

**Agreement for an Intercollegiate
Physics-Engineering Dual Degree Program
Between University of Wisconsin- Oshkosh and University of Wisconsin- Milwaukee**

This document states the terms of an agreement for a Physics-Engineering Dual Degree Program leading to a Bachelor of Science Degree in Physics from **University of Wisconsin – Oshkosh (UWO)** and a Bachelor of Science in Engineering from the **University of Wisconsin-Milwaukee (UWM)**. This program will require approximately three years of attendance at UWO followed by approximately two years of attendance at UWM. This agreement is effective on an annual basis starting September 1, 2016. The parties in this cooperative agreement will make known as early as possible, and at the latest by July 1st of each year, any desire to terminate or revise this agreement. In the event of a termination, for any reason by either party, the students presently enrolled will be permitted to complete the curriculum. Both institutions enter into this agreement in order to better facilitate the direct admission of UWO students to the UWM engineering program.

The General Terms of the Agreement are as follows:

1. University of Wisconsin – Oshkosh agrees to grant a Bachelor of Science Degree in Physics to dual degree students who successfully meet the degree requirements specified in the UWO University Catalog at the time of admission to UWO, and successfully complete 30 credits at UWM. The current UWO course requirements for dual-degree students are listed in Table 1. This coursework should be completed or in progress at the time the UWO dual degree student applies to the UWM engineering program. If a student has not taken a required engineering course from Table 1, the student may be required to take the course at UWM which may require attendance during summer or additional semester. While attending UWO, dual degree students will meet periodically with an academic advisor within the Department of Physics/Astronomy to ensure these requirements are being met.
2. The University of Wisconsin-Milwaukee agrees to grant a Bachelor of Science in Engineering degree (with a major in Biomedical, Civil, Computer, Electrical, Industrial, Materials or Mechanical Engineering) to those UWO students who successfully complete the UWO dual degree requirements and the engineering degree requirements as specified for a second undergraduate degree candidate in the University of Wisconsin-Milwaukee *Undergraduate Catalog* at the time of admission to UWM. The current UWM degree requirements are listed in Table 2 for each of the seven engineering majors. While attending UWM, dual degree students will meet periodically with an academic advisor with the engineering program to ensure these requirements are being met.
3. The University of Wisconsin – Milwaukee engineering program agrees to admit to the Bachelor of Science in Engineering program UWO students who meet the following criteria:
 - a. Successful completion of the Bachelor of Science in Physics portion of the dual degree program.
 - b. Minimum cumulative grade point average of 2.50.
 - c. Minimum grade point average of 2.50 in the specified mathematics, science and engineering courses.
 - d. The positive written recommendation of the UWO dual degree advisor.
4. If requests are made for course substitutions or credits are transferred from another institution, they will be reviewed on a case-by-case basis to determine how they might apply to the physics degree at UWO and the engineering degree at UWM.
5. Elective courses taken at UWO will be reviewed on a case-by-case basis to determine how they might apply to the engineering degree at the UWM.

6. Dual degree students requesting admission to the UWM engineering program will submit the appropriate UW-System application for admission, application fee, official transcript from UWO, and any other necessary transcripts or credentials in support of his/her application, as required by university policy.
7. Upon completion of the UWM portion of the program, UWM coursework will be transferred back to UWO to complete the requirements for the UWO Bachelor of Science Degree in Physics. Dual degree students are responsible to send official transcripts and apply for graduation at both institutions. UWO agrees to waive the residency requirement stating that 15 of the student's last 30 credits must be taken at UWO. Students who complete the dual degree program are eligible to participate in commencement ceremonies at UWO and UWM.
8. UWO agrees to recruit students for the Physics-Engineering Dual Degree Program in cooperation with UWM.
9. The dual degree program will be evaluated by UWO as part of its periodic program review process and assessment of student learning. A change of major at the UWO or UWM will result in a re-evaluation of all transfer courses/credits based on particular program requirements.
10. The dual degree program curriculum is subject to approval through UWO and UWM campus review processes and governed by faculty on each campus.
11. While students are enrolled at UW-Oshkosh, they will pay tuition and fees to UW-Oshkosh. Likewise, while students are enrolled at UW-Milwaukee, they pay tuition and fees to UW-Milwaukee. In the event that a student is simultaneously enrolled at both institutions in one semester, then the UW System policy for dual registration will be followed. (UW System Policy F44, A15)

IN WITNESS WHEREOF the parties hereto have executed two copies of this instrument, each of which shall be considered an original.

UNIVERSITY OF WISCONSIN – MILWAUKEE

Brett A. Peters
Brett Peters,
Dean, College of Engineering & Applied Science

8/8/2016
Date

Johannes J. Britz
Provost and Vice Chancellor for Academic Affairs

08/09/16
Date

UNIVERSITY OF WISCONSIN – OSHKOSH

John Koker
John Koker,
Dean, College of Letters and Science

8/25/14
Date

Lane Earns
Lane Earns,
Provost and Vice Chancellor for Academic Affairs

9/6/16
Date

Lori Worm
Lori Worm,
Interim Vice Chancellor for Administrative Services

9/6/14
Date

Andrew Leavitt
Andrew Leavitt,
Chancellor

9/7/16
Date

Table 1: Physics

Dual Degree Program University of Wisconsin- Oshkosh Physics and University of Wisconsin- Milwaukee Engineering					
UW-OSHKOSH REQUIREMENTS					
Courses/Credits Required for UWO Physics Degree			UWM Equivalent Course		
Course	Title	Credits	Course	Title	Credits
Required Core Courses					
PHYSICS 109	General Physics I	5	PHYSICS 209 & PHYSICS 214	Physics I Lab Physics I	4 1
PHYSICS 110	General Physics II	5	PHYSICS 210 & PHYSICS 215	Physics II Lab Physics II	4 1
PHYSICS 206	Modern Physics	3	PHYSICS 309	Modern Physics	3
PHYSICS 222	Physics Lab I	2	PHYSICS X	Physics Elective	2
MATH 171	Calculus I	4	MATH 231	Calculus and Analytic Geometry	4
MATH 172	Calculus II	4	MATH 232	Calculus and Analytic Geometry	4
MATH 273	Calculus III	4	MATH 233	Calculus and Analytic Geometry	4
CHEM 105	General Chemistry I	5	CHEM 102	General Chemistry	5
CHEM 106	General Chemistry II	5	CHEM 104	General Chem & Qualitative Analysis	5
Additional Required Courses					
MATH 371	Differential Equations	3	ELECENG 234	Analytic Methods in Engineering	3
PHYSICS 320	Classical Physics	3	CIV ENG 202	Dynamics	3
Required Elective Courses: A minimum of 11 credits from the following list of UW Oshkosh physics courses					
Group A: Select multiple courses (8 or more credits)					
PHYSICS 201*	Statics for Engineering	3	CIV ENG 201	Statics	3
PHYSICS 203	Introduction to Astrophysics	3	ASTRON X	Astronomy Elective	3
PHYSICS 305	Electronic Circuits and Devices	3	ELECENG 301	Electrical Circuits I	3
PHYSICS 307	Physical Optics	3	PHYSICS 325	Optics	3
PHYSICS 310 <i>or</i> PHYSICS 313	Stellar Structure & Evolution <i>or</i> Galaxies & Star Formation	3	ASTRON X	Astronomy Elective	3
PHYSICS 311	Digital Instrumentation	3	ELECENG 354	Digital Logic	3
PHYSICS 319	Digital Signal Processing	3	ELECENG 410	Digital Signal Processing	3
PHYSICS 322	Physics Lab II	2	PHYSICS X	Physics Elective	2
PHYSICS 408	Statistical/Thermodynamics	3	MECHENG XXX	**	3
PHYSICS 451	Special Topics in Physics	3	PHYSICS X	Physics Elective	3
PHYSICS 491	Senior Research Project	1-4	PHYSICS X	Physics Elective	1-4
Group B: Select at least one course (3 credits)					
PHYSICS 417	Electricity and Magnetism	3	ELECENG 361	Electromagnetic Fields	3
PHYSICS 419	Introductory Quantum Mechanics	3	PHYSICS 441	Introduction to Quantum Mechanics I	3
General Education and University Requirements					
	General Education (USP) ***	41-47		General Education satisfied at UWO	

* Instructor signature required. (Recommended for biomedical, civil, industrial, materials, and mechanical engineering students.)

** Not equivalent to MECHENG 301 but will be allowed to substitute in some engineering majors

*** For details, see *UW Oshkosh Bachelors of Science Degree requirements and Student's Guide to the University Studies Program.*

Table 2: Biomedical Engineering

Dual Degree Program University of Wisconsin- Oshkosh PHYSICS and University of Wisconsin- Milwaukee BIOMEDICAL ENGINEERING			
UW-MILWAUKEE REQUIREMENTS			
Course/Credits required to earn the UWM Degree	Credits	Fulfilled by UWO Degree (X = yes, blank = no)	Still to be completed at UWM (X = yes, blank = no)
General Education Requirements			
Arts	3	X	
Humanities	6	X	
Social Sciences	6	X	
Cultural Diversity		X	
Competencies		X	
Natural Science Requirements			
PHYSICS 209 Physics I	4	X	
PHYSICS 214 Lab Physics I	1	X	
PHYSICS 210 Physics I	4	X	
PHYSICS 215 Lab Physics II	1	X	
BIO SCI 202 Anatomy & Physiology I	4		X
BIO SCI 203 Anatomy & Physiology II	4		X
Mathematics Requirements			
MATH 231 Calculus and Analytic Geometry	4	X	
MATH 232 Calculus and Analytic Geometry	4	X	
MATH 233 Calculus and Analytic Geometry	4	X	
ELECENG 234 Analytical Methods in Engineering	4	X	
Engineering Core Requirements			
CIV ENG 201 Statics	3	X	
CIV ENG 202 Dynamics	3	X*	
EAS 200 Professional Seminar	1		X
ELECENG 301 Electrical Circuits I	3	X	
IND ENG 467 Intro Statistics Physical Sciences & Engineering	3		X
MATLENG 201 Basic Engineering Materials	4		X
MECHENG 101 Computational Tools for Engineering	2		X
MECHENG 301 Basic Engineering Thermodynamics	3	X	
Biomedical Engineering Major Requirements			
BME 101 Fundamentals of Biomedical Engineering	3		X
BME 320 Engineering of Biomedical Devices I	3		X
BME 325 Engineering of Biomedical Devices II	3		X
BME 385 Introduction to Biomaterials	3		X
BME 495 Biomedical Instrumentation Lab/Senior Lab	3		X
BME 595 Capstone Design Project	4		X
ELECENG 305 Electrical Circuits II	4		X
ELECENG 310 Signals & Systems	3		X
MECHENG 469 Introduction to Biomechanical Engineering	3		X
MECHENG 474 Introduction to Control Systems	4		X
Biomedical Engineering Technical Electives – 16 Credits			
CHEM 102 General Chemistry I	5	X	
CHEM 104 General Chem & Qualitative Analysis	5	X	
ELECENG 410 Digital Signal Processing	3	X	
Remaining Technical Electives	3		X
Total Credits - Biomedical Engineering Major	120	66	54

* Fulfilled by UWO course PHYSICS 320 (Classical Physics)

Table 2: Civil Engineering

Dual Degree Program University of Wisconsin- Oshkosh PHYSICS and University of Wisconsin- Milwaukee CIVIL ENGINEERING			
UW-MILWAUKEE REQUIREMENTS			
Course/Credits required to earn the UWM Degree	Credits	Fulfilled by UWO Degree (X = yes, blank = no)	Still to be completed at UWM (X = yes, blank = no)
General Education Requirements			
Arts	3	X	
Humanities	6	X	
Social Sciences	6	X	
Cultural Diversity		X	
Competencies		X	
Free Elective	2	X	
Natural Science Requirements			
CHEM 105 General Chemistry for Engineering	5	X	
PHYSICS 209 Physics I	4	X	
PHYSICS 210 Physics I	4	X	
Other Natural Science (GEO SCI, BIO SCI or ATM SCI)	3		X
Mathematics Requirements			
MATH 231 Calculus and Analytic Geometry	4	X	
MATH 232 Calculus and Analytic Geometry	4	X	
MATH 233 Calculus and Analytic Geometry	4	X	
ELECENG 234 Analytical Methods in Engineering	4	X	
Engineering Core Requirements			
IND ENG 111 Introduction to Engineering	3		X
IND ENG 112 Engineering Drawing & CAD	3		X
IND ENG 360 Engineering Economics	3		X
CIV ENG 201 Statics	3	X	
CIV ENG 202 Dynamics	3	X	
CIV ENG 303 Strength of Materials	4		X
EAS 200 Professional Seminar	1		X
MATLENG 201 Basic Engineering Materials	4		X
MECHENG 301 Basic Engineering Thermodynamics	3	X	
MECHENG 320 Intro to Fluid Mechanics	3		X
Civil Engineering Major Requirements			
CIV ENG 250 Engineering Surveying	3		X
CIV ENG 280 Computer-Based Engineering Analysis	3		X
CIV ENG 335 Soil Mechanics	4		X
CIV ENG 372 Introduction to Structural Design	4		X
CIV ENG 411 Engineering Principles of Water Resources Design	3		X
CIV ENG 413 Environmental Engineering	3		X
CIV ENG 490 Transportation Engineering	3		X
CIV ENG 494 Principles of Civil Engineering Design	1		X
CIV ENG 495 Senior Design	3		X
Civil Engineering Technical Electives - 21			
TECHNICAL ELECTIVES – Group A	15		X
ELECENG 301 Electrical Circuits I	3	X	
PHYSICS Course 300+ Level	3	X	
Total Credits - Civil Engineering Major	127	61	66

Table 2: Computer Engineering

Dual Degree Program University of Wisconsin- Oshkosh PHYSICS and University of Wisconsin- Milwaukee COMPUTER ENGINEERING UW-MILWAUKEE REQUIREMENTS			
Course/Credits required to earn the UWM Degree	Credits	Fulfilled by UWO Degree (X = yes, blank = no)	Still to be completed at UWM (X = yes, blank = no)
General Education Requirements			
Arts	3	X	
Humanities	6	X	
Social Sciences	6	X	
Cultural Diversity		X	
Competencies		X	
Natural Science Requirements			
CHEM 105 General Chemistry for Engineering	5	X	
PHYSICS 209 Physics I	4	X	
PHYSICS 210 Physics I	4	X	
Mathematics Requirements			
MATH 231 Calculus and Analytic Geometry	4	X	
MATH 232 Calculus and Analytic Geometry	4	X	
MATH 233 Calculus and Analytic Geometry	4	X	
ELECENG 234 Analytical Methods in Engineering	4	X	
Engineering Core Requirements			
COMPSCI 240 Intro Engineering Programming	3		X
EAS 200 Professional Seminar	1		X
ELECENG 301 Electrical Circuits I	3	X	
IND ENG 467 Intro Statistics Physical Sciences & Engineering	3		X
Computer Engineering Major Requirements			
COMPSCI 250 Introduction to Computer Programming	3		X
COMPSCI 251 Intermediate Computer Programming	3		X
COMPSCI 317 Discrete Information Structures	3		X
COMPSCI 337 Systems Programming	3		X
COMPSCI 351 Data Structures & Algorithms	3		X
COMPSCI 361 Introduction to Software Engineering	3		X
COMPSCI 395 Social, Professional & Ethical Issues	3		X
COMPSCI 458 Computer Architecture	3		X
COMPSCI 520 Computer Networks	3		X
COMPSCI 535 Algorithm Design & Analysis	3		X
COMPSCI 537 Introduction to Operating Systems	3		X
ELECENG 305 Electrical Circuits II	4		X
ELECENG 310 Signals and Systems	3		X
ELECENG 330 Electronics I	4		X
ELECENG 335 Electronics II	4		X
ELECENG 354 Digital Logic	3	X	
ELECENG 367 Introduction to Microprocessors	4		X
ELECENG 457 Digital Logic Laboratory	3		X
Computer Engineering Technical Electives – 16 Credits			
ELECENG 361 Electromagnetic Fields	3	X	
MECHENG 301 Basic Engineering Thermodynamics	3	X	
Technical Electives	10		X
Total Credits - Computer Engineering Major	126	56	70

Table 2: Electrical Engineering

Dual Degree Program University of Wisconsin- Oshkosh PHYSICS and University of Wisconsin- Milwaukee ELECTRICAL ENGINEERING			
UW-MILWAUKEE REQUIREMENTS			
Course/Credits required to earn the UWM Degree	Credits	Fulfilled by UWO Degree (X = yes, blank = no)	Still to be completed at UWM (X = yes, blank = no)
General Education Requirements			
Arts	3	X	
Humanities	6	X	
Social Sciences	6	X	
Cultural Diversity		X	
Competencies		X	
Free Electives	3	X	
Natural Science Requirements			
CHEM 102 General Chemistry	5	X	
PHYSICS 209 Physics I	4	X	
PHYSICS 214 Lab Physics I	1	X	
PHYSICS 210 Physics I	4	X	
PHYSICS 215 Lab Physics II	1	X	
Mathematics Requirements			
MATH 231 Calculus and Analytic Geometry	4	X	
MATH 232 Calculus and Analytic Geometry	4	X	
MATH 233 Calculus and Analytic Geometry	4	X	
ELECENG 234 Analytical Methods in Engineering	4	X	
Engineering Core Requirements			
COMPSCI 240 Intro Engineering Programming	3		X
EAS 200 Professional Seminar	1		X
MATLENG 201 Basic Engineering Materials	4		X
MECHENG 301 Basic Engineering Thermodynamics	3	X	
Electrical Engineering Major Requirements			
ELECENG 101 Fundamentals of Electrical Engineering	3	X	
ELECENG 301 Electrical Circuits I	3	X	
ELECENG 305 Electrical Circuits II	4		X
ELECENG 310 Signals and Systems	3		X
ELECENG 330 Electronics I	4		X
ELECENG 335 Electronics II	4		X
ELECENG 354 Digital Logic	3	X	
ELECENG 361 Electromagnetic Fields	3	X	
ELECENG 362 Electromechanical Energy Conversion	4		X
ELECENG 367 Introduction to Microprocessors	4		X
ELECENG 420 Random Signals and Systems	3		X
ELECENG 595 Capstone Design Project	4		X
Electrical Engineering Technical Electives – 24 Credits			
Group A Technical Electives	15		X
ELECENG 410 Digital Signal Processing	3	X	
PHYSICS Course 300+ Level Group B Electives	6	X	
Total Credits - Electrical Engineering Major	126	79	47

Table 2: Industrial Engineering

Dual Degree Program University of Wisconsin- Oshkosh PHYSICS and University of Wisconsin- Milwaukee INDUSTRIAL ENGINEERING			
UW-MILWAUKEE REQUIREMENTS			
Course/Credits required to earn the UWM Degree	Credits	Fulfilled by UWO Degree (X = yes, blank = no)	Still to be completed at UWM (X = yes, blank = no)
General Education Requirements			
Arts	3	X	
Humanities	6	X	
Social Sciences	6	X	
Cultural Diversity		X	
Competencies		X	
Free Electives	2	X	
Natural Science Requirements			
CHEM 102 General Chemistry I	5	X	
CHEM 104 General Chem & Qualitative Analysis	5	X	
PHYSICS 209 Physics I	4	X	
PHYSICS 210 Physics I	4	X	
Mathematics Requirements			
MATH 231 Calculus and Analytic Geometry	4	X	
MATH 232 Calculus and Analytic Geometry	4	X	
MATH 233 Calculus and Analytic Geometry	4	X	
ELECENG 234 Analytical Methods in Engineering	4	X	
Engineering Core Requirements			
CIV ENG 201 Statics	3	X	
CIV ENG 202 Dynamics	3	X	
COMPSCI 240 Intro Engineering Programming	3		X
EAS 200 Professional Seminar	1		X
ELECENG 301 Electrical Circuits I	3	X	
MATLENG 201 Basic Engineering Materials	4		X
Industrial Engineering Major Requirements			
IND ENG 111 Introduction to Engineering	3		X
IND ENG 112 Engineering Drawing & CAD	3		X
IND ENG 350 Manufacturing Processes	3		X
IND ENG 360 Engineering Economic Analysis	3		X
IND ENG 370 Introduction to Operations Analysis	3		X
IND ENG 455 Operations Research I	3		X
IND ENG 467 Intro Statistics Physical Sciences & Engineering	3		X
IND ENG 465 Operations Research II	3		X
IND ENG 470 Method Engineering	3		X
IND ENG 475 Simulation Methodology	3		X
IND ENG 485 Senior Design	3		X
IND ENG 571 Quality Control	3		X
IND ENG 575 Design of Experiments	3		X
IND ENG 580 Ergonomics	3		X
IND ENG 583 Facility Layout and Material Handling	3		X
Industrial Engineering Technical Electives - 12			
MECHENG 301 Basic Engineering Thermodynamics	3	X	
Technical Electives	9		X
Total Credits - Industrial Engineering Major	125	63	62

Table 2: Materials Engineering

Dual Degree Program University of Wisconsin- Oshkosh PHYSICS and University of Wisconsin- Milwaukee MATERIALS ENGINEERING			
UW-MILWAUKEE REQUIREMENTS			
Course/Credits required to earn the UWM Degree	Credits	Fulfilled by UWO Degree (X = yes, blank = no)	Still to be completed at UWM (X = yes, blank = no)
General Education Requirements			
Arts	3	X	
Humanities	6	X	
Social Sciences	6	X	
Cultural Diversity		X	
Competencies		X	
Free Electives	2	X	
Natural Science Requirements			
CHEM 105 General Chemistry for Engineers	5	X	
PHYSICS 209 Physics I	4	X	
PHYSICS 214 Lab Physics I	1	X	
PHYSICS 210 Physics I	4	X	
PHYSICS 215 Lab Physics II	1	X	
Mathematics Requirements			
MATH 231 Calculus and Analytic Geometry	4	X	
MATH 232 Calculus and Analytic Geometry	4	X	
MATH 233 Calculus and Analytic Geometry	4	X	
ELECENG 234 Analytical Methods in Engineering	4	X	
Engineering Core Requirements			
CIV ENG 201 Statics	3	X	
CIV ENG 202 Dynamics	3	X	
CIV ENG 303 Strength of Materials	4		X
COMPSCI 240 Intro Engineering Programming	3		X
EAS 200 Professional Seminar	1		X
ELECENG 301 Electrical Circuits I	3	X	
IND ENG 467 Intro Statistics Physical Sciences & Engineering	3		X
Materials Engineering Major Requirements			
MATLENG 201 Basic Engineering Materials	4		X
MATLENG 330 Materials and Processes in Manufacturing	3		X
MATLENG 402 Physical Metallurgy	3		X
MATLENG 410 Mechanical Behavior of Materials	3		X
MATLENG 411 Materials Laboratory	3		X
MATLENG 442 Thermodynamics of Materials	3		X
MATLENG 443 Transport Phenomena in Materials Processing	3		X
MATLENG 452 Ceramic Materials	3		X
MATLENG 453 Polymeric Materials	3		X
MATLENG 490 Senior Design Projects I	1		X
MATLENG 491 Senior Design Projects II	3		X
Materials Engineering Technical Electives - 24			
CHEM 104 General Chemistry and Qualitative Analysis	3	X	
MECHENG 301 Basic Engineering Thermodynamics	3	X	
Group A1 Technical Electives	9		X
Group A2 Technical Electives	9		X
Total Credits - Materials Engineering Major	124	62	61

Table 2: Mechanical Engineering

Dual Degree Program University of Wisconsin- Oshkosh PHYSICS and University of Wisconsin- Milwaukee MECHANICAL ENGINEERING			
UW-MILWAUKEE REQUIREMENTS			
Course/Credits required to earn the UWM Degree	Credits	Fulfilled by UWO Degree (X = yes, blank = no)	Still to be completed at UWM (X = yes, blank = no)
General Education Requirements			
Arts	3	X	
Humanities	6	X	
Social Sciences	6	X	
Cultural Diversity		X	
Competencies		X	
Natural Science Requirements			
CHEM 105 General Chemistry for Engineers	5	X	
PHYSICS 209 Physics I	4	X	
PHYSICS 214 Lab Physics I	1	X	
PHYSICS 210 Physics I	4	X	
PHYSICS 215 Lab Physics II	1	X	
Mathematics Requirements			
MATH 231 Calculus and Analytic Geometry	4	X	
MATH 232 Calculus and Analytic Geometry	4	X	
MATH 233 Calculus and Analytic Geometry	4	X	
ELECENG 234 Analytical Methods in Engineering	4	X	
Engineering Core Requirements			
CIV ENG 201 Statics	3	X	
CIV ENG 202 Dynamics	3	X	
CIV ENG 303 Strength of Materials	4		X
EAS 200 Professional Seminar	1		X
ELECENG 301 Electrical Circuits I	3	X	
IND ENG 467 Intro Statistics Physical Sciences & Engineering	3		X
MATLENG 201 Basic Engineering Materials	4		X
Mechanical Engineering Major Requirements			
MECHENG 101 Computational Tools for Engineering	2		X
MECHENG 110 Engineering Fundamentals I	4		X
MECHENG 111 Engineering Fundamentals II	4		X
MECHENG 301 Basic Engineering Thermodynamics	3		X
MECHENG 320 Introduction to Fluid Mechanics	3		X
MECHENG 321 Basic Heat Transfer	4		X
MECHENG 323 Fluid Mechanics Laboratory	1		X
MATLENG 330 Materials and Processes in Manufacturing	3		X
MECHENG 360 Mechanical Design I	3		X
MECHENG 366 Design of Machine Elements	4		X
MECHENG 370 Computer Aided Engineering Laboratory	2		X
MECHENG 438 Mechanical Engineering Experimentation	3		X
MECHENG 475 Introduction to Control Systems	4		X
MECHENG 479 Control and Design of Mechatronic Systems	3		X
MECHENG 496 Senior Design	3		X
Mechanical Engineering Technical Electives			
Technical Electives	15		X
Total Credits - Mechanical Engineering Major	128	55	73