ARTICULATION AGREEMENT

BETWEEN

FRANCISCAN UNIVERSITY STEUBENVILLE

AND

GANNON UNIVERSITY

IN

ENGINEERING

January, 2013

PURPOSE OF AGREEMENT

This document establishes a transfer articulation agreement between Franciscan University Steubenville (FUS) and Gannon University (Gannon) for the Gannon academic programs of Biomedical, Electrical, Environmental, Mechanical and Software Engineering. Its purpose is to afford students the opportunity to pre-plan their college careers, and to facilitate the transfer process from the Associate of Arts (AA) degree program at FUS to one of the Bachelors of Science (BS) degree programs in Engineering at Gannon.

MINIMUM TRANSFER STANDARDS FOR STUDENTS WITH AN ASSOCIATE DEGREE

- Students must have a minimum cumulative FUS grade point average (GPA) of 3.0.
  - Grades of "D" or better will be considered for transfer credit at Gannon. As part of accepting the associate degree, Gannon accepts grades that have been deemed as passing by the sending institution. However, grades of "D" will only be accepted as a component of an earned associate degree in accordance with this articulation agreement. Otherwise, a grade "C" or better is required for course transfer.
  - In addition, the School of Engineering at Gannon requires a minimum grade of "C" for the following courses to be accepted in transfer from FUS: all MTH, PHY, EGR and CSC courses.
  - Students are encouraged to meet with an academic advisor at Gannon prior to their first semester there to discuss their transition and any particular issues relating to their desired program of study.
- Gannon will accept all 65 credits listed on the attached FUS curriculum sheets (Appendix A) toward fulfillment of the requirements for one of the listed Engineering BS degrees (Appendices B-F), provided grades of "C" or better are earned in the aforementioned subject areas.

- Students must meet Gannon's conduct standards in regards to known behavioral problems

- GPA is used to make an admissions decision, but does not transfer. The grades of courses do not transfer, just the courses themselves.

Students should verify their intent to enroll by making a deposit in the amount stipulated by Gannon University no later than May 1 of the year in which they intend to begin coursework.

FUS students who have been awarded the AA degree, transfer both courses from Appendix B and at least one course from Appendix C, maintain fulltime enrollment of 15-18 credits each semester at Gannon, register for recommended courses, and earn grades of "C" or higher will fulfill graduation requirements for the BS degree in Engineering in four semesters at Gannon.

Students who have been awarded the AA degree from FUS will enter Gannon with full junior class status, provided students meet GPA requirement and have earned grades of "C" or better in required subject areas.

Students who are not able to complete all prerequisites prior to their desired semester of enrollment may still be considered for admission.

MANAGEMENT OF THE AGREEMENT

Changes to the AA program at FUS (See Appendix A: FUS Pre-Engineering) shall be communicated to the Dean of the College of Engineering and Business at GU, with a copy sent to the Provost and VP for Academic Affairs.

Changes to the recommended 2-year programs at GU (See Appendices B-F) shall be communicated to the Dean of Sciences at FUS.

Appendix A: FUS Pre-Engineering

Franciscan University Steubenville (FUS) Pre-Engineering

FUS Pre-Engineering

Fall Semester 1		**Spring Semester 2**	
ENG 103 Freshman English I	3	ENG 320 Business and Professional Writing	3
MTH 161 Analytic Geometry and Calculus I	4	MTH 162 Analytic Geometry and Calculus II	4
PHL 103 Intro to Philosophy	3	PHY 220 University Physics I	3
CHM 111 Introduction to Chemistry 1 & Lab	4	PHY 221 Univ. Physics I Lab	1
CSC 144 Intro to OPP[1]	3	THE 101 Foundations of Catholicism	3
	17	Social Science Elective	3
Fall Semester 3		**Spring Semester 4**	
ENG 290[2] Speech Communications	3	HST 105 History of Civilization	3
MTH 261 Analytic Geometry and Calculus 3	4	MTH 265 Differential Eqns	3
PHY 222 University Physics II	3	Ethics Elective	3
PHY 223 Univ. Physics II Lab	1	EGR 436 Engineering Innovation	2
EGR 301 Engineering Statics	3	Theology Elective	3
Philosophy Elective	3		
	17		14

[1] For those intending for Electrical (Electronics) Engineering, Mechanical Engineering, BioMedical Engineering or Environmental Engineering, consider a *Literature* or *Fine Arts* course instead.

[2] Students intending for Software Engineering or Electrical (Computer) Engineering should take *CSC 245 Data Structures* instead.

Appendix B: BS Electrical Engineering (GU)

Two degree programs leading to the BSEE degree: Electrical and Electronics Option and Computer Option. Both are subject to change in the Gannon University Course Catalog.

BS Electrical Engineering
Electrical & Electronics Option

Fall, Semester 5		**Spring Semester 6**	
ECE 105 Eng Tools & Appl	1	ECE 141 Dig Logic Dsgn Lab	1
ECE 106 Eng Tools & Appl Lab	1	ECE 229 Circuits 1 Lab	1
ECE 140 Digital Logic Design	3	ECE 321 Electronics 1	3
ECE 228 Circuits 1	3	ECE 322 Electronics 1 Lab	1
ECE 243 Test & Measurement	3	ECE 330 Signals & Systems	3
ECE 326 Automatic Control	3	ECE 380 Professional Seminar	1
Leadership Seminar	1	Literature	3
Fine Arts	3	Tech Elective 1	3
		ENG 327 Automatic Control Lab	1
	18		17
Fall, Semester 7		**Spring Semester 8**	
ECE_240 Circuit 2	3	ECE 327 Electric Drives	3
ECE_241 Circuit 2 Lab	1	ECE 328 Electric Drives Lab	1
ECE_246 Microprocessors	2	ECE 351 Engineering Analysis	3
ECE_247 Microprocessors Lab	1	ECE 358 Sr. Design Lab & Seminar	3
ECE_333 Electronics 2	2	ECE 465 Power Electronics	3
ECE_334 Electronics 2 Lab	1	ME 212 Thermal Systems	3
ECE_335 Electromagnetic Fields	3		
ECE_357 Senior Design	3		
	16		16

FUS Advising/Planning:
Needs *Philosophy/Theology* instead of *2nd History*

BS Electrical Engineering
Computer Option

Fall Semester 5		**Spring Semester 6**	
ECE 105 Eng Tools & Appl	1	ECE 140 Digital Logic Design	3
ECE 106 Eng Tools & Appl Lab	1	ECE 141 Dig Logic Dsgn Lab	1
ECE 216 Prob Solv Obj-Orient Des	3	ECE 217 Data Struct & Algorithm	3
ECE 243 Test & Measurement	3	Fine Arts	3
ECE 326 Automatic Control	3	ECE 229 Circuits 1 Lab	1
Leadership Seminar	1	ECE 330 Signals & Systems	3
ECE 228 Circuits 1	3	ECE 351 Engineering Analysis	3
Math 222 Discrete Math 1	3	ECE 380 Professional Seminar	1
	18		18
Fall Semester 7		**Spring Semester 8**	
ECE 246 Microprocessors	2	ECE 321 Electronics 1	3
ECE 247 Microprocessors Lab	1	ECE 322 Electronics 1 Lab	1
ECE 311 Embedded Kernel & RTOS	3	ECE 337 Computer Architecture	3
ECE 345 Adv Digital Design	2	ECE 347 Embedded System Dsgn	3
ECE 346 Adv Dig Dsgn Lab	1	ECE 349 Rapid Prototyp. w FPGA	3
ECE 357 Senior Design	3	ECE 358 Sr. Design Lab & Seminar	3
ECE 438 Real-Time Application	3		
Literature	3		
	18		16

FUS Advising/Planning:

Needs *Philosophy/Theology* instead of *2nd History*

Consider *Fine Arts*, *Literature* or *CSC 245 Data Structures* instead of *ENG 290 Speech*

Appendix C: BS Software Engineering (GU)

Degree program leading to the BS in Software Engineering degree. Subject to change in the Gannon University Course Catalog.

BS Software Engineering

Fall Semester 5		**Spring Semester 6**	
CIS 173 PC Database	1	CIS 350 Requirements & Proj. Mgmt.	3
CIS 216 Problem Solving in OOP	3	CIS 255 Intro to Database	3
CIS 217 Intro to Unix	1	CIS 286 Object Oriented Programming	3
CIS 290 Intro to Networks	3	CIS 310 Software Design & Test	3
MATH 312 Probability and Statistics	3	CIS 302 CIS Professional Seminar	1
MATH 222 Discrete Math 1	3	MATH 223 Discrete Math 2	3
Literature	3	CIS 303 Leadership Seminar	1
	17		17
Fall Semester 7		**Spring Semester 8**	
CIS 317 Personal Software Process	3	CIS 315 Software Engineering	3
CIS 326 Formal Methods	3	CIS 318 Software Architecture	3
CIS 330 Operating Systems	3	CIS 438 Human Interface Design & Maint	3
CIS 355 Visual DB Programming	3	CIS 390 Distributed Programming	3
CIS 415 Software Testing & QA	3	CIS 458 Senior Design 2	3
CIS 457 Senior Design 1	3	ECE 337 Computer Architecture	3
	18		18

FUS Advising/Planning:

Needs *Philosophy/Theology* instead of *2nd History*

Needs *CSC 245 Data Structures* instead of *ENG 290 Speech*

Needs one additional Fine Arts or Literature course; @FUS or over Summer.

Appendix D: BS Environmental Engineering (GU)

Degree program leading to the BS in Environmental Engineering degree. Subject to change in the Gannon University Course Catalog.

BS Environmental Engineering

		Summer Semester (prior)	
		ME 204 Dynamics	3
			3
Fall Semester 5		**Spring Semester 6**	
ENV 120 Intro to Environmental Science	3	ENV 101 Physical Geology	3
ENV 312 Environmental Hydrology	3	ENV 102 Physical Geology Lab	1
ENV 313 Env Hydrology Lab	1	BIOL 106 Intro to Microbiology	3
Literature	3	BIOL 107 Intro to Microbiology Lab	1
BIOL 122 Molecular & Cell Biology	3	ME 312 Engineering Thermodynamics	3
CHEM 114 General Chemistry 2	3	ENV 336 Water Quality	3
CHEM 115 General Chemistry 2 Lab	1	ENV 337 Water Quality Lab	1
Leadership Seminar	1	ENV 403 Environmental Engineering	3
	18		18
Fall Semester 7		**Spring Semester 8**	
ENV 400 Environmental Toxicology	3	ENV 440 Industrial Health I	3
ENV 401 Environmental Toxicology Lab	1	ENV 444 Environmental Law & Regulation	3
ENV 451 Water & Wastewater Engineering	3	ENV 495 Senior Design II	3
ENV 453 Water & Wastewater Lab	1	Fine Arts	3
ENV 494 Senior Design I	3	ENV Tech Elective	3
MATH 312 Probability and Statistics	3	ENV 465 Soil & Groundwater Pollution	3
ENV 486 Fluid Mechanics & Water System Design	3		
ENV 487 Fluid Mechanics & Water System Design	1		18
	18		

FUS Advising/Planning:

Needs one engineering summer course prior to transfer

Needs *Philosophy/Theology* instead of *2nd History*

Consider one additional Fine Arts or Literature course @FUS to eliminate the summer course

Appendix D: BS Mechanical Engineering (GU)

Degree program leading to the BSME degree. Subject to change in the Gannon University Course Catalog.

BS Mechanical Engineering

		Summer Semester (prior)	
		ME 204 Dynamics	3
		ME 312 Engineering Thermodynamics	3
			6
Fall Semester 5		**Spring Semester 6**	
ME 205 Digital Computer Usage	1	ME 208 Engineering Computer Graphics Lab	1
ME 206 Digital Computer Lab	1	ME 215 Strength of Materials Lab	1
ME 207 Engineering Graphics	2	ME 329 Materials Processing	3
		ME 332 Instrumentation and Measurement	
ME 214 Strength of Materials	3	Lab	1
ME 315 Materials Science	3	ME 335 Machine Elements	2
ME 336 Fluid Mechanics	3	ME 337 Heat Transfer	3
Leadership Seminar	1	ME 338 Fluid Mechanics Lab	1
ECE 231 Introduction to Electrical Engr	3	ME 403 Engineering Analysis	3
ECE 232 Introduction to Electrical Engr Lab	1	PHYS 214 General Physics V (E&M)	3
	18		18
Fall Semester 7		**Spring Semester 8**	
ME 326 System Dynamics and Control	3	ENG 327 Automatic Control Lab	1
ME 330 Manufacturing Lab	1	ME 339 Heat Transfer Lab	1
		ME 354 Senior Design Lab in Mechanical	
ME 334 Kinematics of Mechanisms	2	Engr	3
ME 345 Computer Aided Design	3	Literature	3
ME 350 Engineering Design	2	Fine Arts	3
ME 440 Advanced Thermodynamics	3	Technical Elective	3
Technical Elective	3	Technical Elective	3
	17		17

FUS Advising/Planning:

Needs two engineering summer courses prior to transfer

Needs *Philosophy/Theology* instead of *2nd History*

Consider *Fine Arts* or *Literature* instead of *CSC 144*

Appendix F: BS Biomedical Engineering (GU)

Degree program leading to the BS in Biomedical Engineering degree. Subject to change in the Gannon University Course Catalog.

BS Biomedical Engineering

		Summer Semester (prior)	
		ME 204 Dynamics	3
		ME 312 Engineering Thermodynamics	3
			6
Fall Semester 5		**Spring Semester 6**	
ME 205 Digital Computer Usage	1	ME 215 Strength of Materials Lab	1
ME 206 Digital Computer Lab	1	ME 332 Instrumentation and Measurement Lab	1
ME 207 Engineering Graphics	2	ME 403 Engineering Analysis	3
ME 214 Strength of Materials	3	PHYS 214 General Physics V (E&M)	3
ME 315 Materials Science	3	BIOL 115 Human A&P	3
ME 336 Fluid Mechanics	3	BIOL 116 Human A&P Lab	1
BIOL 122 Molecular & Cellular Biology	3	BME Tech Elective	3
BIOL 123 Molecular & Cellular Biology Lab	1	BME 410 Biomaterials	3
Leadership Seminar	1		
	18		18
Fall Semester 7		**Spring Semester 8**	
ME 350 Engineering Design	2	ME 354 Senior Design Lab in Mechanical Engr	3
ECE 231 Introduction to Electrical Engr	3	Fine Arts	3
ECE 232 Introduction to Electrical Engr Lab	1	Literature	3
MATH 312 Probability and Statistics	3	BME Tech Elective	3
BME 440 Bioengineering Lab	3	BME Tech Elective	3
BME Tech Elective	3	BME Systems Modeling	3
BME 420 Biomechanics	3		
	18		18

FUS Advising/Planning:

Needs two engineering summer courses prior to transfer

Needs *Philosophy/Theology* instead of *2nd History*

Consider *Fine Arts* or *Literature* instead of *CSC 144*