

# Raritan Valley Community College/NJIT

## 2 + 2 Connect Agreement

### *A.S. in Engineering/B.S. in Engineering*

This agreement between Raritan Valley Community College (RVCC) and the New Jersey Institute of Technology connects students in RVCC Associate Degree Program in Engineering Science to various BS Programs at the Newark College of Engineering (NCE) at NJIT. These connected degree programs enable students to complete their associate degrees and then transfer seamlessly to a four-year program as a junior toward their degrees.

This agreement is in full compliance with the State of New Jersey's Transfer Policy of September 2007, and the Comprehensive Statewide Transfer Agreement.

The successful implementation of the agreement depends upon communication of its contents to all involved participants, and assumptions of responsibility by both institutions for such communication. Periodic reviews and updates are essential to ensuring a 2 + 2 curriculum.

### **The Connected Degree 2 + 2 Curriculum**

RVCC Associate Degree Program in Engineering Science is a two-year preparatory curriculum for students who plan to transfer to a four-year institution to complete a bachelor degree or beyond in engineering. The curriculum provides strong mathematics and science preparation, problem-solving experience and communication skills. Graduates are prepared for upper-division course work.

The Newark College of Engineering Bachelor of Science degrees prepare graduates to enter the profession of modern engineering. Students are prepared to apply a broad knowledge of mathematics, science, analysis, and design to engineering problems. They are given an opportunity to experience real-world laboratory research and design problems. Graduates may be employed in industry, government, or academia. Additionally, graduates will be prepared to pursue graduate studies, should they choose.

The attached guide sheets provide course equivalencies and/or area requirements where:

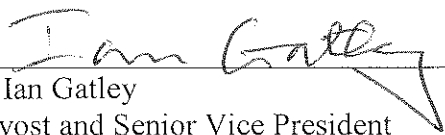
- a. Table A identified course equivalencies between RVCC and common courses to all programs within NCE for year 1 and 2.
- b. Tables B.1 through B.7 identifies course equivalencies between RVCC and specific programs within NCE for year 1 and 2. Should any of these courses not be offered at RVCC, the student should discuss with their advisor the possibility of taking these courses at another institution. NCE at NJIT will work with RVCC to identify institutions that their courses are acceptable for transfer.

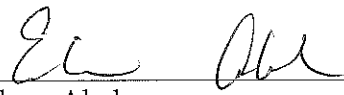
- c. Example: students satisfying Tables A and B.3 courses have junior standing toward their degree upon enrolling into Civil and Environmental Engineering Program at NCE.

Summary credit hour requirements (program dependent):

- d. Transfer credits from Raritan Valley Community College 51 - 62
- e. Credits to be taken at the New Jersey Institute of Technology 67 - 84
- f. Total Credits for bachelor of science 129-135

### Signatures

  
\_\_\_\_\_  
Dr. Ian Gatley  
Provost and Senior Vice President  
for Academic Affairs  
New Jersey Institute of Technology

  
\_\_\_\_\_  
Dr. Eileen Abel  
Senior Vice President for Academic Affairs  
Raritan Valley Community College

30 March 2011  
Date

3/30/11  
Date

**Table A: Course Equivalency for Courses Common to All Engineering Degree Programs at NCE/NJIT**

Raritan Valley Community College			New Jersey Institute of Technology		
Course #	Title	C.H.	Course #	Title	C.H.
ENGL 111	English I	3	HUM 101	English Composition, Writing, Speaking, Thinking I	3
PHYS 150	Engineering Physics I	4	Phys 111	Physics I	3
	<i>PHYS-150= PHYS111 +111A</i>		Phys 111A	Physics I Lab	1
CHEM 103	General Chemistry I	4	Chem 125	General Chemistry I	3
MATH 151	Calculus I	4	Math 111	Calculus I	4
Depending on status and background courses (such as CAD) this course might be waived.			FED 101	Fundamental of Engineering, Design	2
**	<i>See footnote below</i>	1	PE xxx	Physical Education (GUR)	1
			PE xxx	Physical Education (GUR)	1
ENGL 112	English II	3	HUM 102	English Composition, Writing, Speaking, Thinking II	3
PHYS 151	Engineering Physics II	4	Phys 121	Physics II	3
	<i>PHYS-151= Phys121 +121A</i>		Phys 121A	Physics II Lab	1
	<i>CHEM 103 = Chem 125 + 124</i>		Chem 124*	General Chemistry Lab Not required for EE and CoE	1 0
CHEM 104	General Chemistry II	4	Chem126*	General Chemistry II Not required for EE and CoE	3 0
ENGR 108	Introduction to Computing for Engineers and Scientists	3	CS 101 or CS 113	Computer Programming and Problem Solving or Introduction to Computer Science (for EE or CoE)	3
MATH 152	Calculus II	4	Math 112	Calculus II	4
MATH 251	Calculus III	4	Math 211 or Math 213	Calculus III A or Calculus III B (for EE or CoE)	3 or 4
MATH 254	Differential Equations	4	Math 222	Differential Equations	4
ECON-101	Macroeconomics	3	Econ 201	Economics	3
HUM elec	Humanities Elective	3	HUM/ HIST	Cultural History Elective: Hum 211, Hum 212, or Hist 213	3
SS elect	Humanities Elective	3	SS elect***	Econ 2xx, R070:2xx, R202:2xx, R790:2xx, or R830:2xx, R920:2xx	3
<b>TOTAL Toward Degree (EE and CoE)</b>		50 (47)	<b>TOTAL NJIT (EE and CoE)</b>		52 (50)

\* Not required for electrical engineering (EE) and computer engineering (CoE)

\*\* Physical Education not required at RVCC but students may take FITN-115 for transfer

\*\*\*NJIT students not required to take in year 1 or 2

**Table B.1: Biomedical Engineering**

Raritan Valley Community College			Biomedical Engineering Program		
Course #	Title	C.H.	Course #	Title	C.H.
BIOL 124	Human Anatomy and Physiology I	4	BME 105	Intro. to Human Physiology I	2
BIOL 125	Human Anatomy and Physiology II	4	BME 106	Intro. to Human Physiology II	1
			BME 301	Electrical Fundamentals of Biomedical Engineering	3
			BME 302	Mechanical Fundamentals of Biomedical Engineering	3
			BME 303	Biological and Chemical Foundation of Biomedical Engr.	3
			BME 304	Biomaterials Foundations of Biomedical Engineering	3
			Math 279	Statistics and Probability for Engineering	2
			BME 310	Biomedical Computing	3
MATH 256	Linear Algebra	4	Math 337	Linear Algebra	3
Chem 211	Organic Chemistry I	5	Chem 243	Organic Chemistry	3
Chem 212	Organic Chemistry II	5	Chem 244*	Organic Chemistry II	3
			Mech 320*	Statics and Strength of Materials	

\*Elective or requirement depending on Specialization within BME

**Table B.2: Chemical, Biological, and Pharmaceutical (CBPE) Engineering**

Raritan Valley Community College			CBPE Engineering Program		
Course #	Title	C.H.	Course #	Title	C.H.
			ChE 210	Chemical Process Calculation I	2
			ChE 210W	Chemical Process Calculation I	0
			ChE 230	Chemical Engineering Thermodynamics I	3
			ChE 230 W	Chemical Engineering Thermodynamics I	0
			Chem 245	Organic Chemistry for Chemical Engineers	4
			Chem 238	Analytical Organic Chem lab for Chemical Engineers	2
			ChE 240	Chemical Process Calculations II	3
			ChE 240W	Chemical Process Calculations II	0
			ChE 260	Fluid Flow	3
			Chem 236	Physical Chemistry for ChemE	4

**Table B.3: Civil and Environmental Engineering**

Raritan Valley Community College			Civil & Environmental Engineering Program		
Course #	Title	C.H.	Course #	Title	C.H.
			CE 200	Surveying	3
			CE 200A	Surveying Laboratory	1
			Math 235	Survey of Prob. and Statistics	1
ENGR 132	Engineering Mechanics I: Statics	3	Mech 235	Statics	3
			EnE 262	Intro. to Environmental Engrg.	3
			CE 210	Construction Materials and Procedures	3
			CE 260	Civil Engineering Methods	3
			Mech 237	Strength of Materials	3

**Table B.4: Computer Engineering**

Raritan Valley Community College			Computer Engineering Program		
Course #	Title	C.H.	Course #	Title	C.H.
			CS 114	Intro. to Computer Science II	3
ENGR 111	Introduction to Circuit Analysis	4	ECE 231	Circuits and Systems	3
			ECE 251	Digital Design	3
			ECE 271	Electronic Circuits	3
			ECE 252	Microprocessors	3
			ECE 232	Circuits and Systems II	3
	<i>ENGR 111 = ECE 231 + 291</i>		ECE 291	Electrical Engineering Lab	1

**Table B.5: Electrical Engineering**

Raritan Valley Community College			Electrical Engineering Program		
Course #	Title	C.H.	Course #	Title	C.H.
ENGR 111	Introduction to Circuit Analysis	4	ECE 231	Circuits and Systems	3
			ECE 251	Digital Design	3
			ECE 271	Electronic Circuits	3
			ECE 252	Microprocessors	3
			ECE 232	Circuits and Systems II	3
	<i>ENGR 111 = ECE 231 + 291</i>		ECE 291	Electrical Engineering Lab	1
PHYS 250	Engineering Physics III	4	Phys 234	Physics III	3

**Table B.6: Mechanical Engineering**

Raritan Valley Community College			Mechanical Engineering Program		
Course #	Title	C.H.	Course #	Title	C.H.
			Math 279	Statistics and Probability for Engineers	2
			ME 215	Engineering Materials and Processes	3
			ME 231	Kinematics of Machinery	3
ENGR 132	Engineering Mechanics I: Statics	3	Mech 234	Engineering Mechanics	2
ENGR 133	Engineering Mechanics II: Dynamics	3	Mech 236	Dynamics	2
			Mech 237	Strength of Materials	3

**Table B.7: Industrial Engineering**

Raritan Valley Community College			Industrial Engineering Program		
Course #	Title	C.H.	Course #	Title	C.H.
			IE 203	Applications of Computer Graphics to Industrial Enrg.	2
			Mech 320	Statics and Strength of Materials	3
			Eng 352	Technical Writing	3
			IE 224	Production Process Design	3
ENGR 133	Engineering Mechanics II: Dynamics	3	Mech 236	Dynamics	2
			IE 331	Applied Statistical Methods	3