

# **Articulation Agreement**

between the

**North Shore Community College  
Engineering Science Curricula**

and the

**University Of Massachusetts Lowell  
Engineering Curricula**

(revised)  
May 1998

# Letter of Articulation Agreement

North Shore Community College  
Engineering Science Curriculum

and the

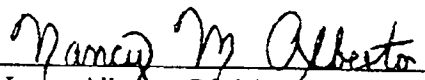
University Of Massachusetts Lowell  
Engineering Curricula

May 26, 1998

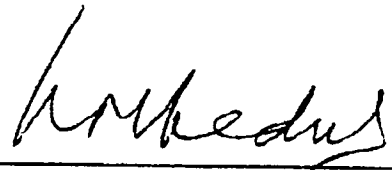
Articulation agreements have been established between North Shore Community College engineering science curriculum and the University of Massachusetts Lowell undergraduate engineering program curricula in chemical, civil, electrical, mechanical, and plastics engineering. Each of these agreements was developed with the intent of facilitating the transfer process from North Shore Community College to the University of Massachusetts Lowell. These agreements will serve as a guideline for those students who desire transfer into the College of Engineering at the University of Massachusetts Lowell.

Students, completing the Engineering Science Transfer Program at North Shore Community College in accordance with the minimum standards as set by each program will be admitted to the University of Massachusetts Lowell as juniors. Courses completed at North Shore Community College with a grade of C or better will be accepted for transfer credit at University of Massachusetts Lowell. Students who do not meet all of the aforementioned minimum standards will be considered for admission to the University of Massachusetts Lowell on a case by case basis.

This agreement will remain in effect unless or until modified by North Shore Community College and the University of Massachusetts Lowell.

  
Nancy Alberto, Division Chair  
Science & Mathematics  
North Shore Community College

7-27-98  
Date

  
Krishna Vedula, Dean  
College of Engineering  
University of Massachusetts Lowell

7-27-98  
Date

**SUMMARY**  
**UMass Lowell - North Shore Community College Course Articulation**

North Shore		UMass Lowell		Chem.	Civil	Elect.	Mech.	Plastics
CHE 103 - Chemistry 1 & Lab (4)	84.121 - Chemistry I (3) 84.123 - Chemistry I Lab (1) or 16.333 - Materials Chemistry (3)	R R	R R			R	R R	R R
CHE 104 - Chemistry 2 & Lab (4)	84.122 - Chemistry II (3) 84.124 - Chemistry II Lab (1)	R R	R R					R R
CMP 101 - Composition 1 (3)	42.101 - College Writing I (3)	R	R					R
CMP 104-146 - Composition 2 (3)	42.102 - College Writing II (3)	R	R	R			R	R
CPS 105 - Program in Fortran (4)	25.107 - Intro to Engineer I (2)	R	R	R			R	R
EGS 101 - Intro to Engineer (2)	25.108 - Intro to Engineer II (2)	R	R	R			R	R
HUMANITIES OR SOC SCI	General Ed. Requirement (3)	R	R	R			R	R
HUMANITIES OR SOC SCI	General Ed. Requirement (3)	R	R	R			R	R
MAT 251 - Calculus 1 (4)	92.131 - Calculus I (4)	R	R	R			R	R
MAT 252 - Calculus 2 (4)	92.132 - Calculus II (4)	R	R	R			R	R
MAT 301 - Calculus 3 (4)	92.231 - Calculus III (4)	R	R	R			R	R
MAT 302 - Diff Equations (4)	92.234 - Diff Equations (3) or 92.271 - Diff Equations (3)	R	R	R			R	R
PHY 201 - Physics 1 with Lab (4)	95.141 - Physics I (3) 96.141 - Physics I Lab (1)	R R	R R	R R			R R	R R
PHY 202 - Physics 2 with Lab (4)	95.245 - Phys Prop of Mat (3)						R	
PHY 301 - Physics 3 with Lab (4)	95.144 - Physics II (3) 96.144 - Physics II Lab (1) or 16.211 - Fund Electricity(3)	R R		R R				R R
E CAD 101 - CAD I (4)	22.201 - Mech. Des Lab I (2) or 26.218 - Intro to Plastics Des (2)			R			R	
E CAD 102 - CAD 2 (4)	No UML equivalent							R
E CHE 201 - Org Chem 1 (4)	84.221 - Organic Chemistry I (3) 84.229 - Organic Chem I Lab (1)	R R						R R
E CHE 202 - Org Chem 2 & Lab (4)	84.222 - Organic Chemistry II (3) 84.230 - Organic Chem II Lab (1)	R R						
E CPS 101 - Program in Pascal (4)	91.101 - Computing I (3)							
E EGS 201 - Statics (3)	14.203 - Statics (3) or 22.211 - Statics (3)			R				
E EGS 202 - Dynamics (3)	14.205 - Dynamics (3) or 22.213 - Dynamics (3) or 26.212 - Particle and body dyn(1)			R			R	R
E EGS 204 - Strength of Mat (3)	14.204 - Strength of Materials (3) or 22.212 - Mechanics of Materials (3)			R				R
E EGS 206 - Materials Science (3)	25.110 - Intro to Mat (1) or 22.295 - Mat Science (3) or 10.308 - Eng Materials (3) or 14.310 - Eng Materials (3)	R			R		R	
E EGS 211 - Intro Circuits 1 (6)	16.201 Circuits I (3) 16.207 Circuits I Lab (2)					R		
E EGS 212 - Intro Circuits 2 (6)	16.202 Circuits II (3) 16.208 Circuits II Lab (2)					R		
E EGS 214 - Thermodynamics (3)	10.347 - Thermo and Heat (3) or 22.242 - Thermo (3) or 26.247 - Thermo (3)			R			R	
E EGS 216 - Intro to Dig Logic(4)	16.265 - Intro to Digital Logic (4)					R		R
E GEO 114 - Surveying (3)	14.225 - Surveying I (3)				R			
E MAT 210 - Linear Algebra (3)	92.221 - Linear Algebra (3)							
E MET 126 - Tech Drawing (3)	No UML Engineering Equivalent							
E PHY 302 - Physics 4 (4)	95.210 - Intro to Modern Physics (3)							
E TCM 101- Tech Writing (3)	42.225 - Tech Writing (3)							

E= Engineering Electives at North Shore.

R = Required by UMass Lowell

Date: May 1998

## Engineering Science Transfer (EN) UML Chemical Engineering

### NSCC Courses

### UML Course Equivalent

#### Fall Semester - First Year

CMP101	Composition 1 (3)	42.101	College Writing I (3)
MAT251	Calculus 1 (4)	92.131	Calculus I (4)
CHE103	Chemistry 1 (4)	84.121	Chemistry I (3)
		84.123	Chemistry I Lab (1)
PHY201	Physics 1 (4)	95.141	Physics I (3)
		96.141	Physics I Lab (1)
EGS101	Intro. To Engineering (2)	25.108	Int. to Engineering II (2)

#### Spring Semester - First Year

CMP104 - 146	Composition 2 (3)	42.102	College Writing II (3)
MAT252	Calculus 2 (4)	92.132	Calculus II (3)
CHE104	Chemistry 2 (4)	84.122	Chemistry II (3)
		84.124	Chemistry II Lab (1)
PHY202	Physics 2 (4)	Technical Elective (3)	
CPS105	Programming in FORTRAN 77 (4)	25.107	Int. to Engineering I (2)

#### Fall Semester - Second Year

PHY301	Physics 3 (4)	95.144	Physics II (5)
		96.144	Physics II Lab (1)
MAT301	Calculus 3 (4)	92.231	Calculus III (4)
HUM elective	Humanities Elective	General Ed. requirement (3)	
Or SS elective	Social Sciences Elective		
*CHE201	Organic Chemistry 1 (4)	84.221	Organic Chemistry I (3)
		84.227 - 229	Organic Chem I Lab (1)

#### Spring Semester - Second Year

MAT302	Differential Equations (3)	92.271	Differential Equations (3)
HUM elective	Humanities Elective	General Ed. requirement (3)	
Or SS elective	Social Sciences Elective		
*CHE202	Organic Chemistry 2 (4)	84.222	Organic Chemistry II (3)
		84.228 - 230	Organic Chem II Lab (1)
*CPS101	Programming in Pascal 1 (4)	Technical Elective (3)	
*EGS206	Material Sciences (3)	10.308	Engineering Materials (3)

\* = North Shore Engineering Electives (must total 15 credits)

Notes:

## Engineering Science Transfer (EN) UML Civil Engineering

### NSCC Courses

### UML Course Equivalent

#### Fall Semester - First Year

CMP101	Composition 1 (3)	42.101	College Writing I (3)
MAT251	Calculus 1 (4)	92.131	Calculus I (4)
CHE103	Chemistry 1 (4)	84.121	Chemistry I (3)
		84.123	Chemistry I Lab (1)
PHY201	Physics 1 (4)	95.141	Physics I (3)
		96.141	Physics I Lab (1)
EGS101	Intro. To Engineering (2)	25.108	Int. to Engineering II (2)

#### Spring Semester - First Year

CMP104 - 146	Composition 2 (3)	42.102	College Writing II (3)
MAT252	Calculus 2 (4)	92.132	Calculus II (3)
CHE104	Chemistry 2 (4)	84.122	Chemistry II (3)
		84.124	Chemistry II Lab (1)
PHY202	Physics 2 (4)		
CPS105	Programming in FORTRAN 77 (4)	25.107	Int. to Engineering I (2)

#### Fall Semester - Second Year

PHY301	Physics 3 (4)	16.211	Fundamentals of Elect. (3)
MAT301	Calculus 3 (4)	92.231	Calculus III (4)
HUM elective	Humanities Elective		General Ed. requirement (3)
Or SS elective	Social Sciences Elective		
*EGS201	Statics (3)	14.203	Statics (3)
*GEO114	Surveying (3)	14.225	Surveying I (3)

#### Spring Semester - Second Year

MAT302	Differential Equations (4)	92.234	Differential Equations (3)
HUM elective	Humanities Elective		General Ed. requirement (3)
Or SS elective	Social Sciences Elective		
*EGS202	Dynamics (3)	14.205	Dynamics (3)
*EGS204	Strength of Materials (3)	14.204	Strength of Materials (3)
*EGS214	Thermodynamics (3)	10.347	Thermodynamics (3)
*EGS206	Materials Science (3)	14.310	Engineering Materials (3)

\* = North Shore Engineering Electives (must total 15 credits)

Notes:

Recommended Electives: EGS201, EGS202, EGS204, EGS206, EGS214

## Engineering Science Transfer (EN) UML Electrical Engineering

### NSSC Courses

### UML Course Equivalent

#### Fall Semester - First Year

CMP101	Composition 1 (3)	42.101	College Writing I (3)
MAT251	Calculus 1 (4)	92.131	Calculus I (4)
CHE103	Chemistry 1 (4)	16.333	Materials Chemistry (3)
PHY201	Physics 1 (4)	95.141	Physics I (3)
		96.141	Physics I Lab (1)
EGS101	Intro. To Engineering (2)	25.108	Int. to Engineering II (2)

#### Spring Semester - First Year

CMP104 - 146	Composition 2 (3)	42.102	College Writing II (3)
MAT252	Calculus 2 (4)	92.132	Calculus II (3)
CHE104	Chemistry 2 (4)		
PHY202	Physics 2 (4)		
CPS105	Programming in FORTRAN 77 (4)	25.107	Int. to Engineering I (2)

#### Fall Semester - Second Year

PHY301	Physics 3 (4)	95.144	Physics II (3)
		96.144	Physics II Lab (1)
MAT301	Calculus 3 (4)	92.231	Calculus III (4)
HUM elective	Humanities Elective	General Ed. requirement (3)	
Or SS elective	Social Sciences Elective		
*EGS211	Introduction to Circuits 1 (6)	16.201	Circuits I (3)
		16.207	Circuits I Lab (2)

#### Spring Semester - Second Year

MAT302	Differential Equations (3)	92.234	Differential Equations (3)
HUM elective	Humanities Elective	General Ed. requirement (3)	
Or SS elective	Social Sciences Elective		
*EGS212	Introduction to Circuits II (6)	16.202	Circuits II (3)
		16.208	Circuits II Lab (2)
*EGS216	Intro to Dig Logic (4)	16.265	Intro. To Logic Design (3)
or *EGS206	Materials Science (3)	25.110	Intro. To Materials (1)

\* = North Shore Engineering Electives (must total 15 credits)

Notes:

## Engineering Science Transfer (EN) UML Mechanical Engineering

### NSCC Courses

### UML Course Equivalent

#### Fall Semester - First Year

CMP101	Composition 1 (3)	42.101	College Writing I (3)
MAT251	Calculus 1 (4)	92.131	Calculus I (4)
CHE103	Chemistry 1 (4)	84.121	Chemistry I (3)
		84.123	Chemistry I Lab (1)
PHY201	Physics 1 (4)	95.141	Physics I (3)
		96.141	Physics I Lab (1)
EGS101	Intro. To Engineering (2)	25.108	Int. to Engineering II (2)

#### Spring Semester - First Year

CMP104 - 146	Composition 2 (3)	42.102	College Writing II (3)
MAT252	Calculus 2 (4)	92.132	Calculus II (3)
CHE104	Chemistry 2 (4)		
PHY202	Physics 2 (4)	95.245	Phys. Prop. Of Matter (3)
CPS105	Programming in FORTRAN 77 (4)	25.107	Int. to Engineering I (2)

#### Fall Semester - Second Year

PHY301	Physics 3 (4)	16.211	Fundamentals of Elect. (3)
MAT301	Calculus 3 (4)	92.231	Calculus III (4)
HUM elective	Humanities Elective		
Or SS elective	Social Sciences Elective		General Ed. requirement (3)
*EGS201	Statics (3)	22.211	Statics (3)
*EGS206	Materials Science (3)	22.295	Materials Science (3)

#### Spring Semester - Second Year

MAT302	Differential Equations (3)	92.234	Differential Equations (3)
HUM elective	Humanities Elective		
Or SS elective	Social Sciences Elective		General Ed. requirement (3)
*EGS202	Dynamics (3)	14.205	Dynamics (3)
*EGS204	Strength of Materials (3)	22.212	Mechanics of Materials(3)
*EGS214	Thermodynamics (3)	22.242	Thermodynamics (3)
*CAD101	CAD I (4)	22.201	Mech. Des Lab I (2)

\* = North Shore Engineering Electives (must total 15 credits)

Notes:

## Engineering Science Transfer (EN) UML Plastics Engineering

### NSSC Courses

### UML Course Equivalent

#### Fall Semester - First Year

CMP101	Composition 1 (3)	42.101	College Writing I (3)
MAT251	Calculus 1 (4)	92.131	Calculus I (4)
CHE103	Chemistry 1 (4)	84.121	Chemistry I (3)
		84.123	Chemistry I Lab (1)
PHY201	Physics 1 (4)	95.141	Physics I (3)
		96.141	Physics I Lab (1)
EGS101	Intro. To Engineering (2)	25.108	Int. to Engineering II (2)

#### Spring Semester - First Year

CMP104 - 146	Composition 2 (3)	42.102	College Writing II (3)
MAT252	Calculus 2 (4)	92.132	Calculus II (3)
CHE104	Chemistry 2 (4)	84.122	Chemistry II (3)
		84.124	Chemistry II Lab (1)
PHY202	Physics 2 (4)		
CPS105	Programming in FORTRAN 77 (4)	25.107	Int. to Engineering I (2)

#### Fall Semester - Second Year

PHY301	Physics 3 (4)	95.144	Physics II (3)
		96.144	Physics II Lab (1)
MAT301	Calculus 3 (4)	92.231	Calculus III (4)
HUM elective	Humanities Elective	General Ed. requirement (3)	
Or SS elective	Social Sciences Elective		
*EGS201	Statics (3)	22.211	Statics (3)
*CHE201	Organic Chemistry I (4)	84.221	Organic Chem I (3)
		84.227	Organic Chem I Lab (1)

#### Spring Semester - Second Year

MAT302	Differential Equations (3)	92.234	Differential Equations (3)
HUM elective	Humanities Elective	General Ed. requirement (3)	
Or SS elective	Social Sciences Elective		
*CAD101	CAD 1 (4)	26.218	Int. To Plastics Design (2)
*EGS214	Thermodynamics (3)	26.247	Thermodynamics (3)
*EGS202	Dynamics (3)	26.212	Dynamics (1)

\* = North Shore Engineering Electives (must total 15 credits)

Notes: