

**Academic Program Articulation Agreement Between  
Carroll Community College  
and  
McDaniel College  
Regarding Transfer from A.S. in Engineering  
to B.A. in Physics with Engineering Specialization**

**A. Purpose**

This Academic Program Articulation Agreement ("Agreement") is entered into by and between Carroll Community College and McDaniel College (collectively, the "Institutions", and individually, "Carroll" and "McDaniel") to facilitate the transfer of academic credits from an Associate of Science in Engineering (A.S.) in Engineering, CIP code 14.01 for the completion of a Bachelor of Arts (B.A.) in Physics, CIP code 40.0801 (the "Program").

This Agreement offers a transfer pathway with degree requirements for the completion of both degrees and seeks to ensure the maximum potential for student success.

This Agreement serves to clarify roles and responsibilities of the Institutions for the purpose of this partnership.

**B. Qualifying Students**

This Agreement pertains to the transfer of "Qualifying Students", i.e., those students who:

1. Have successfully completed an A.S. in Engineering at Carroll;
2. Are enrolled in Carroll, in good standing; and
3. Are accepted for admission to McDaniel, and
4. Have a GPA of 2.00 or higher both in the area of study and cumulative.

**C. Responsibilities of the Institutions**

The Institutions agree to implement the transfer of Qualifying Students in accordance with applicable law and the following requirements and protocols:

1. A Qualifying Student may transfer from Carroll into McDaniel for the completion of the Program.
2. A Qualifying Student will:
  - (a) Receive guaranteed admission to McDaniel.
  - (b) Be considered for transfer scholarships if they are eligible.
  - (c) Be able to register for classes in April to ensure they will be able to enroll in the classes necessary to complete their degree in a timely manner.
  - (d) Have access to a Physics advisor at McDaniel to ensure smooth transfer.
  - (e) Be eligible for additional scholarship consideration if they are members of Phi Theta Kappa (PTK).

To take advantage of this Agreement, a Qualifying Student will apply no later than January 15th and submit the deposit by March 15th.

3. If the Qualifying Student is using federal Title 38 VA Education Benefits (GI Bill® Education Benefits), the Institutions shall adhere to all applicable U.S. Department of Veterans Affairs' regulations, including the regulations governing the awarding prior credit, as regulated under Title 38, Code of Federal Regulations, Sections 21.4253(d)(3) and 21.4254(c)(4).
4. Each Institution shall adhere to all applicable transfer requirements set forth in the Annotated Code of Maryland and the Code of Maryland Regulations.
5. Each Institution shall advise students regarding transfer opportunities under this Agreement and shall advise students of financial aid opportunities and implications associated with the transfer.

6. Should either Institution make changes to program requirements, the institution will inform the partner institution immediately. This Agreement should be updated to reflect the changes and forwarded to the Maryland Higher Education Commission.
7. McDaniel shall designate, and shall provide to Carroll, the contact information for a staff person at McDaniel who is responsible for the oversight of the transfer of Qualifying Students. Carroll shall designate, and shall provide to McDaniel, the contact information for a staff person at Carroll who is responsible for the oversight of the transfer of Qualifying Students.

Contact information for person responsible for oversight:

	Carroll Community College	McDaniel College
Name:	Ms. Tricia Crossett	Dr. Stephanie Madsen
Title:	Program Director - Engineering	Associate Dean, Academic Life
Email address:	tcrossett@carrollcc.edu	smadsen@mcDaniel.edu
Telephone number:	(410) 386-8529	(410) 386-4674

Should the staff person or position change, the institution will promptly provide new contact information to the partner institution and inform the Maryland Higher Education Commission of the change.

Additional contact information:

	Carroll Community College	McDaniel College
Name:	Dr. April Herring	Ms. Sheila Deane
Title:	Director of Advising and Transfer	Associate Registrar for Transfer Evaluation
Email address:	aherring@carrollcc.edu	sdeane@mcDaniel.edu
Telephone number:	(410) 386-8444	(410) 857-2518

#### D. Ongoing Collaboration

To strengthen this Agreement:

1. Faculty representatives from the Institutions will meet regularly to engage in ongoing discussion to enhance and strengthen this collaboration.
2. McDaniel's Physics Department agrees to have faculty serve as a resource, as available, to Carroll students and faculty as guest lecturers, workshop/seminar facilitators and other program exchanges.
3. Carroll agrees to learn about McDaniel's Physics program to highlight opportunities at McDaniel to students, as well as to have faculty serve as a resource, as available, to Carroll students and faculty as guest lecturers, workshop/seminar facilitators and other program exchanges.
4. The Institutions agree to communicate program changes in a timely manner to avoid disruption to student progress toward degree completion.

#### E. Program Articulation Agreement

The following details a recommended course of study for students earning the A.S. in Engineering at Carroll transferring to McDaniel in pursuit of the B.A. degree with a major in Physics with Engineering Specialization. The course recommendations are designed to meet the general education requirements of both Institutions at optimal levels. In the spirit of the College Readiness and Completion Act of 2013, this Agreement encourages the completion of all associate degree requirements.

Students interested in this program must complete the McDaniel College application process and be admitted to the College before credit evaluations are completed at McDaniel. Only courses with a "C" or higher are eligible for transfer.

McDaniel requires students to have a minimum of 128 credit hours (credits) to graduate with a B.A. The Physics major with Engineering Specialization requires 65 credits. The remaining 63 credits (or more) come from electives and general education requirements.

Carroll requires students take a minimum of 60 credits to get an A.S. in Engineering. The core program requirement is 45-46 credits of mathematics, physics, chemistry, computer science and engineering courses. The remaining 15 credits come from general education requirements.

Carroll Community College			McDaniel College Comparable Course			
Course Number	Course Name	Credits	Course Number	Course Name	Credits	Applied to
<b>Required courses for A.S. in Engineering</b>		<b>31</b>				
PHYS-111	Physics 1 for Scientists & Engineers	4	PHY-1114, PHY-1014	General Physics I	4	SIL, Major
PHYS-212	Physics 2 for Scientists & Engineers	4	PHY-1115, PHY-1015	General Physics II	4	SIL, Major
MATH-135	Calculus - Single Variable 1	4	MAT-1117	Calculus I	4	QR, Major
MATH-136	Calculus - Single Variable 2	4	MAT-1118	Calculus II	4	QR, Major
MATH-205	Multivariable Calculus	4	MAT-2219	Calculus III	4	QR, Major
MATH-215	Differential Equations	4	MAT-3304	Differential Equations	4	QR, Major
CHEM-105	Principles of General Chem. 1	4	CHE-1103, CHE-1001	General Chemistry I	4	SIL, Major
ENGR-100	Introduction to Engineering	3	ENR 1101	Introduction to Engineering	3	SIE, Major
<b>Electives for A.S. in Engineering (four to five courses)</b>		<b>14-15</b>				
CAD-101	Introduction to CAD/Drafting	3	PHY-SIL	Physics Elective	3	SIL
CHEM-106	Principles of General Chem. 2	4	CHE-1104, CHE-1002	General Chemistry II	4	SIL
CIS-132	Principles of Programming	3	CSC 1106	The Art of Programming	4	QR
ENGR-102	Statics	3	PHY-SIL	Physics Elective	3	SIL
ENGR-220	Mechanics of Materials	3	ENR-3311	Mechanics of Solids	3	SIL, Major
ENGR-221	Dynamics	3	ENR-2202	Engineering Mechanics	3	SIL, Major
MATH-210	Linear Algebra	4	MAT-2218	Linear Algebra	4	QR
PHYS-213	Physics 3 for Scientists & Engineers	4	PHY-SIL	Physics Elective	4	SIL
PHYS-Elective*	Mathematical Physics	4	PHY-2201, PHY-2001	Mathematical Physics	4	Major
<b>English Composition and Literature (one course)</b>		<b>3</b>				
ENGL-101	College Writing 1	3	ENG-1101	Introduction to College Writing	3	CW
<b>Arts &amp; Humanities (two courses)</b>		<b>6</b>				
Recommended FPA-101	Introduction to the Arts	3	ART-ELEC	Art Elective	3	CE
MUSIC-104	World Music	3	MUL-1140	World Music Survey	3	CE, IN
HIST-101	Western Civilization 1	3	HIS-1105	History International Western	3	IW
PHIL-120	World Philosophy	3	PHI-2102	Philosophy Around the World	3	IN, SCH, TA
<b>Social &amp; Behavioral Science (one course)</b>		<b>3</b>				
ECON-102	Principles of Macroeconomics	3	ECO-1102	Economic Issues and Policy	3	SCH
<b>Additional Elective (one course)</b>		<b>3</b>				
PHYS-Elective*	Mathematical Physics	4	PHY-2201, PHY-2001	Mathematical Physics	4	Major
MUSIC-102**	The History of Rock and Roll	3	MUL-1136	History of Rock and Roll	3	M
DVTY/SOC-115**	Diversity in the US	3	CCS-M	Cross-Cultural Studies	3	M
<b>Total</b>		<b>60-61</b>	<b>Total</b>		<b>60</b>	

\* Students at Carroll can take a 4-credit course at McDaniel, PHY 2201 (Mathematical Physics) + PHY 2001 (Lab) at no *additional* cost as part of a previously established agreement between the two institutions. This opportunity will enable Carroll students to enroll in upper division physics courses (2000 level and higher) their first semester after they transfer to McDaniel.

\*\* These courses are recommended to meet the Multicultural requirement of the McDaniel Plan.

At Carroll, students are required to take seven 4-credit courses and one 3-credit courses for the A.S. in Engineering (31 credits). All these courses (highlighted red in the table) will count towards the Physics with

Engineering major at McDaniel. The courses are PHYS 111, PHYS 212, MATH 135, MATH 136, MATH 205, MATH 215, CHEM 105, and ENGR 100.

Carroll students are also required to take 14-15 credits from a list of electives for engineering. Of these courses, ENGR 220, ENGR 221, and PHY 2201 + PHY 2001 will count towards the Physics with Engineering major at McDaniel (highlighted red in the table). All other courses in this category (highlighted blue in the table) will count as electives towards McDaniel graduation.

To complete the B.A. in Physics with Engineering Specialization at McDaniel, Carroll students will have to take the following physics courses (25 credits):

1. PHY 2201 - Math. Physics + PHY 2001 Lab (4 credits)
2. PHY 2202 - Intermediate Mechanics (4 credits)
3. PHY 2203 - Foundations of Modern Physics I (4 credits)
4. PHY 3200 - Advanced Physics Laboratory (4 credits, counts towards WID and not Physics)
5. PHY 4491 - Physics Seminar (1 credits)
6. ENR 2201 - Circuit Analysis + ENR 2001 Lab (4 credits)
7. ENR 2202 - Engineering Mechanics (4 credits)\*
8. ENR 4401 - Senior Engineering Laboratory (4 credits)

They also need to take two physics/engineering electives (8 credits). We recommend the following courses:

1. PHY 3301 - Intermediate Electricity and Magnetism (4 credits)
2. PHY 3311 - Thermodynamics (4 credits)
3. ENR 3311 - Mechanics of Solids (4 credits)\*
4. ENR 3312 - Fluid Mechanics (4 credits)

\* ENR 2202 - Engineering Mechanics and ENR 3311 - Mechanics of Solids are equivalent to Carroll's ENGR-221 Dynamics and ENGR-220 Mechanics of Materials, respectively. Carroll students who take these two courses will take 8 less credits in the major at McDaniel.

In summary, Carroll students will need to take at most 33 additional credits in physics at McDaniel. Adding this number to the 31 credits from Carroll gives 64 credits, which McDaniel considers as meeting the Physics with Engineering Specialization requirement.

Carroll students who follow the plan outlined will fulfill most of the Integrated Studies of the Liberal Arts portion of the McDaniel Plan as shown below.

The McDaniel Plan (Integrated Study in the Liberal Arts)		Carroll Course Equivalent
Required courses	Credit	
First-Year Seminar (FYS)	4	Waived
Intro to College Writing (CW)	4	ENGL 101
Multicultural in the U.S. (M)	4	DVTY/SOC-115
International Non-Western (IN)	4	MUSIC-104, PHIL-120, ANTH-101, SOC-101
International Western or Non-Western (IW or IN)	4	HIST-101, MUSIC-104, PHIL-120, ANTH-101, SOC-101
Second Language	0-8	
Departmental Writing Requirement (WID)	4	
Quantitative Reasoning (QR)	4	MATH-135, MATH-136, MATH-205
Scientific Inquiry with Lab or Embedded Lab (SIL or SIE)	4	PHYS-111, PHYS-212, PHYS-213, CHEM-105, CHEM-106
An additional SI, SIL, SIE, or QR course	4	PHYS-111, PHYS-212, PHYS-213, CHEM-105 CHEM-106, MATH-135, MATH-136, MATH-205
Textual Analysis (TA)	4	ENGL 102
Creative Expression (CE)	4	FPA-101, MUSIC-104
Social, Cultural, and Historical Understanding (SCH)	4	PHIL-120, ANTH-101, PSYC-101, ECON-102, SOC-101
Jan Term	2	
Physical Activity and Wellness (2 courses/activities)	1	
<b>Total</b>	<b>51-59</b>	

Upon completion of their A.S. degree, students will receive a waiver to the McDaniel Plan requirements of First Year Seminar. Students may also wish to achieve proficiency in a second language, as this is a requirement at McDaniel. The Departmental Writing Requirement (WID) will be fulfilled by taking PHY-3200 (Advanced Physics Laboratory) at McDaniel.

The plan outlined results in 60-61 earned credits, which is considered sophomore class level at McDaniel (32-63.5 credits). Students may wish to complete one additional course at Carroll to enter McDaniel at the junior class level (64-95.5 credits). Students can transfer a maximum of 64 credits.

Students should contact the Admissions Office to learn about scholarship and need-based financial aid opportunities that may be available.

#### **F. Term and Termination**

1. This Agreement shall be effective on the date that it is signed by the appropriate and authorized representatives of each Institution.
2. Either Institution may, at its sole discretion, terminate this Agreement upon delivering 180 days written notice to the other Institution and the Maryland Higher Education Commission. Such termination will not affect the participation in the articulated programs of those Carroll students who have been fully or conditionally admitted to McDaniel.
3. Both Institutions agree to meet once every 3 year(s) to review the terms of this agreement.

#### **G. Amendment**

1. This Agreement constitutes the entire understanding and agreement of the Institutions with respect to their rights and obligations in carrying out the terms of the Agreement and supersedes any prior or contemporaneous agreements or understandings.
2. This Agreement may be modified only by written amendment executed by both Institutions.
3. Minor adjustments to course titles and/or sequential numbering do not require mutual written consent.

#### **H. Governing Law**

This Agreement shall be governed by, and construed in accordance with, the laws of the State of Maryland.

#### **I. Counterparts**

This Agreement may be executed in counterparts, each of which shall be deemed to be an original, but all of which, taken together, shall constitute the same agreement.

#### **J. Notice of Agreement**

1. The Institutions agree to provide a copy of this Agreement, with any amendments, to the Maryland Higher Education Commission.
2. The Institutions agree to provide copies of this Agreement to all relevant individuals and departments of the Institutions, including but not limited to students, academic department chairs participating in the transfer, offices of the president, registrar's offices, and financial aid offices.

#### **K. No Third-Party Beneficiaries**

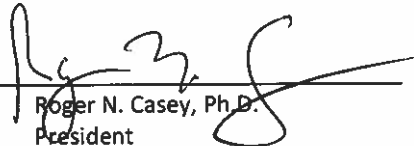
There are no third-party beneficiaries to this Agreement.

**L. Representations and Warranties of the Parties**

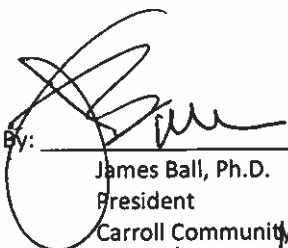
Both Institutions represent and warrant that the following shall be true and correct as of the Effective Date of this Agreement, and shall continue to be true and correct during the term of this Agreement:

1. The Institutions are and shall remain in compliance with all applicable federal, state, and local statutes, laws, ordinances, and regulations relating to this Agreement, as amended from time to time.
2. Each Institution has taken all action necessary for the approval and execution of this Agreement.

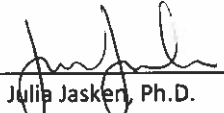
IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives.

By:   
\_\_\_\_\_  
Roger N. Casey, Ph.D.  
President  
McDaniel College

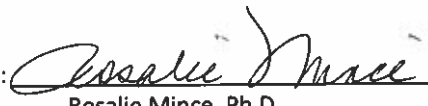
4.17.19  
\_\_\_\_\_  
Date

By:   
\_\_\_\_\_  
James Ball, Ph.D.  
President  
Carroll Community College

4/20/19  
\_\_\_\_\_  
Date

By:   
\_\_\_\_\_  
Julia Jasken, Ph.D.  
Provost and Executive Vice President  
McDaniel College

4-17-19  
\_\_\_\_\_  
Date

By:   
\_\_\_\_\_  
Rosalie Mince, Ph.D.  
Vice President Academic  
& Student Affairs  
Carroll Community College

4/22/19  
\_\_\_\_\_  
Date