AMENDMENT
ARTICULATION AGREEMENT

Howard Community College
Associate of Arts in Engineering Program

Frostburg State University
Bachelor of Science in Engineering

Effective this _____ day of _____, 2014.

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

Patricia Turner, M.S.
Chair
Science and Technology Division
Howard Community College

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

This agreement is effective with new Frostburg State University admits Fall 2014.
This agreement will be reviewed annually.

ARTICULATION AGREEMENT

Howard Community College, Associate of Arts in Engineering
and
Frostburg State University, Bachelor of Science in Engineering.

RECITALS

Howard Community College (hereafter referred to as "HCC"), a community college in Howard 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 Arts in Engineering (A.A.) Degree and a Bachelor of Science (B.S.) in Engineering. The parties further agree that students from HCC, through this articulation agreement, will be permitted to transfer credits earned for the A.A. at HCC 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 HCC's Engineering Transfer program to the B.S. in Engineering program at FSU. As a result of this articulation agreement, HCC graduates will understand how FSU transfers the credits earned at HCC. This agreement provides a systematic plan for students to receive both the A.A. degree from HCC 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 HCC graduates in facilitating transfer to FSU.

c. HCC 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. Students must have completed all math, science, and core engineering courses required for the A.S. degree at HCC in order to enter into the transfer program. A maximum of seventy (70) credit hours from HCC will be allowed toward fulfillment of the one hundred twenty (120) credit hours required for completion of the B.S. degree.

b. If a student has completed the core math, science, and engineering courses but is missing general education requirements for the A.A. degree, he/she may still transfer to FSU and complete the courses, then transfer them back to HCC for award of the A.A. degree at that point.

c. Engineering transfer students from HCC will have their coursework evaluated by FSU to determine which FSU general education requirements and discipline requirements have been met. HCC 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 HCC-FSU course agreements described below, the transfer student will matriculate at FSU with junior standing.

d. In accordance with Code of Maryland Regulations (COMAR), all courses meeting general education requirements at HCC will transfer to FSU as general education courses.

e. Students must maintain a minimum of a 2.0 cumulative grade point average in order to transfer to the FSU Engineering Program.

f. 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 HCC's transcript.

g. While HCC 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.

h. HCC students who have completed the A.A. degree will be given every consideration for financial assistance and will be eligible to compete for academic scholarships at FSU.

i. This agreement becomes effective on the date set forth on the first page of this document. HCC 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.

j. 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.A. - B.S. in Engineering Transfer Courses

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

a. General Education Requirements to be Completed at HCC

	HCC Equivalent	**Explanation/Notes**
ENGLISH COMPOSITION (3 credits)	ENGL 121	
HUMANITIES (6 credits)	Humanities core course Literature core course	
FINE AND PERFORMING ARTS (3 credits)	Arts core course	
SOCIAL SCIENCE (6 credits)	Two approved general education courses (in two different disciplines) from the Social and Behavioral Sciences category.	
MATHEMATICS (3-4 credits)	MAT 181	Required in the A.A. program
NATURAL SCIENCE (7 - 8 cr; one course must have a lab component)	CHEM 135 PHYS 110	Required in the A.A. program

b. Degree Program Requirements to be Completed at HCC

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			HCC Program Equivalent
Course Number	Course Title	Credit Hours	
ENES 100	Introduction to Engineering Design	3.0	ENES 100
MATH 236	Calculus I	4.0	MATH 181 Already in GEP above
MATH 237	Calculus II	4.0	MATH 182
MATH 238	Calculus III	4.0	MATH 240
MATH 432	Differential Equations	4.0	MATH 260
CHEM 201 AND 202	General Chemistry I and General Chemistry II (or CHEM 133)	3.0	CHEM 135[1]
PHYS 261	Principles of Physics I – Mechanics	4.0	PHYS 110 In GEP
PHYS 262	Principles of Physics II – Electricity and Magnetism	4.0	PHYS 111
PHYS 263 AND PHYS 264	Principles of Physics III – Acoustics and Optics AND Principles of Physics IV – Thermodynamics and Modern Physics	4.0	PHYS 112[2]
ENEE 114	Programming Concepts for Engineers	3.0	ENES 150[3]
ENEE 204	Basic Circuit Theory	3.0	ENES 205[4]
ENEE 206	Fund. Digital and Electric Circuits Lab	2.0	ENES 245
ENEE 244	Digital Logic Design	3.0	ENES 244
ENES 195	Engineering elective	4.0	ENES 222
TOTAL Program Credits=49			

[1] The student learning outcomes of the CHEM 135 course at HCC are equivalent to the combined outcomes of CHEM 101 and 102/133 at FSU.
[2] The student learning outcomes of the PHYS 112 course at HCC are equivalent to the combined outcomes of PHYS 263 and 264 at FSU.
[3] FSU course is 4 credits, but 3 credits will transfer from HCC for this course.
[4] Course is 4 credits at HCC but will transfer in as 3 credits at FSU.

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 480	Electromagnetic Theory	3.0	
ENGL 338	Technical Writing	3.0	
ENEE 303	Analog and Digital Electronics	3.0	
ENES 310	Mechatronic and Robotic Design	3.0	
ENES 401	Fundamentals of Energy Engineering	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	
	FSU Colloquia	6.0	Fulfills 6 hrs. of GEP colloquia requirements.
	300/400 level 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 and to enable students to meet the 39 credit minimum for upper division coursework.
	300-400 level Technical Electives	6.0	Any ENEE, ENES or ENME courses.
Total = 53			

d. Course Sequencing

Engineering Transfer students transferring to the Engineering Program at FSU shall be notified by HCC 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 HCC by contacting:

Scott Foerster,
Assistant Professor, Engineering
Howard Community College
443-518-4927
sfoerster@howardcc.edu

HCC 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.

Contact person at FSU for the program is:

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Frostburg State University
301-687-4500
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