/H/A		(3)	*select inter-Domain course from Univ Gen Ed list*
		15 cr.	