Longwood University/Old Dominion University
ARTICULATION AGREEMENT 2011-2012
Bachelor of Science in Physics to a Bachelor of Science in Modeling & Simulation Engineering
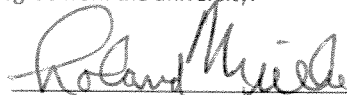
Longwood University B.S. degree in Physics				Old Dominion University B.S. degree program in M & S Engineering			
Major-* require C- or better for transfer**				**Major**			
CHEM	111	***Fundamental Chemistry I	4	CHEM	121/122N	Foundations of Chemistry	4
CHEM	112	***Fundamental Chemistry II	4	CHEM	123/124N	Foundations of Chemistry	4
PHYS	201	***University Physics I	4	PHYS	231N	University Physics	4
PHYS	202	***University Physics II	4	PHYS	232N	University Physics	4
MATH	261	***Calculus I	4	MATH	211	Calculus I	4
MATH	262	***Calculus II	4	MATH	212	Calculus II	4
MATH	361	*** Calculus III	4	MATH	312	Calculus III	4
MATH	362	***Differential Equations	3	MATH	307	Ordinary Differential Equations	3
CMSC	204	***Intro Programming	3	CS	150	Problem Solving and Programming I	3
PHYS	260	Introduction to Experimental Design	2	PHYS	2ELE	Elective	2
PHYS	321	Modern Physics I	3	PHYS	323	Modern Physics I	3
PHYS	324	Thermodynamics	3	PHYS	454	Thermal and Statistical Physics	3
PHYS	352	Mechanics	3	PHYS	319	Analytical Mechanics	3
PHYS	332	Electricity and Magnetism	3	PHYS	320	Intro to Electromagnetic Theory	3
PHYS	331	AC/DC Circuits	4	EET	350	Combination of PHYS 341+ 331= EET 350 (substitute for ENGN 110)	4
PHYS	341	Electronics	4	EET	350	Combination of PHYS 341+ 331= EET 350 (substitute for MSIM 111)	4
PHYS	ELE	Electives (Please see Longwood catalog for list of applicable courses)	6	PHYS	ELE	Electives	6
Total in Major			**62**	**Total in Major**			**62**
General Education				**General Education**			
*ENGL	150	Writing and Research	3	ENGL	110C	English Composition	3
ART Achievement	REQ	One from ART 125, 160, or THEA 101	3	FPAP	1REQ	Human Creativity Way of Knowing	3
ENGL	REQ	Choose one literature course from ENGL 202, 201, or 203	3	LIT	1REQ	Literature Way of Knowing	3
HIST	100 or 110	Western Civilization	3	HISP	1REQ	Interpreting the Past Way of Knowing	3
Social Science	REQ	Select one from courses listed in Longwood catalog	3	SSCP	1REQ	Human Behavior Way of Knowing	3
FORGN LANG	REQ	FREN 101, SPAN 201 OR GERM 201	3	FLP	1REQ	Foreign Language	3
PHED or RECR	101	Health / Physical Education	2	PE	1ELE	Elective	2
LSEM	100	Longwood Seminar	1	UNIV	100	University Orientation	1
DIVERSITY	REQ	Select one from courses listed in Longwood catalog	3		ELE or REQ	Elective or General Education Requirement	3
CMSC/ MATH	350	Ethics in Math or Computer Science	3	GNRL	3ELE	Upper Division Elective (substitute for ENMA 480)	3
ENGL	400	Adv Writing Seminar	3	ENGL	327W	Advance Composition (substitute for ENGL 231C)	3
Total Additional General Education			**30**	**Total Additional General Education**			**30**
Total credits earned at Longwood University			**92**	**Total Credits transferred to ODU**			**92**

		Additional Requirements - ODU		
MSIM	201	Intro to Modeling and Simulation	3
STAT	330	Probability & Statistics	3
CS	250	Programming II	4
CS	252	Introduction to Unix	1
MSIM	205	Discrete Event Simulation	3
MSIM	281	Discrete Event Simulation Lab	1
CS	330	Object Oriented Prog & Design	3
CS	381	Discrete Structures	3
MSIM	320	Continuous Simulation	3
MSIM	382	Continuous Simulation Lab	1
MSIM	331	Simulation Software Design	3
MSIM	383	Simulation Software Design Lab	1
MSIM	351	Analysis for M & S	3
MSIM	310	System Modeling	3
MSIM	4XX	Approved MSIM Elective I	3
MSIM	441	Computer Graphics & Visualization	3
MSIM	487W	Capstone Design I	4
ENMA	401	Project Management	3
ENGN	401	FE Review	1
MSIM	4XX	Approved MSIM Elective II	3
MSIM	488	Capstone Design II	3
ELEC	4xx	Approved M&SE Elective	3
GEN ED	REQ	The Impact of Technology	3
Total Credits to be Taken at ODU			**61**
Total Transfer Credits in Major			62
Total Credits in General Education			30
Total Credits Earned for Dual B.S. Degree			153

Student must earn a grade of C- or better from Longwood to transfer courses to Old Dominion University. Students must complete at least 32 credit hours at Old Dominion University to receive a baccalaureate degree from the university.
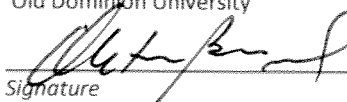
_____ 8/15/11
Signature   Date
Dr. Melissa Rhoten
Chair, Department of Chemistry &Physics
Longwood University

_____ 8/5/11
Signature   Date
Dr. Michelle Parry
Director, Dual Degree and Physics Program
Longwood University

_____ 8/26/11
Signature   Date
Dr. Charles Ross
Dean, Cook-Cole College of Physics
Longwood University

_____ 8/29/2011
Signature   Date
Dr. Ken Perkins
Interim Vice President, Academic Affairs
Longwood University

_____ 7/11/11
Signature   Date
Dr. Roland Mielke
Chair, Batten College of Engineering and
Technology (Modeling, Simulation & Visualization Engineering)
Old Dominion University

_____ 7/12/2011
Signature   Date
Dr. Oktay Baysal
Dean, Batten College of Engineering and
Technology
Old Dominion University

_____ 7/14/11
Signature   Date
Dr. Carol Simpson
Provost and Vice-President, Academic Affairs
Old Dominion University

Modeling and Simulation Engineering
LU Physics + ODU Modeling and Simulation Engineering
(Total Credits Listed 61)

Fall First Semester ODU (7th Semester at LU)	Credits	Spring Second Semester ODU (8th Semester at LU)	Credits
STAT 330 – Probability and Statistics	3	CS 330 – Object Oriented Programming	3
CS 250 – Programming II	4	CS 381 – Discrete Structures	3
CS 252 – Introduction to Unix	1	MSIM 205 – Discrete Event Simulation	3
MSIM 201 – Introduction to Modeling and Simulation	3	MSIM 281 – Discrete Event Simulation Lab	1
MSIM 320 – Continuous Simulation	3	MSIM 351 – Analysis for M&S	3
MSIM 382 – Continuous Simulation Lab	1	General Education – Impact of Technology	3
Semester Total	**15**	**Semester Total**	**16**

Graduates with BS in Physics at LU

Fall Third Semester ODU	Credits	Spring Fourth Semester ODU	Credits
MSIM 441 – Computer Graphics and Visualization	3	MSIM 331 – Simulation Software Design	3
MSIM 487W – Capstone Design I	4	MSIM 383 – Simulation Software Design Lab	1
MSIM 4XX – Technical Elective I	3	MSIM 310 – Systems Modeling	3
MSIM ELE – Approved Program Elective	3	MSIM 4YY – Technical Elective II	3
ENMA 401 – Project Management	3	ENGN 401 – FE Exam Review	1
		MSIM 488 – Capstone Design II	3
Semester Total	**16**	**Semester Total**	**14**