

Engineering Articulation Agreement
Approved (with revision) February 28, 2018; Amended July 25, 2018

University of Wisconsin - Parkside
College of Natural and Health Sciences
Associate of Science Degree in Physics
and
University of Wisconsin- Milwaukee
College of Engineering and Applied Science
Bachelor of Science with majors in Engineering

EFFECTIVE Fall 2018

Overview

The agreement creates a curriculum plan so that students at the University of Wisconsin-Parkside (UWP) may complete and transfer coursework applicable to the first two years of several majors in the University of Wisconsin-Milwaukee (UWM) College of Engineering and Applied Science (CEAS), and provides guaranteed transfer to students who complete all of the articulated engineering courses and UWM admission requirements.

Terms and Conditions

The terms of this agreement establish a guaranteed admission into UWM CEAS with Junior Standing, upon completion of the agreed upon program outlined in this agreement.

I. Program admission requirements

- A. All UWP standard university and program admission requirements apply. Admission to the engineering program requires placement into Calculus I or successful completion of math course sequence leading to Calculus I.
- B. All UWM and specific CEAS admission requirements apply to students under this agreement.
http://www4.uwm.edu/ceas/future_students/student_admission.cfm

Guaranteed admission requires successful completion of UWP engineering program as outlined in the agreement and a cumulative GPA of no less than the minimum GPA for the individual UWM major to which the student seeks admission. UWM will provide the cumulative GPA requirements for each major to UWP at the start of each academic year and will endeavor to provide UWP with sixty days advance notice of any changes to its cumulative GPA requirements.

II. Provisions:

1. **Recruitment.** Phase I: UW-Parkside Admissions and the College of Natural and Health Sciences will recruit students into the associate of science degree in physics; and Phase II: The College of Natural and Health Sciences will recruit students into the engineering (61-75 credits) phase (UWM bachelor's degree programs).
2. **Marketing.** Any marketing of this agreement will be subject to the prior approval of both parties and will adhere to each institution's standards for the use of its name and logo. Each institution may provide a link to this agreement and/or the other institution at its website, with notice to the other party. UW-Parkside will provide materials, catalogs, and other information to UWM counselors to facilitate their understanding of the requirements of this articulation.
3. **Advising.** During Phase I (associate of science degree) students will receive primary academic advising at UWP. Students will also be assigned co-advisors from UWM during these years to ensure continuity upon transitioning to UWM. When students are taking courses at UWM (typically years three and four), they will be advised solely by UWM advisors. UWP will convey to its students the requirements needed to successfully transition to UWM CEAS with a Junior Standing.
4. **Tracking:** UWP will provide the UWM CEAS Advisor(s) with the names of students who are at UWP under this articulation agreement. This will allow UWM to plan for their transition and advising. Prospective student applicant names will be maintained at UWP.
 - 4.a. **Associate of Science Degree:** Students who complete all the required coursework for the first two years, indicated within this articulation agreement, toward one of the majors in UWM CEAS may be eligible to receive an Associate of Science degree with a program of study in Physics from UWP.
 - 4.b. **Student wanting to earn the Associate of Science Degree in Physics:** Eligible students must declare their intentions to receive an Associate of Science Degree with a program of study in Physics by completing a Plan Declaration form and submitting it to the College of Natural and Health Sciences for approval. The College will submit the form to UWP Office of the Registrar to process.
5. **Tuition:** Students pay tuition and appropriate fees to the university at which they are enrolled.
6. **Term.** This articulated program will be available to students beginning in the Fall Semester of 2018. This Agreement shall remain and continue in full force and effect unless written notice of a need for modification or termination is received by one party from the other party at least 6 months in advance of the next academic year. In the event the program is terminated, any student already in the program will be allowed to finish it as long as academic standards are met.
7. **Periodic Review.** This agreement will be reviewed every two years prior to the publication of the UWP catalog, or earlier if curricular or institutional policy changes warrant. Each institution agrees to notify the other of significant curricular or policy changes in a timely manner.

8. **Courses.** In the event that UWP does not offer specific courses, UWM and UWP will work collaboratively to find alternative ways of delivering these courses (e.g. UWP students could be offered enrollment in CEAS as guest students for these courses while they enroll in other courses at UWP).
9. **Engineering Majors.** This agreement can apply to any major of the BS in engineering program at UWM. At the time of this revision, articulation agreements have been defined for Civil Engineering, Biomedical Engineering, Electrical Engineering, Industrial and Manufacturing Engineering, Materials Engineering, and Mechanical Engineering majors. Other engineering majors will become supported as suitable articulation agreements become defined.
10. **Program and Course changes:** In the event that academic program requirements and/or course curricula of either institution undergo revision or change it is the responsibility of that partner institution to inform the other partner institution of the change(s) within 120 days of the change. Each partner institution should provide contact person information to facilitate this requirement. The UWP contact is Dr. Bryan Lewis, Associate Dean, College of Natural and Health Sciences (email: cnhsdean@uwp.edu; telephone 262-595-2977). The UWM contact is Dr. Ethan Munson, Associate Dean for Academic Affairs, College of Engineering and Applied Science (email: munson@uwm.edu; telephone 414-229-4438). Students admitted under this agreement will be guided by UWM and UWP catalogue requirements relating to the year of their admission to UWP.
11. **Failure to complete the program:** Students enrolled under this UWP/UWM CEAS articulation agreement who voluntarily withdraw or do not meet the requirement to continue in the program may transfer any earned UWP/UWM credits eligible under this agreement back to UWP or UWM into another degree program of their choice, in accordance with the institution/academic program credit transfer equivalencies and requirements.

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
Dean, University of Wisconsin - Milwaukee
College of Engineering and Applied Science

9/4/2018
Date

[Signature]
Provost, University of Wisconsin Milwaukee

08/29/18
Date

UNIVERSITY OF WISCONSIN - PARKSIDE

[Signature]
Dean, College of Natural and Health Sciences
University of Wisconsin - Parkside

9/13/18
Date

[Signature]
Provost, University of Wisconsin - Parkside

9.14.18
Date

[Signature]
Chancellor, University of Wisconsin - Parkside

9-14-18
Date

Four-Year Plans

The following pages document four-year plans for each of the available AS/BS programs. These four-year plans are correct as of August 2018. Going forward, the four-year plans will be updated administratively in order to adapt to changes in courses and in degree program curricula at the two institutions.

**UW-Parkside Associate of Science in Physics / UW-Milwaukee Bachelor of Science Electrical Engineering Agreement
4-Year Plan**

Year 1 – UW-Parkside -Electrical Engineering Program					
Fall Semester			Spring Semester		
MATH 221	Calculus & Analytic Geometry I	5	MATH 222	Calculus & Analytic Geometry II	5
PHYS 201	General Physics I	5	PHYS 202	General Physics II	5
CHEM 101 & 103	General Chemistry I & Lab	5	PHYS 241 (CompSci 240-UWM)	Scientific Programming	3
ENGL 101	Reading and Composition	3	Gen Ed	Social/Behavioral Sciences	3
		18			16
Winterim Semester			Summer semester		
Gen Ed	Social/Behavioral Sciences	3	Gen Ed	Social/Behavioral Sciences	3
		3			3
Humanities/Arts – 0/12 completed; Social/Behavioral Sciences – 9/12 completed; Natural Science 15/12 completed; Total Credits – 40 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – not complete					
Year 2 – UW-Parkside -Electrical Engineering Program					
Fall Semester			Spring Semester		
MATH 223	Calculus & Analytic Geometry III	5	PENG 214 (ELEC ENG 301-UWM)	Electrical Circuits I	3
MATH 317 (ELEC ENG 234-UWM)	Differential Equations and Their Applications	4	PHYS 403 (MECH ENG 301-UWM)	Thermodynamics & Statistical Physics	4
PHYS 302 (ELEC ENG 361-UWM)	Electricity & Magnetism	4	Gen Ed	Humanities/Arts	3
ENGL 167	Introduction to Literature (HU)	3	Gen Ed	Social/Behavioral Sciences	3
		16	ENGL 201	Advanced Composition	3
					16
Winterim Semester			Summer semester		
Gen Ed	Humanities/Arts	3	SPCH 105	Public Speaking (HU)	3
		3			3
Humanities/Arts – 12/12 completed; Social/Behavioral Sciences – 12/12 completed; Natural Science 15/12 completed; Total Credits – 78 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – complete.					

Foreign Language may be required depending on individual student's backgrounds. Please check UW-Milwaukee requirements. Note: Students should utilize TIS to determine general education courses that transfer to UWM and meet UWM general education requirements. One of the Humanities/Arts or Social/Behavioral Sciences courses need to also meet Diversity requirement. Computational skills requirement is fulfilled with MATH 111. Prepared using UW-Parkside's 2017-2019 catalog. UW-Parkside courses specific for the engineering program have prefix PENG.

Year 3 – UWM Electrical Engineering					
Fall Semester			Spring Semester		
EAS 200	Professional Seminar	1	ELEC ENG 335	Electronics II	4
ELEC ENG 305	Electrical Circuits II	4	ELEC ENG 362	Electromechanical Energy Conversion	4
ELEC ENG 310	Signals and Systems	3	ELEC ENG 367	Introduction to Microprocessors	4
ELEC ENG 330	Electronics I	4		Technical Elective	6
ELEC ENG 354	Digital Logic	3			
COMP SCI 241	C Programming for Embedded Systems	3			
		18			18
Year 4 – UWM Electrical Engineering					
Fall Semester			Spring Semester		
ELEC ENG 420	Random Signals & Systems	3	ELEC ENG 595	Capstone Senior Design project	4
	3-Approved Technical Electives	9		4-Approved Technical Electives	12
MATL 201	Engineering Materials	4			
		16			16

**UW-Parkside Associate of Science in Physics / UW-Milwaukee Bachelor of Science Mechanical Engineering Agreement
4-Year Plan**

Year 1 – UW-Parkside -Mechanical Engineering Program					
<i>Fall Semester</i>			<i>Spring Semester</i>		
MATH 221	Calculus & Analytic Geometry I	5	MATH 222	Calculus & Analytic Geometry II	5
PHYS 201	General Physics I	5	PHYS 202	General Physics II	5
CHEM 101 & 103	General Chemistry I & Lab	5	PHYS 241 (MECH ENG 101-UWM)	Scientific Programming	3
ENGL 101	Composition and Reading	3	PENG 211 (CIV ENG 201-UWM)	Statics	3
		18			16
<i>Winterim Semester</i>			<i>Summer semester</i>		
Gen Ed	Social/Behavioral Sciences	3	Gen Ed	Social/Behavioral Sciences	3
			Gen Ed	Humanities/Arts	3
		3			6
Humanities/Arts – 3/12 completed; Social/Behavioral Sciences – 6/12 completed; Natural Science 15/12 completed; Total Credits – 43 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – not complete					
Year 2 – UW-Parkside -Mechanical Engineering Program					
<i>Fall Semester</i>			<i>Spring Semester</i>		
MATH 223	Calculus & Analytic Geometry III	5	PHYS 403 (MECH ENG 301-UWM)	Thermodynamics & Statistical Physics	4
PENG 212 (CIV ENG 202-UWM)	Dynamics	3	CHEM 102 & 104	General Chemistry II & Lab	5
ENGL 167	Introduction to Literature (HU)	3	PENG 214 (ELEC ENG 301-UWM)	Electrical Circuits I	3
MATH 317 (ELEC ENG 234-UWM)	Differential Equations and Their Applications	4	ENGL 201	Advanced Composition	3
Gen Ed	Social/Behavioral Sciences	3			
		18			15
<i>Winterim Semester</i>			<i>Summer Semester</i>		
Gen Ed	Social/Behavioral Sciences	3	Gen Ed	Humanities/Arts	3
SPCH 105	Public Speaking (HU)	3			
		6			3
Humanities/Arts – 12/12 completed; Social/Behavioral Sciences – 12/12 completed; Natural Science 15/12 completed; Total Credits – 85 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – complete.					
Foreign Language may be required depending on individual student's backgrounds. Please check UW-Milwaukee requirements. Note: Students should utilize TIS to determine general education courses that transfer to UWM and meet UWM general education requirements. One of the Humanities/Arts or Social/Behavioral Sciences courses need to also meet Diversity requirement. Computational skills requirement is fulfilled with MATH 111. Prepared using UW-Parkside's 2017-2019 catalog. UW-Parkside courses specific for the engineering program have prefix PENG					
Year 3 – UWM Mechanical Engineering					
<i>Fall Semester</i>			<i>Spring Semester</i>		
EAS 200	Professional Seminar	1	IND ENG 367	Introductory Statistics for Engineers	3
CIV ENG 303	Strength of Materials	4	MATL ENG 330	Materials & Processes in Manufacturing	3
MATL ENG 201	Engineering Materials	4	MECH ENG 111	Engineering Fundamentals II	4
MECH ENG 110	Engineering Fundamentals I	4	MECH ENG 321	Basic Heat Transfer	4
MECH ENG 320	Introduction to Fluid Mechanics	3	MECH ENG 474	Introduction to Control Systems	4
		16			18
Year 4 – UWM Mechanical Engineering					
<i>Fall Semester</i>			<i>Spring Semester</i>		
MECH ENG 323	Fluid Mechanics Laboratory	1	MECH ENG 438	Mech Engineering Experimentation	3
MECH ENG 360	Mechanical Design I	3	MECH ENG 479	Mechatronics	3
MECH ENG 366	Design of Machine Elements	4	MECH ENG 496	Senior Design Project	3
MECH ENG 370	Comp Aided Engineer Lab	2		3-Approved Technical Electives	9
	2-Approved Technical Electives	6			
		16			18

**UW-Parkside Associate of Science in Physics / UW-Milwaukee Bachelor of Science Industrial & Manufacturing Engineering
Agreement 4-Year Plan**

Year 1 – UW-Parkside - Industrial and Manufacturing Engineering Program					
Fall Semester			Spring Semester		
MATH 221	Calculus & Analytic Geometry I	5	MATH 222	Calculus & Analytic Geometry II	5
PHYS 201	General Physics I	5	PHYS 202	General Physics II	5
CHEM 101 & 103	General Chemistry I & Lab	5	PHYS 241 (CompSci 240-UWM)	Scientific Programming	3
ENGL 101	Composition and Reading	3	PENG 211 (CIV ENG 201 UWM)	Statics	3
		18			16
Winterim Semester			Summer semester		
Gen Ed	Social/Behavioral Sciences	3	Gen Ed	Humanities/Arts	3
		3	Gen Ed	Humanities/Arts	3
					6
Humanities/Arts – 6/12 completed; Social/Behavioral Sciences – 3/12 completed; Natural Science 15/12 completed; Total Credits – 43 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – not complete					
Year 2 – UW-Parkside - Industrial and Manufacturing Engineering Program					
Fall Semester			Spring Semester		
MATH 223	Calculus & Analytic Geometry III	5	CHEM 102 & 104	General Chemistry II & Lab	5
MATH 317 (ELEC ENG 234-UWM)	Differential Equations and Their Applications	4	PHYS 403 (MECH ENG 301-UWM)	Thermodynamics & Statistical Physics	4
ENGL 167	Introduction to Literature (HU)	3	PENG 214 (ELEC ENG 301-UWM)	Electrical Circuits I	3
PENG 212 (CIV ENG 202-UWM)	Dynamics	3	ENGL 201	Advanced Composition	3
SPCH 105	Public Speaking (HU)	3	Gen Ed	Social/Behavioral Sciences	3
		18			18
Winterim Semester			Summer Semester		
Gen Ed	Social/Behavioral Sciences	3	Gen Ed	Social/Behavioral Sciences	3
		3			3
Humanities/Arts – 12/12 completed; Social/Behavioral Sciences – 12/12 completed; Natural Science 15/12 completed; Total Credits – 85 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – complete					
Foreign Language may be required depending on individual student's backgrounds. Please check UW-Milwaukee requirements. Note: Students should utilize TIS to determine gen. ed. courses that transfer to UWM and meet UWM general education requirements. One of the Humanities/Arts or Social/Behavioral Sciences courses need to also meet Diversity requirement. Computational skills requirement is fulfilled with MATH 111. Prepared using UW-Parkside's 2017-2019 catalog. UW-Parkside courses specific for the engineering program have prefix PENG					
Year 3 – UWM Industrial and Manufacturing Engineering					
Fall Semester			Spring Semester		
EAS 200	Professional Seminar	1	IND ENG 111	Introduction to Engineering	3
IND ENG 370	Introduction to Operations Analysis	3	IND ENG 112	Engineering Drawing & CAD/Drafting	3
IND ENG 455	Operations Research I	3	IND ENG 465	Operations Research II	3
IND ENG 367	Intro Statistics for Engineers	3	IND ENG 475	Intro to Simulation Methodology	3
MATL ENG 201	Engineering Materials	4	IND ENG 571	Quality Control	3
		14			15
Year 4 – UWM Industrial and Manufacturing Engineering					
Fall Semester			Spring Semester		
IND ENG 350	Manufacturing Processes	3	IND ENG 360	Engineering economic Analysis	3
IND ENG 470	Methods Engineering	3	IND ENG 575	Design of Experiments	3
IND ENG 580	Ergonomics	3	IND ENG 485	Senior Design Project	3
IND ENG 583	Facility Layout & Mat Handling	3	IND ENG XXX	2 Approved Technical Electives	6
	Approved Technical Elective	3			
		15			15

**UW-Parkside Associate of Science in Physics / UW-Milwaukee Bachelor of Science Biomedical Engineering Agreement
4-Year Plan**

Year 1 – UW-Parkside - Biomedical Engineering Program					
Fall Semester			Spring Semester		
MATH 221	Calculus & Analytic Geometry I	5	MATH 222	Calculus & Analytic Geometry II	5
PHYS 201	General Physics I	5	PHYS 202	General Physics II	5
CHEM 101 & 103	General Chemistry I & Lab	5	PHYS 241 (MECH ENG 101-UWM)	Scientific Programming	3
ENGL 101	Composition and Reading	3	PENG 211 (CIV ENG 201-UWM)	Statics	3
		18			16
Winterim Semester			Summer semester		
Gen Ed	Social/Behavioral Sciences	3	Gen Ed	Social/Behavioral Sciences	3
			Gen Ed	Humanities/Arts	3
		3			6
Humanities/Arts – 3/12 completed; Social/Behavioral Sciences – 6/12 completed; Natural Science 15/12 completed; Total Credits – 43 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – not complete					
Year 2 – UW-Parkside - Biomedical Engineering Program					
Fall Semester			Spring Semester		
MATH 223	Calculus & Analytic Geometry III	5	PENG 214 (ELEC ENG 301-UWM)	Electrical Circuits I	3
PENG 212 (CIV ENG 202-UWM)	Dynamics	3	PHYS 403 (MECH ENG 301-UWM)	Thermodynamics & Statistical Physics	4
BIOS 105	Anatomy & Physiology – I	5	BIOS 106	Anatomy & Physiology II	5
MATH 317 (ELEC ENG 234-UWM)	Differential Equations and Their Applications	4	ENGL 201	Advanced Composition	3
			ENGL 167	Introduction to Literature (HU)	3
		17			18
Winterim Semester			Summer Semester		
Gen Ed	Social/Behavioral Sciences	3	Gen Ed	Social Behavioral Sciences	3
SPCH 105	Public Speaking (HU)	3	Gen Ed	Humanities/Arts	3
		6			6
Humanities/Arts – 12/12 completed; Social/Behavioral Sciences – 12/12 completed; Natural Science 15/12 completed; Total Credits – 90 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – complete					

Foreign Language may be required depending on individual student's backgrounds. Please check UW-Milwaukee requirements. Note: Students should utilize TIS to determine general education courses that transfer to UWM and meet UWM general education requirements. One of the Humanities/Arts or Social/Behavioral Sciences courses need to also meet Diversity requirement. Computational skills requirement is fulfilled with MATH 111. Prepared using UW-Parkside's 2017-2019 catalog. UW-Parkside courses specific for the engineering program have prefix PENG

Year 3 – UWM Biomedical Engineering					
Fall Semester			Spring Semester		
EAS 200	Professional Seminar	1	BME 320	Engineering of Biomedical Devices 1	4
BME 101	Fundamental of Biomedical Engineering	3	BME 305	Engineering Biomechanics	3
ELEC ENG 305	Electrical Circuits II	4	IND ENG 367	Intro to Statistics for Engineers	3
BME 302	Analysis of Dynamic Systems	4	ELEC ENG 310	Signals and Systems	3
MATL ENG 201	Engineering Materials	4			
		16			13
Year 4 – UWM Biomedical Engineering					
Fall Semester			Spring Semester		
BME 325	Engineering of Biomed. Devices 2	3	BME 595	Capstone Design Project	4
BME 385	Introduction to Biomaterials	3		2-Technical Elective	6
BME 495	Biomedical Instrumentation Lab/Senior Lab	3			
	2-Technical Elective	6			
		15			10

**UW-Parkside Associate of Science in Physics / UW-Milwaukee Bachelor of Science Civil Engineering Agreement
4-Year Plan**

Year 1 – UW-Parkside - Civil Engineering Program					
Fall Semester			Spring Semester		
MATH 221	Calculus & Analytic Geometry I	5	MATH 222	Calculus & Analytic Geometry II	5
PHYS 201	General Physics I	5	PHYS 202	General Physics II	5
CHEM 101 & 103	General Chemistry I & Lab	5	Gen Ed	Social/Behavioral Sciences	3
ENGL 101	Composition and Reading	3	PENG 211 (CIV ENG 201-UWM)	Statics	3
		18			16
Winterim Semester			Summer semester		
Gen Ed	Social/Behavioral Sciences	3	Gen Ed	Humanities/Arts	3
		3			3
Humanities/Arts – 3/12 completed; Social/Behavioral Sciences – 6/12 completed; Natural Science 15/12 completed; Total Credits – 43 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – not complete					
Year 2 – UW-Parkside - Civil Engineering Program					
Fall Semester			Spring Semester		
MATH 223	Calculus & Analytic Geometry III	5	PENG 216 (IND ENG 112-UWM)	Engineering Drawing & Computer Aided Design	3
MATH 317 (ELEC ENG 234-UWM)	Differential Equations and Their Applications	4	PHYS 403 (MECH ENG 301-UWM)	Thermodynamics & Statistical Physics	4
PENG 212 (CIV ENG 202-UWM)	Dynamics	3	CHEM 102 & 104	General Chemistry II & Lab	5
ENGL 167	Introduction to Literature (HU)	3	ENGL 201	Advanced Composition	3
SPCH 105	Public Speaking (HU)	3	Gen Ed	Humanities/Arts	3
		18			18
Winterim Semester			Summer Semester		
Gen Ed	Social/Behavioral Sciences	3	Gen Ed	Social/Behavioral Sciences	3
		3			3
Humanities/Arts – 12/12 completed; Social/Behavioral Sciences – 12/12 completed; Natural Science 15/12 completed; Total Credits – 85 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – complete					

Foreign Language may be required depending on individual student's backgrounds. Please check UW-Milwaukee requirements. Note: Students should utilize TIS to determine general education courses that transfer to UWM and meet UWM general education requirements. One of the Humanities/Arts or Social/Behavioral Sciences courses need to also meet Diversity requirement. Computational skills requirement is fulfilled with MATH 111. Prepared using UW-Parkside's 2017-2019 catalog. UW-Parkside courses specific for the engineering program have prefix PENG

Year 3 – UWM Civil Engineering					
Fall Semester			Spring Semester		
EAS 200	Professional Seminar	1	CIV ENG 250	Surveying for Construction	3
CIV ENG 280	Computer Based Engineering Analysis	3	CIV ENG 372	Introduction to Structural Design	4
CIV ENG 303	Strength of Materials	4	CIV ENG 411	Water Resources Design	3
IND ENG 111	Introduction to Engineering	3	CIV ENG 490	Transportation Engineering	3
MECH ENG 320	Introduction to Fluid Mechanics	3		Natural Science Elective	5
		14			18
Year 4 – UWM Civil Engineering					
Fall Semester			Spring Semester		
CIV ENG 335	Soil Mechanics	3	CIV ENG 495	Senior Design	3
CIV ENG 413	Environmental Engineering	3		4-Approved Technical Electives	12
CIV ENG 494	Principles of CE Design	1	IND ENG 360	Engineering Economic Analysis	3
	2 Approved Technical Electives	6			
MATL ENG 201	Engineering Materials	4			
		17			18

**UW-Parkside Associate of Science in Physics / UW-Milwaukee Bachelor of Science Materials Engineering Agreement
4-Year Plan**

Year 1 – UW-Parkside - Materials Engineering Program					
Fall Semester			Spring Semester		
MATH 221	Calculus & Analytic Geometry I	5	MATH 222	Calculus & Analytic Geometry II	5
PHYS 201	General Physics I	5	PHYS 202	General Physics II	5
CHEM 101 & 103	General Chemistry I & Lab	5	PHYS 241 (CompSci 240-UWM)	Scientific Programming	3
ENGL 101	Composition and Reading	3	PENG 211 (CIV ENG 201-UWM)	Statics	3
		18			16
Winterim Semester			Summer semester		
Gen Ed	Social/Behavioral Sciences	3	Gen Ed	Humanities/Arts	3
		3			3
Humanities/Arts – 3/12 completed; Social/Behavioral Sciences – 3/12 completed; Natural Science 15/12 completed; Total Credits – 40 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – not complete					
Year 2 – UW-Parkside - Materials Engineering Program					
Fall Semester			Spring Semester		
MATH 223	Calculus & Analytic Geometry III	5	CHEM 102 & 104	General Chemistry II & Lab	5
MATH 317 (ELEC ENG 234-UWM)	Differential Equations and Their Applications	4	PENG 214 (ELEC ENG 301-UWM)	Electrical Circuits I	3
PENG 212 (CIV ENG 202-UWM)	Dynamics	3	ENGL 201	Advanced Composition	3
ENGL 167	Introduction to Literature (HU)	3	Gen Ed	Humanities/Arts	3
SPCH 105	Public Speaking (HU)	3	Gen Ed	Social/Behavioral Sciences	3
		18			17
Winterim Semester			Summer Semester		
Gen Ed	Social/Behavioral Sciences	3	Gen Ed	Social/Behavioral Sciences	3
		3		MATL ENG 201 at UWM	4
					7
Humanities/Arts – 12/12 completed; Social/Behavioral Sciences – 12/12 completed; Natural Science 15/12 completed; Total Credits – 85 completed; UW-Milwaukee English Competency (ENGL 167 & ENGL 201) – complete					
Foreign Language may be required depending on individual student's backgrounds. Please check UW-Milwaukee requirements. Note: Students should utilize TIS to determine general education courses that transfer to UWM and meet UWM general education requirements. One of the Humanities/Arts or Social/Behavioral Sciences courses need to also meet Diversity requirement. Computational skills requirement is fulfilled with MATH 111. Prepared using UW-Parkside's 2017-2019 catalog. UW-Parkside courses specific for the engineering program have prefix PENG					
Year 3 – UWM Materials Engineering					
Fall Semester			Spring Semester		
EAS 200	Professional Seminar	1	MATL ENG 330	Materials Processing	3
CIV ENG 303	Strength of Materials	4	MATL ENG 442	Thermodynamics of Materials	3
MATL ENG 402	Physical Metallurgy	3	MATL ENG 453	Polymeric Materials	3
MATL ENG 410	Mechanical Behavior of Materials	3		Technical Elective	3
IND ENG 467	Intro to Statistics for Physical Sciences & Engineers	3			
		14			12
Year 4 – UWM Materials Engineering					
Fall Semester			Spring Semester		
MATL ENG 411	Materials Laboratory	3	MATL ENG 443	Transport & Kinetics in Materials Processing	3
MATL ENG 452	Ceramic Materials	3	MATL ENG 491	Senior Design Project 2	3
MATL ENG 490	Senior Design Project 1	1		3-Technical Electives	9
	3-Technical Electives	9			
		16			15

