

AN ARTICULATION AGREEMENT FOR A  
DUAL DEGREE PROGRAM

in

LIBERAL ARTS AND SCIENCES

and

ENGINEERING

at

INTER AMERICAN UNIVERSITY OF PUERTO RICO,  
SAN GERMÁN CAMPUS

and

THE PENNSYLVANIA STATE UNIVERSITY

February 2012

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## A. INTRODUCTION

Inter American University of Puerto Rico, San Germán Campus and the Colleges of Engineering and Earth and Mineral Sciences of The Pennsylvania State University agree to establish dual degree program (formerly called a 3-2 program) in liberal arts and sciences and engineering. A participating student will spend three years or the equivalent at Inter American University of Puerto Rico, San Germán Campus for the study of liberal arts and sciences subjects along with available pre-engineering courses. Upon satisfactory completion of the first three years, the student will enter The Pennsylvania State University and complete remaining prerequisite courses and the engineering major degree requirements. A successful completion of required course work will lead to an appropriate baccalaureate degree from each institution. The dual degree program is being created in an effort to fulfill the following objectives:

- i. To cooperatively provide a general education in liberal arts and sciences, as well as engineering education for each student enrolled, so that depending on the majors and completion of required courses, a student may complete in approximately five years what otherwise could require six or more years.
- ii. To provide a student who has not yet decided between engineering and other disciplines, additional time to make that decision while the student studies both arts and sciences during the first three years at Inter American University of Puerto Rico, San Germán Campus.
- iii. To enable The Pennsylvania State University to attract a more diverse population to its engineering programs.
- iv. To enable qualified students to receive both a liberal and technical education and, in so doing, provide the Commonwealth and the Nation with more broadly educated engineers.

## B. PROCEDURES

Admission and the transfer of students in this dual degree cooperative program will be through the application of the following procedures and policies:

1. Application for admission to the program will be made to Inter American University of Puerto Rico, San Germán Campus, where the candidate will be subject to the admission requirements of that institution. Only students admitted to Inter American University of Puerto Rico, San Germán Campus as first-semester (freshmen) students may participate in this dual degree program. An individual who has been registered as a degree candidate and established a degree candidate record at The Pennsylvania State University prior to entering the dual degree program at Inter American University of Puerto Rico, San Germán Campus will be considered a re-enrollment candidate and must meet the criteria for re-enrollment in the major at The Pennsylvania State University and not as a participant of the dual degree program.
2. A student will indicate the desire to follow the dual degree program either at the time of the student's admission to Inter American University of Puerto Rico, San Germán Campus, or early enough in the student's program to permit the student to complete as many of the suggested prerequisite and other courses, listed in the Appendix of this contract, as possible. Results from aptitude and achievement tests, records of scholastic achievement, and other pertinent information will be exchanged between institutions to aid both in guiding and in counseling students and prospective students. The Pennsylvania State University will provide Inter American University of Puerto Rico, San Germán Campus with copies of curriculum planning guides, used by advisers at Penn State for each major.

Inter American University of Puerto Rico, San Germán Campus is responsible for informing students in the dual degree program of the requirements for admission to Penn State, as described in this document and for providing each student with a copy of this contract, including the Appendix. Students should also be made aware of the courses that are available at Inter American University of Puerto Rico, San Germán Campus that can be used to meet degree requirements for each of the majors that are part of this agreement.

Students should be advised by Inter American University of Puerto Rico, San Germán Campus that some government-provided financial aid may not be available for a total of more than four years of study because engineering is considered, by financial-aid regulations, to be a four-year program. Students may, however, be eligible for merit-based scholarships after they complete one year of study at Penn State.

3. With the exception noted, the following engineering majors are generally available in the College of Engineering to students participating in the dual degree program: Aerospace Engineering, Biological

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Engineering, Bioengineering<sup>1</sup>, Chemical Engineering<sup>1</sup>, Civil Engineering, Computer Engineering, Electrical Engineering, Engineering Science, Industrial Engineering, Mechanical Engineering, and Nuclear Engineering. However, the majors that are under enrollment control at the time of transfer to Penn State are excluded and are not available to students transferring to The Pennsylvania State University under this dual degree agreement. Inter American University of Puerto Rico, San Germán Campus will be given a 2-year notice of any major that will be coming under enrollment control and the exclusion of that major from the dual degree program. The exclusion will apply to all students from Inter American University of Puerto Rico, San Germán Campus, even those who had been admitted to Inter American University of Puerto Rico, San Germán Campus before notification of the exclusion. Penn State will notify Inter American University of Puerto Rico, San Germán Campus whenever a major will cease to be under enrollment control and become available for the dual degree program.

In the College of Earth and Mineral Sciences, the following engineering majors are available as part of this agreement: Energy Engineering, Environmental Systems Engineering, Materials Science and Engineering, Mining Engineering, and Petroleum and Natural Gas Engineering.

4. At the end of the first (Fall) semester of the third year, a student becomes a candidate for transfer for any of the available majors if the student has completed the entrance-to-major course requirements<sup>2</sup> and has attained a cumulative grade point average of 3.00<sup>3</sup> (on a 4.00 scale) or greater. In all cases, the cumulative grade point average that will be used to determine eligibility for an engineering major will be calculated by the method used at Penn State. Original grades plus the grades for the same courses that were repeated will be used in the calculation. Inter American University of Puerto Rico, San Germán Campus may require higher academic standards for transfer.
5. The student should submit an application (available on the Web) to the Admissions Office of The Pennsylvania State University after the Fall of the student's third year at Inter American University of Puerto Rico, San Germán Campus. The application should clearly indicate that the student is applying as a dual degree student. It should be submitted promptly and no later than February 1 of the applicant's third year at Inter American University of Puerto Rico, San Germán Campus. The completed application should be supported by the following documents:
- Final high school record
  - Two copies of the official Inter American University of Puerto Rico, San Germán Campus transcript, including all grades earned through the Fall Semester or Term of the third year
  - Schedule of courses for the Spring of the third year
  - Check sheet (see Appendix) of the courses taken and those planned for Spring Semester or Term of the third year, as they relate to the Penn State courses listed for the requested engineering major. Students must retain a copy of the check sheet for their own records.

The application and supporting documents will be evaluated by the appropriate officer in the Admissions Office and the respective Dean's Office of the College of Engineering or Earth and Mineral Sciences at The Pennsylvania State University. If the applicant meets the entrance requirements, the applicant will be offered provisional admission to The Pennsylvania State University in the dual degree program, commencing with the following summer session or fall semester.

At the completion of the third year, two copies of the final official transcript of work taken at Inter American University of Puerto Rico, San Germán Campus should be forwarded to the Admissions Office. The applicant's admission to The Pennsylvania State University will be changed from a provisional basis to a permanent basis if the student has maintained the minimum cumulative grade point average required for transfer, is in good standing at Inter American University of Puerto Rico, San Germán Campus, and has fulfilled all conditions, if any, specified in the student's provisional admission. A minimum of 76 transferable and applicable credits must

<sup>1</sup> It is highly likely that more than two years will be required at Penn State to complete the degree requirements for BIOE and CH E because major courses begin in the Spring Semester and are not offered every semester.

<sup>2</sup> For College of Engineering majors, a minimum grade of 'C' is required in calculus I and II (8 credits), calculus-based physics (4 credits, mechanics plus lab), and general chemistry (3 credits).

<sup>3</sup> Students may enter the majors in the College of Earth and Mineral Sciences (EMS) with a minimum cumulative grade point average of 2.75.

be completed at Inter American University of Puerto Rico, San Germán Campus. For the purpose of meeting Penn State degree requirements, a block of 76 credits (no more and no less) will be transferred to Penn State.

The student will be placed in the major in which provisional admission was offered, provided all entrance conditions are met. Under normal circumstances, failure to meet the conditions of provisional admission will result in the voiding of the offer of admission for the student and in his or her ineligibility to participate in the dual degree program.

6. The suggested and available exposure to mathematics, science, engineering science, computer, liberal arts, and communications courses at Inter American University of Puerto Rico, San Germán Campus is illustrated in the Appendix. The only required courses for admission to an engineering major are those listed in Section B-4. However, it is in the student's best interest to complete as many of the suggested courses for their intended engineering major as possible at Inter American University of Puerto Rico, San Germán Campus so that they can complete the degree requirements at The Pennsylvania State University in the most timely manner. Course numbers and descriptions may change by the actions of the Inter American University of Puerto Rico, San Germán Campus faculty or Penn State faculty. In such cases, the Appendix only would need to be amended. Inter American University of Puerto Rico, San Germán Campus will receive regular updates about changes at Penn State and will be expected to regularly inform Penn State of changes at Inter American University of Puerto Rico, San Germán Campus, as they relate to the dual degree program. Students must bring a completed check-sheet (see Appendix) with them for their first meeting with their engineering faculty advisor.

The student's preparedness for engineering courses will be assessed by his/her major department and will be based on the courses taken at Inter American University of Puerto Rico, San Germán Campus, as described on the completed course check-sheet. If the student has not taken all the possible recommended courses at Inter American University of Puerto Rico, San Germán Campus, it is very likely that more than two years (4 semesters) will be required to complete the Penn State degree requirements. The need to take missing requirements and the effect this may have on the student's graduation date will be determined by the student's major department at Penn State.

7. This agreement will expire on April 30, 2014. At that time, a new agreement may be negotiated if both parties express their interest in so doing. A lack of response to requests for information or absence of adequate participation in the program may result in termination of the agreement.
8. Penn State will honor the terms of this agreement for students who were admitted to Inter American University of Puerto Rico, San Germán Campus as first semester students for Fall 2013 or earlier. Students who begin at Inter American University of Puerto Rico, San Germán Campus after Fall 2013 will not be able to participate in the dual degree program unless a new agreement is in place and if so, will be subject to the terms of the new agreement.
9. The relationship between the parties to this Agreement to each other is that of independent contractors.
10. Neither of the parties shall assume any liabilities of each other.
11. This Agreement represents the entire understanding between the parties. This Agreement shall only be modified in writing with the same formality as the original Agreement.
12. The laws of the Commonwealth of Pennsylvania shall govern this Agreement.

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Renata S. Engel                      4/30/12  
Renata S. Engel                      Date  
Associate Dean for Academic Programs,  
College of Engineering,  
The Pennsylvania State University

Agnes Mojíca                              3/23/2012  
Agnes Mojica                              Date  
Chancellor  
Inter American University of Puerto Rico, San German  
Campus

H. Nels Shirer                              4/25/12  
H. Nels Shirer                              Date  
Associate Dean for Education  
College of Earth and Mineral Sciences  
The Pennsylvania State University

Manuel J. Fernos, Esq.                      3-23-12  
Manuel J. Fernos, Esq.                      Date  
President  
Inter American University of Puerto Rico

Robert N. Pangborn                      4/30/12  
Robert N. Pangborn                      Date  
Vice President and Dean for  
Undergraduate Education,  
The Pennsylvania State University

## APPENDIX

Check sheets for core and major-specific courses that students are advised to take at  
Inter American University of Puerto Rico, San Germán Campus  
to prepare for the  
Dual Degree Engineering Program with  
The Pennsylvania State University

Available at:

[http://www.engr.psu.edu/ProspectiveStudents/Undergraduate/dual\\_degreeinstlist.asp](http://www.engr.psu.edu/ProspectiveStudents/Undergraduate/dual_degreeinstlist.asp)

Name: \_\_\_\_\_

PSU ID: \_\_\_\_\_

### Dual Degree Program Courses for Engineering Majors\*

The Pennsylvania State University

Dual Degree Institution: Inter American University of PR

PSU Course	Credits	Course Title	PSU Majors	2+2 Course	Credits	Grade
BIOL 141, 142	3, 1	Physiology and Lab	Elective for E SC	BIOL 1006	4	
CAS 100	3	Effective Speech	ALL	ENGL 3310	3	
CHEM 110	3	Chemical Principles I	ALL except CMPSC	CHEM 2115	4	
CHEM 111	1	Experimental Chemistry I	ALL except CMPSC	Part of CHEM 2115	----	
CHEM 112	3	Chemical Principles II	Elective for E SC ALL EMS except MNG E	CHEM 2212	4	
CHEM 113	1	Experimental Chemistry II	MATSE	Part of CHEM 2212	----	
CHEM 210	3	Organic Chemistry I	MATSE (PLMSE), ENENG	CHEM 2221	4	
CHEM 212, 213	3, 2	Organic Chemistry II and Lab	MATSE (PLMSE)	CHEM 2222	4	
COMPEN 270	4	Introduction to Digital Systems & Lab	COMPEN, CMPSC, E E	ELEN 3321	4	
COMPSC 121, 122	3, 3	Intermediate Programming	COMPEN, CMPSC	No Equivalent	----	
COMPSC 201	3	Computer Programming for Engineers	ALL except B E, COMPEN, CMPSC	ENGR 2120	3	
E E 210	4	Circuits and Devices	COMPEN, E E, E SC	ELEN 3301	4	
E MCH 211	3	Statics	ALL except MATSE (PLMSE), ENENG	MECN 3005	3	
E MCH 212	3	Dynamics	ALL except MATSE (PLMSE), ENENG	MECN 3010	3	
E MCH 213	3	Strength of Materials	ALL except ENVSE, MATSE (PLMSE), ENENG	MECN 3135	3	
ECON 102 or 104	3	Intro. Microecon. or Macroecon. Analysis and Policy (GS)	ALL	ECON 1212	3	
EDSGN 100	3	Introduction to Engineering Design	ALL except COMPEN, ENVSE, MATSE, PNG E and ENENG	ENGR 1100 & ENGR 3120	6	
ENGL 015	3	Rhetoric and Composition	ALL	ENGL 3007	3	
ENGL 202C	3	Effective Writing: Technical Writing		ENGL 3030	3	
GEOSC 001	3	Physical Geology	PNG E, ENVSE, MNG E	GEOG 2034	3	

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Page 1 of 2

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## Dual Degree Program Courses for Engineering Majors\*

The Pennsylvania State University

Dual Degree Institution: Inter American University of PR

PSU Course	Credits	Course Title	PSU Majors	2+2 Course	Credits	Grade	
MATH 140	4	Calculus and Analytic Geometry I	ALL	MATH 2251	5		
MATH 141	4	Calculus and Analytic Geometry II		MATH 2252	4		
MATH 220	2	Matrices	ALL except B E, PNG E, ENENG	MATH 3350	3		
MATH 231	2	Calculus and Vector Analysis	ALL except ENVSE, MNG E	MATH 3250	3		
MATH 250	3	Ordinary and Partial Differential Equations	ALL	MATH 3400	3		
M E 201/300	3	Introduction to Thermal Science/ Engineering Thermodynamics I	ALL except CMPEN, E E, E SC, MNG E, and ENENG	ENGR 3343	4		
PHYS 211	4	General Physics (Mechanics)	ALL	PHYS 3311	4		
PHYS 212	4	General Physics (Electricity and Magnetism)		PHYS 3312	4		
PHYS 213	2	Fluids & Thermodynamics	E E, E SC, PNG E, MNG E	No Equivalent	----		
PHYS 214	2	Waves & Quantum Physics	ALL except B E, ENVSE, PNG E, MNG E, and ENENG	No Equivalent	----		
STAT 401	3	Experimental Methods/ Probability	CMPEN, E E	MATH 3091	3		
<i>General Education Electives</i>			ALL				
Arts Electives (GA)	6	e.g. Architecture, Art History, Integrative Arts, Landscape Architecture, Music, Theatre Arts					
Health (GHA)	3	Health Education and Exercise and Sport Activities					
Humanities Electives (GH)	6	e.g. American Studies, Classics, History, Humanities, Multi-Ethnic Studies, Philosophy, Religious Studies					
Social & Behavioral Science Elective (GS)	3	e.g. Anthropology, Human Development, Political Science, Psychology, Sociology		PNGE, MNG E, and ENENG require an ethics elective			

\* College of Engineering (EN) Majors:

AERSP Aerospace Engineering E E Electrical Engineering  
 B E Biological Engineering E SC Engineering Science  
 BIOE Bioengineering I E Industrial Engineering  
 CHE Chemical Engineering M E Mechanical Engineering  
 C E Civil Engineering NUC E Nuclear Engineering  
 CMPEN Computer Engineering

\*College of Earth and Mineral Sciences (EMS) Majors:

ENENG Energy Engineering  
 ENVSE Environmental Systems Engineering  
 MATSE Material Science and Engineering  
 (PLMSE) Polymer Science and Engineering  
 Option of MATSE  
 MNG E Mining Engineering  
 PNG E Petroleum and Natural Gas Engineering