NEW YORK CITY COLLEGE OF TECHNOLOGY
OF THE CITY UNIVERSITY OF NEW YORK
300 JAY STREET • BROOKLYN
NEW YORK 11201-2983
Physics Department
Room Pearl N811, Tel: (718) 260-5257

New York City College of Technology B.S. Degree in Applied Computational Physics
Articulation Agreement with
Borough of Manhattan Community College A.S. in Engineering Science

A. SENDING AND RECEIVING INSTITUTIONS

Sending College:	**Borough of Manhattan Community College (BMCC)**
Department:	**Science Department**
Program:	**Engineering Science**
Degree:	**Associate in Science (AS)**

Receiving College:	**New York City College of Technology (NYCCT)**
Department:	**Physics Department**
Program:	**Applied Computational Physics**
Degree:	**Bachelor of Science (BS)**

B. ADMISSION REQUIREMENTS FOR SENIOR COLLEGE PROGRAM

- The AS in Science degree and a minimum 2.50 GPA.

Students who wish to transfer but do not meet all of the above requirements or are unable to enroll within two years after graduation will receive admission consideration under our standard transfer credit policies.

Total transfer credit granted toward baccalaureate degree: 65
Total additional credits required by senior college to complete baccalaureate degree: 55

The Physics Department of New York City College of Technology (NYCCT) agrees to accept into the BS program in Applied Computational Physics students from the Borough of Manhattan Community College (BMCC) who successfully complete an associate in science in Engineering Science. Completion of the curriculum includes the attainment of at least a 2.5 overall grade-point average.

NYCCT and BMCC agree to offer the courses noted in the BS program in Applied Computational Physics (NYCCT) and AS Engineering Science program (BMCC), as described in this agreement, and as outlined in each college's course catalog. Each college agrees to notify the other if course numbers, content, or catalog descriptions change. Furthermore, the parties involved understand that any change in course number, content, or catalog description may require a modification to this agreement.

C. TRANSFER CREDITS AWARDED

Students transferring from BMCC with an AS in Engineering Science shall enter the BS Program in Applied Computational Physics at NYCCT as third year students. The following courses, totaling 65 credits, will be transferred to NYCCT.

A.S. in Engineering Science

Common Core	
Required Common Core	
English Composition	6
Mathematical & Quantitative Reasoning[1]	3
Life & Physical Sciences[2]	3
Total Required Common Core	**12**
Flexible Common Core	
World Cultures & Global Issues	3
U.S. Experience in its Diversity	3
Creative Expression	6
Individual & Society	3
Scientific World[3]	3
Total Flexible Core	**18**
Total Common Core	**30**
Curriculum Requirements	
ESC 111 – Elements of Engineering Design	1
ESC 113 – Computer Aided Analysis for Engineering	2
MAT 302 – Analytic Geometry and Calculus II	4
MAT 303 – Analytic Geometry and Calculus III	4
MAT 501 – Ordinary Differential Equations	3
PHY 215 – University Physics I	4
PHY 225 – University Physics II	4

Curriculum Electives – Choose 9 credits from the following:
    CHE 230 – Organic Chemistry I (5 crs.)
    CHE 240 – Organic Chemistry II (5 crs.)
    ESC 131 – Engineering Graphics – AutoCAD (2 crs.)
    ESC 130 – Engineering Graphics (2 crs.)
    ESC 201 – Engineering Mechanics I (3 crs.)
    ESC 202 – Engineering Mechanics II (3 crs.)
    ESC 211 – Thermodynamics I (3 crs.)
    ESC 221 – Circuits and Systems (4 crs.)
    ESC 223 – Switching Systems and Logic Design (4 crs.)
    GLY 210 – Geology I (4 crs.)
    MAT 315 – Linear Algebra (4 crs.) [4]
    PHY 240 – Modern Physics (3 crs.) [4]
	9

General Electives[5]	4
Total Curriculum Credits	**35**
Total Program Credits	**65**

FOOTNOTES
1. Students are required to take MAT 301 – Analytic Geometry and Calculus I.
2. Students are required to take CHE 201 – College Chemistry I.
3. Students are required to take CHE 202 – College Chemistry II and SCI 120 of SCI 121.
4. Students are required to take MAT 315 – Linear Algebra and PHY 240 – Modern Physics in order to transfer to NYCCT under this agreement.
5. These credits can be satisfied by taking STEM variants in the Common Core.

D. ADVISOR'S RECOMMENDATIONS

In order for students to transfer to NYCCT under this agreement with junior level standing, they must take the following courses at BMCC and graduate with the AS in Engineering Science.

BMCC Course	NYCCT Equivalent
MAT 315 – Linear Algebra	MAT 2580
PHY 240 – Modern Physics	PHYS 2443

E. SENIOR COLLEGE UPPER DIVISION COURSES REMAINING FOR BACCALAUREATE DEGREE

Students transferring to the BS program in Applied Computational Physics at NYCCT from the A.S. program in Engineering Science at BMCC will be required to satisfactorily complete the following courses (totaling 55 credits) at NYCCT.

COLLEGE OPTION REQUIREMENTS		
Public Speaking	COM 1330 or higher	3
Interdisciplinary Course	Any course in approved list, elective	3
Total Common Core & College Option Requirements		**6**
CURRICULUM REQUIREMENTS		
PHYS 2607	Introduction to Quantum Mechanics	3
PHYS 3100	Classical Mechanics	4
PHYS 3200	Electricity and Magnetism	4
PHYS 3300	Computational Fluid Dynamics	3
PHYS 3600	Machine Learning for Physics and Astronomy	3
PHYS 4100	Computational Methods	4
PHYS 4150	Computational Methods Lab	2
PHYS 4200	Internship/real research Experience	4
MAT 2572	Probability and Mathematical Statistics I	4
CST 1101	Problem Solving with Computer Programming	3
CST 1201	Programming Fundamentals	3
CST 1204	Database Systems Fundamentals	3
XXX xxxx	Additional program electives	9
Total Curriculum Requirements		**49**
Total Program Credits		**55**

Note: Students at New York City College of Technology must complete two courses designated Writing Intensive (WI) for the baccalaureate level, one from GenEd and one from the major.

F. ARTICULATION AGREEMENT FOLLOW-UP PROCEDURES

1. Procedures for reviewing, updating modifying or terminating agreement:

When either of the degree programs involved in this agreement undergoes a change, the agreement will be reviewed and revised accordingly by faculty from each institution's respective departments or programs, selected by their Chairpersons and program directors.

2. Procedures for evaluating the effectiveness of this agreement and tracking the number of students who transfer from BMCC to NYCCT under terms of this articulation agreement and their success:

Each year New York City College of Technology (NYCCT) will provide Borough of Manhattan Community College (BMCC) the following information: a) the number of BMCC graduates who applied to the program; b) the number of BMCC students who were accepted into the program; c) the number of BMCC students who enrolled; and d) the aggregate GPA of these enrolled students at NYCCT.

3. Sending and Receiving College procedures for publicizing agreement (e.g., college catalogs, transfer advisors, websites, etc.):

- This articulation agreement will be publicized on the Borough of Manhattan Community College's website, and New York City College of Technology website.
- Transfer advisors at BMCC will promote this agreement with eligible students.

Effective Agreement Date: Fall 2017