TRANSFER AGREEMENT
Between
Valparaiso University
and
Ivy Tech Community College Statewide

For Transfer of Ivy Tech Community College's Associate of Science in Engineering to Bachelor of Science in Bioengineering, Civil, Computer, Electrical, Environmental, or Mechanical Engineering

Statement of Purpose
The purpose of this transfer agreement is to provide a basis for a cooperative relationship between Valparaiso University and Ivy Tech Community College (ITCC) to benefit students who desire to complete a bachelor's degree. The intent is for ITCC students completing the AS degree program at Ivy Tech Community College to have a detailed transition plan to begin a BS in engineering degree program at Valparaiso University.

Transfer Agreement
Ivy Tech Community College graduates from the Associate of Science degree program of study in Engineering may transfer 57-60 credits to Valparaiso University College of Engineering, Bachelor of Science in Bioengineering, Civil, Computer, Electrical, Environmental, or Mechanical Engineering programs depending on the specific engineering field of study as shown in Addendum Two on page 8. Based on this agreement, Bioengineering, Computer, Electrical, and Mechanical Engineering bachelor degrees require two years at Valparaiso University while Civil and Environmental bachelor degrees will require 3 years.

Addendum One: *Ivy Tech Community College Curriculum*
Transfer General Education Core Requirements
Associate of Science Course Requirements

Addendum Two: *Course Requirements for Transfer Details*
The course requirements for this transfer agreement, including remaining courses required at the accepting college or university (transfer institution) to fulfill the baccalaureate degree requirements. If listed, please include a sample semester sequence.

Additionally, under the terms of this agreement:

1. Ivy Tech students graduating with an A.S. degree in Engineering are eligible for admission with junior standing to Valparaiso University provided:
    a. The student has submitted a complete application for admission to Valparaiso University.
    b. A course grade of "C" or better must be earned to be accepted for transfer.
    c. The student has a 3.0 or higher grade point average on a 4 point scale.

2. As ITCC graduates complete the credit hour requirements for the award of the BS degrees in Bioengineering, Civil, Computer, Electrical, Environmental, or Mechanical Engineering, they must meet the graduation requirements as approved by Valparaiso University at the time of the student's admission to the appropriate Bioengineering, Civil, Computer, Electrical, Environmental, or Mechanical Engineering program.

3. Written notice of intention to terminate, modify, or withdraw from this Articulation Agreement will be submitted by the academic head of either institution at least one academic semester prior to the proposed date of termination/withdrawal. Should a decision be made to modify or dissolve this agreement, students who are already attending Valparaiso University at the time will be permitted to continue as long as their academic performance remains in good standing.

4. Recognizing that changes in curricula and course content are inevitable, each institution agrees to discuss with the other institution all curriculum changes affecting this agreement before the changes are implemented.

Agreed to March 17, 2022

Ivy Tech Community College

DocuSigned by:
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Dean McCurdy, Ph.D.
Interim Provost and Senior Vice President
for Academic and Student Experience

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Jennifer Furmanek
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Valparaiso University

Jose D. Padilla
Jose D. Padilla, Ph.D.
President

Eric W. Johnson
Eric W. Johnson, Ph.D.
Provost and Executive Vice President for Academic Affairs

Doug Tougaw
Doug Tougaw, PhD
Dean, College of Engineering

Addendum One: Ivy Tech Community College Curriculum
Engineering
Associate of Science
2021-2022
FULL-TIME SEQUENCE

Columbus - Evansville - Fort Wayne - Indianapolis - Lafayette - South Bend - Valparaiso – Warsaw

The following suggested sequence includes all course requirements for this degree. You must consult with an academic advisor to determine which Transfer Cluster Electives should be chosen to receive the maximum credit at the receiving college or university.

Semester 1		
*ENGL 111	English Composition	3 Credits
IVYT 111	Student Success for University Transfer	1Credit
*MATH 211	Calculus I	4 Credits
XXXX XXX	Transfer Cluster Elective	3 Credits
ENGR 196	Introduction to Engineering	3 credits
	Semester Total	**14 Credits**
Semester 2		
XXXX XXX	Transfer Cluster Elective	3 credits
*MATH 212	Calculus II	4 Credits
*PHYS 220	Mechanics	5 Credits
XXXX XXX	Transfer Cluster Elective	3 Credits
	Semester Total	**15 Credits**
Semester 3		
MATH 261	Multivariate Calculus I	4 Credits
*PHYS 221	Heat, Electricity, and Optics	
or CHEM 106	General Chemistry II	5 Credits
*XXXX XXX	Humanistic and Artistic Ways of Knowing Elective	3 Credits
XXXX XXX	Transfer Cluster Elective	3 Credits
	Semester Total	**15 Credits**
Semester 4		
*COMM 101	Fundamentals of Public Speaking	3 Credits
^ENGR 279	Capstone Course	1 Credit
MATH 264	Differential Equations	3 Credits
*XXXX XXX	Social and Behavioral Ways of Knowing Elective	3 Credits
XXXX XXX	Transfer Cluster Elective	3 Credits
XXXX XXX	Transfer Cluster Elective	3 Credits
	Semester Total	**16 Credits**

Total 60 Credits

***** Required for Transfer General Education Core (TGEC) Certificate

The Transfer General Education Core (TGEC) Certificate requirements for this degree require a minimum of 30 credits. The TGEC Certificate requires a minimum of one course from six areas of study. The number of TGEC elective courses shown above may vary based on required TGEC course credits earned, area of study, and the student's Individual Academic Plan. The remaining degree requirements provide a mechanism for students to obtain the required minimum 60 credits to graduate with the appropriate Associate level transfer degree.

Bioengineering Recommended Transfer Cluster Electives

Ivy Tech Course	Valparaiso University Equivalent
CHEM 105 – General Chemistry I	CHEM 121 – General Chemistry I
ENGR 116- Geometrics Modeling for Visualization	ME 102 – Computer-Aided Design
ENGR 160 –Engineering Software Tools II	ME 125 – Computer Program for Mechanical Engineers
ENGR 251 Electrical Circuits I	ECE 281 Fundamentals of Electrical Engineering **and** ME 261 – Analog Circuits Laboratory
ENGR 260 – Vector Mechanics – Statics	GE 109 Statics- Mechanics
ENGR 261 Dynamics	ME 209 Mechanics-Dynamics

Civil Engineering Recommended Transfer Cluster Electives

Ivy Tech Course	Valparaiso University Equivalent
CHEM 105 – Chemistry I	CHEM 115 – Essentials of Chemistry for Engineers
ENGR 260 – Vector Mechanics – Statics	GE 109 – Mechanics Statics
ENGR 116- Geometrics Modeling for Visualization	CE 151 Intro to Computer-Aided Drafting
ENGR 270 – Engineering Project Management	CE Technical Elective

Computer Engineering Recommended Transfer Cluster Electives

Ivy Tech Course	Valparaiso University Equivalent
ENGR 272 Intro. To Digital Logic	ECE 221 – Digital Logic Design
ENGR 251 – Electrical Circuits I	ECE 263 – Linear Circuit Theory I
ENGR 252- Electrical Circuits II	Computer Engineering Elective ECE 264 – Linear Circuit Theory II
ENGR 140 Engineering Software Tool I	ECE 251 Engineering Programming I
CHEM 105 – General Chemistry I	Math/Science Elective CHEM 121 – General Chemistry I
CHEM 106 – General Chemistry II	Math/Science Elective CHEM 122 – General Chemistry II

Electrical Engineering Recommended Transfer Cluster Electives

Ivy Tech Course	Valparaiso University Equivalent
ENGR 272 Intro. To Digital Logic	ECE 221 – Digital Logic Design
ENGR 251 – Electrical Circuits I	ECE 263 – Linear Circuit Theory I
ENGR 252- Electrical Circuits II	ECE 264 – Linear Circuit Theory II
ENGR 140 Engineering Software Tool I	ECE 251 Engineering Programming I
CHEM 105 – General Chemistry I	Math/Science Elective CHEM 121 – General Chemistry I
CHEM 106 – General Chemistry II	Math/Science Elective CHEM 122 – General Chemistry II

Environmental Engineering Recommended Transfer Cluster Electives

Ivy Tech Course	Valparaiso University Equivalent
CHEM 105 – Chemistry I	CHEM 115 – Essentials of Chemistry for Engineers
CHEM 211 Organic Chemistry I	CHEM 221 Organic Chemistry I
ENGR 260 – Vector Mechanics – Statics	GE 109 – Mechanics Statics
ENGR 116- Geometrics Modeling for Visualization	CE 151 Intro to Computer-Aided Drafting

Mechanical Engineering Transfer Cluster Electives

Ivy Tech Course	Valparaiso University Equivalent
CHEM 105 – General Chemistry I	CHEM 121 – General Chemistry I
ENGR 116- Geometrics Modeling for Visualization	ME 102 – Computer-Aided Design
ENGR 160 –Engineering Software Tools II	ME 125 – Computer Program for Mechanical Engineers
ENGR 251 – Electrical Circuits I	ECE 281 Fundamentals of Electrical Engineering **and** ME 261 – Analog Circuits Laboratory
ENGR 260 – Vector Mechanics – Statics	GE 109 Statics- Mechanics
ENGR 261 Dynamics	ME 209 Mechanics-Dynamics

Addendum Two: Course Requirements for Transfer

General Education (30 credits)

	IVY TECH Course		VU Course Civil and Environmental	VU Course Computer	VU Course Electrical	VU Course Bioengineering and Mechanical
COMM 101	Fundamentals of Public Speaking	3	COMM 243 (3) CEE Professional Elective	COMM 243 (3) ECE Professional Elective	COMM 243 (3) ECE Professional Elective	COMM 243 (3) MEBE Professional Elective
ENGL 111	English Composition	3	CORE 110 (4) & CORE 115 (4) The Human Experience	CORE 110 (4) & CORE 115 (4) The Human Experience	CORE 110 (4) & CORE 115 (4) The Human Experience	CORE 110 (4) & CORE 115 (4) The Human Experience
MATH 211	Calculus I	4	MATH 131 (4) Analytic Geom. And Calc. I	MATH 131 (4) Analytic Geom. And Calc. I	MATH 131 (4) Analytic Geom. And Calc. I	MATH 131 (4) Analytic Geom. And Calc. I
MATH 212	Calculus II	4	MATH 132 (4) Analytic Geom. And Calc. II	MATH 132 (4) Analytic Geom. And Calc. II	MATH 132 (4) Analytic Geom. And Calc. II	MATH 132 (4) Analytic Geom. And Calc. II
PHYS 220	Mechanics	5	PHYS 141/L (4) Newtonian Mechanics/ Experimental Physics	PHYS 141/L (4) Newtonian Mechanics/ Experimental Physics	PHYS 141/L (4) Newtonian Mechanics/ Experimental Physics	PHYS 141/L (4) Newtonian Mechanics/ Experimental Physics
PHYS 221 **OR**	Heat, Electricity, & Optics	5		PHYS 142 (3) Electric Magnetics Waves	PHYS 142 (3) Electric Magnetics Waves	PHYS 142 (3) Electric Magnetics Waves
CHEM 106	Chemistry II	5	CHEM 116 (4) Applications of Chemistry			
XXXX XXX	Humanistic Ways of Knowing	3	(3) Humanities, Soc. Sci., Theo Elective	(3) Humanities, Soc. Sci., Theo Elective	(3) Humanities, Soc. Sci., Theo Elective	(3) Humanities, Soc. Sci., Theo Elective
XXXX XXX	Social and Behavioral Ways of Knowing	3	(3) Humanities, Soc. Sci., Theo Elective	(3) Humanities, Soc. Sci., Theo Elective	(3) Humanities, Soc. Sci., Theo Elective	(3) Humanities, Soc. Sci., Theo Elective
		30	**33**	**32**	**32**	**33**

Institutional Requirements (2 credits)

IVYT 111	Student Success for University Transfer	1	-	-	-	-
ENGR 279	Capstone Course	1	-	-	-	-
		2	**0**	**0**	**0**	**0**

Professional Technical Core (9 credits)

MATH 261	Multivariate Calculus	4	MATH 253 (4) Calculus III	MATH 253 (4) Calculus III	MATH 253 (4) Calculus III	MATH 253 (4) Calculus III
MATH 264	Differential Equations	3	MATH 270 (3) Differential Equations	MATH 270 (3) Differential Equations	MATH 270 (3) Differential Equations	MATH 270 (3) Differential Equations
ENGR 196	Intro to Engineering	3	GE 100/100L (2) Fundamentals of Engineering	GE 100/100L (2) Fundamentals of Engineering	GE 100/100L (2) Fundamentals of Engineering	GE 100/100L (2) Fundamentals of Engineering
		10	**9**	**9**	**9**	**9**

Transfer Cluster Course Articulations

CHEM 105	Chemistry I	5	CHEM 115 (4)	Math/Science Elective (5)	Math/Science Elective (5)	CHEM 115 (4)
CHEM 211	Organic Chemistry I	5	CHEM 221 Organic Chemistry for EnE (4)			
ENGR 116	Geometric Modeling for Visualization	2	CE 151 (1) Computer-Aided Design			ME 102 (1) Computer-Aided Design
ENGR 140	Engineering Software Tools I	3		ECE 251 (3) Engineering Programming I	ECE 251 (3) Engineering Programming I	-
ENGR 160	Engineering Software Tool II	3				ME 125 (1) MATLAB
ENGR 251	Electrical Circuit I	4		ECE 263 (4) Linear Circuit Theory I	ECE 263 (4) Linear Circuit Theory I	ECE 281 Fund. of Electrical Engr/ ME 261 Analog Circuits Lab (3 cr)
ENGR 252	Electrical Circuit II	4		ECE 264 (4) Linear Circuit Theory II - CpE Elective	ECE 264 (4) Linear Circuit Theory II	-
ENGR 260	Vector Mechanics-Statics	3	GE 109 (3) Mechanics-Statics			GE 109 (3) Mechanics-Statics
ENGR 261	Dynamics	3				ME 209 (3) Mechanics-Dynamics
ENGR 270	Eng. Project Management	3	CE Technical Elec (3)			
ENGR 272	Intro to Digital Logic Design	4		ECE 221 (3) Digital Logic Design	ECE 221 (3) Digital Logic Design	-
Potential Credits			**15**	**19**	**19**	**15**
Grand Total			**57**	**60**	**60**	**57**

Total Credits Required for ITCC Degree **60 credits**
Total Credits Transferred to Valparaiso University **57-60 credits**

Bioengineering (Biomechanical Track)– Sample Semester Sequence at Valparaiso University

Fifth Semester

Course:	Course Title:	Credits
MATH 260	Linear Systems and Matrices	1
STAT 240	Statistical Analysis	3
BIO 151 & Lab	Anatomy and Physiology I	4
ME 201	Technical Writing for Mechanical Engineers	1
ME 215	Mechanics of Materials	3
ME 261	Analog Circuits Lab	0.5
ME 333	Measurements	4
GE 311	Financial Decisions in Engineering	1.5
	TOTAL:	**16.5**

Sixth Semester

Course:	Course Title:	Credits
BE 320	Bioengineering Technologies Lab	1
BE 340	Bioelectricity	3
BE 369	Biomechanics	3
BIO 152 & Lab	Anatomy and Physiology II	4
GE 312	Ethical Decisions in Engineering	1.5
ME 252	Materials Science	2.5
ME 270	Thermodynamics I	3
	TOTAL:	**18**

Summer Semester

Course:	Course Title:	Credits
THEO 200	The Christian Tradition	3
	World Language/Cultural Diversity	3
KIN 101	Stress & Wellness	1
	TOTAL:	**6**

Seventh Semester

Course:	Course Title:	Credits
GE 497	Senior Design I	3
ME 317	Sustainable Engineering	2
ME 352	Materials Science and Mechatronics Lab	0.5
ME 355	System Modeling and Numerical Methods	3
ME 373	Fluid Mechanics	3
BE 415	Biomaterial	3
ME 442	Automatic Control	2
	TOTAL:	**16.5**

Eighth Semester

Course:	Course Title:	Credits
GE 498	Senior Design II	3
ME 376	Heat Transfer	3
	BE Technical Elective	3
	BE Technical Elective	3
	BE Technical Elective	3
	TOTAL:	**15**

Civil Engineering – Sample Semester Sequence at Valparaiso University

Fifth Semester

Course:	Course Title:	Credits
STAT 240	Statistical Analysis	3
KIN 101	Stress & Wellness	1
CE 215	Mechanics of Materials	3
MATH 260	Linear Systems and Matrices	1
THEO 200	The Christian Tradition	3
	Science Elective	3
	TOTAL:	**14**

Sixth Semester

Course:	Course Title:	Credits
CE 252	Transportation	3
CE 216	Structures	3
CE 212 & Lab	Materials	3
CE 213	Technical Writing for Civil Engineers	1
	World Language/Cultural Diversity	3
	TOTAL:	**13**

Seventh Semester

Course:	Course Title:	Credits
CE 320 & Lab	Soil Mechanics	4
CE 334 & Lab	Fluids	4
CE 364 & Lab	Environmental Engineering I	4
	TOTAL:	**12**

Eighth Semester

Course:	Course Title:	Credits
CE 322	Foundations	3
CE 335	Hydrology	3
CE 354	Transportation Facilities	3
CE 365	Environmental Engineering II	3
	TOTAL:	**12**

Ninth Semester

Course:	Course Title:	Credits
CE 493	Senior Design I	3
CE 317	Concrete Design	3
	Civil Engineering Elective	3
GE 311	Financial Decisions	1.5
GE 312	Ethical Decisions	1.5
	TOTAL:	**12**

Tenth Semester

Course:	Course Title:	Credits
CE 494	Senior Design II	3
CE 318	Steel Design	3
	Civil Engineering Elective	3
	Civil Engineering Elective	3
	TOTAL:	**12**

Computer Engineering – Sample Semester Sequence at Valparaiso University

Fifth Semester

Course:	Course Title:	Credits
ECE 211	Technical Writing for ECE	1
ECE 322 & Lab	Embedded Microcontrollers	3
ECE 340 & Lab	Electronics I	3
ECE 360	Signals and Systems	3
ECE 450	Networking and Data Communication	3
MATH 260	Linear Systems and Matrices	1
STAT 240	Statistical Analysis	3
	TOTAL:	**17**

Sixth Semester

Course:	Course Title:	Credits
ECE 212	The Design Process for ECE	1
ECE 222 & LAB	Advanced Digital Logic	3
ECE 252	Engineering Programming II	3
MATH 220	Discrete Mathematics	3
ECE 422 & Lab	Embedded Microcontroller II	3
GE 311	Financial Decisions in Engineering	1.5
GE 312	Ethical Decisions in Engineering	1.5
	TOTAL:	**16**

Seventh Semester

Course:	Course Title:	Credits
GE 497	Senior Design I	3
ECE 424	Computer Architecture	3
	Computer Engineering Elective	4
THEO 200	The Christian Tradition	3
KIN 101	Stress & Wellness	1
	World Language/Cultural Diversity	3
	TOTAL:	**17**

Eighth Semester

Course:	Course Title:	Credits
GE 498	Senior Design II	3
ECE 452 & Lab	Digital Signal Processing	3
	Computer Engineering Elective	3
	Computer Engineering Elective	3
	Computer Engineering Elective	3
	TOTAL:	**15**

Electrical Engineering – Sample Semester Sequence at Valparaiso University

Fifth Semester

Course:	Course Title:	Credits
ECE 211	Technical Writing for ECE	1
ECE 322 & Lab	Embedded Microcontrollers	3
ECE 340 & Lab	Electronics I	3
ECE 360	Signals and Systems	3
MATH 260	Linear Systems and Matrices	1
STAT 240	Statistical Analysis	3
	Professional Elective	3
	TOTAL:	**17**

Sixth Semester

Course:	Course Title:	Credits
ECE 212	The Design Process for ECE	1
ECE 264 & Lab	Linear Circuit Theory II	4
ECE 341	Electronics II	3
	Electrical Engineering Elective	3
GE 311	Financial Decisions in Engineering	1.5
GE 312	Ethical Decisions in Engineering	1.5
	Math/Science Elective	3
	TOTAL:	**17**

Seventh Semester

Course:	Course Title:	Credits
GE 497	Senior Design I	3
ECE 430	Electromagnetic Field Theory	3
	Electrical Engineering Elective	3
	Electrical Engineering Elective	3
	Electrical Engineering Elective	3
KIN 101	Stress & Wellness	1
	TOTAL:	**16**

Eighth Semester

Course:	Course Title:	Credits
GE 498	Senior Design II	3
	Electrical Engineering Elective for ECE 100	3
THE0 200	The Christian Tradition	3
	Electrical Engineering Elective	3
	Electrical Engineering Elective	3
	TOTAL:	**15**

Environmental Engineering – Sample Semester Sequence at Valparaiso University

Fifth Semester

Course:	Course Title:	Credits
STAT 240	Statistical Analysis	3
CE 215	Mechanics of Materials	3
MATH 260	Linear Systems and Matrices	1
EnE 210	Enviro, Toxic, & Risk Assessment	3
	World Lang/Cultural Diversity	3
	TOTAL:	**13**

Sixth Semester

Course:	Course Title:	Credits
EnE 260	Environmental Sustainability	2
CE 213	Technical Writing for Civil Engineers	1
CE 351	Program & Numeral Methods	2
ME 270	Thermodynamics	3
THEO 200	The Christian Tradition	3
	Professional Elective	3
	TOTAL:	**14**

Seventh Semester

Course:	Course Title:	Credits
EnE 330	Environmental Soils & Lab	3
CE 334 & Lab	Fluids	4
CE 364 & Lab	Environmental I	4
KIN 101	Stress & Wellness	1
	TOTAL:	**12**

Eighth Semester

Course:	Course Title:	Credits
EnE 310	Chemical Fate & Transport	3
CE 335	Hydrology	3
EnE 360	Environmental Policy & Law	2
CE 365	Environmental Engineering II	3
BIO 215	Fund. Microbiology for Engineers	3
	TOTAL:	**14**

Ninth Semester

Course:	Course Title:	Credits
CE 493	Senior Design I	3
GE 311	Financial Decisions in Engineering	1.5
EnE 440	Introduction to Air Pollution	3
GE 312	Ethical Decisions in Engineering	1.5
	Environmental Engineering Elective	3
	TOTAL:	**12**

Tenth Semester

Course:	Course Title:	Credits
CE 281	Geology for Civil & Enviro. Engineers	3
CE 494	Senior Design II	3
EnE 450	Hazardous Waste Management	3
	Environmental Engineering Elective	3
	TOTAL:	**12**

Mechanical Engineering – Sample Semester Sequence at Valparaiso University

Fifth Semester

Course:	Course Title:	Credits
ME 201	Technical Writing for Mechanical Engineers	1
ME 215	Mechanics of Materials	3
ME 251	Intro to Manufacturing Lab	1
ME 373	Fluid Mechanics	3
MATH 260	Linear Systems and Matrices	1
STAT 240	Statistical Analysis	3
THEO 200	The Christian Tradition	3
KIN 101	Stress & Wellness	1
	TOTAL:	**16**

Sixth Semester

Course:	Course Title:	Credits
ME 252	Materials Science	2.5
ME 270	Thermodynamics I	3
ME 351	Manufacturing Processes	3
GE 311	Financial Decisions in Engineering	1.5
GE 312	Ethical Decisions in Engineering	1.5
	Mechanical Engineering Elective	3
	World Language/Cultural Diversity	3
	TOTAL:	**17.5**

Seventh Semester

Course:	Course Title:	Credits
GE 497	Senior Design I	3
ME 317	Sustainable Engineering	2
ME 352	Materials Science and Mechanics Lab	0.5
ME 355	Systems Modeling & Numerical Methods	3
ME 363	Machine Design I	3
ME 333	Measurements	4
ME 442	Controls	3
	TOTAL:	**18.5**

Eighth Semester

Course:	Course Title:	Credits
GE 498	Senior Design II	3
ME 364	Vibrations	2
ME 372	Heat Power Lab	0.5
ME 376	Heat Transfer	3
	Mechanical Engineering Elective	3
	Mechanical Engineering Elective	3
	Professional Elective	3
	TOTAL:	**17.5**