

**Academic Program Articulation Agreement Between
Carroll Community College
and
McDaniel College
Regarding Transfer from A.S. in Engineering - Mechanical/Civil Concentration
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 (A.S.) in Engineering - Mechanical/Civil Concentration, CIP code 14.1901 and CIP code 14.0801 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 - Mechanical/Civil Concentration 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 - Mechanical/Civil Concentration 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 61 credits to get an A.S. in Engineering - Mechanical/Civil Concentration. The core program requirement is 46-47 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 |
| Required courses for A.S. in Engineering - Mechanical/Civil Concentration | | 37 | | | | |
| 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 |
| ENGR-102 | Statics | 3 | PHY-SIL | Physics Elective | 3 | SIL |
| ENGR-220 | Mechanics of Materials | 3 | ENR-3311 | Mechanics of Solids | 3 | SIL, Major |
| Electives for A.S. in Engineering - Mechanical/Civil Concentration (two to three courses) | | 8-10 | | | | |
| CAD-101 | Introduction to CAD/Drafting | 3 | PHY-SIL | Physics Elective | 3 | SIL |
| CIS-132 | Principles of Programming | 3 | CSC 1106 | The Art of Programming | 4 | QR |
| 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 |
| English Composition and Literature (one course) | | 3 | | | | |
| ENGL-101 | College Writing 1 | 3 | ENG-1101 | Introduction to College Writing | 3 | CW |
| Arts & Humanities (two courses) | | 6 | | | | |
| 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 |
| Social & Behavioral Science (one course) | | 3 | | | | |
| ECON-102 | Principles of Macroeconomics | 3 | ECO-1102 | Economic Issues and Policy | 3 | SCH |
| Additional Elective (one course) | | 3 | | | | |
| 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 |
| Total | | 60-62 | Total | | 61-62 | |

* 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 three 3-credit courses for the A.S. in Engineering - Mechanical/Civil concentration (37 credits). Of these courses, nine (highlighted red in the table) will count towards the Physics with Engineering major at McDaniel for a total of 34 credits. The courses are PHYS 111, PHYS 212, MATH 135, MATH 136, MATH 205, MATH 215, CHEM 105, ENGR 100, and ENGR 220. ENGR 102 Statics will count as an elective towards McDaniel graduation (highlighted in blue in the table).

Carroll students are also required to take 8-10 credits from a list of electives for engineering. Of these courses, 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 one physics/engineering elective (4 credits). We recommend the following courses:

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

* Carroll students who take ENGR 221 Dynamics will not have to take ENR 2202 at McDaniel.

In summary, Carroll students will need to take at most 29 credits in physics/engineering at McDaniel. Adding this number to the 34 credits from Carroll gives 63 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 | Credits | |
| 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 | |
| Total | 51-59 | |

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 63 earned credits, which is considered sophomore class level at McDaniel (32-63.5 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 one and 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

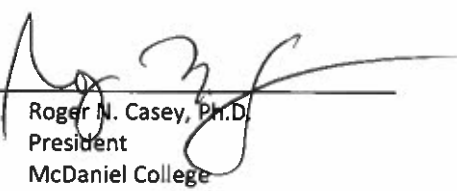
There are no third-party beneficiaries to this Agreement.

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.

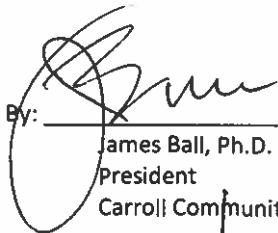
IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives.

By: 

Roger N. Casey, Ph.D.
President
McDaniel College

4.17.19

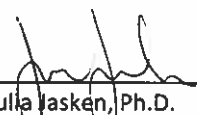
Date

By: 

James Ball, Ph.D.
President
Carroll Community College

4/22/19


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