

**ARTICULATION AGREEMENT**

Between the

**ENGINEERING CURRICULUMS**

of

**MIDDLESEX COMMUNITY COLLEGE**

and the

**UNIVERSITY OF MASSACHUSETTS LOWELL**

**James B. Francis**

**COLLEGE OF ENGINEERING**

Spring 2006

This articulation agreement has been established between Middlesex Community College and the University of Massachusetts Lowell, James B. Francis College of Engineering. This agreement was developed with the intent of facilitating the transfer process from Middlesex Community College to the University of Massachusetts Lowell. These agreements will serve as a guideline for those who desire to transfer into the James B. Francis College of Engineering at the University of Massachusetts Lowell.

Students completing the Engineering Science Transfer program at Middlesex Community College, in accordance with the minimum standards as set by the James B. Francis College of Engineering at the University of Massachusetts Lowell, will be admitted to that College at the University of Massachusetts Lowell as advanced sophomores. Students who do not meet the aforementioned minimum standards will be considered for admission to the University of Massachusetts Lowell on a case-by-case basis.

#### OBJECTIVES:

1. To encourage the transfer of qualified students from Middlesex Community College to the University of Massachusetts Lowell.
2. To award academic credit for courses completed at Middlesex Community College that meet the terms of the Engineering Science Transfer Associate Degree as stated in this agreement for application toward the requirements for the Bachelor of Engineering Science Degree at the University of Massachusetts Lowell.
3. To provide effective and concise guidelines for students seeking to transfer to the University of Massachusetts Lowell. Students will have accurate and clear information regarding the transfer of their coursework and credits toward the Bachelor's Degree at the University of Massachusetts Lowell.


#### TERMS OF THE TRANSFER ARTICULATION AGREEMENT:

1. The University of Massachusetts Lowell guarantees the acceptance of students who completed the Engineering Science Associate Degree program at Middlesex Community College with an overall GPA of 2.5 or better to the James B. Francis College of Engineering. For admission directly into a major, students may need to meet additional pre-requisites as listed on the attached curriculum flow sheets.
2. The University of Massachusetts Lowell guarantees the transfer of credit as stipulated in the attached Programs of Studies. This agreement assumes the completion of the Associate Degree and completion of the courses listed on the attached Programs of Studies. The University of Massachusetts Lowell may require that 50% of the major is completed in residence; a minimum total of 121 – 132/133 credits (depending on the major) must be completed to earn a Bachelor's degree in Engineering Science. The University of Massachusetts Lowell may accept courses

taken beyond the Associate Degree (63 credits); however, students are encouraged to contact the transfer advisor at the University of Massachusetts Lowell for approval.

3. Middlesex Community College transfer students will be subject to all general education requirements of the University of Massachusetts Lowell as set forth in the University of Massachusetts Lowell catalog. Students meeting the requirement of the Commonwealth Transfer Compact will be exempt from 35 credits of University general education requirements, but will be required to meet any specific James B. Francis College of Engineering department general education requirements.
4. This document is based upon the evaluation of course descriptions presented to the University of Massachusetts Lowell. Courses as listed in this agreement will transfer to the University of Massachusetts Lowell provided a grade of "C-" or better has been earned. When appropriate, the requirements of the Commonwealth Transfer Compact will be honored.
5. Middlesex Community College students interested in participating in this agreement should be advised to take the suggested liberal arts courses. These courses are required at the University of Massachusetts Lowell and students are advised to complete them as part of their Associate Degree.
6. This agreement shall remain in effect for a period of two years from the date listed below, with the provision that the terms specified herein will continue to apply to students admitted from Middlesex Community College's Engineering Science Transfer Associate Degree program within one year of the expiration of the agreement. Each institution agrees to provide timely notice to the other in the event of any modification to the curriculum that might affect compatibility for admission and transfer of coursework. This agreement may be subject to change, without notice, if curriculum requirements change at either institution. Students admitted to the Middlesex Community College's Engineering Science Transfer Associate Degree program prior to such notification shall be admitted to the University of Massachusetts Lowell on the basis of this agreement.

*Signatures*

  
William T. Hogan, Chancellor  
University of Massachusetts Lowell

  
Carole A. Cowan, President  
Middlesex Community College

\_\_\_\_\_  
Date

**Transfer Articulation Agreement  
Engineering Science Transfer  
transferring into  
Electrical & Computer Engineering**

NOTE: Minimum 2.5 cumulative GPA is required for admission to this major

Middlesex Community College			UMass Lowell		
COURSE #	TITLE	CR	COURSE #	TITLE	CR
EG 1102	Intro to Engineering	4	25.107	Intro to Engineering I	2
CS 1111	Programming I	4	25.108	Intro Engineering II	2
EN 1103	English Composition I	3	42.101	College Writing I	3
EN 1105	English Composition II: Intro to Literature	3	42.102	College Writing II	3
HU 5127	Technology and Society	3	59.203	Technology & Social Values	3
	<b>or</b> HU 5121 Ethics & Society		45.203	<b>or</b> Intro to Ethics	
HU/MA/SC/SO	General Education Elective Select transferable course from UMass Lowell course equivalency guide	3		Transferable course from UMass Lowell course equivalency guide	3
HU _____	Humanities Elective: Choose <u>One</u> of the Following: - HU 2101 Art Appreciation - HU 2105 Art History I - HU 2106 Art History II - HU 4106 Shakespeare - HU 5101 Intro Philosophy - HU 6102 Children's Lit - HU 6104 American Lit I - HU 6105 Modern Amer Lit - HU 6135 The Short Story - HU 6156 Family Matters in Lit, TV & Advertising - HU 8101 Speech	3		Fulfills Arts & Humanities (AH) General Education Elective	3
MA 1108	Precalculus for Science I	4		No credit for Engineering Majors	

COURSE #	TITLE	CR	COURSE #	TITLE	CR
MA 1110	Precalculus II	3		No Credit for Engineering Majors	
MA 1125	Calculus I for Science	4	92.131	Calculus I	4
MA 1126	Calculus for Science II	4	92.132	Calculus II	4
Engin'ing Electives	CN 1101 Principles of Electrical Circuits <b>and</b> Select 4 Credits: - MA xxxx Diff Equat'ns (4) - MA 1127 Calculus III (4) - CN 1111 Dig Sys (3) - CN 1121 Comp Sys Funds (3) - CN 1131 Networking (3) - CS 1105 Intro to Linux (1) - CS 1112 Programming II (4) - CS 1201 Comp Org & Assembly (3) - SC 3133 Gen Chem II (4)	4  4	16.207/ 16.208	Basic Circuits Lab I & II  <b>and</b> Credit varies; see UMass Lowell course equivalency	4  0 - 4
SC 3201	Physics for Engin'ing & Science I	4	95.141/ 96.141	Physics I/Lab	4
SC 3202	Physics for Engin'ing & Science II	4	95.144/ 96.144	Physics II/Lab	4
SO_____	SO 2111 Macroeconomics <b>or</b> SO 2113 Microeconomics	3	49.202  49.201	Economics II  <b>or</b> Economics I	3
SO_____	Social Science Elective: A course in Economics is recommended	3		Transferable course from UMass Lowell course equivalency guide	3
SO_____	Behavioral Science Elective: Choose <u>One</u> of the Following: - SO 1101 Cultural Anthropology - SO 5101 Intro Psychology - SO 5106 Child Psych - SO 5113 Psych of Pers - SO 5115 Abnormal Psych - SO 5121 Social Psych - SO 6101 Intro Sociology - SO 6111 Sociology of the Family	3		Fulfills Social Science (SS) General Education Elective	3

<b>COURSE #</b>	<b>TITLE</b>	<b>CR</b>	<b>COURSE #</b>	<b>TITLE</b>	<b>CR</b>
Elective	Elective: CS 1101 Intro to Computers (if needed) <u>or</u> Select transferable course from UMass Lowell course equivalency guide	3/4		No Credit <u>or</u> Transferable course from UMass Lowell course equivalency guide	0 - 4
<b>TOTAL CREDITS</b>		<b>62/ 63</b>	<b>TOTAL CREDITS</b>		<b>48/ 50</b>

**Transfer Articulation Agreement  
Engineering Science Transfer  
Transferring into  
Mechanical Engineering**

NOTE: Minimum 2.5 cumulative GPA is required for admission to this major

Middlesex Community College			UMass Lowell		
COURSE #	TITLE	CR	COURSE #	TITLE	CR
EG 1102	Intro to Engineering	4	25.107	Intro to Engineering I	2
CS 1111	Programming I	4	25.108	Intro Engineering II	2
EN 1103	English Composition I	3	42.101	College Writing I	3
EN 1105	English Composition II: Intro to Literature	3	42.102	College Writing II	3
HU 5127	Technology and Society	3	59.203	Technology & Social Values	3
	<b>or</b> HU 5121 Ethics & Society		45.203	<b>or</b> Intro to Ethics	
HU/MA/SC/SO	General Education Elective Select transferable course from UMass Lowell course equivalency guide	3		Transferable course from UMass Lowell course equivalency guide	3
HU _____	Humanities Elective: Choose <u>One</u> of the Following: - HU 2101 Art Appreciation - HU 2105 Art History I - HU 2106 Art History II - HU 4106 Shakespeare - HU 5101 Intro Philosophy - HU 6102 Children's Lit - Hu 6104 American Lit I - HU 6105 Modern Amer Lit - HU 6135 The Short Story - HU 6156 Family Matters in Lit, TV & Advertising - HU 8101 Speech	3		Fulfills Arts & Humanities (AH) General Education Elective	3
MA 1108	Precalculus for Science I	4		No credit for Engineering Majors	

<b>COURSE #</b>	<b>TITLE</b>	<b>CR</b>	<b>COURSE #</b>	<b>TITLE</b>	<b>CR</b>
MA 1110	Precalculus II	3		No Credit for Engineering Majors	
MA 1125	Calculus I for Science	4	92.131	Calculus I	4
MA 1126	Calculus for Science II	4	92.132	Calculus II	4
Engin'ing Electives	SC 3133 Gen Chem I (4 cr) <b>and</b> CN 1101 Prin of Electrical Circuits (4 cr)	8	84.121/ 84.123 <b>and</b> 16.207/ 16.208	Chemistry I/Lab  Basic Circuits Lab I & II	4
SC 3201	Physics for Engin'ing & Science I	4	95.141/ 96.141	Physics I/Lab	4
SC 3202	Physics for Engin'ing & Science II	4	95.245/ 96.245	Physics III/Lab	4
SO _____	SO 2111 Macroeconomics <b>OR</b> SO 2113 Microeconomics	3	49.202  49.201	Economics II  Economics I	3
SO _____	Behavioral Science Elective: Choose <u>One</u> of the Following: - SO 1101 Cultural Anthropology - SO 5101 Intro Psychology - SO 5106 Child Psych - SO 5113 Psych of Pers - SO 5115 Abnormal Psych - SO 5121 Social Psych - SO 6101 Intro Sociology - SO 6111 Sociology of the Family	3		Fulfills Social Science (SS) General Education Elective	3
Elective	Elective: CS 1101 Intro to Computers (if needed) <b>or</b> Select transferable course from UMass Lowell course equivalency guide	3/4		No Credit <b>or</b> Transferable course from UMass Lowell course equivalency guide	0 - 4
<b>TOTAL CREDITS</b>		<b>63/ 64</b>	<b>TOTAL CREDITS</b>		<b>48/ 49</b>

**Transfer Articulation Agreement  
Engineering Science Transfer  
Transferring into  
Chemical Engineering**

NOTE: Minimum 2.5 cumulative GPA is required for admission to this major

Middlesex Community College			UMass Lowell		
COURSE #	TITLE	CR	COURSE #	TITLE	CR
EG 1102	Intro to Engineering	4	25.107	Intro to Engineering I	2
CS 1111	Programming I	4	25.108	Intro Engineering II	2
EN 1103	English Composition I	3	42.101	College Writing I	3
EN 1105	English Composition II: Intro to Literature	3	42.102	College Writing II	3
HU 5127	Technology and Society	3	59.203	Technology & Social Values	3
	<b>or</b> HU 5121 Ethics & Society		45.203	<b>or</b> Intro to Ethics	
HU/MA/SC/SO	General Education Elective	3		Select transferable course from UMass Lowell course equivalency guide	3
HU _____	Humanities Elective: Choose <u>One</u> of the Following: - HU 2101 Art Appreciation - HU 2105 Art History I - HU 2106 Art History II - HU 4106 Shakespeare - HU 5101 Intro Philosophy - HU 6102 Children's Lit - Hu 6104 American Lit I - HU 6105 Modern Amer Lit - HU 6135 The Short Story - HU 6156 Family Matters in Lit, TV & Advertising - HU 8101 Speech	3		Fulfills Arts & Humanities (AH) General Education Elective	3
MA 1108	Precalculus for Science I	4		No credit for Engineering Majors	
MA 1110	Precalculus II	3		No Credit for Engineering Majors	
MA 1125	Calculus I for Science	4	92.131	Calculus I	4

COURSE #	TITLE	CR	COURSE #	TITLE	CR
MA 1126	Calculus for Science II	4	92.132	Calculus II	4
Engin'ing Electives	SC 3133 Gen Chem I (4 cr) <b>and</b> SC 3134 Gen Chem II (4 cr)	8	84.121/ 84.123 <b>and</b> 84.122/ 84.124	Chemistry I/Lab  Chemistry II/Lab	8
SC 3201	Physics for Engin'ing & Science I	4	95.141/ 96.141	Physics I/Lab	4
SC 3202 Substitution	CN 1101 Principles of Electric Circuits <b>or</b> SC 2101 Gen Bio I (for Biotech majors only)	4	10.205  <b>or</b> 81.111	Fundamentals of Electricity  Principles of Biology I/Lab	3
SO _____	Social Science Elective: SO 2113 Microeconomics	3	49.201	Economics I	3
SO _____	Behavioral Science Elective: Choose <u>One</u> of the Following: - SO 1101 Cultural Anthropology - SO 5101 Intro Psychology - SO 5106 Child Psych - SO 5113 Psych of Pers - SO 5115 Abnormal Psych - SO 5121 Social Psych - SO 6101 Intro Sociology - SO 6111 Sociology of the Family	3		Fulfills Social Science (SS) General Education Elective	3
Elective	Elective: CS 1101 Intro to Computers (if needed) <b>or</b> Select transferable course from UMass Lowell course equivalency guide	3/4		No Credit <b>or</b> Transferable course from UMass Lowell course equivalency guide	0 - 4
<b>TOTAL CREDITS</b>		<b>63/ 64</b>	<b>TOTAL CREDITS</b>		<b>48/ 53</b>

**Transfer Articulation Agreement  
Engineering Science Transfer  
Transferring into  
Civil Engineering**

NOTE: Minimum 2.5 cumulative GPA is required for admission to this major

Middlesex Community College			UMass Lowell		
COURSE #	TITLE	CR	COURSE #	TITLE	CR
EG 1102	Intro to Engineering	4	25.107	Intro to Engineering I	2
CS 1111	Programming I	4	25.108	Intro Engineering II	2
EN 1103	English Composition I	3	42.101	College Writing I	3
EN 1105	English Composition II: Intro to Literature	3	42.102	College Writing II	3
HU 5127	Technology and Society	3	59.203	Technology & Social Values	3
	<u>or</u> HU 5121 Ethics & Society		45.203	Intro to Ethics	
HU/MA/SC/SO	General Education Elective	3		Select transferable course from UMass Lowell course equivalency guide	3
HU _____	Humanities Elective: Choose <u>One</u> of the Following: - HU 2101 Art Appreciation - HU 2105 Art History I - HU 2106 Art History II - HU 4106 Shakespeare - HU 5101 Intro Philosophy - HU 6102 Children's Lit - Hu 6104 American Lit I - HU 6105 Modern Amer Lit - HU 6135 The Short Story - HU 6156 Family Matters in Lit, TV & Advertising - HU 8101 Speech	3		Fulfills Arts & Humanities (AH) General Education Elective	3
MA 1108	Precalculus for Science I	4		No credit for Engineering Majors	
MA 1110	Precalculus II	3		No Credit for Engineering Majors	
MA 1125	Calculus I for Science	4	92.131	Calculus I	4

COURSE #	TITLE	CR	COURSE #	TITLE	CR
MA 1126	Calculus for Science II	4	92.132	Calculus II	4
Engin'ing Electives	SC 3133 Gen Chem I (4 cr) <b>and</b> SC 3134 Gen Chem II (4 cr)	8	84.121/ 84.123  84.122/ 84.124	Chemistry I/Lab  Chemistry II/Lab	8
SC 3201	Physics for Engin'ing & Science I	4	95.141/ 96.141	Physics I/Lab	4
SC 3202	CN 1101 Principles of Electrical Circuits	4	16.213	Fundamentals of Electricity	3
SO _____	SO 2113 Microeconomics	3	49.201	Economics I	3
SO _____	Behavioral Science Elective: Choose <u>One</u> of the Following: - SO 1101 Cultural Anthropology - SO 5101 Intro Psychology - SO 5106 Child Psych - SO 5113 Psych of Pers - SO 5115 Abnormal Psych - SO 5121 Social Psych - SO 6101 Intro Sociology - SO 6111 Sociology of the Family	3		Fulfills Social Science (SS) General Education Elective	3
Elective	Elective: CS 1101 Intro to Computers (if needed) <b>or</b> Select transferable course from UMass Lowell course equivalency guide	3/4		No Credit <b>or</b> Transferable course from UMass Lowell course equivalency guide	0 - 4
<b>TOTAL CREDITS</b>		<b>63/ 64</b>	<b>TOTAL CREDITS</b>		<b>51/ 52</b>

**Transfer Articulation Agreement  
Engineering Science Transfer  
Transferring into  
Plastics Engineering**

NOTE: Minimum 2.5 cumulative GPA is required for admission to this major

Middlesex Community College			UMass Lowell		
COURSE #	TITLE	CR	COURSE #	TITLE	CR
EG 1102	Intro to Engineering	4	25.107	Intro to Engineering I	2
CS 1111	Programming I	4	25.108	Intro Engineering II	2
EN 1103	English Composition I	3	42.101	College Writing I	3
EN 1105	English Composition II: Intro to Literature	3	42.102	College Writing II	3
HU 5127	Technology and Society	3	59.203	Technology & Social Values	3
	<b>or</b> HU 5121 Ethics & Society		45.203	Intro to Ethics	
HU/MA/SC/SO	General Education Elective	3		Select transferable course from UMass Lowell course equivalency guide	3
HU_____	Humanities Elective: Choose <u>One</u> of the Following: - HU 2101 Art Appreciation - HU 2105 Art History I - HU 2106 Art History II - HU 4106 Shakespeare - HU 5101 Intro Philosophy - HU 6102 Children's Lit - Hu 6104 American Lit I - HU 6105 Modern Amer Lit - HU 6135 The Short Story - HU 6156 Family Matters in Lit, TV & Advertising - HU 8101 Speech	3		Fulfills Arts & Humanities (AH) General Education Elective	3
MA 1108	Precalculus for Science I	4		No credit for Engineering Majors	
MA 1110	Precalculus II	3		No Credit for Engineering Majors	
MA 1125	Calculus I for Science	4	92.131	Calculus I	4

