



**GROVE SCHOOL
OF ENGINEERING**

ARTICULATION AGREEMENT

between

**The Grove School of Engineering
of
The City College
of
The City University of New York**

(Earth System Science & Environmental Engineering Program)


and

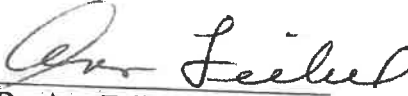
**Mathematics, Engineering and Computer Science Department
of
LaGuardia Community College
of
The City University of New York**


May 21, 2013

This agreement is effective upon signature

LaGuardia Community College


Dr. Paul Arcario
Provost, Senior VP of Academic Affairs

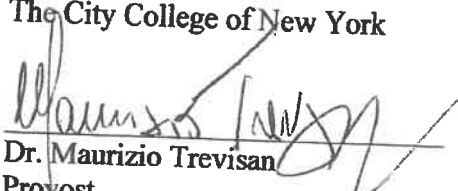

Dr. Ann Feibel
Acting Associate Dean of Academic Affairs

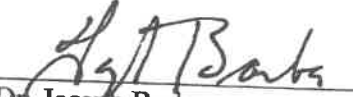

Dr. Abderrazak Belkharraz
Chairperson
Mathematics, Engineering and
Computer Sc. Department

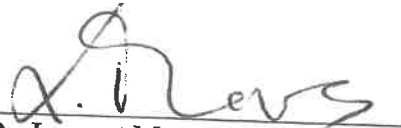
Date:

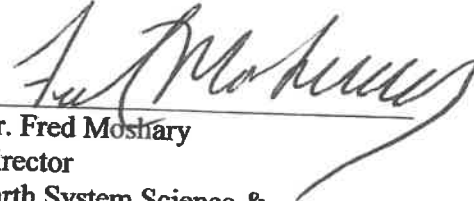
11/13/2013

The City College of New York


Dr. Maurizio Trevisan
Provost


Dr. Joseph Barba
Dean
Grove School of Engineering


Dr. Laurent Mars
Assistant Dean for Undergraduate
Affairs (Acting)
Grove School of Engineering


Dr. Fred Moshary
Director
Earth System Science &
Environmental Engineering Program

Date:

A. INTRODUCTION

LaGuardia Community College (LaGCC) and the Grove School of Engineering (GSoE) of The City College of New York (CCNY) agree to establish a collaborative educational program in the major of Earth System Science & Environmental Engineering (ESE). Participating students will study mathematics and science subjects, along with pre-engineering courses and common engineering and computer science courses at LaGCC. Upon meeting admission requirements stated below, students will enter GSoE to complete the engineering major degree requirements.

Such an articulation agreement is being created with the objective of providing students at LaGCC with the opportunity to study majors that are not available to them at their home institution.

B. ADMISSION AND TRANSFER PROCEDURES

Counseling, admission, and the transfer of students in this cooperative program will be through the application of the following procedures and policies. Failure to comply with any of the following procedures or policies may result in denial of admission to GSoE.

1. Results from aptitude and achievement tests, records of scholastic achievement, and other pertinent information will be exchanged between institutions to aid both in guiding and in counseling prospective and admitted students. CCNY will provide LaGCC with copies of curriculum planning guides used by advisors at CCNY for each GSoE major.
2. LaGCC is responsible for informing students of the requirements for admission to CCNY's GSoE and is encouraged to provide each student with a copy of this agreement. Students should also be made aware of the courses offered by LaGCC that can be used to meet graduation requirements in GSoE degree programs (not limited to ESE).
3. LaGCC students become eligible for transfer to GSoE as soon as they have met the following requirements for admission to GSoE.
 - a. Satisfied all of the GSOE freshman admission requirements;
 - b. Achieved a minimum overall GPA of 2.7 in his/her college courses;
 - c. Achieved a minimum 2.5 GPA in college math and science courses, with none of these grades below C;
 - d. Passed calculus;
 - e. Demonstrated proficiency, evidenced by his/her transcript, in math and science; and
 - f. Completed 24 or more college-level credits.

CCNY requires **two** semesters of calculus (Math 20100 & Math 20200). The math and science GPA is calculated using **physics, chemistry and biology courses, and math courses at the precalculus level and above;** and proficiency in science must be

demonstrated by completion of a **calculus-based general physics** course, which at CCNY is Physics 20700.

The cumulative GPA used to determine eligibility for an engineering major will be calculated by the method used at CCNY.

2. Students should submit an online application to the CUNY Admission Office (cuny.edu) by the admission deadline. Application deadline for the Fall and Spring semesters at CCNY are January 1st and September 1st, respectively.
3. The LaGCC program coordinator shall provide the GSoE's Office of Undergraduate Affairs with the following documents for each student who has applied to CCNY:
 - a. A copy of the official LaGCC transcript, showing all grades earned.
 - b. List of courses in progress if not shown on transcript

C. AGREEMENT

1. Each school agrees to work together to develop and maintain an articulation agreement that will produce highly skilled engineers.
2. The articulation agreement will be assessed and evaluated by the two schools at least once every 12 months with the goal of keeping the agreement in line with the accreditation requirements and mission of each individual school.
3. Each school will be responsible for notifying the other of any curriculum changes – for example the removal or addition of courses and prerequisites - that may impact the articulation agreement.
4. Should a change in a school's mission or accreditation requirements cause it to change its curriculum such that it conflicts with the articulation agreement and a mutual agreement cannot be made between the two schools, the last version of the curriculum (section D) of the articulation agreement will be honored for a period of 12 months after which time the agreement will become null.
5. Both colleges must publicize the agreement in the appropriate college publications and bulletins.

D. CURRICULUM

Table 1. Core courses to be taken at LaGCC by students wishing to transfer to CCNY's GSoE.

LaGuardia Community College		CITY College Equivalent		Transfer Credit Granted	
Course to Course Equivalencies and Transfer Credit Awarded					
General Education Requirements					
Course	Description	Cr	Course	Description	Cr
FSM024	New Student Seminar/Engineering	0	NSS 10000	New Freshman Seminar	0
SSN 187	Urban Sociology	3	SOC 25100	Urban Sociology	3
HUA 101	Select any two of the following: Introduction to Art	6	ART 10000	Select any two of the following: Intro to Visual Arts	6
HUM 101	Introduction to Music		MUS10100	Introduction to Music	
SSY 101	General Psychology		PSY 10200	Applications of Psychology in MW	
HUP104	Ethics and Moral Issues		PHIL 30800	Ethics	
ENG101	Composition I	3	Eng 11000	Freshman Composition	3
ENG 259	Technical Writing	3	Eng 21007	Writing for Engineering	3
SCC201	Chemistry 1(3L, 1R, 2Lb)	4	Chem 10301	General Chemistry I	4
SCC202	Chemistry 2(3L, 1R, 2Lb)	4	Chem 10401	General Chemistry II	4
SCP231	General Physics	4	Phys 20700	General Physics I	4
SCP232	General Physics 2	4	Phys 20800	General Physics II	4
MAT201*	Calculus I	4	Math 20100	Calculus I	3
MAT202*	Calculus II	4	Math 20200	Calculus II	3
MAT203	Calculus III	4	Math 20300	Calculus III	4
MAT204*	Differential Equations	4	Math 39100	Differential Equations	3
MAT212	Linear Algebra & Vector Analysis	3	Math 39200	Lin. Algebra & Vector Anal.	3
Total General Education Credits at LaGCC		50	Total General Education Credits Granted at CCNY		47

* These math courses add up to 12 credit at LaGCC, while at CCNY they add up to only 9 credits

Table 2. Major-specific courses to be taken at LaGCC by students wishing to transfer to CCNY's GSoE.

LaGuardia Community college			CITY College Equivalent			Cr. Granted
Core Requirements						
Course	Description	Cr	Course	Description	Cr	
CPP 024	COOP Prep for Eng. Science	0			0	
MAE 101	Engineering Lab. 1/Internship I	1	ENGR 10100	Engineering Design I	1	
MAE 213	Electrical Circuits	3	ENGR 20400	Electrical Circuits	3	
MAC 102	Advanced C/C++ Programming	3	CSc 10200	Intro to Computing	3	
MAE 106**	Earth System Science & Eng.	4	ENGR 10600**	Earth System Science & Engr.	4	
MAE 217**	Systems Analysis of the Earth	4	EAS 21700**	Systems Analysis of the Earth	4	
Total Major Requirement Credits at LaGCC		15	Total Major Requirement Credits Granted			15
TOTAL NUMBER OF LAGCC CREDITS TRANSFERRED TO CITY COLLEGE						
TOTAL ADDITIONAL UPPER DIVISION CREDITS TO BE COMPLETED AT CITY COLLEGE						62
TOTAL CREDITS						127

** Course has not yet been fully articulated by CCNY faculty

Table 3. Recommended sequence of courses to be taken at CCNY. Adherence to this sequence will enable students to complete their degree requirements within 2 years of transferring to CCNY. Other sequences may require additional time spent at CCNY. See most recent curriculum sheet for details.

LAGUARDIA CC	CCNY - ESE	
YEAR 3 - SEMESTER 1	ENGR 10300: Analysis Tools for Engineers	2
	ME 35600: Fluid Mechanics	3
	CE 26400: CE Data Analysis	3
	ENGR 23000: Thermodynamics	3
	BIO 10100: Foundations of Biology I	4
	Liberal Arts	3
	Total/semester	18
YEAR 3 - SEMESTER 2	ME 43000: Thermal Sys. Anal	3
	Technical Elective I	3
	ENGR 30100: Intro to Remote Sensing	3
	ENGR 59910: Geographic Information Sci	3
	Liberal Arts	3
	Total/semester	15
YEAR 4 - SEMESTER 1	CE 365000: Hydraulics & Hydrology	3
	CE 37200: Environmental Impact Analysis	3
	ENGR 59869: ESE Design I	2
	Technical Elective II and III	6
	Liberal Arts	3
	Total/semester	17
YEAR 4 - SEMESTER 2	ENGR 59870: ESE Design II	3
	CE 47400: Environmental Engineering	3
	Technical Elective IV	3
	Technical Electives V and VI	6
	Total/semester	15
	Total	65

Table 4. List of technical electives. A minimum of three of the six technical electives must be in engineering. All electives must be approved by an advisor.

ChE 34200	Transport Phenomena II	3
CE 40100	Fundamentals of Engineering	1
CE 45100	Environ. Water Resources	3
CE 57100	Water Quality Analysis	3
EE 20500	Linear System Analysis I	3
EE 31100	Probability and Statistics	3
EE 33000	Electromagnetics	3
EE 35700	Electrical Power	3
EE 42800	Photonics Lab	1
EE 45500	Elements of Power Sys	3
EE 46200	Photonics Engineering	3
ME 32200	Computer Methods in Engr	3
ME 43300	Heat Transfer	3
ME 47100	Energy Systems Design	3
ME 53600	Energy Conversion	3
ME 54700	Environmental Control	3
ME 55600	Advanced Fluid Mechanics	3
ME 53700	Turbomachinery Design	3
ENGR 55400	Reactor Physics and Engineering	3
ENGR 55500	Reactor Thermal Hydraulics	3
ENGR 55600	Nuclear Reactor Design, Operation and Safety	3
ENGR 59950	Special Topics in Earth System and Env. Eng	3
Engr 5110X	Spec Projects in ESE	3
Engr 55680	Special Topics in RS	3
Engr 59803	Industrial Ecology	3
EAS 30800	Earth Syst Mod/Databases	3
EAS 31700	Satellite Meteorology	3
EAS 31800	Fundamentals of Atmos Sci	3
EAS 32800	Global Hazards	3
EAS 41300	Environmental Geochem	3
EAS 43900	Mineral/Energy Resources	3
EAS 48800	Climate Change	3
EAS 56100	Geophysics	3
EAS 44600	Ground Water Hydro	3
Chem 24300	Quant Analysis	3
Chem 26100	Organic Chemistry I	3
Chem 26300	Organic Chemistry II	3
Chem 27200	Organic Chemistry Lab	2
Chem 33100	Physical Chemistry Lab I	2
Chem 33200	Physical Chemistry II	3
Chem 40600/01	Environmental Chem.	3

Chem 40700	Environ Organic Chem	3
Chem 43400	PChem & Chem Instr Lab	2
Phys 32100	Modern Physics	3
Phys 32300	Quantum Mechanics	3
Phys 45200	Optics	3

General Education/Liberal Arts electives

ESE students must take six approved courses for a total of 18 credits of which at least 6 credits must be at the 20000 level or higher. A list of approved courses is posted on the School of Engineering web site at <http://www.cuny.cuny.edu/engineering/genreq.html>. Each course falls into one or more general education *clusters*, specified in the list. The six courses must collectively occupy at least three clusters. The four clusters are: (f) Professional and Ethical Responsibilities, (g) Communication, (h) Global and Societal Context, and (j) Contemporary Issues. Engr 27600 (Engineering Economics) is an accepted 20000 level course.

Transferability of liberal arts courses between LaGCC and CCNY can be viewed online on CUNY TIPPS: <http://tipps.cuny.edu>



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**Mathematics, Engineering and Computer Science Department
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September 23, 2013

ADDENDUM

LaGCC-CCNY ESE Articulation Agreement ADDENDUM

October 1, 2013

LaGuardia Community College



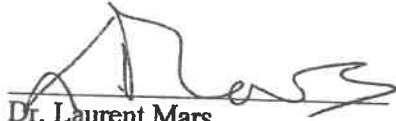
Dr. Abderrazak Belkharraz
Chairperson
Mathematics, Engineering and
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Dr. Paul Arcario
Provost and Senior Vice President
Division for Academic Affairs

Date:

CCNY Grove School of Engineering



Dr. Laurent Mars
Assistant Dean for Undergraduate
Affairs (Acting)
Grove School of Engineering



Dr. Fred Moshary
Director
Earth System Science &
Environmental Engineering Program

Date:

10/1/2013

LaGCC-CCNY ESE Articulation Agreement ADDENDUM

October 1, 2013

CURRICULUM

Following a meeting on September 18, 2013, both LaGCC and CCNY School of Engineering agree to revise the curriculum as follows.

Table 1. Core courses to be taken at LaGCC by students wishing to transfer to CCNY's GSoE.

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Course to Course Equivalencies and Transfer Credit Awarded					
General Education Requirements					
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MAT203	Calculus II	4	Math 20200	Calculus II	3
MAT204*	Calculus III	4	Math 20300	Calculus III	3
	Differential Equations	4	Math 39100	Differential Equations	4
Total General Education Credits at LaGCC		47	Total General Education Credits Granted at CCNY		44

LaGCC-CCNY ESE Articulation Agreement ADDENDUM

October 1, 2013

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 Table 2. Major-specific courses to be taken at LaGCC by students wishing to transfer to CCNY's GSoE.

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MAE 217**	Systems Analysis of the Earth	4	EAS 21700**	Systems Analysis of the Earth	4
Total Major Requirement Credits at LaGCC		15	Total Major Requirement Credits Granted		4
TOTAL NUMBER OF LAGCC CREDITS TRANSFERRED TO CITY COLLEGE					15
TOTAL ADDITIONAL UPPER DIVISION CREDITS TO BE COMPLETED AT CITY COLLEGE					59
TOTAL CREDITS					68
					127

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Table 3. Recommended sequence of courses to be taken at CCNY. Adherence to this sequence will enable students to complete their degree requirements within 2 years of transferring to CCNY. Other sequences may require additional time spent at CCNY. See most recent curriculum sheet for details.

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	Total/semester	17
YEAR 3 - SEMESTER 2	BIO 10100: Foundations of Biology I	4
	ME 43000: Thermal Sys. Anal	3
	Technical Elective I	3
	ENGR 30100: Intro to Remote Sensing	3
	ENGR 59910: Geographic Information Sci	3
	Total/semester	16
YEAR 4 - SEMESTER 1	CE 365000: Hydraulics & Hydrology	3
	CE 37200: Environmental Impact Analysis	3
	ENGR 59869: ESE Design I	2
	Technical Elective II and III	6
	Liberal Arts	3
	Total/semester	17
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	Technical Elective IV	3
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	Total	68

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EAS 41300	Environmental Geochem	3
EAS 43900	Mineral/Energy Resources	3
EAS 48800	Climate Change	3
EAS 56100	Geophysics	3
EAS 44600	Ground Water Hydro	3
Chem 24300	Quant Analysis	3
Chem 26100	Organic Chemistry I	3
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Chem 27200	Organic Chemistry Lab	2
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October 1, 2013

Chem 40600/01	Environmental Chem.	3
Chem 40700	Environ Organic Chem	3
Chem 43400	PChem & Chem Instr Lab	2
Phys 32100	Modern Physics	3
Phys 32300	Quantum Mechanics	3
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