



**AMENDMENT**  
**ARTICULATION AGREEMENT**

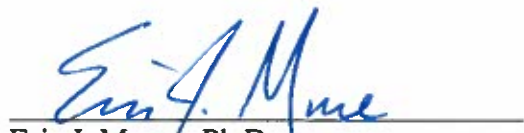
**Anne Arundel Community College**  
**Associate of Science in Engineering Transfer**

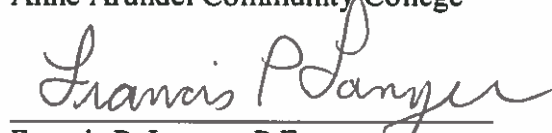
**Frostburg State University**  
**Bachelor of Science in Engineering**

Entered into this \_\_\_\_\_ day of \_\_\_\_\_, 2014.

  
\_\_\_\_\_  
Joseph M. Hoffman, Ph.D.  
Dean  
College of Liberal Arts and Sciences  
Frostburg State University

  
\_\_\_\_\_  
Kelly Koermer, J.D.  
Dean  
School of Business, Computing and  
Technical Studies  
Anne Arundel Community College

  
\_\_\_\_\_  
Eric J. Moore, Ph.D.  
Program Coordinator  
Department of Physics and Engineering  
Frostburg State University

  
\_\_\_\_\_  
Francis P. Lanzer, P.E.  
Department Chair  
Engineering  
Anne Arundel Community College

This agreement will be reviewed annually.

## ARTICULATION AGREEMENT

Anne Arundel Community College, Associate of Science in Engineering Transfer  
and  
Frostburg State University, Bachelor of Science in Engineering.

### RECITALS

Anne Arundel Community College (hereafter referred to as "AACC"), a community college in Anne Arundel County, Maryland, and Frostburg State University ("FSU"), a comprehensive regional institution in Western Maryland and a constituent institution of the University System of Maryland, agree to offer an articulated program leading to the award of an Associate of Science (A.S.) in Engineering Transfer Degree and a Bachelor of Science (B.S.) in Engineering. The parties further agree that students from AACC, through this articulation agreement, will be permitted to transfer credits earned for the A.S. at AACC to FSU, leading to the award of the B.S. degree in Engineering at FSU. The only concentration available pursuant to this agreement is electrical engineering.

#### **I. Purpose**

- a. It is the intent that this articulation agreement will facilitate a smooth transition from AACC's Engineering Transfer program to the B.S. in Engineering program at FSU. As a result of this articulation agreement, AACC graduates will understand how FSU transfers the credits earned at AACC. This agreement provides a systematic plan for students to receive both the A.S. degree from AACC and the B.S. degree in Engineering from FSU.
- b. This agreement sets forth a clear set of responsibilities and expectations for both institutions. The parties agree to work collaboratively to meet the needs of AACC graduates in facilitating transfer to FSU.
- c. AACC encourages graduates to continue their educational pathway in engineering for both personal and professional development, as well as career advancement in the engineering profession. This articulation agreement for completion of the B.S. in Engineering facilitates students' successful achievement of credentials in the field.

## **II. Requirements of the Program**

- a. The program is designed for graduates of the A.S. degree in Engineering Transfer at AACC. Students must complete either the A.S. degree or the A.S.E. degree at AACC in order to participate in the transfer program. A maximum of seventy (70) credit hours from AACC will be allowed toward fulfillment of the one hundred twenty (120) credit hours required for completion of the B.S. degree.
- b. Engineering Transfer students from AACC will have their coursework evaluated by FSU to determine which FSU general education requirements and discipline requirements have been met. AACC courses shall be evaluated by FSU for transferability, and FSU shall accept courses for transfer at its sole discretion. By taking full advantage of the AACC-FSU course agreements described below, the transfer student will matriculate at FSU with junior standing.
- c. In accordance with Code of Maryland Regulations (COMAR), all courses meeting general education requirements at AACC will transfer to FSU as general education courses.
- d. Students must maintain a minimum of a 2.0 cumulative grade point average in order to transfer to the FSU Engineering Program.
- e. The maximum number of credits that will be accepted by FSU toward degree requirements from non-direct classroom instruction (including CLEP, AP, IB and FSU Special Departmental examination scores) is thirty (30) credits. Tech Prep credits will transfer where appropriate, as will credit awarded for experiential learning ("life experience") if recorded on AACC's transcript.
- f. While AACC and FSU do not presently have a dual admission program, if the parties later enter into such a program, this agreement will not preclude students from participation and students may apply for and receive the benefits of dual admission. Those students shall then be subject to the policies of said program should they apply.
- g. AACC students who have completed the Engineering Transfer degree will be given every consideration for financial assistance and will be eligible to compete for academic scholarships at FSU.
- h. This agreement becomes effective on the date set forth on the first page of this document. AACC and FSU agree to publicize this program. The parties further agree to monitor the performance of the program and to make revisions as may be mutually agreed upon as necessary. Curricula for engineering programs undergo frequent change and this agreement will be amended to reflect such changes as they occur. Amendments will be made in writing and appended to this

agreement. Amendments need only be approved by the deans and chairs from both institutions.

- i. This agreement may be terminated by either party with ninety (90) days written notice to the other. The parties agree that termination shall include an agreement that students currently enrolled in the program at the time of termination shall be permitted to complete the program as described herein.

### III. A.S. in Engineering Transfer-B.S. in Engineering Transfer Courses

The following indicates the transfer of course agreement between the AACC and FSU:

#### a. General Education Requirements to be Completed at AACC

|                                      | <b>AACC Equivalent</b>   | <b>Explanation/Notes</b>  |
|--------------------------------------|--|---|
| ENGLISH COMPOSITION<br>( 3 credits)  | ENG 111, 115, or 121   | ENG 121 is equivalent to FSU's ENGL 111 (Honors)  |
| HUMANITIES<br>(6 credits)            | ENG 112 or 116<br><br>AND<br>One additional 3 credit general education course from one of the following disciplines:<br>Philosophy<br>History<br>Humanities<br>World Languages | Equivalent to ENGL 150<br><br>Students who complete ENG 121 should select two general education courses (six credits) from the humanities in two different disciplines. |
| FINE AND PERFORMING ARTS (3 credits) | Any approved general education course from the following categories:<br>Art<br>Dance<br>Film Studies<br>Music<br>Theater Arts  |   |
| SOCIAL SCIENCE<br>(6 credits)        | Two approved general education courses (in two different disciplines) from the Social and Behavioral Sciences category.  |   |
| MATHEMATICS<br>(3-4 credits)         | MAT 191  | Required in the Engineering Transfer degree program   |

|   |  |   |
|---|--|---|
| NATURAL SCIENCE<br>(7 - 8 cr; one course must have a lab component) | CHE 111<br>PHY 211   | Required in the Engineering Transfer degree program |
| MODES OF INQUIRY ELECTIVE (3 credits)                               | AACC's Health/Wellness course can fulfill this requirement |   |

b. Degree Program Requirements to be Completed at AACC

The B.S. degree with a major in Engineering at FSU requires students to successfully complete the following course work. Some of these courses also may meet general education requirements, as indicated above.

| Frostburg State University  |  |              | AACC Program Equivalent      |
|-----------------------------|--|--------------|------------------------------|
| Course Number               | Course Title   | Credit Hours |                              |
| ENES 100                    | Introduction to Engineering Design   | 3.0          | EGR 120                      |
| MATH 236                    | Calculus I   | 4.0          | MAT 191 Already in GEP above |
| MATH 237                    | Calculus II  | 4.0          | MAT 192                      |
| MATH 238                    | Calculus III   | 4.0          | MAT 201                      |
| MATH 432                    | Differential Equations   | 4.0          | MAT 212                      |
| CHEM 201                    | General Chemistry I  | 4.0          | CHE 111 In GEP               |
| CHEM 202                    | General Chemistry II   | 4.0          | CHE 112                      |
| PHYS 261                    | Principles of Physics I – Mechanics  | 4.0          | PHY 211 In GEP               |
| PHYS 262                    | Principles of Physics II – Electricity and Magnetism   | 4.0          | PHY 212                      |
| PHYS 263<br>AND<br>PHYS 264 | Principles of Physics III – Acoustics and Optics<br>AND Principles of Physics IV – Thermodynamics and Modern Physics | 4.0          | PHY 213 <sup>1</sup>         |

<sup>1</sup> The student learning outcomes of the PHY 213 course at AACC are equivalent to the combined outcomes of PHYS 263 and 264 at FSU.

|                          |   |      |  |
|--------------------------|---|------|--|
| ENEE 114                 | Programming Concepts for Engineers                              | 3.0  | EGR 141<br>(AACC equivalent is 3 cr.)                |
| ENEE 204 and 206         | Basic Circuit Theory<br>Fund. Digital and Electric Circuits Lab | 4.0  | EGR 235 Circuit Theory<br>(AACC equivalent is 4 cr.) |
| ENEE 244                 | Digital Logic Design  | 3.0* | EGR 244  |
| TOTAL Program Credits=49 |   |      |  |

*\*This is a four-credit course at AACC but FSU will only transfer it in as 3 cr. due to the 70 total transfer credits limit.*

c. Degree Program Requirements to be Completed at FSU

All FSU bachelor's degree candidates must complete a minimum of 39 upper-division (300-400) credit hours.

| Frostburg State University |   |              | Notes  |
|----------------------------|---|--------------|--|
| Course Number              | Course Title  | Credit Hours |  |
| ENME 350                   | Electronics and Instrumentation I                                 | 3.0          |  |
| ENME 351                   | Electronics and Instrumentation II                                | 3.0          |  |
| ENEE 380                   | Electromagnetic Theory  | 3.0          |  |
| ENGL 338                   | Technical Writing   | 3.0          |  |
| ENEE 303                   | Analog and Digital Electronics                                    | 3.0          |  |
| ENEE 350                   | Computer Organization   | 3.0          |  |
| ENEE 307                   | Electronic Circuits Design  | 2.0          |  |
| ENES 491                   | Engineering Seminar   | 3.0          |  |
| ENEE 439                   | Topics in Signal Processing                                       | 3.0          |  |
| ENEE 475                   | Power Electronics   | 3.0          |  |
| ENEE 408                   | Capstone Design Project   | 3.0          |  |
| ENES 310                   | Mechatronic and Robotic Design                                    | 3.0          |  |
| ENES 401                   | Fundamentals of Energy Engineering                                | 3.0          |  |
| IDIS 150                   | Freshman Colloquium   | 3.0          | Fulfills 3 hrs. of GEP colloquia requirements.   |
|                            | Identity and Difference course (general education)                | 3.0          | The rationale for this is to comply with the requirement that less than 70 credits be transferred. |
|                            | 300-400 level Technical Electives (any ENEE, ENES or ENME course) | 6.0          |  |

|            |                 |     |  |
|------------|-----------------|-----|--|
|            | Electives (any) | 3.0 | Required for student to achieve the 120 credits for graduation |
| Total = 50 |                 |     |  |

d. Course Sequencing

Engineering Transfer students transferring to the Engineering Program at FSU shall be notified by AACC and FSU that the Engineering curriculum is built upon a series of established course sequences. For students to progress through the program, they must have the appropriate pre-requisites, co-requisites, and must maintain a minimum 2.0 GPA.

Students wishing to participate in the program should develop an education plan at AACC by contacting:

Marjorie Rawhouser  
 Professor, Engineering Department  
 Anne Arundel Community College  
 410-777-2436  
 marawhouser@aacc.edu

AACC will direct students interested in participating in the Engineering Transfer program to apply for admission to FSU, indicating Engineering as the intended major. Applications can be submitted online at: [www.frostburg.edu](http://www.frostburg.edu).

Contact person at FSU for the program is:

Eric J. Moore, Ph.D.  
 Program Coordinator, Department of Physics and Engineering  
 Frostburg State University  
 301-687-4500  
 ejmoore@frostburg.edu