The University of Puerto Rico at Bayamón prohibits discrimination in education, employment and the provision of services because of race, color, sex, birth, age, origin or social condition, ancestry, marital status, ideals, religious or political beliefs, gender, sexual orientation, nationality, ethnic origin, veteran status of the Armed Forces, or physical disability.

Dr. Ana Morales Zeno and Professor Carmen E. Sotero Figueroa were in charge of revising and updating the catalog, while Ms. Coralimar Flores Espinosa and Ms. Carmen H. Ríos Negrón transcribed and revised it. Special collaboration was made by Mr. Pablo Pedro Collazo Cintrón.

The information in this catalog is current and valid up until the closing date of January 2012, established for the final composition and correction of the document.

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The University of Puerto Rico at Bayamón is accredited by the Middle States Commission on Higher Education, 3624 Market Street, Philadelphia, PA 19104 (1-267-284-5000). This agency is recognized by the United States Department of Education and the Education Council of Puerto Rico (Consejo de Educación de Puerto Rico [CEPR]).
This Catalog is very significant since we are presently celebrating 40 years of history when the first class of our Institution met on August 30, 1971. Many years have passed since then; but more than the passing of time, today we celebrate the living impression of the University of Puerto Rico at Bayamón in our society and the significant contribution of thousands of successful professionals who have been shaped according to the high academic standards that define us.

In the same way that its graduates have evolved, so has the University of Puerto Rico at Bayamón as an institution. This implies more and varied academic offerings, a growing population of students and a tradition of triumphs which encompasses the academic as well as sports.

Our University has fully understood and viewed its challenges as opportunities for reinvention. This is why we have carefully revised the structure of this Catalog with the goal of making it a simplified and easily accessed consultation tool.

Everything that we are and offer is here to help you make the best decisions and to make this an educational experience filled with successes and great transformations.

Arturo Avilés González
Chancellor
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## GENERAL INSTITUTIONAL POLICIES

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EXTENDED UNIVERSITY (UNEX)
The University of Puerto Rico was established in 1903. Its historical antecedents include the Universidad de Estudios Generales de Santo Tomás de Aquino founded in San Juan by the Dominican order in 1532, the San Ildefonso Seminar and the Institución de Enseñanza de Escuela Superior de Puerto Rico, created in 1888 under the sponsorship of the Ateneo Puertorriqueño. The university began in Fajardo in 1900 as a public school for the preparation of teachers and transferred to Río Piedras in 1902. In 1903, this school was incorporated by law as the University of Puerto Rico and initiated its operations with 154 students.

The University of Puerto Rico is composed of 11 units located throughout the Island. These are as follows: Río Piedras, Mayagüez, Ciencias Médicas, Ponce, Cayey, Humacao, Arecibo, Bayamón, Aguadilla, Carolina and Utuado.

The University of Puerto Rico at Bayamón (UPRB) was inaugurated on August 15, 1971, with the name, Colegio Regional de Bayamón (Bayamón Regional College) pursuant to the University Law of 1966. However, the academic activities at the College were not initiated until August 30 during that same year.

The Council of Higher Education of Puerto Rico, through Certification 112 of 1978-1979, changed the name to Colegio Universitario Tecnológico de Bayamón (Bayamón Technological University College). The Board of Trustees ordered its modification through Certification 151 of 1997-98 to Colegio Universitario de Bayamón (Bayamón University College). In 1998 the Board of Trustees grants the Institution the attributes, duties and responsibilities of an autonomous unit within the University of Puerto Rico system. Presently the institution is known as the University of Puerto Rico at Bayamón in accordance with the Board of Trustees Certification 27-1999-2000.

The University of Puerto Rico at Bayamón (UPRB) has the third largest student population in the public system of higher education. The Institution offers diverse associate and bachelor’s degrees as well as transfer programs. For specific details regarding the academic offerings, refer to the departments and academic programs section in this Catalog.

The mission, vision and goals of the UPRB as an educational institution mainly reside in facilitating students’ acquisition and development of knowledge through the arts, science and technology, resulting in lasting and significant learning and allowing our alumni to successfully contribute to Puerto Rico and the world in which they live.
General Information

Universe of Puerto Rico at Bayamón

Historical Data:

- Classes officially begin on August 30, 1971, with a registration of 515 students.
- Its initial focus was mainly on the teaching of technological professional careers.
- First Academic Programs (1971-72):
  a. The programs that were initiated in August 1971 in conjunction with the transfer program were the following: Industrial Management, Business Administration (Management and Accounting), Civil Construction (Structural, Roads and Surveying), Mechanical Technology (Manufacturing Processes), Electronic Technology, Instrumentation, Computer Science and Dietetic Technician.
  b. In 1972-73 three new programs were initiated: Secretarial Sciences, Pedagogy (elementary school level) and Engineering.
  c. In 1974-75 a transfer program in Physical Education was instituted.
  d. In 1979-80 four bachelor’s degrees began: Electronics, Computer Science, Business Administration and Secretarial Sciences.
  e. In 1987-88 the bachelor’s degree in Materials Management is initiated.
- First Graduation – May 28, 1973; 185 students graduated, and it was held in the movie theaters of the Santa Rosa Commercial Center in Bayamón.
- Faculty: 36 professors (1971).
- In 1974 the first student newspaper, Majagua, was published.
- In May 1981 the first graduation for bachelor’s degrees in Business Administration, Computer Science, Secretarial Sciences and Electronics was held.
- In 1992 the creation of the Evening University is approved.
- In 1998 the new Learning Resource Center is inaugurated and awarded the 1999 National Prize in Architecture by the Association of Architects and Landscape Architects of Puerto Rico.
- In 1998 the bachelor’s degree in Natural Sciences with majors in General Biology and Human Biology is initiated.
- In 2006 the Student Center building is inaugurated where the offices offering direct service to students, activity rooms, cafeteria, game rooms and administrative offices are located.
- Presently the University of Puerto Rico at Bayamón has over 5,000 registered students with a faculty of 263 professors and 316 non-teaching employees. The academic offering includes 4 associate degrees, 12 bachelor’s degrees, and 29 articulated programs. Among the future plans of the UPRB are the construction of the Science and Technology Building and the Continuing Education and Professional Studies Division and Extended University Building.
Since its foundation in 1971, the unit which we recognize today as the University of Puerto Rico at Bayamón has gone through various structural transformations. The original university shield/logo was created by Professor Iván Martínez, caricaturist, illustrator and director of the Library’s Audiovisual Unit.

Later the institution’s name was changed to Colegio Universitario Tecnológico de Bayamón. The shield was once again altered, although only partially, to replace the prior name, Colegio Regional de Bayamón, for the new one, Colegio Universitario Tecnológico de Bayamón.

Upon the attainment of autonomy from the Regional Colleges Administration, the unit was known as Colegio Universitario de Bayamón, although for only a short time.

At that moment a more definite change was made to the Institution’s shield.

In 2000, the Presidency of the University of Puerto Rico eliminated the Regional Colleges Administration and decided to reorganize and clarify the organizational structure of the eleven university campuses into three campuses and eight units. All units were asked to revise their shields and redesign them within a round format.
The University not only adapted its shield to a circular shape, but also included a different color to each of the central sections of the shield.

In 2002 the colors that identified the University were revised. Professor Margarita Fernández, from the Humanities Department, and Reynaldo Delgado and Jamil Pérez from the Audiovisual Center worked on this project.

Since many times documents are printed or duplicated in black and white, the shield must also function in a black and white version.

Our new logo should be aligned to, but not confused with, the shields/logos of any of the other units.

The new design collected all the symbols of the prior shields. The present shield is divided into three parts. The upper part emphasizes the main building of the university. Under this there are two divisions. The left side represents the regional Feasts of the Holy Cross with a cross on seven steps. On the right, the symbols for technology, knowledge and the sciences are integrated.

The official color of the University is sky blue. The colors that appear on the shield are silver and white which signify purity, temperance, cleanliness and eloquence.

ANTHEM

Bayamón Colegial nuestra Universidad.
Eres tú el ideal de aulas tecnológicas.

Danos hoy el saber y la personalidad al triunfar y vivir para nuestra sociedad.

Vamos hoy a forjar, todos juntos, la hermandad. Estudiar, progresar: metas de nuestro pensar.

Vamos pues, juventud, todos listos a luchar. Bayamón, Colegial, nuestra Universidad.

J. E. Buxó
On August 30, 1971, the first class was held at the University of Puerto Rico at Bayamón. Those that recall with nostalgia that day, tell about a last minute mishap that delayed for various days the furniture’s unloading upon arrival at the San Juan dock. Such a setback would have been enough to delay classes for various weeks, but the determination of these initial vaqueros and vaqueras (cowboys and cowgirls) was such that classes were held on schedule without the desks.

The seed of persistence which characterize us today, began that day with only 513 students, two buildings (the 100 and the 200) and 70 cuerdas (a little less than 70 acres) of land granted by the then Mayor of Bayamón, Guillermo (Guillo) Campos. In spite of its limited academic offerings, the then Colegio Regional Metropolitano represented an option for hundreds of students from the municipalities of Bayamón, Corozal, Comerío, Naranjito and Barranquitas who found it very difficult to transfer to the Río Piedras campus. The initial circumstances were not the most comfortable, but yet the registration demand was constant and growing.

The year 1971 had not concluded when the Institution’s name was changed to Colegio Regional de Bayamón by the Regional Colleges Administration of the University of Puerto Rico in conjunction with the names of the units in Carolina, Cayey, Humacao, Ponce, Arecibo and Aguadilla. The name does not change again until 1979 becoming Colegio Universitario Tecnológico de Bayamón. That same year, students’ pressure towards options allowing them to complete their degrees without having to transfer promotes the integration of the first bachelor’s degree programs to the academic offerings.

The Institution’s name is once again changed in 1998 to Colegio Universitario de Bayamón and finally to University of Puerto Rico at Bayamón in 2000. However, during these forty years the evolution has been constant, and the name change has solely been a reflection of that reality. More buildings (300 and 400, later the 500, 600, 700), a theater, an indoor sports court, a library, a multistory building and parking have been added. Our enrollment has grown with a total of 4,994 students in August 2011. In addition, the Institution has diversified with the incorporation of an evening program, a non-credit short course division and new bachelor’s degrees in various disciplines.

In the same way, our academic excellence has been demonstrated with the consistent accreditation by prestigious agencies, such as ABET (Accreditation Board for Engineering and Technology) for the associate degrees in Instrumentation Technology; Civil Engineering Technology-Construction; Surveying, Roads and Structural Civil Construction Technology; and Industrial Engineering Technology and the bachelor’s degree in Electronic Engineering Technology; ACBSP (Accreditation Council for
Business Schools and Programs) for the bachelor’s degree programs in Business Administration majoring in Marketing, Finance, Management and Accounting and for the bachelor’s degree in Office Systems; and NCATE (National Council for Accreditation of Teacher Education) for the bachelor’s degrees in Special and Elementary Physical Education as well as the Preschool and Elementary Education. The Learning Resource Center has also obtained certification from the ACRL (Association of College and Research Libraries) and the LATINDEX (Regional online information system for scientific publications from Latin America, the Caribbean, Spain and Portugal) to which this latter prestigious catalog of international professional publications added our own Milenio: Revista de Artes y Ciencias.

In addition, the Computer Science Department and the Counseling and Guidance Department will soon be initiating their accreditation process by ABET and IACS (International Association of Counseling Services, Inc.), respectively.

Regarding the area of students, these four decades have left a positive path in which the Cultural Activities Program has stood out with a prolific offering that has resulted in the ample growth in sensitivity of multiple generations in our university community. On the other hand, our Institutional tradition has been nurtured through the contributions made by the University Choir, founded by Professor Jorge Bacó in 1982; the Student Band, founded by the professor and composer, Dr. William Ortiz Alvarado and the university’s Student Tuna, organized in August 2006 through the initiative of Erick Román, a senior in the Business Administration Department.

Sports has been another area where the cowboys/cowgirls’ determination has brightly shone. The female basketball team is presently the champions of the Interuniversity Athletic League or LAI (Liga Atlética Interuniversitaria), as it is known in Spanish. The team holds an excellent record of 17 championships; the Cheerleaders have maintained their championship status in the LAI for nine consecutive years and the Dance Team has been the LAI winner for three years. Our Dance Team was the only Latin American team in winning a medal (third place) in the Universal Dancing Association Competition (UDA) held in Florida.

Faced by the educational challenges inherent to the new century, the journey lived by the University of Puerto Rico at Bayamón during these four decades has compelled the Institution to reinvent itself. Changing student profiles, the irreversible integration of technology in the learning process and the demand for professionals in the employment industry are just some of the situations that currently challenge the traditional way of doing things.

Presently, the University of Puerto Rico at Bayamón is aware of this reality and has initiated important actions in this direction. Our objective is to strengthen and develop the academic disciplines our Institution has excelled in, the Pedagogy, Engineering, Computer Science, Business Administration and Office Systems programs, and progressively broaden the academic offerings. The areas of opportunity are many, and their development is considered at all levels. The panorama includes transfers, non-credit short-term courses and professional certifications.

The common denominators in this entire positive transformation are the determination and commitment of our faculty, administrative personal and student enrollment. These forty years of existence makes sense in the light of the stellar influence of professionals and leaders, which we have educated during this time, in all areas of human endeavor. It is to this abundant pool of professionals and leaders developed during these forty years of academic excellence to which we dedicate this celebration.
Mission
To facilitate significant, continuous and long-lasting learning with the ultimate goal of having students become responsible citizens who will help transform their world with a heightened sense of ethics, esthetics and actions that will contribute to change. To achieve this, the Institution should advocate the establishment of support systems for learning, research and collaboration with the Puerto Rican society.

Vision
To be an institution of higher learning whose goal is to prepare professionals who, through their university experience, combine technological, scientific and humanistic knowledge with their experience in research and creativity. This will result in individuals who will develop in an integral manner and function as informed, responsible, and critical citizens capable of actively participating in a dynamic world that demands competent persons.

Educational Goals
According to the vision and mission, the educational goals of the Institution related to learning that students should achieve are the following:

Goal 1: Communication
IA: English as a second language: Students will demonstrate effective oral and written communication in English as a second language.
IB: Spanish: Students will demonstrate effective oral and written communication in Spanish.

Goal 2: Scientific reasoning
Students will demonstrate the capacity for scientific reasoning when applying basic scientific concepts in diverse contexts.

Goal 3: Quantitative reasoning
Students will demonstrate logical and analytical mathematical reasoning and technological skills that will allow students to solve problems that involve basic mathematical knowledge.

Goal 4: Technological competency (interdisciplinary)
Students will demonstrate technological knowledge and skills necessary for effective performance in the student environment.

Goal 5: Critical thinking (interdisciplinary)
Students will demonstrate knowledge, abilities and skills in the solution of situations or conflicts of diverse learning environments.

Goal 6: Information literacy competency (interdisciplinary)
Students will demonstrate skills in the identification, handling and adequate use of information to learn and integrate knowledge.

Goal 7: Socio-humanistic knowledge (includes cultural and ethical aspects)
Students will demonstrate basic socio-humanistic knowledge that will apply to social, political and humanistic settings.
ACCREDITATIONS, LICENSING AND AFFILIATIONS

MSCHE Accreditation

CEPR License
The University of Puerto Rico at Bayamón has the license granted by the Education Council of Puerto Rico (Consejo de Educación de Puerto Rico [CEPR]).

Accreditations, Licensing and Affiliations
Different academic programs of the University of Puerto Rico at Bayamón have professional accreditations which gives the Institution a distinction of excellence. Among the accredited programs of the UPRB are the following:

- The teacher preparation programs possess accreditation by the National Council for Accreditation of Teacher Education (NCATE).
- The departments of Business Administration and Office Systems are accredited by the Accreditation Council for Business Schools and Programs (ACBSP).
- The engineering and electronics programs have the accreditation of the Accreditation Board for Engineering and Technology (ABET INC).
- The Learning Resource Center is certified by the Association of College & Research Libraries (ACRL).

Affiliations
The University of Puerto Rico at Bayamón is affiliated to the Hispanic Association of Colleges and Universities (HACU), the Association for Childhood Education International (ACEI), the National Association for the Education of Young Children (NAEYC), and the National Association for Sport and Physical Education (NASPE), among others. In addition, the University is in compliance with the standards of excellence of the Comptroller’s Office of Puerto Rico.
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**Office Systems**  
Professor Nancy Jiménez Pérez

**Dean’s Office of Student Affairs**

Dean of Students  
Professor Nelson Vázquez Espejo

Assistant Dean of Students  
Elsa Flores Ortiz

**Financial Aid**  
Héctor L. Cuadrado García

**Student Career & Development Center**  
Professor Judith Díaz Díaz

**Counseling & Guidance**  
Professor Ángel Rucabado Vélez

**Social & Cultural Activities**  
Maribelle Pégola Rivera

**Athletic Department**  
Gerardo Batista Santiago

**Admissions Office**  
Carmen Montes Burgos

**Disabled University Student Services Office**  
Professor María J. Díaz Meléndez

**Quality of Life Office**  
Rosimar Hernández Aponte

**Student Organizations**  
Lourdes Tañón Díaz

**Exchange Program**  
Ada I. Crespo Cruz

**Health Services**  
Dr. Jorge L. Torres Sánchez

**Dean’s Office of Administrative Affairs**

Dean of Administrative Affairs  
Abdiel Martínez Barrios

Assistant Dean of Administrative Affairs  
Professor Jaime J. Laracuente Díaz
UNIVERSITY OF PUERTO RICO AT BAYAMÓN

ORGANIZATIONAL STRUCTURE
UNIVERSITY AUTHORITIES

Dean’s Assistant
Manuel Muñiz Cabrera

Receiving & Delivery
Carmen M. Rivera Otero

Central Archive
Joseph F. Reboyras Marrero

Human Resources
Luz I. Morales Collazo

Billings & Claims
Reynaldo Rivera Cofresí

Health & Safety
Agustín Graterole Rosario

Purchase Office
Agustín Graterole Rosario

Security & Vigilance
Roberto Báez Guzmán

Post Office
Carlos Lugo Hernández

CHANCELLOR’S OFFICE
Legal Affairs

Conservation & Buildings
Samuel Sáez Hernández

Budget Office
Wilfredo Ortiz Ruiz

Accounting
Evelyn Rivera Cruz

Planning & Institutional Studies
Javier Zavala Quiñones

Finance
María M. Pérez Sánchez

Student Ombudsperson
Minerva Collazo Hernández

Fiscal Office
Edgar Torres Mena

Information Systems
Bárbara Landrau Espinosa

Payroll
Carol Butler Pagán

Bursar’s Office
Janice Cruz Villanueva

Pre-intervention
Rosendo Santos Cintrón

Property
Luis Muñoz Alvarado

Collections
Ramón Irizarry González
Office of Planning and Institutional Studies

The Office of Planning and Institutional Studies (Known as OPEI by its Spanish acronym) of the University of Puerto Rico at Bayamón is assigned to the Chancellor’s Office. Its duties include, but are not limited to coordinating the institutional planning process; serving as liaison with the accreditation agencies, such as the Middle States Association of Colleges and Schools, the Education Council of Puerto Rico, and professional accreditation agencies; carrying out research studies on specific situations of the Institution; serving as an integral part of the design, development and evaluation of programs; promoting interest in academic research; and offering technical consultation and information in the preparation, design and transmittal of proposals for external funds.

Information Systems Office

The University of Puerto Rico at Bayamón (UPRB) has established an infrastructure of communications that serve as a platform for a variety of systems and services. These are available for use by the university community and are a vital part of the academic and administrative activities. The Information Systems Office (Known as OSI by its Spanish acronym) is primarily in charge of the information technologies in the Institution. This role allows them to manage all aspects regarding the administration, development, installation, operation and maintenance of the communication infrastructure in favor of the University and community. This office also carries out the installation and configuration of equipment and programs for the various offices, departments and academic laboratories. The OSI provides the university community with the necessary technical support and advice regarding the use of technology, as well as integrating and articulating all the technical resources which support the needs of students, academic users and administrators. In addition, the Information Systems Office offers technological information and telecommunication resources that support the institutional goals and objectives.

Among the services offered by the OSI to both students and faculty are the following:
- Access accounts to the UPRB network
- Areas for the creation of Internet pages that offer support to courses
- Access to the wireless network
- Computer Laboratories
- E-mail account

External Resources

The External Resources Office provides the faculty and administrators with direct service in the development, establishment and management of proposals. Our goal is to support the university community in the attainment of funds from the federal and state governments and private organizations for special projects. The main responsibilities of External Resources is to research the possible funding sources, transmit proposals according to the established guidelines and institutional policy, revise proposals before submission and give follow-up to the corresponding process for approval.

Milenio: Revista de Artes y Ciencias

The main objective of the Milenio publication is to foster research, creativity and dissemination of technological, scientific and humanistic knowledge. Milenio is an interdisciplinary publication which promotes the publication of academic and professional articles. For more information visit the web page at http://www.uprb.edu/milenio/milenio_principal.htm.
For more information you may access the Presidency’s Office of the UPR system’s webpage at: www.upr.edu.
MAP OF THE UNIVERSITY OF PUERTO RICO AT BAYAMÓN
GENERAL INSTITUTIONAL POLICIES

STUDENT RIGHTS AND RESPONSIBILITIES

The fundamental right of the student within the university community is to receive quality education. The laws and academic tradition recognize the rights of students as members of the university community and also recognize the moral obligation and intellectual responsibility that are concurrent with these rights. The laws and tradition also recognize students’ responsible participation in assuming and maintaining order, security and the norms in the academic life. These rights and responsibilities and the disciplinary procedures related to these violations are specified in the University of Puerto Rico’s General Student Regulations. The Student Regulations is available for all students and general community in the Dean’s Office of Student Affairs or through the following site:


GOVERNMENTAL LAW OF ETHICS OF PUERTO RICO

(Law No. 12 July 24, 1985)

The law establishes the standards of conduct for public officials in regard to their work and related practices. The fundamental purpose is to avoid conflict of interests and promote ethical and honorable behavior in all public employees that work in the governmental system of Puerto Rico. In addition, these government employees are to watch over and ensure full compliance with the norms of excellence and correctness. http://www.egpr.net.

HIPAA LAW 1966 (HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT)

(Public Law 104-191, 104ª Congress)

The HIPAA Law, approved on August 21, 1966, by the United States Congress, obligates all employers to protect and secure data related to employee health. All persons, this includes students and employees, have the right to confidentiality regarding their medical information, as well as the right to approve or disapprove the disclosure of determined type of information, except when required by law. All information related to the medical condition of employees and students may not be disclosed to anyone without written consent.
Puerto Rico Integral Educational Services for Persons with Disabilities Act

(Law 51, June 7, 1996)

Law 51 guarantees persons with disabilities the right to receive a free public education according to their needs. With this purpose, the University’s responsibilities and duties are clearly established in its mission of searching for and disseminating of knowledge and in the preparation of personnel to guarantee an optimum quality of life to infants, children and young people with disabilities. The fulfillment of the UPR with the mandates specified in Law 51 is conditioned to the assignment of the necessary and indispensable resources, as included by the UPR in its budgetary petitions to attend its responsibilities and obligations under this law.

Equal Opportunity in the Workplace

The University of Puerto Rico at Bayamón guarantees equal opportunity in the workplace, towards service benefits, programs offered, and workplace terms and conditions to all students and employees.

The University of Puerto Rico at Bayamón prohibits discrimination in education, employment and the provision of services because of race, color, sex, birth, age, origin or social condition, ancestry, marital status, ideals, religious or political beliefs, gender, sexual orientation, nationality, ethnic origin, military status (active or veteran) of the armed forces, or physical disability. Any employee who believes she/he has been discriminated against may contact the Equal Employment Opportunities Office or Human Resources or, if a student, the Student Ombudsperson.

The establishment of this policy, as well as its publication, is in accordance with the federal regulation for the implementation of Title IX (Educational Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973); Law 212 of August 3, 1999, -Law to Ensure Equal Employment Opportunity by Gender; Article 31 of the Regulations of the University of Puerto Rico that guarantees equal opportunity to all personnel; and the Board of Trustees Certification No. 58-2004-2005. This certification establishes that:

Institutional Policy Regarding Sexual Harassment

Law 17 of April 22, 1988, prohibits sexual harassment in the workplace. It states that under no circumstances may anyone demonstrate harassment or discriminatory conduct against any individual in the workplace or academic environment. Sexual harassment is defined as any type of unwanted sexual approach, requirement of sexual favors, and any other verbal or physical conduct of a sexual nature that affects the workplace or academic environment of the victim. [Exposition of Motives of Law 17, April 22, 1988]. This conduct constitutes an infraction of diverse laws and is subject to the regulatory processes of the University.

Failure to comply with the aforementioned will result in sanctions as stipulated in the law. In the same manner, disciplinary sanctions in accordance with the General Student Regulations approved August 29, 2009, will apply. (www.lexjuris.com)
INSTITUTIONAL POLICY FOR STUDENT RECORDS: FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT OF 1974

The University of Puerto Rico fully complies with the clauses in the Buckley Amendment (Family Educational Rights and Privacy Act of 1974). This law protects the privacy of students’ educational records and establishes the right for examination and revision of these documents. In addition, it provides the guidelines to edit any incorrect information through formal and informal audiences.

The Student Directory represents the information included in the educational record. The University of Puerto Rico offers students the opportunity to select one of these two alternatives:

A. Be included in the Student Directory under the following categories:

1. Category I - Name, address, telephone, attendance dates, registered courses, and e-mail address.

2. Category II - Transfer from other institutions (name of other institutions attended), major or study program, awards and honors (including Dean’s List), and degrees conferred with dates.

3. Category III - Participation in past and present official sports activities or others, physical description (height and weight), and date and place of birth.

B. Not Be included in the Student Directory:

Upon the selection of Alternative A, the student authorizes the University of Puerto Rico to disseminate information included in the chosen category for those purposes that the Institution deems adequate, in addition to those provided by law.

The Directory form will be given to the student during the orientation process. Once the student has completed the corresponding sections, she/he returns the form to the Registrar’s Office or designated place.

If the student does not return the Directory form, the University of Puerto Rico will understand that the student has chosen Alternative A, Category I.

The student may modify or withdraw the authorization to disseminate the information in the Directory at any time via written communication to the Registrar’s Office indicating the modification requested or the withdrawal of the aforementioned authorization.

Inspection of Academic Record

Students will have the right to inspect and revise the information contained in their academic-educational record and request an administrative visit if the results are unsatisfactory. Students will also have the right to submit declarations to be included in their academic-educational record if they disagree with the decision.

The Registrar has been designated to coordinate the inspection procedures and revise the educational records of students which include the admission documents and those related to university studies. Students may obtain a copy of their transcripts except in those cases that students owe the University additional fees or there appears a note indicating “Withhold.” The copies will be issued to the students and paid by them according to the fees established at the time the service is requested.
Claims concerning information in records

Students who consider that the information included in their educational record is incorrect may make an informal claim before the office that maintains these documents. If the student’s petition is accepted, the record will be amended. If the contrary occurs, the student will be informed within a reasonable time and she/he will be informed of the right to a formal audience. Students wishing to have a formal audience should make a request to the registrar. The Chancellor will name an Examination Official to address these revisions. The designated official will notify the student as to the time, date and place of the formal audience. There, students may present evidence relevant to the claim and may be assisted or represented by one or more persons of their choice, including lawyers, paid by the student.

The decisions made by the Examination Official will be final and will be based solely on the evidence presented at the audience. The decision will include a brief summary of the evidence presented and the fundamentals that sustain it. The interested parties will be notified of the decision. The educational records will be corrected or amended according to the decisions made by the audience panel in the event that allegations are presented by the petitioner. If the student is not satisfied with the decision, she/he may include in the educational records those written statements that present the reasons she/he disagrees with the panel’s decision. These statements will be incorporated to the educational records, kept as an integral part of these records and included in them each time these are disclosed.

Students who consider that the decisions made do not respond to the dispositions of the law, may appeal in writing to the President of the University of Puerto Rico, independently of the right they have to present a grievance when they feel their rights have been violated. In addition, students may contact the Family Policy Compliance Office, U.S. Department of Education, 600 Independence Ave., SW, Washington, DC 20202-4604, Tel. (202) 260-3887.

Copy of this policy is available in the Registrar’s Office.
INSTITUTIONAL NON-SMOKING POLICY
Law No. 40. August 3, 1993, as amended

The University of Puerto Rico prohibits the university community (students, professors and employees) from smoking in enclosed spaces, such as; classrooms, lecture rooms, library, museums, hallways, cafeteria and restrooms. Those persons who wish to smoke must do so outside the main buildings, in areas like the parking lot, balconies and open air terraces.

INSTITUTIONAL POLICY ON THE UNAUTHORIZED REPRODUCTION OF WORKS PROTECTED BY THE COPYRIGHT LAW

The institutional policy, approved in 1993 and stated in the Circular Letter No. 95-01 from the President of the University of Puerto Rico, orients the university community in regard to the application of copyright laws which includes the Institution in the ample context of the federal and state laws and jurisprudence. In particular, the Federal Copyright Law protects all types of works made permanent through any tangible medium of expression. This protection extends to literary, musical, and dramatic works; pantomimes, pictures, films, architectural, and computer programs or other electronic means. Among the known copyright laws and subject to protection under the Federal Copyright Law is the exclusive right of holder of the protected work to its reproduction.

The University of Puerto Rico at Bayamón aims to strengthen the fundamental principles of intellectual and scientific integrity in the academic life. The lack of honesty and integrity, fraud, plagiarism, falsification of documents and identification, as well as violations to the canons and practices of honesty among the academic community will be severely punished in accordance to the University of Puerto Rico Regulations. Under no circumstances will the University allow violations to the principles of intellectual and scientific honesty as described in the General Student Manual of the University of Puerto Rico.

POLICY FOR THE ETHICAL AND LEGAL USE OF INFORMATION TECHNOLOGIES

Certifications No. 072-1999-2000 and No. 35 2007-2008, issued by the Board of Trustees of the University of Puerto Rico, established the institutional policy to ensure the appropriate utilization of the information technologies and the telecommunications by the university community, people who offer services to the University of Puerto Rico, external clients, and users of the information systems and telecommunications of the University. The policy applies to the use of institutional university information in the following formats: paper, ink, electronic communication and other analogous mediums.

Any person who misuses the information technologies will be punished with disciplinary action in accordance with the university regulations, as well as in other actions stipulated by law.

INSTITUTIONAL POLICY REGARDING SECURITY

The University of Puerto Rico acknowledges as a legitimate institutional concern, the protection of the life and safety of students, faculty, and administrative employees. This postulate is protected by the declaration of the public policy proclaimed by Law 101-542, known as the Campus Security Act, as well as other state and federal rights. The law requires a security report informing of criminal activity during last three years, in addition to its publication and distribution.

Any person who, by omission or commission, violates any federal or state stature will be subject to disciplinary measures established in the university
USE AND ABUSE OF CONTROLLED SUBSTANCES

The University of Puerto Rico, aware of what the problem in the use and abuse of drugs and alcohol represents to the university community, has prohibited the manufacture, distribution, supply, possession and illegal use of controlled substances and abuse of alcohol. These practices are detrimental to the best institutional interests and will not be tolerated by anyone at any level, regardless of rank, level or position. Under no circumstances will anyone who violates this prohibition or is under the effects of any controlled substance or alcohol be allowed to remain in his/her workplace or area of studies. Violators of this law will be subject to disciplinary sanctions.

This policy is promoted according to the following dispositions:

• Law of the University of Puerto Rico, Law No. 1, January 20, 1966.
• Law of Drug-Free Schools and Communities 1989 (Public Law 101-226)
• Internal Regulations of the United States Department of Defense
• Certification No. 33-2005-2006 – Policy of the University of Puerto Rico on the Illicit Use of Drugs (Controlled Substances and Abuse of Alcohol)

ENVIRONMENTAL POLICY

The University of Puerto Rico, because of its responsibility with the community and as an agent of social change, assumes a firm commitment and a leadership position by proposing concrete alternatives which contribute to the solution of existing environmental problems. The objectives of the Environmental Policy of the University of Puerto Rico are the following:

1. Operationally establish the Environmental Policy of the Commonwealth of Puerto Rico adapted to the institutional reality and serve as a model for its implementation.
2. Establish mechanisms to serve as a forum for the discussion of environmental problems relevant to Puerto Rico, the Caribbean and the world.
3. Contribute ideas and participate in the public discussion of environmental problems.
4. Establish mechanisms to fulfill the environmental protection laws and regulations applicable to the University of Puerto Rico.
LAW 25 VACCINATION LAW: STUDENTS UNDER 21 YEARS OF AGE (SEPTEMBER 25, 1983)

The law requires annual reports to the Health Department on the vaccination phases of all students under the age of 21 registered in each university institution. The university students should have the basic doses required for their age by the Health Department, which should include the following:

- Three (3) or more vaccinations of DTP/DTaP/DT/Tdap
- Three (3) polio shots
- Two (2) MMR
- Three (3) Hepatitis B
- One (1) MCV
- One (1) Tdap

INSTITUTIONAL POLICY IN REGARD TO HIV/AIDS

The University of Puerto Rico at Bayamón complies with the Bill of Rights for Persons Living with HIV (Human Immunodeficiency Virus) and AIDS (Acquired Immunodeficiency Syndrome), Law 349 of September 2, 2000. The Institution is committed with the university community in general to ensure the necessary solidarity with the aim of avoiding discrimination and prejudice with the HIV/AIDS population. For more information, please access www.lexjuris.com.

POLICY STATEMENT FOR PREVENTION AND INTERVENTION IN CASES OF DOMESTIC VIOLENCE, AGGRESSION AND HARASSMENT

The University of Puerto Rico at Bayamón (UPRB) is committed to the Policy of the Commonwealth of Puerto Rico and the Executive Order 2005-7 to repudiate acts of domestic violence in the workplace. The UPRB will not tolerate this and consider it to be an aggression and criminal act against the employee. Domestic violence is a manifestation of discrimination due to gender. This Policy reaffirms the commitment of the Institution and the administration of the University of Puerto Rico towards maintaining a safe workplace for all personnel.
The University of Puerto Rico at Bayamón is responsible for structuring a series of programs to facilitate students’ academic work throughout their study years. The offices of Academic, Student and Administrative Affairs work in an articulated manner to offer students strategies of how to fulfill the objectives and achieve the academic excellence required by the System with minimum difficulty and maximum participation and effort. In addition, the institutional philosophy promotes to its maximum capacity the holistic development of human personality so that the individual may successfully adapt to the multiple demands of modern society.

**ADMISSION**

**Admissions Office**
The Admissions Office of the University of Puerto Rico at Bayamón offers orientation to public and private high schools students and to students who attend private university institutions of Puerto Rico and other countries concerning the admission requirements, the procedures to follow for applying and the study programs offered by the Institution.

**Admission of First Year Students**
First year students are those who come from high school and who have not been previously studying at a university.

**Admission Criteria**
The University of Puerto Rico uses the following as criteria for admission: the high school average and the Verbal and Mathematics scores in the Academic Aptitude Test (PEAU, Spanish acronym) offered by the College Board. These criteria are used to determine the General Index Application (IGS, Spanish acronym) of each student.

**General Index Application (IGS)**
Each academic program has a General Index Application (IGS, Spanish acronym) as a requirement for admission, which establishes the minimum score students should have for acceptance into a particular program. These indexes vary from year to year due to the fluctuation of offerings and the demand, in other words, the number of students applying, their IGS, the spaces available, and the minimum indexes established by the faculties.

**Admission Requirements**

1. Application for Admission: Submit the Application Form for Admission which is used for all units of the UPR system. How to apply:
   
a. Electronic Application: This is the recommended way to apply for admission. It is completed and submitted through the Internet page of the UPR at the following address:
      http://estudiantes.upr.edu/admisiones.
   b. Printed/Paper Form Application: This is distributed throughout all the public and private high schools beginning in October of each year. It is also available in the admission’s offices of the UPR system’s units.

2. Application Fee: A non-refundable fee of $20 is charged with the application. After the deadline, a late fee of $10 will be added for a total of $30 to be paid before the final deadline for late applications ends.
a. If filing an application via Internet

1) Payment may be made with a credit or debit card.

2) Mail in your payment for the application with a money order payable to the University of Puerto Rico at the following address: Oficina Central de Admisiones, Jardín Botánico Sur, No. 1187 Calle Flamboyán, San Juan, PR 00936-1117.

3) You may also pay at any of the Bursar’s [Collections] Offices located in the UPR system’s units and later present evidence of payment so this may be registered in the system.

b. If filing a printed/paper form application

1) You may make your payment at any branch of the Banco Popular de Puerto Rico or at any of the Bursar’s [Collections] Offices of the UPR system’s units.

3. Admission Exams: Take the following exams for admission to the university offered by the College Entrance Examination Board: Verbal and Mathematical Academic Aptitude Tests and the Academic Achievement Tests for English, Spanish, and Mathematics. If the student prefers, she/he may take the exams offered in English, which are the Scholastic Aptitude Test (SAT I) and three Subject Tests (SAT 2): English (Literature), Mathematics (Mathematics Level I or II) and Spanish (Reading). Upon applying for these exams, students need to request that the results be sent to the UPR. Admission exams expire every five (5) years.

4. Official Transcript: Request an official transcript of credits from their high school. The school principal, guidance counselor or registrar should send the transcript in a sealed envelope to the Admissions’ Office of the University of Puerto Rico at Bayamón or to the UPR system unit chosen as first alternative in the admission application.

5. High School Diploma: Applicants must be graduates or candidates for graduation from an accredited public or private school licensed by the General Education Council or have passed the high school equivalency exam and submit official evidence from the Department of Education. Graduates from high schools in the United States or foreign countries must present evidence of the school’s accreditation.

Students who graduated from high school through the GED [General Education Development Exam] equivalency test, in addition to the aforementioned should also:

a. Submit to the Department of Education the official document with the results of the equivalency test for the corresponding conversion.

b. Request the Department of Education to send the certification or grade report to the University of Puerto Rico at Bayamón or to the UPR system campus selected as first alternative in the admission application.
Applicants from Abroad
This refers to students who graduated from a high school outside of Puerto Rico and the United States. In addition to the aforementioned requirements, applicants should:

1. Submit evidence of diplomas or titles received accompanied with an official certification indicating that the institution is officially recognized by the government in the country of origin.
2. Request the Department of Education to process the grade equivalency.
3. Demonstrate mastery of the Spanish and English languages.
4. Submit a sworn statement which evidences the availability of economic resources for studying in Puerto Rico.
5. Request from the high school attended an official explanatory report regarding the grade system used to evaluate academic achievement, the content and level of courses taken, and the number of hours per subject.
6. Submit any other document required to evidence the academic preparation or status in the country.

Special Admissions
Admissions Based on Abilities or Special Talents
The University of Puerto Rico at Bayamón admits a limited number of students under the criteria of abilities and exceptional talent. For students to be considered, they must indicate their abilities and special talents in the corresponding section of the Application form. The selection of these students is done competitively, taking into consideration the interests and the availability of space in the unit or campus where admission is requested. The General Admission Index (IGS) of the applicant must not be less than 2.0 under the required index. The University of Puerto Rico at Bayamón will call interested applicants in for an interview or audition and will request these candidates submit recommendation letters certifying the level of excellence in their skill or particular talent indicated.

In addition, those interested in being considered under this type of admission must fulfill the following requirements:

- Submit the Application for Admission to the University of Puerto Rico on time.
- Take the College Board or SAT exam.
- Possess a high school diploma or equivalency with a minimum grade point average of 2.00.
- Request admission to the UPRB as first choice in the application.
- Have been denied admission in the three alternatives chosen.

Home Schoolers
Applicants who have been educated at home (homeschooled) should indicate it on the Application for Admission with the Code No. 3934. The results of the aforementioned university admission exams must be presented as well as the Home Schooled Certification which must be notarized. For more information regarding admission criteria for home schoolers, you may access www.upr.edu/admisiones/ or write to admisiones@upr.edu.

TRANSFERS (EXTERNAL: OUTSIDE UPR SYSTEM)
Students who are studying or have studied at a private accredited university may request transfer (Known in Spanish as transferencias) to the University of Puerto Rico at Bayamón (UPRB). Two options exist for these applicants:

1. If the applicant has less than 30 credits approved, she/he must have an IGS equal to or greater than the minimum established for the year admitted to the university presently attending.
2. If the applicant has 30 credits or more approved, she/he must meet all the general and specific requirements established for the program admission is being requested.
Those requesting transfer to initiate studies during the second semester of the academic year (January) are subject to the availability of courses in the academic offerings for that semester. The UPRB requires transfer students to comply with residency status. This residency consists of passing at the University of Puerto Rico, as a minimum, the courses corresponding to the last quarter part of the study program they are requesting graduation from.

The UPRB reserves the right to determine which courses will be accepted from transfer students coming from other higher education institutions. The Transfer Application requires a non-refundable fee of $33.00, which is to be handed in to the Admissions Office of the UPRB on or before the deadline established each semester. Applications received after the deadline will be considered late and will require a total fee of $49.50.

READMISSION

The following presents the procedure for students of the University of Puerto Rico requesting readmission to the UPR system after having interrupted their studies for one semester or more. Students will apply for readmission at the Registrar’s Office of the UPR campus where they were studying. They are to complete the application and pay the corresponding fees. Applications submitted after the deadline will be subject to late charges. If the student was academically suspended, she/he will apply for readmission on a probationary status and will accompany the readmission application with a letter from the Academic Achievement Committee, who will be in charge of evaluating the application. The registrar will notify the student of the results of the evaluation. Any student who has obtained a bachelor’s degree from the UPR system and wishes to study again, may request readmission at the campus where she/he wishes to continue studies.

TRANSFERS (INTERNAL)

Internal transfers (known in Spanish as traslados) refer to movements of students within the units of the University of Puerto Rico system. This action is available for both active and inactive students. Applications for internal transfers are made in the Registrar’s Office of the different units in accordance with the dates established in the academic calendar. The applicant must meet the following minimum requirements:

1. Students with less than 30 credits at the University of Puerto Rico must have satisfactory academic progress. In addition, they must also have an IGS equal to or greater than the minimum established for the year they were admitted.
2. Students with 30 credits or more must have satisfactory academic progress and meet all the other criteria established for the program they wish to be admitted.

The Registrar’s Office of the Unit [where the student is or was studying] is responsible for processing all the documents necessary to the corresponding transfer unit within the period established in the academic calendar. The Registrar’s Office of the transfer unit who receives the transfer request sends all the documents to the department directors for their evaluation. Once the evaluation is completed, the Registrar’s Office will inform the student of the decision. Applicants who qualify will be admitted in accordance with the requirements established in each academic program.

RECLASSIFICATIONS

Reclassification is a process that allows the student to request a change from one academic program to another. Students must comply with the following requirements:

1. If they have obtained less than 30 credits, they must have an IGS equal to or greater than the minimum established for the year they were admitted.
2. Students with 30 credits or more must have satisfactory academic progress in the program they were admitted.

Students should submit the Reclassification Application
admissions process, transfer, reinstatement, transfer, reclassification and enrollment

REGISTRATION
Registration is a process by which students select the courses and sections they are to take during the following semester, in accordance to their academic counseling. The registration period is established in the Academic Calendar; this is done via Internet or on the University installations during the assigned days and times before the fifth day prior to the beginning of classes during the semester or before the second day of the beginning of classes in the summer session.

Before registering, first year students should present their admission certificates, high school graduation certification, and the Health Services Office documents indicating compliance with the medical requirements.

Registration Changes
The registered courses may be changed with the recommendation of the Department Director during the days indicated in the Academic Calendar for each semester or summer session. The corresponding documents should be handed in at the Registrar’s Office with the corresponding official signatures for validation.

<table>
<thead>
<tr>
<th>Students who begin studies at the UPR in August 2011</th>
<th>Students who begin studies at the UPR in August 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Daytime Credit</strong></td>
<td><strong>$53</strong></td>
</tr>
<tr>
<td>Extended University (UNEX) Credit</td>
<td><strong>$53</strong></td>
</tr>
<tr>
<td>Extended University (UNEX) Quota</td>
<td><strong>$30</strong></td>
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<td>Maintenance Fee</td>
<td><strong>$47</strong></td>
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<tr>
<td>Technology Fee</td>
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<tr>
<td>Economic Stabilization Fee</td>
<td><strong>$400</strong></td>
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<tr>
<td>Laboratory</td>
<td><strong>$33</strong></td>
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<tr>
<td>Identification Card</td>
<td><strong>$5</strong></td>
</tr>
<tr>
<td>Late Registration and Extension</td>
<td><strong>$13</strong></td>
</tr>
<tr>
<td>Non-resident Foreign Students (Cost per academic year)</td>
<td><strong>$4,201</strong></td>
</tr>
<tr>
<td>Medical Plan</td>
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</tr>
</tbody>
</table>

Auditing courses for:  
- Undergraduate Students  
- Laboratory

<table>
<thead>
<tr>
<th>Auditing courses for:</th>
<th><strong>$33</strong> per course</th>
<th><strong>$33</strong> per each laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Cost imposed in accordance to the disposition of Certification No. 60-2006-2007 from the University of Puerto Rico Board of Trustees.
2. As established in Circular Letter 07-02 issued by Mr. Miguel Rivera Rivera, Director of the Finance Office at the Central Administration Office of the University of Puerto Rico.
3. As indicated in Certification No. 146-2009-2010 issued by the University of Puerto Rico Board of Trustees. A total of $400 is applied each semester with a maximum of $800 per academic year.
4. Student Identification Card (ID) - all students who are first year, readmission, transfer or who have lost or are interested in obtaining a new identification card, should apply for one upon completing the payment process for registration. The ID is necessary for all processes to be carried out in the University of Puerto Rico at Bayamón.
5. The medical plan’s costs vary annually. Students may select the coverage of their choice. Payment of the medical plan is obligatory unless students evidence that they have an active private medical plan during their corresponding term of studies.

*The included costs also apply to students who renew their studies via readmission or transfer.

For more information, you may contact or visit the Registrar’s Office.
Refunds
Students who submit a withdrawal before classes begin during the period established for changes in registration will be eligible to a 100% refund of their basic registration. Students who submit a withdrawal during the first week of classes of any semester or during the first week of classes of the summer session will be eligible for a refund of 50% of the costs of their basic registration.

Costs per Application

<table>
<thead>
<tr>
<th>Application</th>
<th>On Time</th>
<th>Late</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission</td>
<td>$20.00</td>
<td>$30.00</td>
</tr>
<tr>
<td>Change in Major</td>
<td>16.35</td>
<td>16.35</td>
</tr>
<tr>
<td>Reclassification</td>
<td>16.35</td>
<td>23.85</td>
</tr>
<tr>
<td>Certification of Studies</td>
<td>1.35</td>
<td>N/A</td>
</tr>
<tr>
<td>Certification of Degree</td>
<td>1.35</td>
<td>N/A</td>
</tr>
<tr>
<td>Duplicate Diploma</td>
<td>27.00</td>
<td>N/A</td>
</tr>
<tr>
<td>Equivalencies</td>
<td>1.35</td>
<td>N/A</td>
</tr>
<tr>
<td>Graduation</td>
<td>29.70</td>
<td>N/A</td>
</tr>
<tr>
<td>Special Permission</td>
<td>17.70</td>
<td>25.20</td>
</tr>
<tr>
<td>Readmission</td>
<td>34.35</td>
<td>50.85</td>
</tr>
<tr>
<td>Readmission/Transfer (External)</td>
<td>35.70</td>
<td>52.20</td>
</tr>
<tr>
<td>Dean’s Recommendation</td>
<td>1.35</td>
<td>N/A</td>
</tr>
<tr>
<td>Transcript</td>
<td>1.35</td>
<td>N/A</td>
</tr>
<tr>
<td>Transfer (Internal)</td>
<td>25.40</td>
<td>35.40</td>
</tr>
</tbody>
</table>

Summer Session
Students may register up to a maximum of seven hours credit or two courses per summer session, with the exception of those candidates who would graduate during the summer or who are honor students (in accordance with the table used to determine honor status). These students may take up to a maximum of ten hours credit with the approval of the Dean of Academic Affairs.

Tuition Waivers for Students with GPA of 3.50 or more *
Students will be exempt from paying tuition fees in courses registered in for the first time beginning their second year of studies if the following requisites are met:
1. Second year students or over who obtain a GPA of 3.50 or more and who are within the top 5% cohort of all regular students of the same year of admittance to the university.
2. Must have obtained no less than 24 credits during the first year of undergraduate studies at the University of Puerto Rico.
3. Passed twelve (12) credits or more during the prior session.
4. Be a regular student, with an academic course load no less than 12 credits. Students with irregular course loads will be eligible to receive a tuition waiver during their last session of studies.
5. Must be officially classified and taking courses in an academic program towards a first academic degree.
6. Taking a year of studies not greater than 150% of the time established to complete a degree.
7. Registered in courses towards a second bachelor’s degree or a second major if taken within the 150% of the time established by the first bachelor’s and major classified under.

Eligibility is determined at the beginning of each semester. Tuition waivers will not be given for courses offered during the summer sessions except for courses that are part of the curricular sequence of the degree program.

*The above requisites were established by Certification No.1 Series 1981-1982-CESPR (Higher Education Council of Puerto Rico).

Return of University Property
To receive services from the Registrar’s Office, students should return all borrowed institutional property (such as books and equipment) in good condition and pay any money owed to the Institution.

Debtors
To process registration payment, applications certifying study status, and transcripts, among other services with the Registrar’s Office, students must pay off all monetary debts or debts related to university property.
ACADEMIC REGULATIONS

REGISTRAR’S OFFICE

The Registrar’s Office is responsible for the student’s academic documentation. This office establishes registration procedures and ensures that academic norms are met. It supervises the strict compliance with the existing laws and academic regulations. The office is in charge of sending grades and transcripts and for processing applications for transfers, reclassifications, readmissions and special permissions. In addition, it offers other services to the student community, professors, administrative personnel and members of the community in general. It also provides certifications for graduation, Social Security, income tax, medical insurance, housing and nutritional assistance programs, and deferred payments of student loans, among others.

The Registrar’s Office is located on the fourth floor of the University Student Center.

TRANSCRIPTS

Transcripts are official documents that reflect the academic life of the student and may be processed as one of the following:

1. **Official Copy** – transcript sent directly by the University to the agency or institution the student has requested.

2. **Student Copy** – transcript to be sent or handed out to the student for personal use.

The application will be completed in the Registrar’s Office with enough time for processing. A written authorization from the student and a photo ID to apply for or hand out transcripts to any person who is not the student in question are required. Transcripts will not be issued to students with outstanding debts.

STUDENT CLASSIFICATIONS

- **Full-time Students**: students enrolled in 12 or more credits per semester up to a maximum of 21 credits.
- **Part-time Students**: students enrolled in less than 12 hours credits per semester.
- **Visiting Students & Auditors**: students authorized by the Dean of Academic Affairs who pay a special stipend to attend classes but do not receive official credit.
- **Transient students or students with special permissions**: students from another higher educational institution who request to take courses at the UPRB for a determined period of time.
- **Professional Improvement Students**: students interested in taking university courses prior to beginning postgraduate studies or who are interested in expanding their knowledge in particular subjects. Courses taken under this category are not counted towards a degree.

DEAN’S LIST

The Dean’s List is a distinction granted to those students who have obtained a GPA of 3.50 or more and who meet the following criteria:

1. Have accumulated twelve (12) credits per semester, nine (9) credits for those students in the Extended University of Puerto Rico.

2. Have passed no less than twelve (12) credits, nine (9) credits for those students in the Extended University of Puerto Rico during the first semester of the academic year in progress and have obtained a GPA of 3.50 or more.

3. Maintain in the academic load in progress no less than twelve (12) credits, nine (9) credits for those students in the Extended University of Puerto Rico. Any student who meets one of the following requirements will be exempt from this criteria:
a. Candidates graduating in May.

b. Students who completed graduation requisites in December and are presently inactive.

c. Students in internships, practicums or academic research, which may not necessarily have academic credit.

**PARTIAL WITHDRAWALS**

This is the process by which students officially cancel one or more courses they are registered in. The partial withdrawal is a rating that appears in the student’s academic record but is not used to calculate grades. However, this may generate different interpretations from those who in some way may have to evaluate the student record for graduate studies or studies at another unit or institution.

**TOTAL WITHDRAWALS**

This is the process by which students officially cancel all courses in the class program they are registered in. It is advisable for all students considering to withdraw totally to have an interview with a professional counselor before dropping out; this way students may analyze the situation better and see how this may affect them. Students who stop attending courses they are registered in will receive a grade of F* if the withdrawal is not processed before the deadline.

The deadline for course withdrawals is established in the Academic Calendar. Partial withdrawals of one or more courses may be processed up to ten (10) working days prior to the last day of classes. Total withdrawals may be processed up to the last day of classes in the corresponding semester. The withdrawal forms are available in the Registrar’s Office. Students should obtain the corresponding signatures and return the form before the deadline. The student transcript will indicate a “W” for the course withdrawal.

If students process a total withdrawal during the course of the semester, they may continue studies the following semester.

**CLASS ATTENDANCE**

Class attendance to the University of Puerto Rico at Bayamón is obligatory. Professors should submit an attendance report to meet with the required federal regulations for students receiving financial aid. Frequent absences may affect grades and can lead to loss of credits. In the case of a professor’s unnotified lateness, the student must wait 15 minutes beginning from the hour the class is scheduled to begin before leaving the classroom.

**FINAL EXAMS REVIEW PERIOD**

A review period of one or two days will be assigned at the end of the academic semester and before final exams begin. During this period students are free of all academic obligations so they may dedicate this time to study for final exams. Partial or final exams may not be given during this period.
FINAL EXAMS

All final exams must be written unless the nature of the course allows for the use of another means of evaluation. In those cases, the professor will seek authorization from the Dean of Academic Affairs to use a different type of evaluation.

Professors will grade student work. They will use the methods they deem most convenient or which their department has established. Professors are required to retain the exams for one semester for a subsequent inspection if necessary.

The final exam schedule consists of six days after the review period.

INCOMPLETE OR PROVISIONAL GRADES

Students may receive an incomplete or provisional grade ("I" and the grade) when for justified reasons they have not been able to meet some of the course requirements. The provisional grade will be requested by the student or recommended by the professor. This grade is calculated by assigning an “F” to the uncompleted work. The final grade will never be less than the provisional one assigned.

The student will coordinate with the professor the work schedule to meet the course requirements before the end of the first month in the following semester. If prior to the end of the following semester, the student meets with the work due, the professor will change the provisional grade for a final grade through a format provided by the Registrar’s Office. If the professor does not process the change within the stipulated period, the provisional grade will be made final.

GRADE NOTIFICATION

The Registrar’s Office will inform students via the Internet of their grades at the end of each academic session. Students with outstanding debts will not have access to their grades until these debts are cancelled.

APPEALS AND CHANGES TO FINAL GRADES

Once the final grades have been submitted to the Registrar’s Office, any change must be requested in writing by the professor who offered the course.

If the student believes that there has been a mistake in the grade, she/he should notify the professor and the Registrar’s Office during the first month of class of the following semester. The professor may notify a grade change during the course of the following semester the original grade was given and no later than the deadline for partial withdrawals. If the student is not satisfied with the professor’s decision, she/he may appeal by writing a letter explaining the situation to the Dean of Academic Affairs.

GRADES

The University of Puerto Rico at Bayamón uses the following grading system:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
</tr>
<tr>
<td>C</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>D</td>
<td>Passing, but deficient</td>
</tr>
<tr>
<td>F</td>
<td>Failed</td>
</tr>
<tr>
<td>F*</td>
<td>Stopped attending without authorization (Withdrawal was not processed)</td>
</tr>
<tr>
<td>P</td>
<td>Passed, not considered in grade point average</td>
</tr>
<tr>
<td>NP</td>
<td>Not Passed</td>
</tr>
<tr>
<td>W</td>
<td>Authorized Withdrawal</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete with a provisional grade. Assigned at the discretion of the professor when, due to extraordinary circumstances, the student was unable to complete coursework in the required time period.</td>
</tr>
</tbody>
</table>
COURSE REPETITION

If a student repeats a course where a grade of “D” or “F” was received, the highest grade will be used to calculate the average. However, the lowest grade will remain on the transcript. Course repetitions where students obtained a grade of “C” are allowed in exceptional cases with the prior authorization of the Dean’s Office of Academic Affairs. The following averages are used:

- **General index:** result of the grades obtained in all the courses the student passed in the University of Puerto Rico system.
- **Graduation index:** result of the grades obtained in all the curriculum courses required.
- **Index in major:** result of the grades obtained in courses of the major in the student’s registered program.

The Veteran’s Administration will not pay students who are veterans or their beneficiaries any course repetition for courses that have been previously passed. It will only pay for courses failed (“F” or “NP”) or for those courses in the major where a minimum grade is required for passing.

ACADEMIC INDEX

The Academic Index (Grade Point Average) is what is used to measure student’s academic achievement. It is calculated by dividing the number of honor points by the total number of credits accumulated in the courses the students have received a final grade, including those failed. The points are a result of the value assigned to each letter: A=4; B=3; C=2; D=1; F=0, F*=0, I= Provisional Grade.

RETENTION INDEX

Academic work is considered deficient if the student does not pass at least half of the credits initially registered in during the academic year or whose accumulated grade point average (GPA) is less than the minimum index required (retention index) as presented in the following:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 16</td>
<td>1.80</td>
</tr>
<tr>
<td>17 - 33</td>
<td>1.90</td>
</tr>
<tr>
<td>34 or more</td>
<td>2.00</td>
</tr>
</tbody>
</table>

These indexes were established through Certification No. 026-2001-2002 of the Academic Senate of the University of Puerto Rico at Bayamón and effective beginning the 2002-2003 academic year. Students who do not obtain the minimum index required at the end of their year of studies will be suspended for academic deficiency.

PROBATION & ACADEMIC SUSPENSION

At the end of each semester, students will be informed through their grade report if their academic work has been deficient. The Counseling and Guidance Department will also be informed. At the end of the academic year the accumulated GPA of each student will be compared to the corresponding retention index. In addition, the number of credits passed will be compared to the number of credits originally registered in.
1. When, for the first time, the accumulated index is less than the retention index or when the number of credits passed is less than half of the credits initially registered in, the Registrar’s Office will notify the student that she/he will be on academic probation during the next academic year of his/her registered program.

2. The student, who on a second occasion, does not meet the minimum retention index or does not pass at least half of the credits initially registered in, will be suspended for an academic year.

3. If the accumulated index is less than or the same as 0.20 of the corresponding retention index, the student may request a second academic probation. If the accumulated index is greater than 0.20, the student will be notified that she/he will be suspended during the following academic year.

4. Students on probation that do not pass at least half of the credits initially registered in during the academic year may request a second probation, which will be evaluated by the Academic Achievement Committee. If the request for a second probation is not approved by the Committee, the student will be suspended. This administrative suspension will not be indicated in the student’s record.

5. If a second suspension occurs, the student will be separated from the University of Puerto Rico at Bayamón for two years, upon which the student may again request academic probation through readmission, which will be evaluated by the Academic Achievement Committee.

6. Courses taken at other institutions during the suspension period cannot be accredited.

Students who have been suspended for the first time and who have been outside of the Institution will be readmitted automatically on probationary status by the Registrar in August, if the following requirements are met:

1. Completed one year of academic suspension.
2. Requested readmission on probation in the same program suspended in.
3. Met with the deadlines established in the Academic Calendar.

After having been admitted on probationary status, the student must meet the following requirements:

1. May not register in more than 15 credits per semester.
2. Repeat courses where a “D” or “F”** was obtained.
3. Attain the minimum retention index and pass at least half of the credits initially registered in.

Readmissions on probation that are not contemplated by these norms or that are exceptional cases will be evaluated by the Academic Achievement Committee. The determinations made by the Committee may be appealed to the Chancellor before the beginning of the following registration period. For the purpose of these norms, the academic semester is defined as two semesters and one summer session. For students who did not take summer courses, the academic year is defined as the two academic semesters ending in the year in May.

**Veteran’s Administration will not pay students who are veterans or their beneficiaries for the repetition of courses previously approved. The Administration will only pay for failed courses (“F” or “NP”) or those courses within the major where a minimum grade is required for passing the course.
STUDENT’S ACADEMIC PERFORMANCE

Students may, if they wish, obtain information regarding their academic performance. The document, Student’s Academic Performance, is used for this purpose. The student takes the document to each of his/her professors to complete the information requested. The criteria used for the student evaluation are the following: responsibilities, class attendance, punctuality, tasks and assigned work carried out, class participation, academic performance and grades accumulated up to that moment the request is being made.

The aforementioned document is available in the Registrar’s Office and in the Counseling and Guidance Department, as established in Certification No. 035-2000-2001 of the Academic Senate of the University of Puerto Rico at Bayamón.

COURSE CHALLENGE POLICY

As established in Certification No. 29-2006-2007 of the Academic Senate of the University of Puerto Rico, the challenge of courses gives the opportunity for progressing in the university to those students who, through independent non-traditional studies or though experiences lived, have accumulated knowledge and developed skills that correspond to the subjects in the university curriculum. This process adds an element of flexibility, which will allow to more adequately attend the needs of those who enter or re-enter the university.

The opportunity to challenge courses is available for all students of the University of Puerto Rico at Bayamón. In the case of specialties that receive professional accreditation, these course challenge norms should be adapted to the regulations of the corresponding accreditation agency.

General Dispositions:

1. The request to challenge a course is to be submitted during the semester prior to when the student wants to challenge it.

2. The Course Challenge Committee of each department will meet and determine the specific courses this challenge practice could be applied.

The list of courses will be revised annually and sent to the Dean’s Office of Academic Affairs, the Dean’s Office of Student Affairs, the Registrar’s Office, the Reserve section of the Library via the Department Director, and published in the institutional webpage.

3. Course challenges will be given only once per course, per semester, in response to the applications received and authorized as specified below. The Department Director will be responsible for coordinating with the Registrar’s Office the date the challenges will be offered and their administration process.

4. The modality of the course challenge for each course:

a. Will be determined or revised by the departmental Course Challenge Committee.

b. Will be adjusted to the terminal objectives of the course and study program.

c. Will be drawn up so it allows the student to demonstrate she/he has the cognitive, psychomotor and affective course competencies.

d. Could combine written, oral or observable performance tests which prove the student has the required skills.

e. Will result in a final grade of “P” (Passed) or “NP” (Not Passed), which will appear in the student’s record.
Procedure for Applying, Authorizing and Accrediting

1. A student may challenge a course if she/he:
   a. Is active in the University of Puerto Rico at Bayamón.
   b. Meets the requisites of equal to or greater than 2.00 in the general academic index (GPA) and the index in the major.
   c. Has the pre-requisites of the course they are challenging.
   d. Has not tried to challenge course in question previously.
   e. Has not obtained more than 25% of the total credits required for graduation through course challenges.

2. Students who are interested in challenging one or more courses should:
   a. complete the application form designed for this purpose and provided by the Registrar’s Office.
   b. hand in the application before the deadline indicated during the pre-registration period of the semester prior to the challenge.

3. The Registrar’s Office will:
   a. determine if the student meets the aforementioned conditions.
   b. officially notify the student of the action taken. If authorized to proceed, the student will be notified the date, time and place of the challenge, as coordinated with the Department.
   c. notify the student of the final grade.

   Students who receive authorization to challenge a course will process their registration in the Registrar’s Office and payment in the Bursar’s Office. The cost per credit will be the one in force for regular courses at the moment of registration.

COURSE CREDITS FROM OTHER INSTITUTIONS

The University of Puerto Rico at Bayamón reserves the right to accept credits from external transfers for courses passed with a minimum grade of “C” from an institution of higher education that is not part of the University of Puerto Rico system. The University may accept up to half of the corresponding credits in the student’s major. The credits accepted will be indicated with a grade of “P.” These will be accredited to the number of credits required for the degree but will not be used to calculate the GPA (Certification No. 064-1999-2000 of the Academic Senate of the University of Puerto Rico at Bayamón).

RECOGNITION OF UNIVERSITY LEVEL COURSES TAKEN PRIOR TO BEGINNING UNIVERSITY STUDIES

Certification No. 41-2007-2008 of the Academic Senate of the University of Puerto Rico at Bayamón establishes that high school students taking courses through their own initiative or by recommendation from their high school may request recognition and accreditation of these courses in the University of Puerto Rico at Bayamón. The requisites are the following:

1. Courses are at university level as determined by the academic departments that offer these courses.
2. Courses with a grade of “C” will not be accepted.
3. The acceptance of these courses is subject to the agreements or equivalencies in force in the UPR system. If there is a course for which there is no equivalency or recognition criteria, the corresponding academic department will be responsible for analyzing whether or not to accept the course in question.
4. The student will be responsible for requesting an official transcript from the university where the course was taken. The transcript should be addressed to the Registrar’s Office of the University of Puerto Rico at Bayamón and include the course(s) taken and final grade(s) obtained.
At the end of the academic semester in the University of Puerto Rico at Bayamón, the Registrar’s Office will indicate the corresponding credits and grades in the student’s academic record.

**CURRICULAR OPTIONS FOR UNDERGRADUATE STUDENTS**

As established by the Board of Trustees Certification No. 47-2004-2005, certain course sequences of special interest for the institution and public service are authorized as curricular options to the bachelor’s degree and allowed to be part of the student’s academic load. Sequences up to fifteen (15) additional credits to those stipulated in the regular program are authorized in the following three curricular options so these may be accessible to all bachelor’s degree university students registered in any major offered by the unit:

1. **The option of public service for studies conducive to Teacher Certification in accordance with the Laws and Regulations of the Department of Education of Puerto Rico.**
2. **The option of intensive studies known as Honor Program, approved by the Senates or Academic Boards.**
3. **The option of public service for preparatory studies that qualify for licensure given by a duly authorized examination board or professional university, according to the laws of Puerto Rico.**

Additional courses taken as part of these options will be considered free electives toward the degree up to a maximum of fifteen (15) credits and added to those already required by the regular program when necessary.

**OFFICIAL STUDENT LEAVES OF ABSENCE FROM THE UPRB**

Certification No. 21-2006-2007 of the Academic Senate of the University of Puerto Rico at Bayamón establishes the policy for official student leaves. The Certification presents the procedure to follow for a leave of absence for a maximum of 180 school days in a 12-month period, in accordance to the stipulations in Federal Student CFR 668-22 (2006-2007) and other institutional norms.

This policy is extensive to students who do not receive Title IV scholarships/grants. In this way, in a just and reasonable manner, the need for some students to take a leave of absence from their academic obligations due to meritorious reasons is taken care of without having the student go through the Institution’s readmission process.

The reason for granting the leave will be meritorious in nature. The student may not have any type of economic, academic or legal affair pending with the Institution. In the case of students taking the leave at the beginning of an academic semester, they may make some arrangements with the professor(s). If this is not done, the cancellation of the registration will be considered and will be subject to an evaluation by the Financial Aid Office.

**GRADUATION**

The requirements for the attainment of a degree from the University of Puerto Rico at Bayamón are the following:

1. Pass the required courses with a general grade point average (GPA) and a grade point average in the major of 2.00 or more.
2. Fulfill the Institution’s residency requirements. This consists of having passed in the University of...
Puerto Rico at Bayamón at least one fourth of the courses corresponding to the study program from which graduation is being requested (Certification No. 022-1999-2000 of the Academic Senate of the University of Puerto Rico at Bayamón).

3. Carry out appropriate studies for the degree interested in within a time limit not greater than double the time prescribed by the study program of the degree. If the student exceeds the time limit indicated, she/he may be required to repeat or revalidate through an exam those courses which, in the opinion of the Director of the corresponding program, require review.

4. Meet with all the financial obligations of the Institution.

5. Complete the Graduation Application in the Registrar’s Office at the beginning of the semester or period in which the requirements will be completed.

6. Be recommended by the Director of the Department.

7. Have good behavior during the university career.

Automatically Confer Degrees
The University of Puerto Rico confers degrees automatically to all students who meet with the requisites for the degree and the payment of the corresponding graduation fee. However, in the case of students who have been admitted to complete other curricular options, for example, a curricular sequence or second major and who also demonstrate satisfactory academic progress, an additional reasonable time can be given to complete these before graduating from the program students are classified in.

The University holds its graduation ceremony at the end of the second semester. Students that meet with graduation requirements in the summer session or in December will obtain a certification of graduation at the end of the corresponding session.

Changes in Graduation Requirements
The University of Puerto Rico reserves the right to make changes to the requirements of the diverse programs and degrees, but students may graduate according to the requirements in effect when they were admitted. However, students who do not fulfill the graduation requirements within the assigned period of time in their corresponding curriculums and those students readmitted after a period of absence will be subject to the requirements that apply at the moment of graduation.

Honors
The granting of honor status will be subject to the scale for the graduation’s general grade point average, as applicable.

<table>
<thead>
<tr>
<th>Honors</th>
<th>Certification No. 013-2006-2007²</th>
<th>Certification No. 053-2000-2001³</th>
<th>Certification No. 11-1988-1989⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cum Laude</td>
<td>3.50 to 3.74</td>
<td>3.33 to 3.49</td>
<td>3.00 to 3.32</td>
</tr>
<tr>
<td>Magna Cum Laude</td>
<td>3.75 to 3.99</td>
<td>3.50 to 3.95</td>
<td>3.33 to 3.99</td>
</tr>
<tr>
<td>Summa Cum Laude</td>
<td>4.00</td>
<td>3.96 to 4.00</td>
<td>4.00</td>
</tr>
</tbody>
</table>

1. In the case of students who were reclassified, emphasis is made for the application of the certification in force at the time they began in the program they are graduating from.
2. Regulates the graduation index for those students who began studies in August 2007.
3. Regulates the graduation index for those students who began studies in August 2002.
4. Regulates the graduation index for those students who began studies before August 2002.
The Financial Aid Program Office of the UPRB is responsible for administering financial aid programs funded by federal, state, corporate and individual donations with the aim of granting funds to students based upon their economic needs. Three types of aid are given: Scholarship, Work and Study, and Loans. These are administered according to the norms and regulations established by the entities the monies originated from.

Eligibility and Requirements to Apply for Financial Aid

- Be admitted in the Institution.
- Complete the application for the Federal Pell Grant (FAFSA).
- Be an American citizen or eligible non-citizen.
- If the student is male, he is to be registered with the Selective Service according to the regulations of this agency.
- Be a high school graduate.
- Be registered in a study program leading to an academic degree.
- Maintain academic progress according to the Institution’s norms.
- Demonstrate economic need.
- Fulfill the policy of class attendance.
- Not have an outstanding debt with the federal scholarship/grant programs or with student loans.

How to Apply for Federal Aid

- Complete the Free Application for Federal Student Aid (FAFSA) (also known as the Pell Grant) at www.fafsa.ed.gov.
- Once the student receives a response regarding the grant, she/he should make an appointment for an evaluation by a Financial Aid Official.
- The day of the appointment, she/he should hand in the Financial Aid application, Verification Form, evidence of income and other documents according to the specific case. For more information, access www.uprb.edu.

Aid Programs

- Pell Grant (FAFSA)
  This federal program provides financial aid towards the attainment of a first bachelor’s degree to undergraduate students. Student eligibility is determined by a standard formula that is consistent to all applicants. This formula takes into consideration the family’s economic indicators; such as, income, assets, number of family members, number of university students in the family group (except parents), and others. The amount a student receives depends upon his/her EFC (Expected Family Contribution), study costs and if the enrollment is full-time, part-time or less than half time.
Pell Grant Supplements

• Federal Supplemental Educational Opportunity Grant (FSEOG)
  This federal program provides additional funds in the form of scholarships to help undergraduates. The priority for the granting of this scholarship is based upon the economic need of the student, the determined EFC and the degree credits registered, until the available funds are consumed.

• Federal Work-Study Program
  The objective of this program is to offer students the opportunity to acquire experience in areas related to their studies. The time worked may not exceed twelve (12) hours a week. Students will be remunerated according to what the University has established, always being equal to or greater than the prevalent federal minimum wage. To be eligible for the program, students must also be eligible for the Pell Grant and be enrolled in six (6) or more credits.

• Legislative Scholarship
  This legislative scholarship program provides aid to eligible undergraduate students and serves as complementary to other aid. The scholarship is granted based upon the student’s economic need, the determined EFC and the degree credits registered, until the available funds are consumed.

Other aid

• Direct Student Loan
  This program offers low interest loans to undergraduate students. There are two types of loans: the subsidized and non-subsidized. The subsidized loan is based on the economic need. The federal government pays the loan’s interest while the student is registered in six (6) or more credits.

A non-subsidized loan is not based upon economic need, and the student is responsible for paying interest from the moment the loan payment begins until it is paid completely. Students have the option of capitalizing the interest (added to the debt) in this type of loan, beginning six months after graduation.

• Private Scholarships
  These are granted with funds donated by private companies, individuals and civic as well as philanthropic foundations. The scholarships are given according to the requisites established by the donors.

• Miguel Lugo Short-term Emergency Loan
  This is a loan granted to students with an urgent need for incidental expenses; such as, books, medicines, trips home and others. To be eligible the student must be enrolled in twelve (12) or more credits. The amount of the loan will depend upon the availability of funds. The student must pay off the loan in the same month it was granted. The updating of the norms, procedures and regulations of the Title IV programs are notified to students through the University webpage at www.uprb.edu. In the Financial Aid section, links to different addresses of the federal government are available. In addition, forms and instructions facilitating the process of applying for financial aid may also be accessed.

HEALTH SERVICES

The Health Services Office of the UPRB has as priority the handling of patients with the practice of preventive medicine through medical consultations, pharmaceutical treatments, mental treatment and hypnosis. In addition, the office intervenes with medical emergencies and surgeries. The goal is to satisfy the needs of the university community through quality services, such as:
• Maintain the university community in optimum physical and mental health condition.
• Maintain the university community informed about health through informal talks, educational activities and updated handouts.
• Provide quality outpatient medical services through the diagnosis, treatment and evaluation of the condition.

The Health Services Office of the UPRB has a group of highly capable health professionals with an equipped medical consultation area and an area for breast feeding. In addition, it has an ambulance vehicle to move patients in emergency situations.

All students registered in the Institution are required to have a private or public health/medical insurance policy. For those without medical plans, the University of Puerto Rico has a contract with a health insurance company allowing the student to have a private health plan with free choice of providers. This semester plan has a variety of coverage and is effective on the first day of classes; it ends one day before the beginning of the following semester.

COUNSELING & GUIDANCE DEPARTMENT

The services of the Counseling and Guidance Department are geared toward strengthening academic, emotional and social aspects in students fostering their integration as future professionals of society. Through teamwork with the faculty and administration, the intention is to collaborate with the strengthening of a university environment based upon prevention, mitigation of risk factors that make an impact on academic work, and promotion of effective environmental psychology which benefits the academic, social and mental development of students and of the university community in general.

Personal Counseling
In an atmosphere of trust, delicate situations are addressed; such as, crisis, aspects related to mental health and personal situations that make an impact on student’s holistic development and lifestyles.

Vocational Counseling
This is a process through which students are guided to identify and explore their interests, abilities, skills and occupational values. Aspects related to their personality are taken into consideration with the goal of aiding students make a vocational decision. Vocational Interest Inventories are administered as part of the exploration.

Counseling and Educational Orientation
Students are provided with information regarding the academic offerings and their requirements. Information about the procedures, regulations and norms that rule the educational aspect is given. Students are oriented and cases involving academic or administrative probations are given follow-up. Also, information on readmission, transfers (internal and external), special permissions, and partial and total withdrawals is provided. Moreover, the development of learning skills is fostered.

Psychological Services
In an atmosphere of trust and confidentiality, psycho-emotional situations affecting students’ performance and their holistic development are addressed. Therapy and crisis intervention are utilized.

Internal Referrals
If necessary and with the student’s consent, the student is referred to one of the University’s units.

External Referrals
If necessary students are referred to external professionals or agencies giving continuity to the services. This is done in the best interest of the student’s holistic development.

Community Services
Public and private high school students requesting information regarding academic offerings and their requirements are also attended. Informal talks or
workshops are given at the schools, institutions or to the university community. Communication and contact with the school guidance counselors is maintained.

**Consulting**
Professional consultations are given on topics or issues related to Counseling and Guidance and Psychology.

Emergency Committee for cases concerning domestic violence, sexual assault and harassment occurring in the University of Puerto Rico at Bayamón: The Counseling and Guidance Department intervenes by offering those affected, services of crisis intervention, individual intervention and if necessary, channeling external referrals.

**CHILD CARE PROGRAM FOR UNIVERSITY STUDENTS (ACUDEN)**
Child care services are offered with funds from the Administración para el Cuidado y Desarrollo Integral de la Niñez (ACUDEN). This Program offers students who are parents completing university studies the opportunity for their children to have optimum care services.

**SOCIAL & CULTURAL ACTIVITIES**
The Social and Cultural Activities Office of the UPRB is responsible for planning, coordinating and offering a varied program of artistic, social, cultural and recreational events to complement students’ academic experiences; such as, lectures, plays, exhibitions, musical and artistic presentations, festivals, artisanal fairs, forums and others. Local and international artists are also presented. In addition, this office fosters the development of university talent through productions where the students are the protagonists.

The Game Room of the UPRB is assigned to this office. Passive and active tournaments are held here and students are provided with the necessary equipment to practice/play table tennis, board games, billiards and electronic games, among others. Movies are also projected there, specifically in the TV Room.

**ATHLETIC DEPARTMENT**
The Athletic Department of the UPRB is confident in providing all students athletes with a positive, competitive and fair athletic experience, which emphasizes the principles of integrity, sports conduct, health, and the development of each individual’s potential. These goals are reached by attending three general areas in the administration of the Department’s programs: the role of athletic competition in the academic curriculum, the role of the trainer and the Athletic Department in the competitive experience of the athlete, and the health and well-being of the student athlete.

The Athletic Department of the UPRB is a member of the Programa de Deportes de la Liga Atlética Interuniversitaria de Puerto Rico (Sports Program of the Inter University Athletic League of Puerto Rico) commonly known as the LAI, and also belongs to the second division of the National College Athletic Association (NCAA).
QUALITY OF LIFE PROGRAM
The Quality of Life Program of the UPRB is directed towards the development of programs which orient students and the university community on the prevention of crime and of the use and abuse of alcohol and drugs. Furthermore, it also warns about sexual assaults and violence and informs about the well-being that can be obtained through healthy life styles.

These types of programs are created with the aim of meeting the regulations established for institutions of higher learning by the Federal Education Department. Among these regulations are the following: Drug Free Schools and Campus Act, Campus Security Act and the Sexual Assault Program.

Students and the university community annually receive lectures, workshops, group sessions and quality of life fairs to promote healthy life styles.

STUDENT COUNCIL
The Student Council of the UPRB is composed of elected representatives from the different academic departments. This Council represents the main structure of the student body, thus being the official forum for the analysis, discussion and study of the needs for student expression. Through participation in this forum of academic discussion and deliberation, students have the opportunity to strengthen their leadership skills.

STUDENT ORGANIZATIONS
The Student Organizations Office of the UPRB is the liaison between the student and Institution that fosters the formation of student organizations. This office promotes the development of leadership and teamwork skills. In addition, support for the planning and dissemination of lectures, seminars, workshops, community service, and fund raising activities for the organizations is given.

The Dean’s Office of Student Affairs is the organism in charge of the accreditation of the student organizations in conjunction with the Junta de Reconocimiento de Organizaciones Estudiantiles (Board for the Recognition of Student Organizations). Any group of students from the University of Puerto Rico may constitute a student organization and apply for official recognition from the organism or accrediting official.

Presently there are 26 student organizations in the UPRB. These are the following:

- American Chemistry Society
- American Marketing Association
- American Medical Students Association
- Computer Students Association
STUDENT SERVICES AND ACTIVITIES

• Accounting Students Association
• Electronics Students Association
• Materials Management Students Association
• Pedagogy Students Association
• Office Systems Students Association
• Institutional Band
• Student Chapter of the Colegio de Ingenieros y Agrimensores de Puerto Rico (College of Engineers and Land Surveyors of Puerto Rico)
• Confraternidad de Cristianos Unidos (United Christian Fellowship)
• Institutional Choir
• Financial Management Association
• Institute of Electrical and Electronic Engineers
• Leading Initiatives for Future Ecologists (LIFE)
• Puerto Rico Statehood Students Association
• Microbiologist Society
• Society for Human Resource Management
• Student Athlete Advisory Committees; Students in Free Enterprise
• Taller Literario Dávila y Lima (Dávila & Lima Literary Workshop)
• Theater, The National Society of Collegiate Scholars at UPRB
• Pro Statehood University Students
• Zendo Universitario (University Zendo)

STUDENT CAREER DEVELOPMENT & PLACEMENT CENTER

The Student Career Development and Placement Center of the University of Puerto Rico at Bayamón offers its services based on its Mission to prepare students through multidisciplinary activities, so they may effectively present themselves as candidates for employment. The Center’s Vision is to be the first option of UPRB students in their job search and for most of these achieve employment in positions directly related to their area of studies.

It also supports the business community, facilitating its presence in the Institution to address this community’s need for qualified personnel. Among the main services offered by the Center, the following stand out:

Students

• Offer help in writing and revising resumes in English.
• Prepare them for the job interview through simulations.
• Hand out educational material on interview techniques, resumes and other work related topics.
• Refer resume to the available job offers.
• Give lectures and workshops on the resume, interviews and related topics.
• Give access to the Resume Station to complete electronic applications, resume referrals and to obtain information on occupations.
• Annually organize the Job Fair for University Students.
• Provide opportunities for participating in group recruitments and information booths/tables from visiting companies.
• Provide information about and preparation for participation in internships and research.
• Work in a team with student leaders and the student organizations.

Relationships with Industry

• Act as liaison among students, companies and professors.
• Facilitate the presence of companies at the Institution and address their need for qualified personnel.
• Publish employment opportunities throughout the campus.
• Refer resumes electronically.
• Make presentations before students with information booths/tables and sessions.
• Organize group recruitments.
• Refer candidates for internships in industry.
Relationships with the Academic Units

- Coordinate company meetings and visits with representatives of the Academic Units.

- Facilitate statistics on job opportunities and students who have been employed. These statistics are presented by academic department for the accreditation processes.

- Promote the academic programs and their curriculums among the companies.

DISABLED UNIVERSITY STUDENT SERVICES OFFICE

The primary objective of the Disabled University Student Services Office (OSEUI, Spanish acronym) of the University of Puerto Rico at Bayamón is to offer essential services directed toward orienting and addressing the different needs of disabled populations and contributing to their intellectual, emotional and socio-cultural development. This office seeks to foster the greatest amount of academic independence with the goal of facilitating the complete integration of this student population to the remaining university community. Among other support services are the following: orientation and counseling, help in subjects, note takers, readers, interpreters, equipment, and technological assistance programs to increase and maintain the academic capacity of the disabled student.

To receive these services, all interested students must complete a corresponding application form and present medical evidence from a specialist certifying the disability. The OSEUI is in charge of granting reasonable accommodations to these students; therefore, each student must present evidence of the disability and apply at the beginning of each semester for the reasonable accommodations needed for his/her academic performance.

SERVICES FOR VETERANS, MEMBERS OF THE RESERVE & THE NATIONAL GUARD OF PUERTO RICO

Those students of the University of Puerto Rico who are veterans of the United States Armed Forces (as defined by the United States Administration of Veteran Affairs) and who receive benefits of financial aid through the law known as the Montgomery G.I. Bill must abide by the requisites established by this bill. Veterans will receive benefits up to a maximum of four years for bachelor’s degree programs and two years for associate’s degree. If they exceed the time allotted, they lose eligibility for these benefits. This norm does not apply to federal aids, such as, Pell Grant or others where the eligibility is established by the Institution.
However, these students have the right to choose simultaneously for aid provided by the Title IV programs. Once the benefits corresponding to the Montgomery G.I. Bill are consumed, veterans may continue receiving the benefits of the Title IV financial aid programs until the maximum of 150% of the time allowed by the United States Department of Education is used.

**Veteran Services**

Service to veterans, as well as their dependents, in respect to the educational benefits offered by the Administration of Veteran Affairs, is offered by the Registrar’s Office. It is necessary for all veterans or dependents and National Guard veterans who attend the UPRB inform their registration every semester (August, January and June) to the Veteran’s Service Office of the UPRB to begin the process of receiving benefits from the Administration of Veteran Affairs. Law No. 203 December 14, 2007 – “Bill of Rights Puerto Rican Veterans XXI Century”

On December 14, 2007, the Senate of Puerto Rico approved Law 23 known as the Carta de Derecho del Veterano Puertorriqueño del Siglo XXI (Bill of Rights Puerto Rican Veterans XXI Century), which was made effective immediately. To receive benefits stated in this law, the individual must be a veteran or child or spouse of a veteran who has exhausted his/her right to study under the federal legislation or a veteran who does not have study benefits under federal legislation. Benefits are received under the condition that the individual is one of the following:

A. Veteran – must submit evidence of veteran status. For this, the student should present the Form DD-214 Certification of Release or Discharge under honorable conditions.

B. Child of a veteran – must present his/her birth certificate and the veteran’s DD-214 Form.

C. Spouse – must present the Marriage Certificate and the veteran’s DD-214 Form.

D. Surviving children and/or spouse of soldier who died in combat – must present the Birth, Marriage and Death certificates (official Death Certificate which indicates that the death was service connected).

Students should also submit evidence indicating that their study benefits under federal legislation have been exhausted, and they no longer have the right to receive them. If students meet any of these requirements, they should hand in the required documents to the Official in charge of certifying Veterans at the Registrar’s Office in order to receive benefits under the aforementioned law.
The Learning Resources Center (CRA, Spanish acronym) of the UPRB is an academic department with the mission of supporting the teaching-learning process. It is located in a modern building, which was inaugurated in the summer of 1998, and includes the Library and Audiovisual Department installations.

Its personnel orient users on the utilization of information resources and equipment for the preparation of coursework materials. The library personnel also guides in the development of skills for the effective use of learning resources. The Learning Skills Program (Programa de Destrezas de Aprendizaje) holds activities for the instruction and direct contact with cultural, educational, recreational and electronic materials. Students acquire the necessary skills in the appropriate use of the information resources for professional development and for learning.

Since 1987 the CRA automated its services and processes through the Horizon program. The University’s students, faculty and non-teaching personnel have access to articles in professional publications and newspapers through online data bases, either onsite or remotely.

The services offered by the center include: references; periodical publications; book circulation; bibliographic resources on reserve; Puerto Rican Collection; children and young adult book collection; Patents and Trademarks Library; interlibrary loans; cultural activities, such as exhibitions and lectures; Learning Skills Program; computers with Internet access; and photocopiers and the payment cards used for copies.

The Audiovisual Department has an ample collection of recordings, videos, film strips and movies. Services offered include the production of posters, photographs and recordings, among others. The Department also has other facilities, such as, photography laboratory, television studio, graphic arts section and lecture rooms.

The CRA gives its services to the public during the following schedule: Monday to Thursday, from 7:00 a.m. to 10:00 p.m.; Friday from 7:00 a.m. to 4:30 p.m.; Saturday from 8:00 a.m. to 4:00 p.m.; and Sundays from 12:00 p.m. to 4:00 p.m. The CRA is closed during holidays.
The University of Puerto Rico at Bayamón (UPRB) offers bachelor’s degrees in the following disciplines:

- Business Administration with majors in Accounting, Finance, Management and Marketing
- Computer Sciences
- Natural Sciences with majors in Human Biology and General Biology
- Electronic Engineering Technology
- Special and Elementary Physical Education
- Preschool and Elementary Education
- Materials Management
- Office Systems

In addition, the UPRB offers associate degrees in the following:

- Office Systems (presently on moratorium)
- Surveying, Roads and Structural Civil Construction Technology
- Civil Engineering Technology - Construction
- Industrial Engineering Technology
- Instrumentation Technology
- Electronics Technology

The UPRB also offers articulated programs with different units or campuses of the University of Puerto Rico system (Río Piedras, Carolina, Cayey and Mayagüez). This means that the student may complete the first two years of studies at Bayamón and later transfer to the unit or campus that will grant the academic degree. In this way, students are guaranteed transfer without extending the time established for completion of the selected program.

The academic departments of the UPRB establish the requisites for obtaining a degree. It is important for students to know the regulations and be responsible for completing the academic requirements within each program’s established time period. The courses, programs and requirements described in this Catalog may be eliminated, modified or changed at any moment by the University. Changes made will apply prospectively, except in the case of an involuntary error.

This Catalog summarizes and describes the requisites students must complete to obtain the corresponding degree. The UPRB reserves the right to add, amend, change and revoke, without prior notice, any information of the academic requirements and regulations published in the Catalog.
BUSINESS ADMINISTRATION DEPARTMENT
Bachelor’s Degree in Business Administration

The Bachelor’s Degree in Business Administration consists of four academic majors: Accounting, Finance, Management and Marketing. The Program provides students with the opportunity to specialize in their area of preference in addition to obtaining a general preparation in business administration. Our graduates may occupy accounting, finance, management and marketing positions in government agencies, public corporations or private businesses.

The Bachelor’s degree is designed to help our students develop competencies consistent with the Institutional goals. The competencies to be developed are problem solving and decision making (analytical skill); information and research skills; business ethics; interpersonal relations; management skills; effective communication skills (oral and written in English and Spanish); entrepreneurship; and technical/functional competencies of the major.

The Bachelor’s degree program in Business Administration is accredited by the Accreditation Council for Business Schools and Programs (ACBSP).

The following describes the curriculums for each major of the Bachelor’s degree in Business Administration:

ACCOUNTING (0302)

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### SECOND YEAR

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**Second Semester**

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**Cont Total Credits**: 17

**Total Credits**: 16

**Notes**:  
- First Year English Course will be assigned according to score obtained on the CEEB (College Board Entrance Exam).  
- **Courses in the major.**  
- ***Students may take the internship (CONT 4026) as a free elective (4 credits).**
## FINANCE (0304)

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**TOTAL CREDITS: 128–129**

* First Year English Course will be assigned according to score obtained on the CEEB (College Board Entrance Exam).

** Courses in the major.

### MANAGEMENT (0305)

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**TOTAL CREDITS: 128–129**

* First Year English Course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam).

** Courses in the major.

### Marketing (0311)

### First Year

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**TOTAL CREDITS: 127–128**

*First Year English Course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam).

** Courses in the major
UNIVERSITY OF PUERTO RICO AT BAYAMÓN

COURSE DESCRIPTIONS

ADMI 3005
ADMINISTRATIVE THEORY
CREDITS: 3
CONTACT HOURS: 3
The study of management as a coordination process, as well as its functions and procedures. The different approaches to the study of management with special emphasis on theory development by behavioral scientists. Principles of responsibility, authority, organization, and ethics; problems with centralization and decentralization. Human behavior in an organization and group behavior. The relationships amongst individuals and groups in the administrative processes of planning, organizing, directing, and controlling are emphasized.

ADMI 4007
STRATEGIC MANAGEMENT
CREDITS: 3
CONTACT HOURS: 3
Pre-requisite: MERC 3115
An introduction to a conceptual, comprehensive, and decision-making scheme that will help the company evaluate its current condition and analyze environmental factors that may have an effect on it, including competition. This information will translate into objectives and strategies that will help the company compete effectively in its industry. The course will emphasize management’s responsibility for formulating programs that will maintain the company’s competitive edge in the long run.

ADMI 4019
SOCIAL RESPONSIBILITY OF COMPANIES
CREDITS: 3
CONTACT HOURS: 3
The study of corporate entities’ responsibilities with the social environment. Students will engage in a detailed study of political, legal and economic patterns of behavior and social pressures that lead organizations to contribute to the improvement of the social ecosystem.

BASE 2007
ANALYSIS OF FINANCIAL STATEMENTS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CONT 3006
Course is designed to develop analytical ability in finance so that the analysis of financial information that banks and credit institutions need to evaluate can be better understood. It includes the return on assets, recovery, cost-volume-profit analysis, financial position, working capital, decrease or increase in non-current assets, investments, changes in financial positions, cash analysis, basic analytical procedures, and horizontal and vertical analysis and ratios.

CONT 3005
INTRODUCTION TO BASIC ACCOUNTING I
CREDITS: 4
CONTACT HOURS: 4
The study of the basic accounting principles, concepts and procedures. It covers the accounting cycle of buying/selling and service-type businesses. It emphasizes the valorization, classification, disclosure, administration, and control of the following assets: cash, marketable securities, accounts receivable, inventories, and overhead expenses.

CONT 3006
INTRODUCTION TO BASIC ACCOUNTING II
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: CONT 3005
A continuation of the study of basic accounting principles, concepts and procedures of partnerships and corporations. The course covers the organization and administration of partnerships, corporations and their liquidation. Emphasizes legal aspects and their effects on the capital and profit distribution. It also covers bond emission financing and corporation investments as well as the comparison and analysis of financial statements. Manufacturing is briefly discussed.
CONT 3007
INTERMEDIATE ACCOUNTING I
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: CONT 3006
The study and analysis of accounting principles and procedures related to adjustment entries and recording and valorization and asset disclosure in financial statements.

CONT 3008
INTERMEDIATE ACCOUNTING II
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: CONT 3007
A continuation of the study and analysis of accounting principles and procedures related to fixed assets, corporate capital, and corrections of prior years. Also includes the study of the impact of price-level changes on financial statements.

CONT 3010
INTERMEDIATE ACCOUNTING III
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: CONT 3008
PRE-REQUISITE: OR CONT 4016
Conclusion of a comprehensive study of financial accounting topics, which began with Intermediate Accounting I and II. The course emphasizes the following areas: treatment and appropriate reporting of investments, income tax, leasing, pensions and benefits. Other areas emphasized include accounting changes and error analysis.

CONT 3025
COST ACCOUNTING I
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: CONT 3006
Principles of cost accounting, interpretation and analysis of manufacturing costs. The systems of specific costs and processing costs are studied. Other topics include methods used for developing criteria for determining costs, routine methods for compiling data for costs, forms and records used, and remuneration systems and bases. Managerial analysis and control of production costs are emphasized.

CONT 3035
ADVANCED ACCOUNTING
CREDITS: 4, CONTACT HOURS: 4
PRE-REQUISITE: CONT 3008
The study of the theory and discussion of special problems related to partnerships, installment sales, consignments, financial statements, branches, estates and trusts. Principles of government and institutional accounting are also discussed.

CONT 3115
COMPUTARIZED ACCOUNTING
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITES: CONT 3006 & SICI 4008
Through this course students develop the skills needed to carry out basic computerized accounting procedures, applying computer modules integrated with the accounting cycle.
CONT 4005  
**COST ACCOUNTING II**  
**CREDITS:** 4  
**CONTACT HOURS:** 4  
**PRE-REQUISITE:** CONT 3025  
The study of the different ways of applying cost accounting to achieve effective planning and control of costs. These include control of fixed and variable budgets, standard and manufacturing costs, variable costs, analysis of marginal income, and analysis of distribution and administration costs. The course emphasizes inventory controls and procedures, and labor and indirect costs. It also covers differential costs, the usefulness of graphs for presenting cost information and alternatives available, and a series of analytical techniques that accountants need to provide quantitative advice to management.

CONT 4020  
**NON-PROFIT ACCOUNTING**  
**CREDITS:** 4  
**CONTACT HOURS:** 4  
**PRE-REQUISITES:** CONT 3007 Y CONT 3008  
The course focuses on theory and practice of current governmental accounting in hospitals, universities and other nonprofit organizations. It also discusses standards and procedures of financial and operational auditing of government entities.

CONT 4026  
**ACCOUNTING INTERNSHIP**  
**CREDITS:** 4  
**CONTACT HOURS:** 4  
**PRE-REQUISITES:** CONT 3008, CONT 3025, CONT 4039 OR CONT 3009  
Practical internship at the workplace where the student will have the opportunity to apply the theoretical concepts acquired in the classroom. The student will also be exposed to situations that can only be experienced in a work environment, and which will provide the self-confidence and emotional maturity needed to excel professionally. The course will also help students decide on which area of accounting they would like to develop their professional practice.

CONT 4030  
**MODERN ACCOUNTING INFORMATION SYSTEMS**  
**CREDITS:** 4  
**CONTACT HOURS:** 4  
**PRE-REQUISITES:** CONT 3008, CONT 3025, CONT 4017 Y SICI 4008  
The course focuses on a discussion of accounting as an integrated system of compiling, processing and communicating information for business decision making. It includes the study of the impact of technological advancements on financial and management accounting, and training in computer programs for general use in business, the Internet and electronic mail.

CONT 4036  
**MANAGERIAL ACCOUNTING**  
**CREDITS:** 4  
**CONTACT HOURS:** 4  
**PRE-REQUISITE:** CONT 3006  
The course emphasizes the need for management to know the uses of accounting and techniques used, and their importance for managerial decision-making. The student is introduced to basic managerial functions in areas, such as: planning, organization, guidance, supervision and controls in business activities.
CONT 4038
FEDERAL INCOME TAX
CREDITS: 4
CONTACT HOURS: 4
The course includes an analysis of federal income tax law. Includes: gross income, allowable deductions, capital assets, withholdings, credits for foreign taxes paid, and determining the amount to be paid.

CONT 4039
PUERTO RICO INCOME TAX (CONT 3009)
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: CONT 3006
The course analyses the Puerto Rico Income Tax Act of 1954 as amended. It covers the following topics: regulations covering gross income inclusions and exclusions, allowable deductions, estimated income, flexible depreciation, sales or exchange of capital assets, credits for dependents, personal exception and calculating the tax payment.

CONT 4047
INTERNATIONAL ACCOUNTING
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITES: CONT 3006, FINA 3007 Y ECON 3022
The course covers fundamental knowledge about the international environment and the context in which accounting is practiced worldwide. It includes comparing the accounting principles of several countries, efforts to harmonize the generally accepted principles of accounting and a discussion of worldwide events from the perspective of the accountant.

DEME 4005
BUSINESS LAW
CREDITS: 4
CONTACT HOURS: 4
Study and analysis of legislations, doctrines and jurisprudence, which regulate business transactions in Puerto Rico. It also addresses the integration of these norms as part of the Puerto Rican judicial system which includes topics and doctrines of the United States and civil laws.

ECON 3021
BUSINESS ECONOMICS I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CONT 3006
Introductory course that examines the scientific nature and methodology of economics. Fundamental aspects of economic systems and economic problems are discussed. The principles of supply and demand are discussed in detail as well as their influence on determining price and production level in each of the product markets and productive factors.

ECON 3022
BUSINESS ECONOMICS II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: ECON 3021
Continuation of the introductory business economics course. The course includes topics such as: national income and its measurement, analysis of the macroeconomic variables and their influence on determining levels of employment, production, etc. It also addresses monetary and banking institutions, monetary policies, public finance, fiscal policy, and important aspects in the development of economic development and international economics.
ESTA 3001
BUSINESS STATISTICS I
CREDITS: 3
CONTACT HOURS: 3
The course is an introduction to business statistics, mainly descriptive statistics. Topics include frequency distribution, measures of central tendency, dispersion methods, numbers, time series, index, and probability theory.

ESTA 3002
BUSINESS STATISTICS II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: ESTA 3001
Continuation of Business Statistics I. Includes inductive statistics, sampling theories, tests of hypothesis, regression and variance analysis, and simple and multiple correlations. It also addresses aspects of statistical inference related to business decision making.

FINA 3005
INTRODUCTION TO INSURANCE (FINA 1005)
CREDITS: 3
CONTACT HOURS: 3
Discussion of problems of risk and their impact on the individual, the economy, and society. The course covers different techniques that may be used in risk management, dealing with insurable risk through insurance, and the relationship between the problem of risk and public policy. Analysis and solution of situations involving risk are also studied.

FINA 3006
BUSINESS FINANCE
CREDITS: 3
CONTACT HOURS: 3
The study of the process of providing, managing and distributing funds in businesses. The course addresses the different types of businesses with special emphasis on modern corporations and analyzes the steps through which a corporation is promoted, organized, expanded and liquidated.

FINA 3007
MONEY & BANKING
CREDITS: 4
CONTACT HOURS: 4
The study of the banking system in its diverse phases. The monetary system of the United States is analyzed. Commercial banking and its operations are analyzed in detail. The course also covers an analysis of fiscal and monetary controls, the international monetary fund and its special system of circulating bills of exchange, as well as its impact on the commercial balance of countries.

FINA 4005
LIFE & HEALTH INSURANCE (BASE 4005)
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: FINA 3005 OR FINA 1005
The course covers insurance techniques as means of protecting individuals against economic loss due to mental or physical incapacity, discussion of benefits, risk situations, rates and legal considerations.
FINA 4009
CREDIT COLLECTION
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: BASE 2007
The study of the nature, importance, management, investigation and analysis of credit, and control and operations of receipts. The course includes an explanation of the role of credit and collection in modern companies, fluctuations in business activities, and the national economy.

FINA 4015
BANK ADMINISTRATION
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: FINA 3007
The study of the financial policies of a particular bank in contrast with the banking system. Emphasis is placed on bank policies, not on routine procedures. Analysis of the sources of bank funds with emphasis on the use of these funds. A brief historical background on the development of modern banking institutions is also included.

FINA 4016
REAL ESTATE (FINA 1006)
CREDITS: 3
CONTACT HOURS: 3
A basic course on the principles and practices of the real estate business and the socioeconomic forces that influence it.

FINA 4037
INVESTMENTS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: FINA 3006
Analysis of the relationship between risk and yield in investments, while emphasizing the importance of portfolio theories, and their roles and functions in the world of investment. The course also analyzes securities and bonds in financial markets, as well as the role of government and its relationship with the world of investment.

FINA 4039
PUBLIC TREASURY (BASE 2006)
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: FINA 3006
The study of allocation, distribution and stabilization functions in the modern state and its effects on business; analysis of budget policies of the public sector from the point of view of income and expenditures, theories of taxation, public expenses, incidence and budget effects, public debt and its effects on decision making in the private sector.

FINA 4050
FINANCIAL MARKET
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: FINA 3006 & FINA 3007
Analysis of the structure of financial markets and application of the latest monetary and economic theories. Includes, among others, the following topics: the study of the roles of theory and financial markets, the implications of the structure of financial markets for their efficient functioning, the interrelation between real and financial variables in the economic activity and related topics.

GERE 4035
ANALYSIS OF THE DECISION MAKING PROCESS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: ESTA 3002
An analysis of the decision-making techniques used by management when visualizing problems, objectives, and administrative strategies, and the evaluation of their efficiency. In the analysis and discussion of problems mathematical models of certainty and uncertainty are examined.
The study of modern managerial methods applied to manufacturing businesses. The course addresses problems related to purchases, inventory, production control and quality control, price fixing, salary and incentive administration, production patterns, physical plant design, and time and motion study.

**MERC 3115**  
**MARKETING**  
**CREDITS:** 3  
**CONTACT HOURS:** 3  
Introductory course in the study of the marketing process as a management function. It emphasizes the analysis, planning, implementation, organization and control of marketing programs.

**MERC 4005**  
**INTERNATIONAL MARKETING**  
**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITE: MERC 3115**  
The study of the problems in marketing posed by national barriers, as well as problems in various markets of different nations. The situation of domestic firms that export, as well as those businesses that assemble or produce merchandise in foreign markets are analyzed. The course also covers the requirements for distribution of goods and services from wholesalers to multinational companies.

**MERC 4006**  
**THE ART OF SELLING (MERC 2005)**  
**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITE: MERC 3115**  
The course is structured so that the student will learn modern selling techniques emphasizing presentation, how to deal with clients, closing a deal and the role of sales in the economic process. The course also aims to develop a positive attitude towards the selling profession.

**MERC 4007**  
**MARKETING RESEARCH**  
**CREDITS:** 3  
**CONTACT HOURS:** 3  
The study of the necessary functions for gathering, classifying, presenting and systematically analyzing data in a precise and objective manner on problems related to the marketing of goods and services.

**MERC 4015**  
**DEVELOPING A MARKETING FOCUS IN A BUSINESS ENVIRONMENT**  
**CREDITS:** 4  
**CONTACT HOURS:** 4  
This course exposes students from areas outside business administration the opportunity to learn about the marketing theory and how it is applied to the development of a business. Students will learn to develop their own business from the initial idea to its opening day. The course touches upon the various activities that are carried out in developing a business; such as, interior and exterior design, selection of target market, and determination of needs, purchase steps, and promotion of the business.

**MERC 4027**  
**PUBLICITY (MERC 2006)**  
**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** MERC 3115  
Analysis, design, implementation and control of advertising programs with an emphasis on the design and evaluation of creative strategies.
MERC 4036  
PUBLIC RELATIONS  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITES: MERC 3115 & ADMI 3005  
The course includes the presentation and study of public relations as a professional activity for the promotion of business. It includes identification of groups which the business regards as significant. The empirical viability of the public relations program, its development and evaluation, and the means used for obtaining and promoting a positive image of the company in relation to the community or market it serves.

MERC 4215  
MANAGEMENT OF RETAIL SALES  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: MERC 3115  
Development and implementation of marketing strategies in the context of a retail sales business. The course emphasizes the effective analysis of the business’ competition and the marketing strategies that must be implemented in response to changes in competition.

MERC 4216  
SALES PRINCIPLES & PRACTICES  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: MERC 3115  
The study of the theory and practice of personal sales. The course centers on the study of the behavior of the salesperson and the consumer, external factors that directly or indirectly affect the sales process and effective sales strategies. It introduces students to personal sales methods and techniques, and verbal and nonverbal communication.

MERC 4217  
CONSUMER BEHAVIOR  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: MERC 3115  
Analysis of current theories of consumer behavior in business. Includes the study of methods used to examine this conduct, which will help in marketing decision-making processes.

MERC 4219  
INTERMEDIATE MARKETING  
CREDITS: 3  
CONTACT HOURS: 3  
This course is part of the series of electives toward the marketing major of the Bachelor’s degree program. It covers the creation of policies, strategies, and tactics used in marketing and adaptation of management functions to marketing related to planning, organization, control and guidance in terms of prices, sales promotion, and logistics.

MERC 4235  
MARKETING INTERNSHIP  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITES: MERC 3115, MERC 4219, MERC 4006 OR MERC 2005, MERC 4027 OR MERC 2006  
Practical experience in applying the theoretical concepts acquired in the classroom related to effective marketing management in organizations; 180 hours of work are required in an assigned center. Counseling and supervision by professors will help students incorporate into the job market.
REHU 4405
ADMINISTRATION OF HUMAN RESOURCES (REHU 2006)
CREDITS: 3
CONTACT HOURS: 3
Introduction to the diverse strategies, practices, procedures and legal aspects related to effective human resources administration in an organization. The course includes the study of theories, methods and techniques applied to human resources management in domestic and global economic contexts.

REHU 4406
LABOR-MANAGEMENT RELATIONS (REHU 2007)
CREDITS: 3
CONTACT HOURS: 3
Analysis of labor-management relations in Puerto Rico and the United States from their origins to the present. The course will center on the study of the parties involved in labor-management relations, as well as the strategies used to carry out their functions. It will introduce the student to the basic processes in collective bargaining, the administration of collective agreements and their relationship with the non-union sector.

REHU 4407
COMPENSATION SYSTEMS
CREDITS: 3
CONTACT HOURS: 3
An introduction to the design, implementation and administration of an effective compensation system with special emphasis on organizational diagnosis in terms of the internal and external influences that will play a role in the design and administration of a compensation system.

REHU 4408
ORGANIZATIONAL BEHAVIOR
CREDITS: 3
CONTACT HOURS: 3
Introduction to the fundamental concepts, theories and processes in the study of individual, group and organizational behavior with an emphasis on the organization as an open system.

REHU 4409
HUMAN RELATIONS (REHU 2005)
CREDITS: 3
CONTACT HOURS: 3
The study and objective presentation of the nature of human relations in the industry. The course covers the influence of the individual personality, formal and informal organization, organizational communication, leadership and supervision of group dynamics, and the participation of employees and unions on the overall climate of the existent interpersonal relationships in the organization. The course will address some of the most common human relations problems in organizations through the discussion of case studies and group work.

REHU 4419
LABOR LAW & JURISPRUDENCE (REHU 4427)
CREDITS: 3
CONTACT HOURS: 3
Analysis of social and labor legislation (local-federal) and its impact on the management decision-making process. Includes the study and analysis of jurisprudence of the Supreme Court of Puerto Rico and its effects on organizations. The course emphasizes the importance of labor law, in particular protective labor law legislation.
REHU 4426
COLLECTIVE BARGAINING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: REHU 4406 OR REHU 2007
The historical background of labor-management relations is discussed. Topics include collective bargaining and its role in modern society; general principles and practices of collective bargaining in the public and private sectors; problems in collective bargaining; content, strategies, and steps of collective bargaining discussions taken by management and labor unions; and the discussion and administration of agreements including their interpretation, implementation, solution of complaints and grievances, and arbitration.

REHU 4450
INTERNSHIP HUMAN RESOURCES MANAGEMENT
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: REHU 4405, REHU 4407 & REHU 4419
CO-REQUISITE: REHU 4408
Practical experience with the theory and concepts learned in the classroom related to effective management of human resources is put into practice through 180 hours of work in a designated organization. Faculty consultation and supervision offered will help the student join the working world.
The Biology Department offers two Bachelor’s degrees in Natural Sciences: General Biology and Human Biology.

**Bachelor’s degree in Natural Sciences majoring in Human Biology**
This Bachelor’s Degree offers the academic fundamentals to pursue graduate or professional studies in health related areas. The program’s curriculum incorporates a biosocial approach that encourages students to work in professions related to human service.

**Bachelor’s degree in Natural Sciences majoring in General Biology**
This Bachelor’s Degree offers the academic fundamentals to pursue graduate or professional studies in basic areas of biology. The program’s curriculum integrates an investigative and practical approach that encourages students to work in professions related to scientific research.

**BACHELOR’S DEGREE IN NATURAL SCIENCES MAJORING IN HUMAN BIOLOGY (1225)**

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THIRD YEAR

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TOTAL CREDITS: 134

*First Year English Course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam).

**Second year English course.

1. If students passed INGL 3101-3102 (Basic English I-II) during their first year, they register in INGL 3201-3202.
2. If students passed INGL 3103-3104 (Intermediate English I-II) or INGL 3011-3012 (Honor English) during their first year, they register in INGL 3221-3222.
3. If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.

As a requirement for graduation, students must pass major courses with a minimum of C.
# Bachelor's Degree in Natural Sciences Majoring in Biology (1226)

## First Year

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**Sub-Total Credits:** 17

## Second Year

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<td>BIOL 3425</td>
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**Sub-Total Credits:** 17

## Third Year

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**Sub-Total Credits:** 17
FOURTH YEAR

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<td>HIST 3241</td>
<td>History of Puerto Rico I</td>
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<td>Cellular Molecular Biology</td>
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<td>Cellular Molecular Biology Lab</td>
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<td>FILO 4028</td>
<td>Bioethics</td>
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**TOTAL CREDITS: 134**

* First year English course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam).
* *Second year English course.
1. If students passed INGL 3101-3102 (Basic English I-II) during their first year, they register in INGL 3201-3202.
2. If students passed INGL 3103-3104 (Intermediate English I-II) or INGL 3011-3012 (Honor English) during their first year, they register in INGL 3221-3222.
3. If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.
As a requirement for graduation, students must pass major courses with a minimum grade of C.
BIOL 3010  
**CELLULAR MOLECULAR BIOLOGY**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITES: BIOL 3012-3014 & QUIM 3031-3033  
CO-REQUISITE: BIOL 3020  
An interpretation of cell function as a result of its properties and structural components. The course emphasizes the scientific methods used in deriving the relationship between structure and cellular function.

BIOL 3011  
**GENERAL BIOLOGY I**  
CREDITS: 4  
CONTACT HOURS: 3  
CO-REQUISITE: BIOL 3013  
A study of the basic principles that govern organisms and their parts: live matter, the cell, photosynthesis, respiration, mitosis, meiosis, genetics, and evolution.

BIOL 3012  
**GENERAL BIOLOGY II**  
CREDITS: 4  
CONTACT HOURS: 3  
PRE-REQUISITE: BIOL 3011-3013  
CO-REQUISITE: BIOL 3014  
A study of variety in the animal and plant kingdoms and their evolution, reproduction, growth, nutrition, transportation, regulation, and ecology.

BIOL 3013  
**GENERAL BIOLOGY LABORATORY I**  
CREDITS: 0  
CONTACT HOURS: 3  
CO-REQUISITE: BIOL 3011  
Compliments the General Biology I course BIOL 3011.

BIOL 3014  
**GENERAL BIOLOGY LABORATORY II**  
CREDITS: 0  
CONTACT HOURS: 3  
CO-REQUISITE: BIOL 3012  
Compliments the General Biology I course BIOL 3012.

BIOL 3018  
**DEVELOPMENTAL BIOLOGY**  
CREDITS: 4  
CONTACT HOURS: 3  
PRE-REQUISITES: BIOL 3012-3014  
CO-REQUISITE: BIOL 3028  
The study of the patterns, developmental processes and their control in different plants and animals. Includes a discussion of special aspects of the developmental process.

BIOL 3020  
**MOLECULAR CELLULAR BIOLOGY LABORATORY**  
CREDITS: 0  
CONTACT HOURS: 3  
PRE-REQUISITES: BIOL 3012-3014 & QUIM 3031-3033  
CO-REQUISITE: BIOL 3010  
Laboratory practice to complement and supplement BIOL 3010. Emphasis on the use of techniques for molecular and cellular analysis.

BIOL 3027  
**TEACHING & LEARNING TECHNIQUES IN BIOLOGY**  
CREDITS: 3  
CONTACT HOURS: 4  
PRE-REQUISITES: CIBI 3001 OR BIOL 3011 & CIBI 3002 OR BIOL 3012  
Study and practice of teaching and learning techniques for students who are interested in working as tutors in the area of biology.

BIOL 3028  
**DEVELOPMENTAL BIOLOGY LABORATORY**  
CREDITS: 0  
CONTACT HOURS: 3  
PRE-REQUISITES: BIOL 3012-3014  
CO-REQUISITE: BIOL 3018  
Provides hands-on experiences illustrating developmental patterns and experimental analyses of the processes involved.

BIOL 3108  
**UNDERGRADUATE RESEARCH**  
CREDITS: 2  
CONTACT HOURS: 6  
PRE-REQUISITE: BIOL 3012 - 3014  
Supervised research in the area of biological science, which gives the student training and experience in the application of the scientific method and investigation.
GENERAL ECOLOGY LABORATORY
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011-3012
CO-REQUISITE: BIOL 3116
Through trips to places of ecological interest, the course studies different types of communities and the ecological principles and concepts that apply to them.

BIOL 3116
GENERAL ECOLOGY LABORATORY
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011-3012
CO-REQUISITE: BIOL 3115
Through trips to places of ecological interest, the course studies different types of communities and the ecological principles and concepts that apply to them.

BIOL 3155
HUMANITY & ITS ENVIRONMENT
CREDITS: 3
CONTACT HOURS: 3
Course in environmental science designed to provide the student with an understanding of humanity’s interdependence with the physical and social environment in addition to highlighting the student’s responsibility towards this environment.

BIOL 3305
GENETICS
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011-3012
CO-REQUISITE: BIOL 3306
A study of the fundamental principles of genetics using molecular biology concepts. Course includes identification, mechanisms of action and transmission of genetic material. The following topics are studied in detail: physical structure of a gene, genetic behavior in individuals and populations, the concept of linkage, and the genetic control of metabolism and development.

BIOL 3306
GENETICS LABORATORY
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011-3012
CO-REQUISITE: BIOL 3305
The course centers on techniques used to establish the fundamental principles of heredity, including classical, population and molecular genetics.

MICR 3345
MICROBIOLOGY FOR NURSING STUDENTS
CREDITS: 3
CONTACT HOURS: 3
Includes general aspects of immunology, physiology and genetics of microorganisms. Also discussed are the most important pathogen organisms among bacteria, fungus, viruses and protozoa as a special focus directed towards the needs of students in nursing.

BIOL 3417
PLANT BIOLOGY
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011-3012
CO-REQUISITE: BIOL 3418
A study of the general concepts of the taxonomy, anatomy, physiology and ecology of plants.

BIOL 3418
PLANT BIOLOGY LABORATORY
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011-3012
CO-REQUISITE: BIOL 3417
A study of cell structure and plant tissues; the structure and function of the root, stem, leaf and reproduction organs, such as, the flower, fruit and seed; and photosynthesis, growth and development. The classification and nomenclature of vascular and non-vascular plants are studied.
BIOL 3425
ANIMAL BIOLOGY
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011-3012
CO-REQUISITE: BIOL 3426
Biology of the different animal groups with emphasis on their morphology and physiology, variety, reproduction, ecology, behavior, evolution and taxonomy.

BIOL 3426
ANIMAL BIOLOGY LABORATORY
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011 & BIOL 3012
CO-REQUISITE: BIOL 3425
Course taken with BIOL 3425. The study of preserved and live specimens of the different animal groups with emphasis on the dissection and study of their distinctive structures.

BIOL 3705
GENERAL MICROBIOLOGY
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011-3013 & BIOL 3012-3014
CO-REQUISITE: BIOL 3707
The study of morphology, metabolism, growth, control, genetics, taxonomy, parasite-host relations, immunology and aspects applied to microbiology.

BIOL 3707
MICROBIOLOGY LABORATORY
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011-3013 & BIOL 3012-3014
CO-REQUISITE: BIOL 3705
The study of the main microbiology techniques and their significance in the study of microorganisms. Application of molecular and genetic engineering techniques, as well as the development of research skills in the laboratory.

BIOL 3735
HUMAN PHYSIOLOGY
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3012-3014
CO-REQUISITE: BIOL 3736
The study of the main physiological principles of the human body.

BIOL 3736
HUMAN PHYSIOLOGY LABORATORY
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3012-3014
CO-REQUISITE: BIOL 3735
Complement to the BIOL 3735 course.

BIOL 3740
BIOMETRY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3026 O 3172 & SICI 3028 O 3017
The study of statistical techniques applicable to biology. Emphasis on descriptive statistics, regressions, correlations, test of hypothesis, analysis of frequency and variance, use of non-parametric tests and the use of the manual calculator and the microcomputer as tools for the rapid processing of data.

BIOL 3791
HUMAN BIOLOGY III
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011-3012
CO-REQUISITE: BIOL 3793
The study of histology, the skeletal system, joints, and the muscular and nervous systems of the human body.

BIOL 3792
HUMAN BIOLOGY IV
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3791-3793
CO-REQUISITE: BIOL 3794
The study of the nervous, endocrine, cardiovascular, respiratory, excretory, reproductive and immunological systems of the human body.
BIOL 3793
HUMAN BIOLOGY III LABORATORY
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3011-3012
CO-REQUISITE: BIOL 3791
Complement to the BIOL 3791 course.

BIOL 3794
HUMAN BIOLOGY IV LABORATORY
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITE: BIOL 3791-3793
CO-REQUISITE: BIOL 3792
Laboratory for the BIOL 3792 course.

BIOL 3909
BIOLOGY SEMINAR
CREDITS: 0
CONTACT HOURS: 1
Seminar oriented towards literary research of scientific knowledge. Students will develop an investigative report on an assigned topic, which they will present and later discuss with their peers. Authorization from the Biology Department director is necessary to register for the course.

ANAT 4011
ANATOMY & HUMAN PHYSIOLOGY I
CREDITS: 4
CONTACT HOURS: 3 & 3
LABORATORY HOURS
PRE-REQUISITE: CIBI 3001
This course is directed for students studying professions related to health. The course seeks to integrate the basic anatomy and human physiology content necessary to comprehend the human organism and in this way prepare students to understand other basic subjects and clinical experiences in the curriculum. The basic concepts of the structure and function of each of the systems of the human body is presented in a balanced and integrated manner. Basic cellular biology and histology concepts are included, as well as the skeletal muscle and nervous systems. The course objectives will be achieved through lectures, demonstrations and laboratory exercises.

ANAT 4012
ANATOMY & HUMAN PHYSIOLOGY II
CREDITS: 4
CONTACT HOURS: 3 & 3
LABORATORY HOURS
PRE-REQUISITE: ANAT 4011
This course, a continuation of Anatomy and Human Physiology I (ANAT 4011), is directed for students studying professions related to health. It seeks to present basic content related to the areas of hematology, cardiovascular, respiratory, body fluids, kidneys and reproductive system. Their normal functioning through an integrated and balanced manner will be described, so students may apply this knowledge in clinical areas and related courses. The course objectives will be achieved through lectures, demonstrations and laboratory exercises.

BIOL 4033
BIOSOCIAL & ENVIRONMENTAL TOPICS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: BIOL 3012-3014
Analysis of a current topic that constitutes a biological, social and environmental risk and protection factors for humans. The topic will be examined considering the available human services.
BIOL 4041
HUMAN GENETICS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: BIOL 3012-3014
The study of concepts of human genetics and genetics technology for the detection, treatment, and prevention of hereditary illnesses. The origin and magnitude of genetic diversity of the human genome and the effect of selection on the genotype and phenotype are analyzed. Social, cultural and ethical implications of genetics research are emphasized.

BIOL 4042
BIOLOGICAL FUNDAMENTALS OF THE HUMAN LIFE CYCLE SEMINAR
CREDITS: 2
CONTACT HOURS: 3
PRE-REQUISITES: BIOL 3012-3014
CO-REQUISITE: PSIC 3025
Joint work between the professor and the students for presenting and discussing topics related to the human life cycle with emphasis on each of the biological phases of human development. The course will be offered congruent to PSIC 3025.

BIOL 4056
INTRODUCTION TO IMMUNOLOGY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: BIOL 3012-3014
Discussion of the basic principles of immunology and their clinical applications in medicine and other fields. The course describes the function of the immunological system including cells, organs, and immunoglobulin. The course also covers other topics in immunology; such as, histocompatibility systems, tumor immunology, immediate and delayed hypersensitivity, as well as autoimmunity. It will also cover the interaction among microorganisms that cause infectious diseases, the immunological system and immunity as well as immunological aspects of various diseases in humans.

BIOL 4367
INDUSTRIAL MICROBIOLOGY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: BIOL 3705-3707
The course covers the biological activities of microorganisms and their importance for the pharmaceutical and food industries and related fields. The course does not have a laboratory. It requires basic knowledge about general microbiology.

BIOL 4895
EXPERIMENTAL BIOTECHNOLOGY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: BIOL 3011-3012 & QUIM 3002-3004
Towards the end of the 1970’s a revolution of the biotechnological industry began when scientists in the academia were able to induce the synthesis of human insulin in microbial models. This revolution was based on technology associated with genetic engineering, recombinant DNA and gene splicing. With the development of these techniques we entered an era of control and manipulation of genetic material without precedent that could lead to finally contemplating the possibility of generating human clones. The debate over the ethical, medical and social implications of genetic engineering and biotechnology is very present in modern society.

BIOL 4990
INTRODUCTION TO RESEARCH
CREDITS: 2
CONTACT HOURS: 10 HOURS OF WEEKLY LECTURES
PRE-REQUISITES: BIOL 3011-3013 & BIOL 3012-3014
Investigation in the area of biology to provide students with experience and training in scientific research (theory and experimentation). Students may repeat the course up to a maximum of 6 credits (3 times).
BIOL 4999

TOPICS IN BIOLOGY

CREDITS: 3

CONTACT HOURS: 3 HOURS

OF WEEKLY LECTURES AND

DISCUSSION OR LABORATORY

(ACCORDING TO THE TOPIC)

Presentation and discussion of several topics in a specific area of Biology. The student may repeat the course three times and receive up to 9 credits for this course if the topics covered are different.

CIBI 3001

BIOLOGICAL SCIENCES I

CREDITS: 3

CONTACT HOURS: 3

Study of fundamental biological concepts including the structure and chemical composition of living matter, the cell unit, and cellular and genetic metabolism with emphasis on humans. Classes will be carried out through lectures, discussions and demonstrations. This course is NOT equivalent to BIOL 3011 and is designed for students who are NOT in the Natural Sciences Department.

CIBI 3002

BIOLOGICAL SCIENCES II

CREDITS: 3

CONTACT HOURS: 3

PRE-REQUISITE: CIBI 3001

Study of the fundamental principles and concepts of Biology including the study of ecology, development, evolution, hormonal and nervous control, and other anatomical and physiological aspects of the human body. The course includes lectures, discussions and demonstrations and is designed for students who are NOT in the Natural Sciences Department.
The Chemistry Department offers two articulated programs for a Bachelor’s Degree in Natural Sciences with a Concentration in Chemistry and a Bachelor’s Degree in Nursing.

**BACHELOR’S DEGREE IN NATURAL SCIENCES MAJORING IN CHEMISTRY**

In the articulated program in Chemistry, students may complete the first two years at the University of Puerto Rico at Bayamón and then transfer to the Cayey Campus to finish their bachelor’s degree. Students graduating from the bachelor’s program will be a professional prepared in the field of science with the capacity to reflect and make appropriate decisions related to chemistry, technology and the environment. Graduates in this bachelor’s may continue graduate studies in Biology and Physical, Organic or Analytical Chemistry or take the licensure exam for certification to work in the private, industrial or governmental sector according to government norms.

### FIRST YEAR

<table>
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<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Course Code</th>
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Sub-Total Credits: 16

### SECOND YEAR

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Sub-Total Credits: 18

Total: 67 Credits

Requirements for transfer: Obtain 67 credits at the University of Puerto Rico at Bayamón and have a 2.00 general grade point average and academic progress.

* First Year English Course will be assigned according to score obtained on the CEEB (College Board's Entrance Exam).

** Second year English course.

1. If students passed INGL 3101-3102 (Basic English I-II) during their first year, they register in INGL 3201-3202.
2. If students passed INGL 3103-3104 (Intermediate English I-II) or INGL 3011-3012 (Honor English) during their first year, they register in INGL 3221-3222.
3. If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.
**BACHELOR’S DEGREE IN NURSING**

In the articulated program in Nursing, students may complete the first two years at the University of Puerto Rico at Bayamón and then transfer to the Medical Sciences campus to complete their bachelor’s degree.

Students in the Nursing Program will take the following courses at the UPRB:

### FIRST YEAR

<table>
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<tr>
<th>Code</th>
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<th>Credits</th>
<th>Code</th>
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<td>CISO 3121</td>
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<td>CISO 3122</td>
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<tr>
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<td>HUMA 3102</td>
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<tr>
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<td>CIBI 3002</td>
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<td>3</td>
<td>CISO 3155</td>
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**Sub-Total Credits** 18

### SECOND YEAR

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
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<td>QUIM 3022</td>
<td>Fundamentals of General Chemistry</td>
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<td>SOCI 3245</td>
<td>Sociology Principles</td>
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<tr>
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<td>ENFE 4116 **</td>
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<td>INTD 4005 **</td>
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**Sub-Total Credits** 19

**TOTAL CREDITS: 72**

Requirements for transfer: Obtain 72 credits at the University of Puerto Rico at Bayamón and have a 2.00 general grade point average and a 2.00 grade point average in the major.

* First Year English Course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam). If students pass the Advanced Placement with a score of 4 or 5, students do not take first year English.

** A professor from the Medical Sciences Campus will offer these courses at the UPRB.

*** Students may take a total of 6 additional credits if necessary in free electives during their second year.
**BACHELOR’S DEGREE IN NURSING**  
*(Applies to New Incoming Students beginning 2012-2013)*

In the articulated program in Nursing, students may complete the first two years at the University of Puerto Rico at Bayamón and then transfer to the Medical Sciences campus to complete their bachelor’s degree.

Students in the Nursing Program will take the following courses at the UPRB:

### FIRST YEAR

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
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<td>Fund of Organic Chem. &amp; Biochemistry</td>
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<td>QUIM 3023</td>
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### SECOND YEAR

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<tr>
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<td>SOCI 3245</td>
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<td>Fund. Statistical Reasoning</td>
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<td><strong>Sub-Total Credits</strong></td>
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<td><strong>Sub-Total Credits</strong></td>
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**TOTAL CREDITS: 67**

Requirements for transfer: Obtain 67 credits at the University of Puerto Rico at Bayamón and have a 2.50 general grade point average and a 2.50 grade point average in the major.
CIQA 3001
CHEMICAL SCIENCES I
CREDITS: 3
CONTACT HOURS: 3
A course for non-majors that provides an overview of the basic concepts of modern chemistry. Chemistry is presented as currently undergoing development in sub fields such as inorganic, organic, industrial, environmental, analytical and nuclear chemistry. Basic concepts will integrate present day concepts with an emphasis on technological developments and social impact. Lectures will be complemented with demonstrations and supplementary readings.

CIQA 3002
CHEMICAL SCIENCES II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CIQA 3001
The course utilizes the basic concepts of chemistry presented in Chemical Sciences I (CIQA 3001) to explain the applications in chemistry in the following areas: industrial, environmental, metallurgical and energy production. If necessary the course will delve deeper into the discussion of basic concepts and will present instrumental methods of synthesis and analysis of materials. Areas of organic chemistry and its technological development are discussed.

CIQA 3001
CHEMICAL SCIENCES I
CREDITS: 3
CONTACT HOURS: 3
A course for non-majors that provides an overview of the basic concepts of modern chemistry. Chemistry is presented as currently undergoing development in sub fields such as inorganic, organic, industrial, environmental, analytical and nuclear chemistry. Basic concepts will integrate present day concepts with an emphasis on technological developments and social impact. Lectures will be complemented with demonstrations and supplementary readings.

CIQA 3002
CHEMICAL SCIENCES II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CIQA 3001
The course utilizes the basic concepts of chemistry presented in Chemical Sciences I (CIQA 3001) to explain the applications in chemistry in the following areas: industrial, environmental, metallurgical and energy production. If necessary the course will delve deeper into the discussion of basic concepts and will present instrumental methods of synthesis and analysis of materials. Areas of organic chemistry and its technological development are discussed.

QUIM 3001
GENERAL CHEMISTRY I
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3003
CO-REQUISITE: QUIM 3000
Introduction to fundamental principles of chemistry with emphasis on atomic and molecular structure, nomenclature, stoichiometry, chemical bonding, and thermochemistry.

QUIM 3002
GENERAL CHEMISTRY II
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3001 & QUIM 3003
CO-REQUISITE: QUIM 3004
The course gives special attention to the following topics: solutions, chemical equilibrium, oxidation reactions, reduction, acids and bases, electrochemistry, kinetics, and thermodynamics.

QUIM 3003
GENERAL CHEMISTRY I LABORATORY
CREDITS: 0
CONTACT HOURS: 3
CO-REQUISITE: QUIM 3001
This laboratory complements the theory studied in QUIM 3001. It includes safety rules in the laboratory, experiments with stoichiometry, thermodynamics, gases, liquids and solids.

QUIM 3004
GENERAL CHEMISTRY II LABORATORY
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3001 & QUIM 3003
CO-REQUISITE: QUIM 3002
This laboratory complements the theory studied in QUIM 3002. It includes experiments in chemical equilibrium, solutions, oxidation-reduction reactions, acids and bases, electrochemistry, analysis of ions, kinetics and thermodynamics.

QUIM 3005
ELECTROCHEMISTRY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3002 & QUIM 3004
Basic electrochemistry concepts will be discussed, such as redox reactions, processes on electrode surfaces, and electrochemistry cells. Students will obtain theoretical and practical knowledge about basic techniques in electrochemical analysis. Also, practical aspects about electrochemical energy sources, such as, batteries and fuel cells, will be studied.
QUIM 3021
FUNDAMENTALS OF GENERAL CHEMISTRY
CREDITS: 4
CONTACT HOURS: 3
Principles of general chemistry geared towards health professions. Includes systems of measurement, matter and energy, atomic and molecular structure, radioactivity, stoichiometry, solutions, liquid state, solid state, gaseous state, chemical equilibrium, and chemical kinetics.

QUIM 3022
FUNDAMENTALS OF ORGANIC & BIOCHEMISTRY
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3021 & MATE 3172
Basic course in organic and biochemistry geared towards health professions. Nomenclature, structure, important properties and reactions of the different families of hydrocarbons, alcohols, ethers, aldehydes, ketones, carboxylic acids, esters, amines, and amides. Principles of biochemistry with emphasis on carbohydrates, lipids and proteins.

QUIM 3023
FUNDAMENTALS OF GENERAL CHEMISTRY LABORATORY
CREDITS: 0
CONTACT HOURS: 3
Laboratory on the fundamentals of general chemistry to accompany QUIM 3021.

QUIM 3024
FUNDAMENTALS OF ORGANIC & BIOCHEMISTRY LABORATORY
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3021 & MATE 3002
Students will practice what they learned in QUIM 3022.

QUIM 3025
ANALYTICAL CHEMISTRY
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3002 & QUIM 3004
CO-REQUISITE: QUIM 3026
The study of theory and methods of quantitative and qualitative analysis utilizing gravimetric and volumetric methods including potentiometric titration. A brief introduction to spectrophotometry analytical methods with emphasis on the ultraviolet visible region. Lectures will emphasize the fundamental theory of chemical analysis, pertinent equilibriums and calculation of results. In addition, possible limitations and errors in the most common analysis and interpretation of results obtained will be studied.

QUIM 3026
ANALYTICAL CHEMISTRY LABORATORY
CREDITS: 0
CONTACT HOURS: 6
PRE-REQUISITES: QUIM 3002 & QUIM 3004
CO-REQUISITE: QUIM 3025
Development of practical skills in the area of the analysis of quantitative methods with emphasis on the determination of analytes in unknown samples through gravimetric, electrometric, spectrophotometric, and chromatographic techniques. Special attention will be given to the statistical treatment of data.

QUIM 3031
ORGANIC CHEMISTRY I
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3002 & QUIM 3004
CO-REQUISITE: QUIM 3033
The study of carbon compounds in functional groups based upon structure, properties, nomenclature, stereochemistry, synthesis, reactions and mechanisms. The course also covers an introduction to infrared spectroscopy, magnetic and resonance and mass spectrometry, infrarroja, resonancia magnética y espectrometría de masa.
QUIM 3032
ORGANIC CHEMISTRY II
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3031 & QUIM 3033
CO-REQUISITE: QUIM 3034
A continuation of the study of carbon compounds in functional groups based upon the structure, properties, nomenclature, stereochemistry, synthesis, reactions and mechanisms, including infrared spectroscopy techniques, magnetic nuclear resonance and mass spectrometry.

QUIM 3033
ORGANIC CHEMISTRY I LABORATORY
CREDITS: 0
CONTACT HOURS: 4
CO-REQUISITE: QUIM 3031
This course is a four hour laboratory that complements Organic Chemistry I. It includes practice in methods of analysis, purification, identification and synthesis of organic compounds, in addition to other topics.

QUIM 3034
ORGANIC CHEMISTRY II LABORATORY
CREDITS: 0
CONTACT HOURS: 4
PRE-REQUISITES: QUIM 3031 & 3033
CO-REQUISITE: QUIM 3032
This course is a four hour laboratory that complements Organic Chemistry II. It includes experimental study of different organic reactions and their mechanisms, qualitative analysis and identification of unknowns, in addition to other topics.

QUIM 3055
ANALYTICAL CHEMISTRY FOR ENGINEERING
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3002 OR QUIM 3042
A study of fundamental topics in analytical chemistry. Emphasis will be given to both theory and practice of current instrumental methods. The course is designed for Chemical Engineering transfer students.

QUIM 3450
FUNDAMENTALS OF ORGANIC CHEMISTRY
CREDITS: 5
CONTACT HOURS: 4
PRE-REQUISITES: QUIM 3001 & QUIM 3002
The study of the properties, reactions, synthesis and reaction mechanisms of organic compounds.

QUIM 4050
GENERAL BIOCHEMISTRY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3032 & BIOL 3012
Introduction to the biochemistry of carbohydrates, lipids, nucleic acids, and related compounds. The relation between the molecular structure and the function of these biomolecules and the metabolism of plants, animals and microorganisms with special emphasis on the metabolic paths, their interactions and control mechanisms is studied. This course is directed for students who wish to continue studies in chemistry, biology, health related professions and other sciences that require knowledge in the chemistry of living organisms.

QUIM 4999
UNDERGRADUATE RESEARCH
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: QUIM 3002 & QUIM 3004
A supervised research course in chemistry where students gain experience and training in scientific research.
ENFE 4075  
**INTRODUCTION TO THE RESEARCH PROCESS**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITES: CISo 3155  
Studies the research process as a means for improving the nursing practice. Includes the scientific research method, general principles, and how these have been utilized in the evolution of research in nursing as a science.

ENFE 4116  
**NURSING IN THE SOCIAL SYSTEM II**  
CREDITS: 3  
CONTACT HOURS: 3  
This course allows students to examine the roles, functions and values of present day nursing. The historical evolution of nursing and factors that have affected the development of the profession within the social system are analyzed. The theories of roles, change and systems are examined as well as their relation to the conceptual framework of the school’s curricular program with the nursing field’s evolution and tendencies. Legal ethical elements, such as internal and external controls that regulate nursing within the social system are examined. The importance of professional organizations and their relevance in the historical evolution of nursing is discussed. Group presentations on assigned areas are made.

INTD 4005  
**HEALTH: AN INTEGRAL PERSPECTIVE**  
CREDITS: 5  
CONTACT HOURS: 5  
The course introduces students to the concepts of health and public health and students’ professional role as a member of the interdisciplinary health team. Some fundamental processes used in the study of the status of the health of a community are examined. Health problems of Puerto Rico related to the environment and nutrition, among others, are discussed. Emphasis is given to health education, laws and service as alternatives to promote and maintain healthy individuals and groups.
Computer Sciences is the discipline that studies how to solve a wide array of problems through the development of computer programs (software) and the use of the physical equipment necessary to execute these programs (hardware). Graduates of the Bachelor’s Degree in Computer Sciences will have theoretical and practical knowledge in the development of computerized systems through the use of cutting edge technologies. Students may choose to major in Applied Computer Sciences or Technologies and Information Systems. Students will choose their major in the first semester of their second year.

The Applied Computer Sciences area emphasizes computation theory and the design and comparison of computer languages. The Technologies and Information Systems area emphasize the development and management of technologically complex information systems for commercial organizations.

Graduates of the Bachelor’s Degree in Computer Sciences will have the knowledge and skills necessary to become a competent professional in the area. Also, they will have a solid mathematical and analytical background that will help them to effectively develop in any of the areas of specialty they wish to pursue.

Graduates will also have a comprehensive and encompassing vision of their field. In addition, they will have a broad view of society, since they will have a solid social and humanistic base clearly promoted through the curriculum and supported by the ethical concepts that will be useful in the process of making well thought-out and wise decisions that will benefit the common good.

The aim is to offer students a holistic education that includes the fundamentals of computation and computer science that correspond to the industry’s current needs.

**BACHELOR’S DEGREE IN COMPUTER SCIENCES (4002)**

**FIRST YEAR**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
</tr>
<tr>
<td>COTI 3101</td>
<td>Algorithms &amp; Program Development I</td>
</tr>
<tr>
<td>MATE 3171</td>
<td>Pre-Calculus I</td>
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<td>*INGL 3101</td>
<td>Basic English I</td>
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<td>*INGL 3113</td>
<td>English I Laboratory</td>
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<td>CISO 3121</td>
<td>Intro to Social Sciences I</td>
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### SECOND YEAR

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<td><strong>Code</strong></td>
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<tr>
<td>COTI 3205</td>
<td>Computer Organization</td>
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<tr>
<td>SICI 3015</td>
<td>Information Systems Analysis and Design</td>
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<td>Calculus I</td>
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<td>MATE 3175</td>
<td>Discrete Mathematics</td>
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<td><strong>INGL 32</strong></td>
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**Sub-Total Credits: 16**

* First Year English Course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam).
* Second year English Course.

1. If students passed INGL 3101-3102 (Basic English I-II) during their first year, they register in INGL 3201.
2. If students passed INGL 3103-3104 (Intermediate English I-II) or INGL 3011-3012 (Honor English) during their first year, they register in INGL 3221.
3. If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.

Courses followed by students majoring in Applied Computer Sciences:

**APPLIED COMPUTER SCIENCES**

**(THIRD AND FOURTH YEAR)**

### THIRD YEAR

<table>
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<tr>
<th>First Semester</th>
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<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
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<tr>
<td>SICI 4029</td>
<td>Fundamentals of Operating Systems</td>
</tr>
<tr>
<td>INCO 4025</td>
<td>Technical Report Writing in English</td>
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<td>*SICI 3039</td>
<td>Comparison of Programming Langs.</td>
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<tr>
<td>*FISI 3011</td>
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**Sub-Total Credits: 16**

### FOURTH YEAR

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<td>SICI 4028</td>
<td>Computer Operations Research</td>
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<tr>
<td>HUMA 3101</td>
<td>Western Civilization I</td>
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<tr>
<td>*COTI 4250</td>
<td>Intro. to Computation Theory</td>
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<td>*Science Elective - Level 3000</td>
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**Sub-Total Credits: 18**

*Cursos in major

**TOTAL CREDITS: 130**
# TECHNOLOGIES & INFORMATION SYSTEMS

## (THIRD AND FOURTH YEAR)

### THIRD YEAR

<table>
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<tbody>
<tr>
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<tr>
<td>SICI 4029</td>
<td>Fundamentals of Operating Systems</td>
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<tr>
<td>INCO 4025</td>
<td>Technical Report Writing in English</td>
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<tr>
<td>*COTI 4150</td>
<td>Information Systems Programming</td>
</tr>
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<td>*CONT 3005</td>
<td>Accounting Fundamentals I</td>
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<td>Free elective</td>
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*Courses in major

### FOURTH YEAR

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<tr>
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<td>Data Communication</td>
</tr>
<tr>
<td>SICI 4028</td>
<td>Computer Operations Research</td>
</tr>
<tr>
<td>HUMA 3101</td>
<td>Western Civilization I</td>
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<tr>
<td>*COTI 4430</td>
<td>Information Systems Management</td>
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<td>* Elective in Business Administration</td>
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<td></td>
<td>Free elective</td>
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*Courses in major

**TOTAL CREDITS: 130**

Note: Beginning in 2006, all admitted students must pass the core courses of the Department (COTI y SICI) with a minimum grade of “C”; if not, students must repeat the corresponding courses.
COTI 3101
ALGORITHMS & PROGRAM DEVELOPMENT I
CREDITS: 4
CONTACT HOURS: 4
This is the first of two courses that offers an introduction to Computer Sciences, and emphasizes modern programming techniques for problem solving. In this one year sequence theoretical as well as practical aspects of basic computer concepts are discussed, as well as the design of algorithms and the development of computer programs using object oriented programming languages. In addition, the course also addresses the impact of Computer Sciences on contemporary society and analyzes ethical concerns related to program development and implementation.

COTI 3102
ALGORITHMS & PROGRAM DEVELOPMENT II
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: COTI 3101
This is the second of two courses that offers an introduction to Computer Sciences, and emphasizes modern programming techniques for problem solving. In this one year sequence theoretical as well as practical aspects of basic computer concepts are discussed, as well as the design of algorithms and the development of computer programs using object oriented programming languages. The course also addresses the impact of Computer Sciences on contemporary society and analyzes ethical concerns related to program development and implementation.

COTI 3205
COMPUTER ORGANIZATION
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: COTI 3102
This course centers on the study of general concepts related to the internal organization of any computer. During their professional life, students will encounter computers by different manufacturers, with diverse organization patterns and different instructions. Therefore, the course centers on concepts and techniques that apply to a wide variety of computers.

COTI 4150
INFORMATION SYSTEMS PROGRAMMING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: COTI 3102
This course studies the design and development of information systems using structured and object oriented programming. It covers how to organize file records: sequential, relative and indexed files, as well as data base management. One or more commercial programming languages will be used.
COTI 4210
WEB APPLICATION PROGRAMMING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: COTI 3102 OR (SICI 3012 & SICI 3020)
This course provides a through introduction to the tools and skills needed to develop and maintain dynamic websites that allow user interactivity. It introduces programming tools for developing applications executable by clients and in web servers.

COTI 4250
INTRODUCTION TO COMPUTATION THEORY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3015, MATE 3175 & SICI 4036
This semester course presents traditional computation theory areas: automation, computability and complexity. These areas analyze the possibilities and limitations of computers. Topics include: finite automation, regular expressions and languages, free context grammars, Turing machines, decidable and undecidable languages, algorithm complexity, and P and NP classes.

COTI 4430
INFORMATION SYSTEMS MANAGEMENT
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SICI 3015
This course introduces Project Management as applied to the information systems industry. The course allows analysts, developers, leaders and managers to understand the purpose and advantages of project management through an explanation of concepts, practices, processes, tools, techniques and resources used by the one in charge of the project during its life cycle. The course will closely follow the theoretical framework “Project Management Body of Knowledge” (PMBOK), which is the main professional standard to administer projects, with emphasis on its application for projects of program and system development.

SICI 1008
INTRODUCTION TO COMPUTERS
CREDITS: 4
CONTACT HOURS: 5
Introduction to the use of computers in the Industrial Engineering field. It includes a brief history of the development of computers, a general description of the structure and function of computers, and an explanation of the numerical systems used in computers. Includes programming in BASIC or FORTRAN, or other languages that can be applied to engineering. Students will learn to program and use the computer through the utilization of remote terminals and/or microcomputers.

SICI 3001
PROGRAMMING IN BASIC
CREDITS: 2
CONTACT HOURS: 3
PRE-REQUISITE: SICI 3011
Detailed study of the structure, syntax and codification of Basic language. Students are required to learn how to edit and compile practical application programs for different computer environments.
SICI 3002
PROGRAMMING IN COBOL
CREDITS: 4
CONTACT HOURS: 5
PRE-REQUISITE: SICI 3011
Detailed study of structure, syntax, and codification of problems in Cobol language. Students are required to prepare and test programs of various exercises based on real problems in industry.

SICI 3005
INTRODUCTION TO INFORMATION PROCESSING
CREDITS: 3
CONTACT HOURS: 3
Introduction to the concepts and terminology related to computers. It will provide basic concepts of administration from the electronic data processing manager’s point of view. It will also provide the necessary skills for using peripheral equipment, especially terminal and/or microcomputer keyboards.

SICI 3008
OPERATING SYSTEMS OF MINI AND MICRO-COMPUTERS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SICI 3011
Examines minicomputers and microcomputers, emphasizing hardware capacities, programming languages used, characteristics of the software, its different applications, and the operation of the system.

SICI 3009
DATA BANKS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SICI 3002
Basic concepts of organization, design and application of computerized files. Sequential and random organizations, concatenations (chains) and links between records of the same and/or different files are discussed utilizing one or various programming languages.

SICI 3011
INTRODUCTION TO COMPUTER SCIENCES
CREDITS: 3
CONTACT HOURS: 3
General introduction to concepts and terminology related to computer programming logic. The following topics are discussed: algorithm designs and their representation utilizing flowcharts and pseudo-codes and basic structures of control (sequence, selection and cycles) in computer programs.

SICI 3012
INTRODUCTION TO COMPUTER SCIENCES II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SICI 3011
CO-REQUISITE: SICI 3020
Intermediate level concepts and terminology used in computer programming logic. The following topics are discussed: parallel arrangements, files, records and record editing and basic organizational and search algorithms.
SICI 3015
ANALYSIS & DESIGN OF INFORMATION SYSTEMS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: COTI 3102 OR SICI 3012 AND SICI 3002
This course provides the student with the opportunity of becoming competent in the analysis, design, and implementation of computer systems. It includes the discussion, application, and solution of real problems in the industry.

SICI 3016
PROJECT IMPLEMENTATION
CREDITS: 4
CONTACT HOURS: 5
PRE-REQUISITES: SICI 3009 AND SICI 3015
Study and development of industrial applications of data processing. The course covers the application of knowledge acquired in previous courses. Students will apply what they learned by completing a project using cases based on real-life situations in industry.

SICI 3017
INTRODUCTION TO ELECTRONIC DATA PROCESSING
CREDITS: 3
CONTACT HOURS: 4
This course is designed for students of other programs interested in learning the basics of electronic data concepts and procedures. It will cover fundamental concepts in scientific and business programming. Students are required to prepare various simple programs useful in their chosen field.

SICI 3019
CONTROLLING & AUDITING COMPUTER CENTERS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SICI 3016
The study of causes of risks related to computer systems and controls to avoid them. Audit techniques used to verify existence and quality of controls are studied in detail.

SICI 3020
C-PROGRAMMING & SYSTEMS DEVELOPMENT (SICI 2055)
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SICI 3011
Detailed study of the structure, syntax, and coding of problems in C Language. Students must prepare and test programs based on areas related to business and industry.

SICI 3027
COMPUTER GRAPHICS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: SICI 2055 OR SICI 3020 AND MATE 3171
This course in Computer Graphics will prepare the student to create and manipulate graphics on the screen. Instructions in Basic, Pascal or other language will be analyzed in detail for drawing points, lines, bi- and tri-dimensional figures, and for utilizing different colors in low and high resolution using well-known operating systems. The concept of animation will also be introduced. In addition, the most well-known microcomputer software on the market will be studied.
SICI 3028
APPLICATION SOFTWARE
CREDITS: 3
CONTACT HOURS: 3
This course gives the student knowledge of theories and practical skills necessary to apply with current widely used application software: word processing, spreadsheets, database management systems, and other widely used programs.

SICI 3038
APPLIED COMPUTER PROGRAMMING
CREDITS: 2
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3171
Introduction to the science and art of computer programming with an emphasis on programming concepts and methodologies. This course is geared towards the electronics field and uses structured language.

SICI 3039
COMPARISON OF PROGRAMMING LANGUAGES
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: SICI 2055 OR SICI 3020 & SICI 3012 OR COTI 3102
Introduction to principles of programming language, its design and implementation. Includes examination of problems of automatic translation and the syntactic features of a variety of modern programming languages. Emphasis on finding a way to unify programming languages, both the general languages and the special purpose languages, such as high and low level ones.

SICI 3105
PRINCIPLES OF INFORMATION SYSTEMS
CREDITS: 3
CONTACT HOURS: 3
Students will study the systems, system organization and the various kinds of information. They will also study the use of computers for designing information systems.

SICI 4008
PRINCIPLES OF ELECTRONIC DATA PROCESSING IN BUSINESS
CREDITS: 4
CONTACT HOURS: 4
The course was designed for business students interested in learning the basic concepts and procedures in electronic data processing. The fundamentals of scientific and business programming will be discussed. Students will design simple programs useful in their field of study.

SICI 4009
INTRODUCTION TO NUMERICAL ANALYSIS
CREDITS: 3
PRE-REQUISITES: MATE 3031 & SICI 3012 OR COTI 3102
Provides computer science students with the basic concepts of Numerical Analysis. Includes the study of numerical systems, floating point, algorithms, numerical methods used in problem solving, interaction and process, matrix theory, linear programming and optimization problems, logic series, Boolean Algebra, basic elements of logic applied to computers, logic diagrams, numerical integration and differentiation, and graph sketching.
SICI 4019
COMPUTER ARCHITECTURE
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: SICI 3008 OR COTI 3205
The course covers the description, organization, and design of a computer. It illustrates how the different computer systems and components are related. Topics discussed may include operating systems, microprogramming, central processing unit (CPU), disk and magnetic strip technology, MOS logic, etc. It includes a description of the internal organization of various computer systems.

SICI 4028
COMPUTER OPERATION RESEARCH
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: MATE 3015 AND SICI 4009
The course is designed for computer science students. It covers various introductory aspects of the operational study used in planning and research related to computer information systemization. Topics discussed include PERT, CPM, linear models, Simplex Method, sensitivity, network models, dynamic models, inventory schedules and models, dynamic programming, optimizations, and simulations with computers.

SICI 4029
FUNDAMENTALS OF OPERATION SYSTEMS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SICI 4019
An extensive study of the general principles of Operating Systems. It covers the basics of multiprocessing, techniques for managing real and virtual memories, merging of processes and resources, and the solution to system deadlocks.

SICI 4030
DATABASE PROGRAMMING & DEVELOPMENT
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SICI 3009 OR COTI 3102
The course covers the main characteristics of databases and their database management system (DBMS). The design and implementation of databases are explained. The course emphasizes the creation, consultation and updating of databases founded upon the entity-relationship model using different tools available. Students will have experience in the design and manipulation of databases.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Contact Hours</th>
<th>Pre-Requisites</th>
</tr>
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<tbody>
<tr>
<td>SICI 4036</td>
<td>DATA STRUCTURES</td>
<td>3</td>
<td>3</td>
<td>SICI 3020 OR SICI 3025 &amp; SICI 3012 OR COTI 3102</td>
</tr>
<tr>
<td></td>
<td>Course covers concepts and terminology of the most common data structures, such as, arrays, records, linked lists, stacks, queues, and trees. Sorting and searching algorithms are also studied.</td>
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<tr>
<td>SICI 4037</td>
<td>RESEARCH SEMINAR-WORKSHOP</td>
<td>4</td>
<td>4</td>
<td>SICI 4029 &amp; SICI 4037</td>
</tr>
<tr>
<td></td>
<td>Provides the student with the methodology for researching and developing computerized systems. It includes the study of all stages, from identifying the problem to its computerized implementation. The computer sciences faculty will select the problems and students will present their conclusions in a written report.</td>
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<tr>
<td>SICI 4038</td>
<td>DATA COMMUNICATION</td>
<td>3</td>
<td>3</td>
<td>SICI 4019 &amp; SICI 4029</td>
</tr>
<tr>
<td></td>
<td>Provides the basic knowledge of the systems and methods utilized in data communications. The course covers all aspects of data communications, including terminals, modular signals, lines, data communication languages, considerations of the central location of the matrix team, communication programs and networks.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SICI 4048</td>
<td>UNIX OPERATING SYSTEM</td>
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<td>4</td>
<td>SICI 4029</td>
</tr>
<tr>
<td></td>
<td>The study of the use of Unix operating system, including its file systems, shell utility, file management, advanced shells, programming, communication and personal computer interface.</td>
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</tr>
<tr>
<td>SICI 4065</td>
<td>PROGRAMMING PRACTICE</td>
<td>4</td>
<td>5</td>
<td>SICI 3015</td>
</tr>
<tr>
<td></td>
<td>Supervised programming practice in facilities where the Computer Sciences student shall gain valuable work experience. The practice period will be no less than ten weeks (200 hours). The supervisor will send the university an evaluation of each student’s performance. The course incorporates distance education through constant communication through the Internet by professor and student, especially if the practice is outside of the island. Course is composed of thematic content which include professional experiences, project implementation and a seminar-workshop on research.</td>
<td></td>
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<tr>
<td>SICI 4066</td>
<td>COMPUTER APPLICATION IN EDUCATION</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The course centers on the use of computers in education. Interactive language programming, different types of computerized classes and principles that regulate their creation are discussed. Also included is Computer Managed Instruction, which consists of the integration of an operating system, student files and their administration.</td>
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</tbody>
</table>
SICI 4175
INTRODUCTION TO JAVA PROGRAMMING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: SICI 3020 & SICI 3012
An introduction to object programming. It covers the Java language syntax in detail.

SICI 4997
SPECIAL TOPICS AND NEW TECHNOLOGIES
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SICI 3012 & SICI 3020
The study of new technological developments that have an impact on information systems. This course is open to the discussion of current topics and may be taken more than once if the topics covered are different.
The Bachelor’s Degree in Preschool and Elementary Education offers its graduates the opportunity to work as teachers at the preschool, primary and elementary level in both public and private schools. In addition, graduates may work in other preschool educational programs, such as, maternal and child-care centers under the supervision of the Department of Family Services and Programs of Early Intervention.

The Bachelor’s Degree in Preschool and Elementary Education is accredited by the National Council for Accreditation of Teacher Education (NCATE).

The last course that completes the Bachelor’s Degree in Preschool and Elementary Education is Teaching Practicum in Preschool & Elementary Education, EDPE 3345. Registration for this course involves an admission process within the Pedagogy Department. For authorization students must meet specific requirements which include a general grade point average (GPA) of at least 2.80 up until the academic years 2011-2012 and 2012-2013. Beginning in 2013-2014, the minimum GPA will be 3.00.

Graduates who would like to teach in the Department of Education of Puerto Rico must pass a teacher’s certification exam offered by the College Board of Puerto Rico and have a GPA as established by the Circular Letter No. 7 2009-2010 of the Department of Education of Puerto Rico. The letter indicates the minimum average graduates must achieve in each of the years that follow:

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Average</th>
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<tbody>
<tr>
<td>2009-2010</td>
<td>2.50</td>
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<tr>
<td>2010-2011</td>
<td>2.80</td>
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<tr>
<td>2011-2012</td>
<td>2.80</td>
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<tr>
<td>2012-2013</td>
<td>3.00</td>
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<tr>
<td>2013-2014</td>
<td>3.00</td>
</tr>
</tbody>
</table>

Additional requirements stipulated by the Department of Education of Puerto Rico for the attainment of a Teaching Certificate are as follows: SICI 4066 (Computer Application in Education) and HIST 3115 (The History of the United States).

### Bachelor’s Degree in Preschool and Elementary Education (0440)

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EDFU 3001</td>
<td>Growth and Human Dev. I</td>
<td>3</td>
<td>EDFU 3002</td>
<td>Growth and Human Dev. II</td>
<td>3</td>
</tr>
<tr>
<td>ESPA 3101</td>
<td>Basic Spanish I</td>
<td>3</td>
<td>ESPA 3102</td>
<td>Basic Spanish II</td>
<td>3</td>
</tr>
<tr>
<td>*INGL 3101</td>
<td>Basic English I</td>
<td>3</td>
<td>*INGL 3102</td>
<td>Basic English II</td>
<td>3</td>
</tr>
<tr>
<td>*INGL 3113</td>
<td>Basic English I Lab</td>
<td>0</td>
<td>*INGL 3114</td>
<td>Basic English II Lab</td>
<td>3</td>
</tr>
<tr>
<td>CIBI 3001</td>
<td>Fundamental of Biology I</td>
<td>3</td>
<td>CIBI 3002</td>
<td>Fundamental of Biology II</td>
<td>3</td>
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<tr>
<td>MATE 3041</td>
<td>Int. to Mathematics I</td>
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<td>MATE 3042</td>
<td>Int. to Mathematics II</td>
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<tr>
<td>HUMA 3111</td>
<td>Comp. Western Civilization III</td>
<td>3</td>
<td>HUMA 3112</td>
<td>Comp. Western Civilization III-IV</td>
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### SECOND YEAR

#### First Semester

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<tr>
<td>ESPA 3135</td>
<td>Comp. Spanish Grammar</td>
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<td>EDPE 3305</td>
<td>Preschool Program I</td>
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<td>CISO 3121</td>
<td>Introduction to Social Science I</td>
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<tr>
<td>EDFU 4019</td>
<td>Philosophical Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>EDPE 3005</td>
<td>Children and Language</td>
<td>3</td>
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<tr>
<td>CIFI 3001</td>
<td>Physical Science I</td>
<td>3</td>
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</table>

**Sub-Total Credits: 18**

#### Second Semester

<table>
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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>HIST 3245</td>
<td>History of Puerto Rico</td>
<td>3</td>
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<tr>
<td>EDPE 3306</td>
<td>Preschool Program II</td>
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<tr>
<td>CISO 3122</td>
<td>Introduction to Social Science II</td>
<td>3</td>
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<tr>
<td>EDFU 3007</td>
<td>Social Foundations of Education</td>
<td>3</td>
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<tr>
<td>EDPE 3315</td>
<td>Reading Reading and Writing</td>
<td>3</td>
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<tr>
<td>CIFI 3002</td>
<td>Physical Science II</td>
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</table>

**Sub-Total Credits: 18**

### THIRD YEAR

#### First Semester

<table>
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<tbody>
<tr>
<td>EDPE 3001</td>
<td>Teaching the Native Language in Elem. School I</td>
<td>3</td>
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<tr>
<td>EDPE 3308</td>
<td>Preschool Child Education</td>
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</tr>
<tr>
<td>TEED 1005</td>
<td>Audiovisual Workshop</td>
<td>3</td>
</tr>
<tr>
<td>EDPE 3018</td>
<td>Teaching English as Second Language</td>
<td>3</td>
</tr>
<tr>
<td>EDPE 3326</td>
<td>Rhythm, Movement and Motor Development</td>
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<td>Free Elective</td>
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</table>

**Sub-Total Credits: 18**

#### Second Semester

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPE 3002</td>
<td>Teaching Native Language in Elementary School II</td>
<td>3</td>
</tr>
<tr>
<td>EDES 4006</td>
<td>Nature and Needs of the Exceptional Student</td>
<td>3</td>
</tr>
<tr>
<td>EDPE 1005</td>
<td>Teaching Physical Education in Elem. School</td>
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<tr>
<td>EDPE 3335</td>
<td>Preschool Methodology Seminar-Laboratory</td>
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<tr>
<td>EDPE 3006</td>
<td>Teaching Social Studies in the Elem. School</td>
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<td>Free Elective</td>
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**Sub-Total Credits: 17**

### FOURTH YEAR

#### First Semester

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<tbody>
<tr>
<td>EDPE 4335</td>
<td>Seminar: Elementary Curriculum</td>
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<tr>
<td>EDPE 3008</td>
<td>Evaluation Process in Elementary School</td>
<td>3</td>
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<tr>
<td>EDPE 3317</td>
<td>Children's Literature</td>
<td>3</td>
</tr>
<tr>
<td>EDPE 4115</td>
<td>Math/Sc. in Elem. School</td>
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<tr>
<td>EDPE 3325</td>
<td>Artistic, Musical and Dramatic Experiences</td>
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<td>Free Elective</td>
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**Sub-Total Credits: 18**

#### Second Semester

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EDES 3006</td>
<td>Diagnostic and Treatment of Reading-Writing Deficiencies</td>
<td>3</td>
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<tr>
<td>EDPE 3345</td>
<td>Teaching Practicum in Preschool &amp; Elementary Education</td>
<td>6</td>
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<tr>
<td>Free Elective</td>
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**Sub-Total Credits: 12**

**TOTAL Credits: 137**

*First Year English Course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam). Students who pass the English Advanced Placement Exam with a score of 4 or 5 have the equivalent of first year English approved and do not take first year English.*
# Bachelor's Degree in Preschool and Elementary Education

(Applies to new incoming students beginning in the academic year 2012-2013)

<table>
<thead>
<tr>
<th>First Year</th>
<th></th>
</tr>
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<tbody>
<tr>
<td><strong>FIRST SEMESTER</strong></td>
<td><strong>SECOND SEMESTER</strong></td>
</tr>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
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<tr>
<td>EDFU 3001</td>
<td>Growth and Human Dev. I</td>
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**Sub-Total Credits:** 18

**Sub-Total Credits:** 12

**TOTAL Credits:** 137

*First Year English Course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam). Students who pass the English Advanced Placement Exam with a score of 4 or 5 have the equivalent of first year English approved and do not take first year English.*
EDES 3006  
**DIAGNOSIS & TREATMENT OF READING & WRITING DEFICIENCIES**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITES: EDES 4006, EDPE 3002  
The course develops the competencies needed by the future educator to teach, diagnose and correct reading and writing deficiencies while integrating the cognitive, affective and psychomotor foundations that characterize these learning processes. Characteristics of children with special needs which cause reading and writing difficulties are studied and analyzed. Advantages and disadvantages of the various methods used in learning reading and writing skills are also included. In addition, the analysis of reading and writing inventory models, diagnostic tests and other instruments used as pedagogical guides for creating and using teacher-made materials for working with children with learning problems are studied. The course requires field experiences in the University of Puerto Rico at Bayamón.

EDES 4006  
**SEMINAR: CHARACTERISTICS & NEEDS OF THE EXCEPTIONAL STUDENT**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: EDFU 3002  
Course offers a general view of the psychological and educational needs of exceptional students. The etiology, characteristics and treatment; legal and psychological foundation, discipline tendencies and trends, and educational intervention and community service programs are studied. Field experience is required both in regular and special education classrooms.

EDFU 3001  
**HUMAN GROWTH & DEVELOPMENT I**  
CREDITS: 3  
CONTACT HOURS: 3  
This course helps future teachers understand the nature and scope of psychology. As a basis for understanding the educational process, it confronts students to knowledge concerning the growth and development of children and adolescents. It examines the biological and environmental factors that contribute to the development of a healthy personality.

EDFU 3002  
**HUMAN GROWTH & DEVELOPMENT II**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: EDFU 3001  
Students come into contact with the principles of psychology, which explain the teaching-learning process and the individual conditions that affect it. Part of the semester is dedicated to the study of the evaluation process with special attention given to the principles that govern the construction of educational tests and student promotions.

EDFU 3007  
**SOCIAL FOUNDATIONS OF EDUCATION**  
CREDITS: 3  
CONTACT HOURS: 3  
The course covers an analysis of the social sciences and their relation to the education process and with the school as a social institution. This course includes the study of the cultural heritage of humans and the role of education in preserving and improving it. The following topics are also discussed: integrating education to life and community institutions and groups that comprise them; group behavior in relation to school problems; the social role of the teacher; and the relationship between social change and the school.
EDFU 4019
PHILOSOPHICAL FOUNDATIONS OF EDUCATION
CREDITS: 3
CONTACT HOURS: 3
Studies the relationship between philosophy and the practice of the teaching profession and introduces the basic problems in philosophy with special emphasis on their educational implications.

EDPE 1005
TEACHING PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL
CREDITS: 2
CONTACT HOURS: 3
A study of the history and development of physical education, in addition to the physical education program for elementary grades (K-6). Relevant lab experiences complement the course. It consists of two-hour lectures and one-hour of practice per week.

EDPE 4335
SEMINAR: CURRICULUM & TEACHING IN THE ELEMENTARY SCHOOL
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: EDPE 3002, EDPE 3006 & EDPE 3018
CO-REQUISITE: EDPE 3008
In this course the theoretical aspects of the elementary school curriculum (K-6) are analyzed and discussed. Special emphasis is given to planning and execution of the teaching-learning process, as well as the creation of learning communities appropriate for the elementary level.

EDPE 3001
TEACHING THE NATIVE LANGUAGE IN THE ELEMENTARY SCHOOL I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: EDPE 3005, EDPE 3315
The course, Teaching the Native Language in Elementary School, will make students aware of their ethical responsibility in the development of students’ native language as a means of communication and expression. The course will also allow students to identify the importance of language as a teaching tool in the elementary school program (K-6). The content of the course is organized in the following six basic units which have a logical sequence of activities that demonstrate the thematic path of the course: a) the nature of language; b) the nature and development of the child; c) general considerations in language arts; d) the art of listening and writing; e) resources for the teaching of language and methodological recommendations; f) appropriate techniques for developing aural and oral skills in language.
EDPE 3002
TEACHING THE NATIVE LANGUAGE IN THE ELEMENTARY SCHOOL II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: EDPE 3001
The course, Teaching the Native Language in Elementary School, will make students aware of their ethical responsibility in the development of the native language as a means of communication and expression. The course will also allow students to identify the importance of language as a teaching tool in the elementary school program (K-6). The content of the course is organized following a sequence of activities, which demonstrate the thematic path of the course. These are as follows: a) the nature of listening and writing; b) the art of listening and writing; c) resources for teaching written language; d) adequate techniques for the development of language arts skills: listening and writing; and e) language arts in constant interaction.

EDPE 3005
THE CHILD AND HIS/HER LANGUAGE
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: EDFU 3002
This course allows for the study of the child’s language development from philosophical, social and psycho-pedagogical perspectives. Emphasis is placed on acquiring basic language concepts complemented by field work experiences. The course was designed for those majoring in preschool and primary education.

EDPE 3006
TEACHING SOCIAL STUDIES IN THE ELEMENTARY SCHOOL
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: EDFU 3002, CISO 3122
The study, analysis and discussion of the new curriculum, methodology, approaches, goals and scope of the social studies program in elementary school (K-6). The course aims to train the future teacher in the new philosophy of the program that responds to the reality and needs of Puerto Rican society seen in the context of other countries of the world. The course also covers the basic concepts of the social sciences: cultural interaction, social groups, interdependence, democracy, conservation, production, distribution and consumption of resources. The course requires planning and field experiences in the classroom.
EDPE 3008  
EVALUATION PROCESS IN THE ELEMENTARY SCHOOL  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: EDFU 3002  
A study of the basic concepts, principles and techniques used in evaluating the learning process. It also explores the relationship between academic evaluation and effective teaching. The course covers kindergarten to sixth grade (K-6).

EDPE 3018  
TEACHING ENGLISH AS A SECOND LANGUAGE  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITES: INGL 3102, 3104 OR 3012  
The course covers the characteristics and functions of the language: morphology, phonology, syntax and vocabulary of English as a second language. The following topics are discussed: the teaching of English in Puerto Rico, methodology and texts used and classroom experiences. Emphasis is given to planning and classroom activities for use in grades kindergarten to sixth grade (K-6).

EDPE 3305  
PRESCHOOL EDUCATION PROGRAM I  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: EDFU 3002  
History, philosophy and theories that guide perspectives in the field of preschool education considering diverse models of preschool programs (Head Start and Montessori, among others). Includes the study of the characteristics of preschool children in terms of their growth, development and education. Requires observations in the Preschool Laboratory and Kindergarten Program at the University of Puerto Rico at Bayamón, and in other programs.

EDPE 3306  
PRESCHOOL EDUCATION PROGRAM II  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: EDPE 3305  
Organization, study and curricular analysis of the preschool program geared toward the integral development of children, considering areas of study and educational experiences such as: perceptual motor, mathematics, science, linguistics, art, music and drama, among others, which facilitate and strengthen the cognitive linguistic, physical, emotional and social development of preschool children. The course covers the observation and evaluation procedures to be used with young children as part of planning and curriculum development while considering the active participation of parents in the preschool program. It requires observation and field experiences of the future teacher at the Preschool Laboratory and Kindergarten Program of the University of Puerto Rico at Bayamón.
EDPE 3308
EDUCATION OF PRESCHOOL CHILDREN
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: EDPE 3306
The study and analysis of the work of educators or preschool teachers including their personal and professional characteristics, and how they influence the child’s behavior and performance during the teaching-learning process in the educational preschool program. The development of the preschool child’s personality in his/her educational, social and cultural environment is studied. The activities, techniques, strategies, materials and educational resources appropriate for the holistic development of the preschool child are also examined. The course requires clinical experience at the Preschool Laboratory and Kindergarten Program of the University of Puerto Rico at Bayamón.

EDPE 3315
READING – WRITING READINESS IN PRESCHOOL
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: EDFU 3002, ESPA 3102 & EDPE 3005
The study of the nature of the linguistic process, of language as an instrument of communication, and of reading and writing as developmental processes during the preschool years. The course guides the student in the analysis of the stages and principles of the development and the evolution of literacy at the preschool level and its implications for the educational process. Field experience is required.

EDPE 3317
CHILDREN’S LITERATURE
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: ESPA 3101 OR ESPA 3102, EDPE 3005 OR EDPE 3315
The study and analysis of children’s literature, its characteristics, genres, methodology and appropriate techniques for children to acquire the linguistic skills that will help them to accurately express their thoughts and emotions. Presents and discusses the models and strategies to create literature experiences for preschool and elementary school children. The application of those models and strategies will serve to encourage children to enjoy and value

EDPE 3318
WRITING WORKSHOP
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: ESPA 3101 & ESPA 3102
The study and practical analysis of writing as a process, its components, stages and educational strategies for its development through a workshop approach. The course gives students the opportunity to study the writing process while they practice it.
EDPE 3325
ARTISTIC, MUSICAL, & DRAMATIC EXPERIENCES
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: EDFU 3001
The study and analysis of the development of creativity as a dynamic and unifying activity and of creative education as a means of satisfying the demands and challenges of the contemporary world. This course includes the study of the various stages of artistic development from childhood to adolescence. It also includes experimentation with activities, resources and materials for the development of skills and competencies in preschool and elementary level children in the areas of music, art and theater. In addition, the analysis of curriculum implications, the evaluation of artistic activities and their relationship to daily routines for the integral development of the child, the enrichment of the teaching-learning process in basic areas, and the development of creative thinking are studied. The course also requires laboratory and field experiences in various preschool and elementary level settings including the Preschool Laboratory (LPE) and Kindergarten Program (PK) of the University of Puerto Rico at Bayamón.

EDPE 3326
RHYTHM & MOVEMENT FOR DEVELOPMENT OF SENSORY MOTOR SKILLS
CREDITS: 3
CONTACT HOURS: 3
The course provides information related to the value, concepts and curricular content needed to promote and facilitate children’s physical and motor development during preschool years. Foundations, principles, and sequences of perceptual motor development in preschool children are discussed. Knowledge and experiences needed to design and program rhythmic and motor activities for perceptual motor and physical development of the child will be emphasized. The course includes the application of the knowledge acquired through field experiences with children at the preschool level.

EDPE 3327
HUMAN RIGHTS EDUCATION
CREDITS: 3
CONTACT HOURS: 3
The human rights education course offers students an historic perspective of the concept of human rights, its evolution and current challenges for the education field. An interdisciplinary perspective allows for the study of strategies for incorporating human rights education in the elementary school curriculum. Topics discussed include education for peace and conflict resolution.
EDPE 3335

**PRESCHOOL METHODOLOGY SEMINAR-LABORATORY**

CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: EDPE 3308

The study of the organization and administrative regulations for the establishment of a preschool program, considering requirements of quality and norms that regulate appropriate practices for this educational level. Analysis of relevant early childhood educational issues and their implications for the integral development of the child and his/her family within the sociocultural context is carried out. Requires pre-practice field experiences at the Preschool Laboratory and Kindergarten Program of the University of Puerto Rico at Bayamón and other preschool and kindergarten programs with diverse philosophical, theoretical and curriculum bases in urban and rural areas.

EDPE 3345

**TEACHING PRACTICUM IN PRESCHOOL & ELEMENTARY LEVELS**

CREDITS: 6
CONTACT HOURS: 20
PRE-REQUISITES: EDPE 3335 & EDPE 4335

This course allows students to practice during one semester in one of three levels: preschool, primary, or elementary. The student teacher will practice in an accredited public or private school authorized for practicums with certified personnel, as regulated by the Department of Education. The student teacher will work under the supervision of a university professor of the chosen specialization, a certified cooperative teacher and the director of the educational institution.

The practicum provides the student teacher the opportunity to apply the knowledge acquired in the university courses in a real educational environment at the preschool, primary, or elementary level. The student will dedicate a minimum of 210 hours to the teaching practice and to participation in activities that are inherent to the responsibilities of a teacher in the corresponding level. As part of the course the student will participate in scheduled professional seminars during the semester that will be offered by the practice supervisor where analysis, discussion and evaluation of situations and thematic content relevant to their practicum experience will be discussed.

EDPE 4070

**COORDINATING TEACHER**

CREDITS: 3
CONTACT HOURS: 3

This course is for teachers who are presently active in the classroom of an educational institution and are interested in becoming coordinating teachers. The prospective coordinating teacher will become acquainted with the fundamental theories underlying the teaching practice program in its legal, social, psychological and educational dimension. It includes the study of basic principles of supervision and the in-depth analysis of the teaching-learning situation. The student will examine and evaluate textbooks, manuals, documents and other available information. The course will provide the opportunity to discuss problems and policies which affect programs and design strategies for the improvement and integration of the pertinent processes.
EDPE 4115
TEACHING SCIENCE & MATHEMATICS IN THE ELEMENTARY SCHOOL
CREDITS: 3
CONTACT HOURS: 3
Examines the philosophical nature and the general concepts of science and mathematics complemented by demonstrations and field experiences. The following areas are discussed: biology, physics, geology, chemistry, astronomy, and mathematics as well as the techniques and strategies used in the teaching-learning process of these disciplines. The course covers grades one through six.

TEED 1005
AUDIOVISUAL WORKSHOP
CREDITS: 3
CONTACT HOURS: 6
A discussion of different audiovisual resources used to teach at the elementary and preschooler levels. The course includes a systematic analysis of the communication process and instructional design that serves as a foundation for the production of adequate materials for this level. Future teachers are encouraged to develop their creativity.
Advances in electronic technology require highly specialized personnel knowledgeable in the sophisticated systems that are key elements in television, radio, computers, automatic control and telemetry systems, and the orientation of guided missiles. The integration of these systems to manufacturing, business, science, transportation, and communication has created a great need for electronic technicians.

The Associate Degree in Electronics is not sufficient to meet the demand for specialized personnel that requires additional knowledge to occupy well-paid positions which require responsibility. The Bachelor’s Degree in Electronics is an educational innovation that considers the industry’s needs. It meets the need of individuals with a bachelor’s degree in technology and represents an opportunity to raise the professional prestige of technological education, giving students the skills to work in management and administration.

**BACHELOR’S DEGREE IN SCIENCE MAJORING IN ELECTRONICS ENGINEERING TECHNOLOGY (4102)**

### First Year

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### FOURTH YEAR

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**TOTAL CREDITS: 134**

* First year English course will be assigned according to score obtained on the CEEB (College Board's Entrance Exam).

* **Second year English course.

1. If students passed INGL 3101-3102 (Basic English I-II) during their first year, they register in INGL 3201.

2. If students passed INGL 3103-3104 (Intermediate English I-II) or INGL 3011-3012 (Honor English) during their first year, they register in INGL 3221.

3. If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.

Requirements for graduation include: A General Grade Point average and a General Grade Point average in major equal to or greater than 2.00.
Electronics is an applied science that makes use of other sciences such as physics, chemistry, mathematics, computer sciences, etc. The best-known branches of electronics are the following: Telecommunications, Digital Systems and Instrumentation.

The curriculum of Electronics Technology includes the following areas of study: Electronic Measurement Instruments, Communication Circuits, Digital and Television Circuits, and Electronics Equipment Design and Manufacturing, among others.

Graduates of this program may be employed in the following areas: communications, medical electronics, electronic equipment manufacturing, instrumentation, radar and microwaves, relay stations, television, radio, and electronic equipment maintenance and service.

ASSOCIATE DEGREE IN ELECTRONIC TECHNOLOGY (2014)**

**FIRST YEAR**

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Sub-Total Credits: 18

**SECOND YEAR**

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Sub-Total Credits: 19

TOTAL CREDITS: 69

* First year English course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam). If students pass the Advanced Placement with a score of 4 or 5, they do not have to take first year English.

** Students may take other CISO or HUMA courses that do not have pre-requisites.

*** Certification No. 18 (2008-2009) of the Board of Trustees proposed the elimination of this Associate Degree. This means that it will not be available after the 2008-2009 academic year.
Instrumentation is the name given to the combination of diverse instruments used by industry to maintain control over different existing conditions in an industrial process.

The different instruments used in this field may operate pneumatically or electronically, but most industrial processes utilize electro-pneumatic combinations. These instruments are used to maintain control in the industrial processes of the following: temperature, flow, speed, pressure and density.

The different instruments require the service of an instrumentation technician for installations, calibrations, operations, and maintenance. This requires comprehensive knowledge in several areas; such as: measurement, general physics, programming, mechanics and mathematics.

These technicians have been classified as the most capable in modern industry because of their vast knowledge of the field.

ASSOCIATE DEGREE IN INSTRUMENTATION TECHNOLOGY (2013)

**FIRST YEAR**

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**SECOND YEAR**

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**TOTAL CREDITS: 69**

* First year English course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam). If students pass the Advanced Placement with score of 4 or 5, they do not have to take first year English.
In February 2009, the Departmental Curricular Revision Committee recommended some curricular changes to the Bachelor’s Degree in Science majoring in Electronics Engineering Technology and the Associate Degree in Instrumentation Technology. These changes were approved by the Vice-presidency’s office in December 2009. The changes respond to the requirements of the Accreditation Board for Engineering and Technology (ABET). These changes apply to those students who began in these programs in August 2010.

Students interested in readmission or transfer will go through the process of having their academic record evaluated. Students interested in transferring will be admitted to the revised program.

The following presents the revised curriculums:

**BACHELOR’S DEGREE IN SCIENCE MAJORING IN ELECTRONIC ENGINEERING TECHNOLOGY:**

**FIRST YEAR**

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**TOTAL CREDITS: 132**

* First year English course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam).

**Second year English course:
1. If students passed INGL 3101-3102 (Basic English I-II) during their first year, they register in INGL 3201.
2. If students passed INGL 3103-3104 (Intermediate English I-II) or INGL 3011-3012 (Honor English) during their first year, they register in INGL 3221.
3. If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.

Graduation requirements include: General Grade Point Average and General Grade Point Average in major equal to or greater than 2.00.

Academic requirements for granting the degree:
1. Completed 132 hours - credits, as specified.
2. Completed 129 hours - credits, as stated in the following:
   - If the student was exempt from taking MATE 3001- Introductory Mathematics I because of having passed the mathematics achievement section of the College Entrance Examination Board (CEEB) test with 650 points or more.
   - If the student passed the Pre-Calculus I Advanced Placement Exam with a score of 4 or 5, the MATE 3171-Pre-Calculus I and MATE 3172-Pre-Calculus II courses will be designated as equivalent to the exam. In addition, the student will be exempt from taking MATE 3001- Introductory Mathematics.
ASSOCIATE DEGREE IN INSTRUMENTATION TECHNOLOGY (2013)

**FIRST YEAR**

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**SECOND YEAR**

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**TOTAL CREDITS: 70**

**FIRST YEAR English course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam). If students pass the Advanced Placement with a score of 4 or 5, they do not have to take first year English.**

Graduation requirements include: General Grade Point Average and General Grade Point Average in major equal to or greater than 2.00.

Academic requirements for granting the degree:

1. Completed 70 hours - credit, as specified.

- If the student passed the Pre-Calculus I Advanced Placement Exam with a score of 4 or 5, the MATE 3171 Pre-Calculus I course will be designated as equivalent to the exam. The student will take MATE 3172 Pre-Calculus II instead of MATE 3001 Introductory Mathematics.
- Students that pass the mathematics achievement section of the College Entrance Examination Board (CEEB) test with 650 points or more will register in MATE 3171 and MATE 3172 and NOT take MATE 3001.
**TEEL 1001**

**BASIC ELECTRICITY**

**CREDITS:** 4  
**CONTACT HOURS:** 4  
**CO-REQUISITE:** MATE 1001 & TEEL 1002

Development of basic concepts in voltage, current and power; characteristics of the basic elements used in DC (direct current) and AC (alternate current) circuits; basic theory of AC and DC circuits; and analysis of sine waves.

**TEEL 1002**

**BASIC ELECTRICITY LABORATORY**

**CREDITS:** 1  
**CONTACT HOURS:** 3  
**CO-REQUISITE:** TEEL 1001

Laboratory practice of the basic principles studied in TEEL 1001. Techniques and correct use of instruments for measuring voltage, current and resistance as well as the use of the oscilloscope in the analysis of sine waves.

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**TEEL 1015**

**BASIC ELECTRONICS**

**CREDITS:** 4  
**CONTACT HOURS:** 4  
**PRE-REQUISITES:** TEEL 1001 OR TEEL 3163 & TEEL 1002 OR TEEL 3164

Detailed analysis of the construction and operation of semiconductors circuits, such as: rectifier diode, ZENER diode, VARACTOR, photo conductive and voltaic cell, thermistor, photo diode, photo transistor, NPN and PNP transistors; includes an introduction to the theory of vacuum tubes and related circuits.

**TEEL 1016**

**BASIC ELECTRONICS LABORATORY**

**CREDITS:** 1  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 3163, TEEL 3164 OR TEEL 1015, TEEL 1016

Laboratory practice of the principles studied in TEEL 1001.

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**TEEL 2001**

**BASIC LOGIC CIRCUITS**

**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 3163, TEEL 3164 OR TEEL 1015, TEEL 1016

The study of the numerical systems: decimal, binary, octal, hexadecimal, and BCE code. The study of basic digital circuits and their application to adders, pulse counters, comparators, registers, etc. Simplification of logic expressions.

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**TEEL 2002**

**BASIC LOGIC CIRCUITS LABORATORY**

**CREDITS:** 1  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 3163, TEEL 3164 OR TEEL 1015, TEEL 1016

Pre-requisites: TEEL 3163, TEEL 3164 or TEEL 1015, TEEL 1016

Laboratory practice of the principles studied in TEEL 2001.

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**TEEL 2003**

**INDUSTRIAL ELECTRONICS**

**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 2025 & TEEL 2026

**CO-REQUISITE:** TEEL 2004

Introduction to automatic industrial controls. Basic principles of the structure and operation of generators, motors, synchronizers, servomechanisms, magnetic amplifiers, Wheatstone bridge and potentiometer circuits. A discussion of the characteristics and operation of the different types of elements of measurement and of final control. Industrial application of A/D and D/A converters, SCR, UJT, TRIACS, gas pipes, THYRATRON and OP AMP.
TEEL 2004
INDUSTRIAL ELECTRONICS LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 2025 & TEEL 2026
CO-REQUISITE: TEEL 2003
Study of and laboratory practice in the operation of the different electrical and/or electronic equipment and components.

TEEL 2005
ELECTRONIC CONSTRUCTION & DESIGN
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITE: TEEL 2025 & TEEL 2026
Practice in welding and construction of electronic equipment. Students will be assigned a project where they will design and construct an electronic system.

TEEL 2013
RADAR & MICROWAVE CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: TEEL 2035 & TEEL 2036
CO-REQUISITE: TEEL 2014
Introduction to the main principles of the systems that use radar circuits and communication processes. An analysis of microwave systems, relay (repeater) stations, antennas and others.

TEEL 2014
RADAR & MICROWAVE LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 2035 & TEEL 2036
CO-REQUISITE: TEEL 2013
Laboratory practice of all the principles studied in TEEL 2013.

TEEL 2025
INTERMEDIATE ELECTRONICS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 1015 & TEEL 1016
CO-REQUISITE: TEEL 2026
Basic principles of the operation and structure of the field effect transistor and four-layer transistors. The characteristics, structure, and operation of the thyatron, gas diode, photo diode, photo transistor, light-emitting diode (LED), and UJT transistors are also covered. In addition, the course gives an introduction to the theory of operational amplifiers and linear integrated circuits.

TEEL 2026
INTERMEDIATE ELECTRONICS LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 1015 & TEEL 1016
CO-REQUISITE: TEEL 2025
Practice in the operation of the different electronic and electric circuits and components.

TEEL 2035
TRANSMITTER THEORY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 1015 & TEEL 1016
CO-REQUISITE: TEEL 2036
The course includes an analysis of all circuits and components used in the present communication systems. Topics include decibels, series and parallel resonance, oscilloscopes, radio frequency amplifiers, neutralization and syntonization of radio frequency amplifiers, amplitude and frequency modulation, single sideband, antennas, and transmission lines.

TEEL 2036
TRANSMITTER THEORY LABORATORY
CREDITS: 1
CONTACT HOURS: 3
CO-REQUISITE: TEEL 2035
Study and practice in the operation of the different electrical and electronic equipment and components studied in TEEL 2035.
TEEL 2045
BASIC TV CIRCUITS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 2035 & TEEL 2036
CO-REQUISITE: TEEL 2046
Detailed study of the basic circuits used in transmitting video signals including the antenna used in television. Includes the study of the basic circuits used in black and white, and color TV receivers.

TEEL 2046
BASIC TV CIRCUITS LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 2035 & TEEL 2036
CO-REQUISITE: TEEL 2045
Practice in analysis, repair and adjustment of black and white and color TV sets.

TEEL 3031
PROGRAMMING & ALGORITHMS I LABORATORY I
CREDITS: 1
CONTACT HOURS: 3
CO-REQUISITE: MATE 3031
Utilizing a computer programming language, students will learn to encode programs through the solution of problems in mathematics and electronics. Course includes the conceptual approach to problems and the development of solutions through the design and implementation of algorithms and flowcharts.

TEEL 3032
PROGRAMMING & ALGORITHMS I LABORATORY II
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 3031
Students will apply programming concepts in the solution of problems related to electronics and communication through the use of a high-level language (Ex. C/ C++). Classical problems in electronics (simulation of linear and non-linear circuits) and in telecommunications (simulations of filters, filter design and transmission lines) will be emphasized. Students will be introduced to the concept of communication among machines and the use of peripherals (parallel and serial ports).

TEEL 3095
DIGITAL COMPUTATION
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITE: SCI 3038
Applications of digital computers in selected troubleshooting of circuits, electronics and communication. Includes conceptual exposure to the problems, development of solutions and the coding of programs in BASIC.

TEEL 3161
DC (DIRECT CURRENT) CIRCUIT THEORY
CREDITS: 2
CONTACT HOURS: 2
CO-REQUISITE: TEEL 3162
Review of concepts of atomic structure and energy. Includes the study of the nature of electricity, concepts regarding current, voltage, resistance, capacitance and inductance as well as series circuits, parallel circuits and parallel series. It also discusses theorems related to networks analysis and transient RC circuits.

TEEL 3162
DC CIRCUIT THEORY LABORATORY
CREDITS: 1
CONTACT HOURS: 3
CO-REQUISITE: TEEL 3161
Course studies resistor color codes and the utilization of instruments to measure resistance, voltage and current. The study and practice of DC circuits in the laboratory as well as the study of the technique to create different VOM scales are covered. Introduction to the use of microcomputers as a tool in the analysis of DC circuits.
TEEL 3163
**AC (ALTERNATE CURRENT) CIRCUIT THEORY**
CREDITS: 2
CONTACT HOURS: 2
PRE-REQUISITES: TEEL 3161 & TEEL 3162
CO-REQUISITE: TEEL 3164
The study of magnetic theory; inductance; RL circuits; nature of alternating current; reactance, impedance and admittance concepts; theory of phasors and power factor correction.

TEEL 3164
**AC CIRCUIT THEORY LABORATORY**
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 3161 & TEEL 3162
CO-REQUISITE: TEEL 3164
Use of instruments to measure effective current and voltage.
Study and use of the oscilloscope to analyze sinusoidal signals.
Study and laboratory practice of AC circuits. Use of microcomputers in the analysis of AC circuits.

TEEL 3200
**LABORATORY: INTRODUCTION TO ELECTRONICS**
CREDITS: 1
CONTACT HOURS: 3
Introductory course to familiarize students to general practical aspects in the field of electronics.
Students will develop basic skills for working with electronic circuits.
In addition, students will identify the different internal peripherals of a personal computer and how they work. Students will also assemble a small robot and learn how to use computer software for word processing, creating tables (spreadsheets), and developing presentations.

TEEL 3201
**DIGITAL CIRCUITS I**
CREDITS: 3
CONTACT HOURS: 3
CO-REQUISITE: TEEL 3203
Study of the various numbers systems, digital codes, and basic (SSI), intermediate (MSI) and advanced (LSI & VLSI) digital gates as well as the study of various combinatorial and sequential logic circuits.

TEEL 3202
**DIGITAL CIRCUITS II**
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 3201 & TEEL 3203
CO-REQUISITE: TEEL 3204
Study of sequential machines, synchronic meters and registers; different types of electronic memories and their internal structure; introduction to the computer’s central processing unit (CPU), its internal registers, arithmetic unit etc. and to the computer’s basic microprocessor.
Course includes the discussion of basic instructions necessary to program these devices.

TEEL 3203
**DIGITAL CIRCUITS I LABORATORY**
CREDITS: 1
CONTACT HOURS: 3
CO-REQUISITE: TEEL 3201
Laboratory exercises to complement TEEL 3201-Digital Circuits I. Techniques in the design and implementation of digital circuits, measurement techniques and troubleshooting are covered. Also included is the use of instruments, such as, the oscilloscope, digital multimeter, and logic probe to measure digital circuits.
TEEL 3204
DIGITAL CIRCUITS II
LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 3201 & TEEL 3203
CO-REQUISITE: TEEL 3202
Laboratory exercises to complement TEEL 3202-Digital Circuits II. Techniques in the design and implementation of meters, registers, memories, arithmetic and logic units, measurement techniques and troubleshooting. Use of instruments and programs to familiarize students with the theory studied in the theory course.

TEEL 3211
DC CIRCUITS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: MATE 3171
CO-REQUISITE: TEEL 3212
Discussion of basic concepts in electricity, such as, current, voltage, resistance, power, and energy, as well as laws, rules, theorems and techniques and their respective applications in the design and analysis of electrical circuits in series, parallel, series-parallel and others. Also discussed are the concepts of the electrical field, capacitance, magnetic field and inductance. Circuits with inductors and capacitors, including their respective time constants are analyzed.

TEEL 3212
DC CIRCUITS
LABORATORY
CREDITS: 1
CONTACT HOURS: 3
CO-REQUISITE: TEEL 3211
Laboratory course to complement through experiments the theory in TEEL 3211-Digital Circuits. Resistor color codes and the alphanumerical codes of capacitors and inductors are introduced. Studies assembly techniques of circuits in a project card, measurement techniques and troubleshooting, in addition to the use of instruments, such as the digital and the analog multimeter for electrical measurements in different circuits.

TEEL 3212
AC CIRCUITS
LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: MATE 3171, TEEL 3211 & TEEL 3212
CO-REQUISITE: TEEL 3221
Laboratory course to complement the theory in TEEL 3221-AC Circuits. The utilization of instruments, such as, the digital and the analog multimeters, the oscilloscope and the signal generator for electrical measurements in different AC circuits are introduced. Studies assembly techniques of circuits in a project card, measurement techniques and troubleshooting in AC circuits.

TEEL 3221
AC CIRCUITS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: MATE 3171, TEEL 3211 & TEEL 3212
CO-REQUISITE: TEEL 3222
The characteristics of sinusoidal waves and the representation of signals and circuits with complex numbers and phasors are studied. In addition, the theorems and laws of circuit analysis in serial, parallel, series-parallel and others with sinusoidal waves are studied. Concepts and applications of power, reactance, impedance, admittance, susceptance, resonance, transformers and three-phase voltage systems are discussed.

TEEL 3231
ELECTRONIC I
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITES: MATE 3172, TEEL 3211
CO-REQUISITE: TEEL 3233, TEEL 3221, TEEL 3222
Study of the theory, construction, electrical characteristics and the operation of basic semiconductor devices. Also studied are the application of these devices in various basic circuits and their respective characteristics (analysis) and design criteria. The utilization of a program for the design, analysis and simulation of electronic circuits is demonstrated.
TEEL 3232
**ELECTRONIC II**
**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 3231, TEEL 3233  
**CO-REQUISITE:** TEEL 3234
This course is a continuation of TEEL 3231-Electronics I and its laboratory (TEEL 3233). Amplifier circuits with various transistors and circuits for the handling of current (mostly utilized in integrated circuits) are studied. In addition, frequency response of the different amplifier configurations with transistors, simple and compound, to understand its behavior in low, medium and high frequencies is covered.

TEEL 3233
**ELECTRONICS I LABORATORY**
**CREDITS:** 1  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 3211, TEEL 3212  
**CO-REQUISITE:** TEEL 3231, TEEL 3222
Study and practice of experiences regarding the operation of different electronic semiconductor devices studied in TEEL 3231-Electronics I. Construction techniques of basic electronic circuits to experimentally analyze their operations are presented. Also studied is the use of instruments, such as, the multimeter and oscilloscope to measure, observe and analyze waves applied to circuits built with these electronic semiconductor devices. Students learn how to use replacement manuals of discrete electronic devices.

TEEL 3234
**ELECTRONICS II LABORATORY**
**CREDITS:** 1  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 3231, TEEL 3233  
**CO-REQUISITE:** TEEL 3232
Study and practice of experiences regarding the operation of different electronic semiconductor devices studied in TEEL 3232-Electronics II. Construction techniques of amplifier circuits with various transistors and circuits for the handling of current to analyze experimentally their operations are presented. Students will work on the analysis of frequency response for different amplifiers to understand their operation.

TEEL 4001
**ADVANCED ELECTRONICS**
**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 3202 & TEEL 3204  
**CO-REQUISITE:** TEEL 4002
A detailed study of operational amplifiers, their advantages and limitations, the use of operational amplifiers, active filters and time circuits, and linear integrated circuits.

TEEL 4002
**ADVANCED ELECTRONICS LABORATORY**
**CREDITS:** 1  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 2003 & TEEL 2004  
**CO-REQUISITE:** TEEL 4001
Develops the skills necessary for the correct use of instruments for detecting defects in integrated linear circuits and operational amplifiers.

TEEL 4006
**COMPUTER COMMUNICATION NETWORKS**
**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 3202 & TEEL 3204
The fundamental principles of communication among computers, facsimile (fax machines) and computer terminals are studied. Also studied are systems used to transmit information over telephone lines. An analysis of codes, modulation and equipment used in this type of communication is presented.
TEEL 4007
MODERN COMMUNICATION SYSTEMS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 4021
Includes a review of basic communication concepts. Modern communication systems built based upon integrated circuits are studied in detail. Multiplexing and data pulse systems, tuned frequency circuits, and phase locked loop are analyzed.

TEEL 4009
DATA COMMUNICATION NETWORKS LAB
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 4006
The study and practice of experiments and projects on the operation of the different components and systems studied in the Computer Network course. Also included are the use of the protocol analyzer to analyze data traffic, collisions, alarms and the discussion of wiring techniques.

TEEL 4011
LOGIC CIRCUITS II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 2001 & TEEL 2002
CO-REQUISITE: TEEL 4013
The study of frequency dividers, encoders, decoders, types of memory, arithmetic unit, indicators, character generators and some instruments that use digital circuits, such as: frequency counters, digital watches, multimeters, etc. Introduction to the computer’s central processing unit (CPU).

TEEL 4012
LOGIC CIRCUITS III
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 3202 & TEEL 3204
CO-REQUISITE: TEEL 4014
The study of the computer’s central processing unit (CPU) and the internal architecture of the basic microprocessor. Analysis of the most widely used microprocessors on the market. The connection between the microprocessor and peripheral systems or other control systems is discussed.

TEEL 4013
LOGIC CIRCUITS II LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 2001 & TEEL 2002
CO-REQUISITE: TEEL 4011
Practice of the basic principles studied in TEEL 4011. Develops the skills necessary for the correct use of instruments used in digital systems.

TEEL 4014
LOGIC CIRCUITS III LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 3202 & TEEL 3204
CO-REQUISITE: TEEL 4012
Practice in Logic Circuits III (TEEL 4012).

TEEL 4021
COMMUNICATIONS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 2035 & TEEL 2036
A detailed analysis of circuits and components used in the transmission and reception of electromagnetic waves utilizing different types of modulation: AM, FM, SSB, CW and pulse modulation. Power measurements, frequency, percent modulation, SWR and characteristics of antennas in the different transmission systems are discussed.
TEEL 4022
COMMUNICATIONS LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 2035 & TEEL 2036
Practice in the use of instruments for frequency measurements. The study of AM, FM, SSB, CB, CW, and RT communication receivers with emphasis on the development of skills for the maintenance of these receivers.

TEEL 4046
CIRCUIT ANALYSIS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: MATE 3032 & TEEL 3163
Includes a review of the Analysis Theory of DC circuits. Dependent voltage and current sources are studied. Also included are the following: Use of the Laplace Transform in circuit analysis, circuits with Magnetic coupling and circuit response to FOURIER series.

TEEL 4051
MICROWAVE & RADAR SYSTEMS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 2035 & TEEL 2036, MATE 3032
CO-REQUISITE: TEEL 4052
Introduction to the principles of transmission lines and dispersion parameters. Study of waveguides, substrates lines and ferrite components for microwaves. Also studied are microwave amplifiers using tubes and transistors. Explanation of how microwave antennas, radio systems and radars operate. Discussion of industrial applications of microwaves, hazards caused by microwave radiation and steps taken to control it.

TEEL 4052
MICROWAVE & RADAR SYSTEMS LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 2035 & TEEL 2036, MATE 3032
CO-REQUISITE: TEEL 4051
Laboratory practice of the operation of different circuits, electronic and/or electric components, studied in microwave and radar systems.

TEEL 4201
COMMUNICATION SYSTEMS I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 4209
CO-REQUISITE: TEEL 4203
SBasic topics in the communications field, such as, noise and the representation of orthogonal signals are discussed. Also included are different methods of analog modulation: amplitude modulation, amplitude modulation with single sideband (SSB), double sideband (DSB), vestigial sideband (VSB), quadrature amplitude modulation (QAM), angle modulation and frequency modulation (FM). Although the description at system level for the different types of modulations are emphasized, typical electronic circuits used in transmitters and receivers are also discussed. Basic topics of digital communication like samples, pulse code modulation (PCM), differential pulse code modulation (DPCM) and delta modulation are covered. Also discussed are basic topics in digital transmissions, such as, coding, randomization, types of pulses, digital repeaters and multiplexing. The personal computer will be used for simulations.
TEEL 4202  
**COMMUNICATION SYSTEMS II**
**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** FISI 3172, TEEL 4201, TEEL 4203  
**CO-REQUISITE:** TEEL 4204

Introduction to the principles of transmission lines and dispersion parameters. Study of the waveguide components. Basic concepts of electromagnetic propagation and antennas are presented. Also discussed are the composition, operation and properties of optical fibers, in addition to applications: telecommunication systems based on microwaves and radar.

TEEL 4203  
**COMMUNICATION SYSTEMS I LABORATORY**
**CREDITS:** 1  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 4209  
**CO-REQUISITE:** TEEL 4201

Laboratory course which complements the theory in TEEL 4201—Communications Systems I. Measurement and electrical tests techniques in the frequency domain carried out with instruments, such as, the spectrum analyzer and the network analyzer are emphasized. In addition, techniques to synthesize different types of modulations utilizing the radio frequency signal generator are discussed. Antennas are built and their radiation pattern is measured.

TEEL 4204  
**COMMUNICATION SYSTEMS II LABORATORY**
**CREDITS:** 1  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEEL 4201, TEEL 4203, FISI 3172  
**CO-REQUISITE:** TEEL 4202

Laboratory course which complements the theory in TEEL 4202—Communications Systems II. Through experiments and projects, either via simulations or electrical measurements, the behavior of transmission lines is characterized. Radio frequency circuits are measured or simulated to obtain S parameters. Techniques in measurement and electrical tests in the frequency domain carried out with instruments, such as, the spectrum analyzer and the network analyzer are emphasized. In addition, techniques to synthesize different types of modulations utilizing the radio frequency signal generator are discussed.

TEEL 4209  
**ANALYSIS OF SIGNALS & SYSTEMS**
**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** MATE 3032, TEEL 3031

The course studies the following: Fourier series and transform, Fourier’s discrete transform, the Fast Fourier Transform (FFT), the Laplace transform and the Z-transform (applied to discrete time systems); transfer operations, frequency response, impulse response, analysis of linear systems that do not vary with time, digital filter designs, state variables, and other related topics. The use of block diagrams to represent systems is emphasized. Computer programs (Ex. MatLab) will be used in the design and analysis of signals and continuous and discrete systems.
TEEL 4211
LINEAR INTEGRATED CIRCUITS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 3232, TEEL 3234
CO-REQUISITE: TEEL 4212, TEEL 4209
Study of operational amplifiers (op-amp) including their characteristics, advantages and disadvantages. Also studied are design and analysis criteria of circuit amplifiers, oscillators and active filters, among others. Discussion on the concepts of frequency response, gain bandwidth product (GBP), feedback and cascade circuits. Simulations of linear integrated circuits are presented and studied.

TEEL 4212
LINEAR INTEGRATED CIRCUITS LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 3232, TEEL 3234
CO-REQUISITE: TEEL 4211
Study and practice of experiments associated to the theory of devices and circuits studied in TEEL 4211-Linear Integrated Circuits. The use of electrical measurement and troubleshooting techniques are developed in linear integrated circuits and operational amplifiers.

TEEL 4301
ELECTRICAL MACHINES & POWER SYSTEMS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 3232, TEEL 3234
CO-REQUISITE: TEEL 4302
Study of single and three-phase transformers and the fundamental principles of the structure and operation of different types of electric generators and motors of direct, alternate and multiphase current. Introduction to motor control and power distribution systems.

TEEL 4302
ELECTRICAL MACHINES & POWER SYSTEMS LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 3232, TEEL 3234
CO-REQUISITE: TEEL 4301
Study of practice exercises on the operation of different electrical motors, generators and transformers studied in TEEL 4301-Electrical Machines and Power Systems.

TEEL 4305
VIDEO TECHNOLOGY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 4201, TEEL 3202
Study of the basic principles used in the reproduction of video signals used in digital television systems (HDTV), the processing of the video signal in a television studio or on the Internet, and the recording and reproduction principles of video and audio signals (DVD). The course includes the techniques for the transmission of analog video to digital video in transmission and receiving systems, utilizing digital technology, including computer monitors and techniques used for high definition and satellite television.
TEEL 4308
ASSEMBLY & REPAIR OF PERSONAL COMPUTERS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 4006, TEEL 4009
Study of the techniques used to assemble and identify faults in a personal computer. Students will identify and learn about the interaction of different internal devices of the PC, the configuration of a PC according to a manufacturer’s recommendations and its operating systems. Study of integrated connectors for expansion cards on the main board or “motherboard” of the computer, designed with shapes and special electronic features, used to interconnect a wide range of external devices to the computer, that is to say, peripherals. Configuration of computers to be connected to a local network using TCP/IP.

TEEL 4307
ASSEMBLY & REPAIR OF PERSONAL COMPUTERS LABORATORY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 3231
TEEL 3202
Study of the techniques used to assemble and identify faults or problems in a personal computer. A personal computer will be used to cause damage for the student to diagnose what the computer’s problem is using PC repair techniques. Students will identify and learn about the interaction of different internal parts of the PC, the configuration of a PC according to a manufacturer’s recommendations, and the Windows operating system. In addition, students will study the basic operation of the internal parts and communication with the computer for assembly and learn the configuration of computers to be connected to a local network using TCP/IP.

TEEL 4310
NETWORK SWITCHES IN LOCAL AREAS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 4006 AND TEEL 4009
A theoretical-practical study of the procedures utilized to configure switches. The components and protocols required to design network switches are studied. Students will learn the hierarchical network model and how to select the equipment for this layer. The implementation of Virtual Local Area Networks (VLAN) and the routing between VLAN in a converged network are explained. Also, students will acquire the knowledge to implement Wireless Local Area Networks (WLAN).
TEEL 4315
TECHNOLOGY WIDE AREA NETWORKS
CREDITS: 3
CONTACT HOURS: 3
CO-REQUISITE: TEEL 4319
CTheoretical course which explores the different technologies of wide area network (WAN) and network services required by converged applications in enterprise networks. It explains how to select equipment to meet the needs of the selected WAN technology.

TEEL 4319
TECHNOLOGY WIDE AREA NETWORKS LABORATORY
CO-REQUISITE: TEEL 4315
Students will implement and configure protocols of common data links and implement network security concepts, traffic principles, access control and routing services.

TEEL 4901
PROFESSIONAL DESIGN I “CAPSTONE”
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 4211, TEEL 4212
CO-REQUISITE: TEEL 4201, TEEL 4203
This is the first of two integrating courses where student groups will work on a project from the ideas’ initial conception to the manufacture of the prototype. The course integrates subjects of various courses in the bachelor’s degree program. Students will apply project handling techniques and prepare work schedules for both semesters. The final project’s product design should be an original one (prepared by the group) to which formal design techniques will be applied. The course concludes with a detailed proposal of the design and a plan for the manufacture of the prototype in the second course.

TEEL 4902
PROFESSIONAL DESIGN II “CAPSTONE”
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEEL 4901
This is the second of the two integrated courses where student groups will work on a project from the ideas’ initial conception to the manufacture of the prototype. In this second part, the same groups of students will follow the work schedule developed during the first part of the course (TEEL 4901). Each group will continue to construct its project following the design created in TEEL 4901. The project’s construction will first consist of the assembly of prototype circuit cards and later of the printed circuit cards. The course ends with the verification of the prototype and a final oral and written report. This report will include details on the different aspects of the project, including the design, manufacture, and tests, as well as how the established specifications were met. Each group should have completed the project by the end of the course.
TEIN 1101
FUNDAMENTALS IN ELECTRICITY
CREDITS: 4
CONTACT HOURS: 4
CO-REQUISITE: MATE 3001, TEIN 1102
Introduction to the fundamental concepts of electricity including voltage, current, energy, power and efficiency. Study and characterization of electrical power circuits and direct and alternate current (DC & AC). Conceptual and mathematical analysis of basic circuits used in instrumentation is covered.

TEIN 1102
FUNDAMENTALS IN ELECTRICITY LABORATORY
CREDITS: 1
CONTACT HOURS: 3
CO-REQUISITE: MATE 3001, TEIN 1101
Study and laboratory practice of the fundamental concepts of electricity including voltage, current, energy, power and efficiency. Study in the use of the oscilloscope and the multimeter as instruments to measure signals. Practice on the assembly and measurement in voltage circuits and direct and alternate currents (DC and AC).

TEIN 1211
FUNDAMENTALS OF DIGITAL CIRCUITS
CREDITS: 3
CONTACT HOURS: 3
CO-REQUISITE: TEIN 1212
Study of the basic concepts of digital circuits, including number systems, Boolean algebraic theorems, basic gates, and of more complicated digital circuits.

TEIN 1212
FUNDAMENTALS OF DIGITAL CIRCUITS LABORATORY
CREDITS: 1
CONTACT HOURS: 3
CO-REQUISITE: TEIN 1211
The laboratory course presents students with application exercises of the circuits studied in TEIN 1211-Fundamentals of Digital Circuits. Skills in electrical measurement techniques and troubleshooting of digital circuits are developed.

TEIN 2001
MEASUREMENT PRINCIPLES I
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITES: TEIN 2021 & TEIN 2023
CO-REQUISITE: TEIN 2003
Study of the operational principles of the different elements in mechanical and electronic measurements to measure temperature, pressure, flow, relative humidity, density and viscosity. Installation and operation of the instruments used to store and register data, as well as the following transmitters: pressure to pressure, differential pressure to pressure, pressure to current and current to pressure.

TEIN 2003
MEASUREMENT PRINCIPLES I LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEIN 2021 & TEIN 2023
CO-REQUISITE: TEIN 2001
Practice in the use of circuits and measurement instruments.
TEIN 2002  
**MEASUREMENT PRINCIPLES II**  
**CREDITS:** 2  
**CONTACT HOURS:** 2  
**PRE-REQUISITES:** TEIN 2001 & TEIN 2003  
Study of the measurement techniques used in analysis equipment: chromatographs, spectrometers, and pH meters. In addition, measurements used in medical equipment and basic physiology concepts of the human body are covered.

TEIN 2004  
**MEASUREMENT PRINCIPLES II LABORATORY**  
**CREDITS:** 1  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEIN 2001 & TEIN 2003  
Laboratory oriented towards familiarizing students with the measurement techniques learned in TEIN 2003.

TEIN 2005  
**CALIBRATION PRINCIPLES**  
**CREDITS:** 1  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEIN 2001 & TEIN 2003  
Theory and practice of calibration through laboratory exercises are studied. The student acquires experience on how to calibrate pressure transmitters, current transmitters, storage and data register instruments, valves, and controllers.

TEIN 2011  
**CONTROL PRINCIPLES**  
**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEIN 2001 & TEIN 2003  
**CO-REQUISITE:** TEIN 2012  
The study of the factors that affect process control units. Includes a detailed discussion of different types of control: On-Off, proportional, integral, and derivative. Also included is the study of typical examples of pneumatic and electronic controllers. A discussion of the factors in a process that can affect stability, the use of the block diagram algebra to determine the transfer function of a process, the analysis of a control system using its response to a step function, and the stability criteria are included. In addition, the course presents the use of the Bode diagram to determine optimum adjustment for different control modes.

TEIN 2012  
**CONTROL PRINCIPLES LABORATORY**  
**CREDITS:** 1  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** TEIN 2001 & TEIN 2003  
**CO-REQUISITE:** TEIN 2011  
Practice of the different techniques and control systems studied in TEIN 2011.

TEIN 2021  
**ELECTRONIC DEVICES I**  
**CREDITS:** 4  
**CONTACT HOURS:** 4  
**PRE-REQUISITES:** TEIN 1101, TEIN 1102  
**CO-REQUISITE:** MATE 3171, TEIN 2023  
Study of the theory, construction, electrical characteristics, operation and application of basic semiconductor devices. The following semiconductor devices studied include: silicon and germanium diodes, Zener diodes, Varactor, Schottky diode, bipolar transistors (BJT), field effect transistor (JFET & MOSFET), diodes and opto-electronic transistors. Analysis of small signal amplifiers, cascade circuits and RC coupling among circuits.

TEIN 2022  
**ELECTRONIC DEVICES II**  
**CREDITS:** 4  
**CONTACT HOURS:** 4  
**PRE-REQUISITES:** TEIN 2021, TEIN 2023  
**CO-REQUISITE:** TEIN 2024  
Study of power amplifiers, advantages and disadvantages of operational amplifiers (Op-Amps), Op-Amps applications, oscillating circuits and active filters. Also studied are time circuits and linear integrated circuits. Course introduces switching power supplies and voltage regulators.
TEIN 2023

**ELECTRONIC DEVICES I LABORATORY**

CREDITS: 1  
CONTACT HOURS: 3  
PRE-REQUISITES: TEIN 1101, TEIN 1102  
CO-REQUISITE: TEIN 2021

Study and practice of experiences on the operation of different electronic and electrical devices studied in the course, Electronic Devices (TEIN 2021). Use of the multimeter to test devices. Use of the oscilloscope to observe and analyze wave forms applied to circuits built with these electronic devices. Use of replacement manuals for discrete electronic devices. Construction of basic electronic circuits to analyze their operation via experimentation. Use of programs for the analysis and simulation of electronic circuits.

TEIN 2024

**ELECTRONIC DEVICES II LABORATORY**

CREDITS: 1  
CONTACT HOURS: 3  
PRE-REQUISITES: TEIN 2021, TEIN 2023  
CO-REQUISITE: TEIN 2022

Study and practice with experiments associated with the theory of linear circuits studied in TEIN 2022-Electronic Devices II. Skills in electrical measurement techniques and troubleshooting in linear integrated circuits and operational amplifiers are developed. Use of linear circuit replacement manuals and of programs to analyze and simulate the operation of linear circuits with transistors and operational amplifiers.

TEIN 2110

**PRINCIPLES OF INDUSTRIAL NETWORKS LABORATORY**

CREDITS: 1  
CONTACT HOURS: 3  
PRE-REQUISITES: TEIN 1211, TEIN 1212

Detailed study of the different industrial networks that exist and their components, so students may acquire the basic concepts that define industrial data communication networks and their specifications. In addition, the course includes practice with experiments and projects on the operation of the different industrial networks studied.

TEIN 2221

**BIOMEDICAL INSTRUMENTATION**

CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITES: TEIN 2022, TEIN 2024  
CO-REQUISITE: TEIN 2222

Introduction to biomedical techniques and equipment utilized for measurements in the human body. Study of circuits with operational amplifiers used in biomedical equipment. Basic principles of physiological systems of the human body are studied.

TEIN 2222

**BIOMEDICAL INSTRUMENTATION LABORATORY**

CREDITS: 1  
CONTACT HOURS: 3  
PRE-REQUISITES: TEIN 2022 & TEIN 2024  
CO-REQUISITE: TEIN 2221

Laboratory oriented towards familiarizing students with the measurement techniques learned in TEIN 2221-Biomedical Instrumentation.
TEIN 2231

INDUSTRIAL SYSTEMS

CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TEIN 2023, TEIN 2024
CO-REQUISITE: TEIN 2232

Study of the different contemporary industrial systems. Includes the discussion of the configuration of these systems, their components and devices, such as, motors, control valves like solenoid, proportional and pneumatic valves, relays and contactors, variable frequency driver (VFD) used to control motor velocity, starters, overload relays and servo motors. In addition, transducers (sensors) of discrete and analog variable, as well as transmitters and variable converters. Finally, analog controllers, which can be electronic or pneumatic, and digital controllers based on programming, like PLC (Programmable Logic Controller) are also studied.

TEIN 2232

INDUSTRIAL SYSTEMS LABORATORY

CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEIN 2023, TEIN 2024
CO-REQUISITE: TEIN 2231

Laboratory practice of the different techniques and control systems studied in TEIN 2231.

TEIN 2500

INSTRUMENTATION PROJECT LABORATORY - CAPSTONE

CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITES: TEIN 2001 & TEIN 2110
CO-REQUISITE: TEIN 2111, TEIN 2231

Study and practice on the development of projects in the instrumentation field. The course integrates subjects of the diverse courses in the Associate Degree Program of Instrumentation Technology. Students learn and apply project handling techniques and prepare a work schedule. Skills on the use of calibration techniques and troubleshooting in instrumentation systems are developed. Student groups will each write a proposal detailing the instrumentation project. The project is to be completed during the semester.
There is a great demand in industry, government, business, and banking for well-trained personnel in secretarial skills and administrative support. Therefore, graduates of the Office Systems Program find important and well-paid employment positions. These positions, however, demand that candidates possess not only the technical abilities required but also complete mastery of the Spanish and English languages, a pleasant and well-balanced personality, and a high sense of responsibility.

The Bachelor’s Degree Program in Office Systems seeks to emphasize in its academic and technological courses the use of electronic equipment and written communication processing systems. Graduates may be employed as office assistants, executive or administrative secretaries and as office administrators. In addition to acquiring knowledge about executive and administrative procedures, graduates are expected to be able to successfully undertake responsibilities that pertain to executive administrators and executives, such as: employee supervision, planning, public relations, in-service training, and decision making.

Those graduates who wish to obtain executive and administrative positions can find excellent opportunities in banking, industry, government, and business or could become successful entrepreneurs.

### BACHELOR’S DEGREE IN OFFICE SYSTEMS (0318)

**FIRST YEAR**

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<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tr>
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<tr>
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<td>Basic English I</td>
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<tr>
<td>*INGL 3113</td>
<td>Basic English I Laboratory</td>
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<td>ESPA 3101</td>
<td>Basic Spanish I</td>
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<tr>
<td>SOFI 3015</td>
<td>Office Systems Concepts and Technologies</td>
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<tr>
<td>SOFI 3005</td>
<td>Basic Keyboarding/Typing</td>
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<tr>
<td>MATE 3006</td>
<td>Integrated Mathematics with Applications</td>
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<tr>
<td>CISO 3121</td>
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<td>Business Communication I</td>
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<td>SOFI 3215</td>
<td>Speedwriting in Spanish</td>
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<tr>
<td>SOFI 3210</td>
<td>Records Management</td>
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<tr>
<td>SOFI 3218</td>
<td>Documents Production II</td>
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<td>SOFI 3219</td>
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## THIRD YEAR

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<td>Comp. West. Civilization I y II</td>
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<td>Conversational English for Office Systems</td>
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<td>SOFI 3328</td>
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## FOURTH YEAR

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<td><strong>Sub-Total Credits</strong></td>
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**TOTAL Credits: 132**

*First Year English Course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam). If students pass the CEEB’s Advanced Placement with a score of 4 or 5, they may go on to their second year English course, INCO 3005-3006.*
SOFI 3005
BASIC KEYBOARDING/TYPEWRITING
CREDITS: 3
CONTACT HOURS: 4
Teaching techniques and basic skills needed for touch keyboarding/typing of electronic equipment. Development of basic skills, speed and accuracy. Transfer of basic skills to run backup italic, statistics and draft. Introduction to writing problems: horizontal and vertical centralization, personal letters, memos and simple tabulations. Introduction to the teaching of typing rules for word division, proofreading techniques and error correction. Development of attitudes and work habits.

SOFI 3007
KEYBOARDING FOR PERSONAL USE
CREDITS: 3
CONTACT HOURS: 4
Teaching and development of the basic skills needed for touch keyboarding/typing of the alphanumerical keyboard through the electronic typewriter or the personal computer. Introduction to writing and production of documents, such as: letters, envelopes, vertical and horizontal centralization, tabulation and reports. The course emphasizes good work habits, basic techniques, and proofreading.

SOFI 3015
OFFICE SYSTEMS CONCEPTS & TECHNOLOGIES
CREDITS: 3
CONTACT HOURS: 3
The study of the theory and evolution of information processing as a system, its cycle, and the human aspects in the utilization of this technology. Includes the study of all the subsystems in information processing and the concept of telecommunications. In addition, the theoretical and practical concepts of operating systems are introduced.

SOFI 3017
INTERPERSONAL RELATIONSHIPS IN THE OFFICE
CREDITS: 3
CONTACT HOURS: 3
Promotes self-knowledge through the study of personality development, the formation of the “I” concept, the handling of emotions, and effective communication. Includes an analysis of human behavior in terms of the individual, groups, and companies.

SOFI 3105
DOCUMENT PRODUCTION I
CREDITS: 2
CONTACT HOURS: 2
PRE-REQUISITE: SOFI 3005
CO-REQUISITE: SOFI 3106, 3125 & 3126
Continues with the development of basic skill of touch typing/keyboarding at the highest levels. Includes the teaching and production of the business letter: styles, types of punctuation, special notes and envelope preparation; memorandums, tables with three or more columns, column headings and figures. Also includes the teaching and production of different styles of reports or manuscripts with one or two footnotes. Introduction to the production of these documents from hand-written and typed drafts. Discussion, development, and application of typing rules and word division. The minimum passing grade is C.
SOFI 3106
DOCUMENT PRODUCTION I LABORATORY
CREDITS: 0
CONTACT HOURS: 2
PRE-REQUISITE: SOFI 3005
CO-REQUISITE: SOFI 3105, SOFI 3125 & SOFI 3126
Students will have the opportunity to fully develop basic skills of speed and accuracy. Through a variety of exercises, the students will apply thinking skills when producing and editing documents. Special emphasis is given to the development of work attitudes and habits.

SOFI 3125
WORD PROCESSING
CREDITS: 2
CONTACT HOURS: 2
PRE-REQUISITE: SOFI 3005
CO-REQUISITE: SOFI 3126, SOFI 3105 & SOFI 3106
Teaching of the functions of a widely used word processing program. Includes the study of the steps in word processing.

SOFI 3126
WORD PROCESSING LABORATORY
CREDITS: 0
CONTACT HOURS: 2
PRE-REQUISITE: SOFI 3005 & SOFI 3015
CO-REQUISITE: SOFI 3125, SOFI 3105 & SOFI 3106
The course will experiment with the basic operations of a word processing system and the basic functions of these programs for the creation of documents.

SOFI 3210
RECORDS MANAGEMENT
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SOFI 3005
The course teaches the rules for alphabetical document filing. The study of the organization and procedures for the alphabetical, numerical, geographical, and subject filing methods. Training on the methods and modern techniques for the organization and control of documents: charge-out method, transfer and elimination of documents, microfilming and data processing.

SOFI 3215
SPEED WRITING IN SPANISH
CREDITS: 5
CONTACT HOURS: 5
PRE-REQUISITE: SOFI 3005 & ESPA 3101
Teaching of the principles of speed writing in Spanish. Includes reading, writing, and dictation using a speed writing system for longhand transcription. It also includes a review of linguistic rules.

SOFI 3218
DOCUMENT PRODUCTION II
CREDITS: 2
CONTACT HOURS: 2
PRE-REQUISITE: SOFI 3105, SOFI 3106, SOFI 3125 & SOFI 3126
CO-REQUISITE: SOFI 3219
Teaching and writing business forms, such as, purchase forms, application forms, invoices, financial statements, reports, schedules, press releases, job applications, and resumes. It reinforces basic skills, production of business reports, and memorandums. The course covers the application of proofreading techniques during the editing process of the corresponding formats and the production of legal documents. The course also emphasizes the development of positive attitudes and work habits.
SOFI 3219
DOCUMENT PRODUCTION II LABORATORY
CREDITS: 0
CONTACT HOURS: 2
CO-REQUISITE: SOFI 3218
Students will continue to develop basic skills and thinking skills through reinforcement exercises and the creation and editing of administrative correspondence and statistical material. Students are encouraged to develop positive attitudes towards carrying out an assigned task.

SOFI 3305
INFORMATION PROCESSING
CREDITS: 2
CONTACT HOURS: 2
PRE-REQUISITE: SOFI 3125 & SOFI 3126
CO-REQUISITE: SOFI 3306
Teaching of software compatible with current office technology and the administrative personnel’s functions. Includes the basic concepts of programs for information processing such as spreadsheets, databases, and graphs.

SOFI 3306
INFORMATION PROCESSING LABORATORY
CREDITS: 0
CONTACT HOURS: 2
CO-REQUISITE: SOFI 3305
Reinforcement of the knowledge of basic operations of information processing programs, such as, spreadsheets, databases, and graphs. Students will experiment with these programs’ operations in the creation of documents.

SOFI 3315
SPEED WRITING IN ENGLISH
CREDITS: 5
CONTACT HOURS: 5
PRE-REQUISITE: SOFI 3005 & INGL 3101 OR INGL 3103 OR INGL 3011
Teaching of the principles of speed writing in English. It includes reading, dictation, and transcription using the SuperWrite speed writing system. The course also includes the discussion and application of linguistic rules, and punctuation and grammar for achieving acceptable transcriptions in an office.

SOFI 3327
SPANISH TRANSCRIPTION
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: SOFI 3105, SOFI 3106, SOFI 3125, SOFI 3126 & SOFI 3215
Teaching of correct transcription techniques using electronic equipment. Integration and application of typing skills, speedwriting, and Spanish language skills for the accurate transcription of documents. The minimum passing grade is C.

SOFI 3328
ENGLISH TRANSCRIPTION
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: SOFI 3105, SOFI 3100, SOFI 3125, SOFI 3126 & SOFI 3315
Teaching of correct transcription techniques using electronic equipment. Integration and application of typing skills, speedwriting, and English language skills for the accurate transcription of documents. The minimum passing grade is C.
SOFI 3355
ADMINISTRATIVE OFFICE PROCEDURES
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SOFI 3105 & SOFI 3210
Emphasis on the duties and responsibilities, professional image, characteristics and personality traits of the administrative assistant. Discussion and application of office procedures in the modern office. Teaching of decision-making principles and time management for achieving the best performance in the office.

SOFI 3357
ELEMENTARY ACCOUNTING PROCEDURES
CREDITS: 3
CONTACT HOURS: 3
Accounting specially designed for students of the Office Systems program. Includes the general study of the basic principles of double-entry bookkeeping with appropriate application to special journals, major subsidiaries (ledgers), cash and petty cash control, and the preparation and analysis of payroll and financial statements.

SOFI 4005
INTEGRATION OF SOFTWARE FOR ELECTRONIC DATA PROCESSING
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: SOFI 3305 & SOFI 3306
Teaching of advanced operations in word processing, spreadsheets, and database programs. Integration of various programs to word processing in the production of documents.

SOFI 4036
LEGAL OFFICE PROCEDURES
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITES: SOFI 3218, SOFI 3219, SOFI 3327 & SOFI 3355
Emphasis on the responsibilities and duties of the administrative secretarial personnel in the legal office. It includes the teaching and application of legal terminology, tasks, and office procedures for the production and processing of legal documents. Development of the exercise in effective human relations, good judgment, positive attitudes and professional ethics. Development and application of the principles of effective time management, decision-making, and the analysis and interpretation of legal regulations.

SOFI 4037
ADVANCED PRODUCTION OF DOCUMENTS
CREDITS: 3
CONTACT HOURS: 4
PRE-REQUISITE: SOFI 3218 & SOFI 3219
Emphasis on the mastery of production techniques in the modern office as well as the mastery of techniques in transcribing from handwritten rough drafts. Production of specialized material and mastery of proofreading techniques.
SOFI 4038
OFFICE ADMINISTRATION
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SOFI 3355
Discussion of the principles that apply to the planning, organization, administration, and control of typical activities in the different offices and problem solving of situations that may arise there. It will emphasize topics related to human resources motivation and with the management of information as raw material in offices. Includes a discussion of the effect of new technologies in office management and support personnel.

SOFI 4039
INTEGRATED ELECTRONIC OFFICE
CREDITS: 3
CONTACT HOURS: 4
PRE-REQUISITE: SOFI 3305, SOFI 3327, SOFI 3328 & SOFI 3355
This course has been designed to reinforce the skills, knowledge, and proper attitudes of the administrative assistant. Emphasizes the organization and administration of an office. Includes exercises that provide for the application of decision making, setting priorities, transcription and correct editing of documents, and proofreading techniques.

SOFI 4040
PLANNING & IMPLEMENTATION OF OFFICE SYSTEMS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SOFI 3015
Study of the planning process for the development and implementation of office systems. Special attention is given to intergroup needs related to the users, departments, and organization’s objectives through case studies or the preparation of a project.

SOFI 4305
EVALUATION & SELECTION OF SOFTWARE & OFFICE EQUIPMENT
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SOFI 3305 & SOFI 4040
Study and analysis of different software and equipment for an automated office from the user’s point of view. Emphasis on comparison and evaluation techniques for the selection of equipment and software.

SOFI 4505
IN-SERVICE TRAINING TECHNIQUES
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: SOFI 3305 & SOFI 4038
Techniques for office training of users of electronic equipment. Also includes development, management, coordination, and evaluation of training programs.

SOFI 4985
OFFICE SYSTEMS INTERNSHIP & SEMINAR
CREDITS: 5
CONTACT HOURS: 10
PRE-REQUISITE: SOFI 4038 & SOFI 4005
Supervised internship in offices of the community that have been selected as practicum centers. The practice period is equivalent to 200 hours. In addition, students will attend 15 hours of seminars to participate in activities that will complement the transition of the university to the office.
The University of Puerto Rico at Bayamón offers a Bachelor’s Degree in Special and Elementary Physical Education that was a pioneer program in Puerto Rico and the Caribbean. This program prepares future specialists capable of adapting physical education to the needs, abilities, and interests of each child or youth with or without disabilities. It is based on practical, clinical and theoretical experiences programmed in its curricular design. The program offers life experiences and observation opportunities as well as laboratories and supervised practices to provide students with the exceptional expertise in the physical and psychomotor education of people with special needs and of elementary school children. Program graduates qualify for two certifications offered by the Department of Education in Puerto Rico: Adapted Physical Education and Elementary Physical Education.

The Special and Elementary Physical Education Department’s objective is to develop students who are committed to their profession, skillful and competent in their tasks with a sense of self-direction and respect for knowledge. The department offers a technical-professional university preparation that incorporates three main approaches: humanistic, ecological and activist awareness.

The Bachelor’s Degree program in Special and Elementary Physical Education offers a study plan and practical experiences that prepare physical education professionals with the ability to serve people with or without disabilities from 0-21 years of age.

The goal of the program is to offer the best professional preparation possible through the development of skills, knowledge, and educational technology needed for effective intervention with children with or without disabilities. The main objective of the program is to offer both theoretical and practical experiences that form highly qualified and competent physical education professionals who can work in elementary, special or adapted education. Among the educational technologies used in the pre-practice experiences in populations with or without special needs are the following laboratories: Adapted Physical Education, Adapted Swimming and Exercise Physiology.

Adapted Physical Education Laboratory
The Adapted Physical Education Laboratory (LEFA, by its Spanish acronym) is a learning service center for students of the Bachelor’s Degree in Special and Elementary Physical Education. In the laboratory students provide measurement, evaluation and prescriptive services for activities that develop physical and motor efficiency, activities that develop perceptual motor development, games skills, gymnastics, dance and rhythm, and the introduction of people with special needs to sports.

Adapted Swimming Laboratory
In the Adapted Swimming Laboratory, students of the EDFI 4013 course offer basic aquatic and mobility activities to people with special needs.

Physiology Exercise Laboratory
The Physiology Exercise Laboratory allows students to apply theoretical concepts in practice exercises. Students develop research projects emphasizing the effects of exercise on the human body by applying the physiological parameters and the methodology learned in the Physiology of Exercise and the Measurement and Evaluation courses.

Specialists who graduate from the program are capable of adapting physical education to the needs, abilities and interests of every child or youth with or without disabilities. The teaching-learning experience is enriched by varied experiences with the school population. The program emphasizes direct experience with
children, young adults and adults with various conditions, in addition to observations and practice within the Department of Education of Puerto Rico. Graduates who want to obtain their certification to teach in the Department of Education must pass a teacher certification exam and have a minimum GPA of 2.80 in 2012 and 3.00 in 2013.

The Special and Elementary Physical Education Department offers elective courses to all students of the University of Puerto Rico at Bayamón with emphasis on alternatives related to health, recreation and sports.

The Bachelor’s Degree in Special and Elementary Physical Education is accredited by the National Council for Accreditation of Teacher Education (NCATE).

**FIRST YEAR**

<table>
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<tr>
<th>First Semester</th>
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<tr>
<td><strong>Code</strong></td>
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<td>Human Growth &amp; Develop. I</td>
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<td>HUMA 3111</td>
<td>Comp. Western Culture I &amp; II</td>
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<td>Foundations of Regular &amp; Special Physical Education</td>
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**SECOND YEAR**

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<td>EDES 4006</td>
<td>Nature &amp; Needs of Exceptional Learner</td>
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<td>EDFI 3098</td>
<td>Methods &amp; Techniques in Adapted Physical Education</td>
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<td>EDFI 3695</td>
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<td>Exercise Physiology with Lab</td>
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<td>EDFI 4159</td>
<td>Anato. &amp; Kinesiology with Lab</td>
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<td>EDFI 4009</td>
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<td>Student Teaching in Phys. Ed.</td>
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**TOTAL CREDITS: 138**

* First year English course will be assigned according to score obtained on the CEEB (College Board’s Entrance Exam).

** Second year English course.

1. If students passed INGL 3101-3102 (Basic English I-II) during their first year, they register in INGL 3201.
2. If students passed INGL 3103-3104 (Intermediate English I-II) or INGL 3011-3012 (Honor English) during their first year, they register in INGL 3221.
3. If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211.
EDFI 2007  
PERSONAL & COMMUNITY HEALTH  
CREDITS: 3  
CONTACT HOURS: 3  
Discusses healthy living considered from the standpoint of the individual and her/his relationship with the social and environmental community in which she/he lives. Includes the discussion of topics such as exercise, relaxation, nutrition, personal habits, hygiene, and hereditary and transmitted diseases.

EDFI 2045  
TEACHING & LEARNING CHESS IN THE ELEMENTARY SCHOOL  
CREDITS: 2  
CONTACT HOURS: 3  
This course consists of activities designed to teach chess to elementary school students. Includes topics such as the rules, scoring, use of the chess clock and appropriate competition plans for holding tournaments.

EDFI 3016  
TEAM & INVIDUAL SPORTS  
CREDITS: 3  
CONTACT HOURS: 3  
Theory and practice of fundamental skills of handball, basketball, volleyball, softball, and athletics. Emphasis on the sequence and teaching methodology in the school environment within the concept of lifetime sports. Each student will take a theoretical and practical exam on two sports not covered in class. The test will be administered at the end of the semester.

EDFI 3025  
ELEMENTARY VOLLEYBALL  
CREDITS: 2  
CONTACT HOURS: 3  
This course gives the students basic knowledge of the history, rules and fundamentals as well as practice in volleyball skills.

EDFI 3026  
GAMES, RHYTHM & GYMNASTICS  
CREDITS: 3  
CONTACT HOURS: 3  
Theory and practice for the teaching of concepts and movement skills in games, rhythm and gymnastics training appropriate for the elementary physical education curriculum. The unit on games includes those which are simple in organization, lead-up or preparatory games for sports, new and cooperative. The unit on rhythm includes body expression and dance.

EDFI 3034  
MEASUREMENT & EVALUATION IN REGULAR & ADAPTED PHYSICAL EDUCATION  
CREDITS: 3  
CONTACT HOURS: 3  
Course includes the following: Basic concepts of measurement, assessment and evaluation in physical education; design, administration and interpretation of psychomotor and cognitive tests in elementary and adapted physical education; and an introduction to research and the use of computers in evaluation.

EDFI 3035  
ELEMENTARY BASKETBALL  
CREDITS: 2  
CONTACT HOURS: 3  
The teaching and the development of the skills and basic rules to play this game, plus the history and the physical and psychological aspects of basketball training.
EDFI 3039  
**FOUNDATIONS OF REGULAR & SPECIAL PHYSICAL EDUCATION**  
**CREDITS:** 3  
**CONTACT HOURS:** 3  
Synthesis of the foundations and historical background of regular and adapted physical education in the world and Puerto Rico. Emphasis in recognizing the role of contributing to developing physically educated persons within the framework of recent educational philosophies. Introduction to the field of adapted physical education and to the concept of inclusion: legal aspects, definitions and services. Requires twelve (12) observation hours of physical education programs.

EDFI 3075  
**TRACK & FIELD - CROSS-COUNTRY**  
**CREDITS:** 2  
**CONTACT HOURS:** 3  
Study of the history, rules, terminology, scoring systems, and fundamentals of these sports. The course emphasizes the skills and correct techniques used in each of the 21 events.

EDFI 3095  
**COACHING & OFFICIATING BASKETBALL**  
**CREDITS:** 2  
**CONTACT HOURS:** 3  
Study and practice of the basic skills of this sport in Puerto Rico. Students will be trained to coach and officiate the game.

EDFI 3098  
**TEACHING METHODS & TECHNIQUES IN ADAPTED PHYSICAL EDUCATION**  
**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITE:** EDFI 3039  
Methodology in the measurement, evaluation, prescription, programming, and implementation of physical education programs for individuals with special needs since infancy. Emphasis on the administration and interpretation of tests, writing individualized plans within the PEI (Spanish acronym for Individualized Education Plan [IEP]) and IFSP (Individualized Family Service Plan). In-depth discussion of techniques for individualizing teaching and intervention using a functional developmental and ecological model.

EDFI 3099  
**SEMINAR IN STUDENT-TEACHING IN SPECIAL PHYSICAL EDUCATION**  
**CREDITS:** 3  
**CONTACT HOURS:** 3  
**PRE-REQUISITES:** EDFI 3034, EDFI 4009, EDFI 4011, EDFI 4157, EDFI 4169, EDES 4006  
Discussion and analysis of problems related to the curriculum design in adapted or special physical education, starting with related educational taxonomies (cognitive, psychomotor, affective and others.) Emphasis on the adaptation and evaluation of materials in physical education, and general and specialized techniques for the construction of objectives, lesson plans, and evaluation of educational experiences. The course also emphasizes teacher responsibilities towards students, educational institutions, and the community. Students are introduced to technology through the use of computers for preparing physical education materials. Requires ten (10) hours of pre-practicum in adapted physical education in public or private schools.

EDFI 3385  
**PHYSICAL FITNESS**  
**CREDITS:** 2  
**CONTACT HOURS:** 3  
Body conditioning exercises, development of agility, flexibility, balance, coordination and strength. Physical fitness tests are administered at the beginning and end of the course.
EDFI 3425
WEIGHTLIFTING
CREDITS: 2
CONTACT HOURS: 3
Study of the history, rules, terminology and principles of this sport, Olympic and free-style weightlifting. Students will learn individual skills of both types of weight lifting. Special emphasis will be given to use of this sport as a means of conditioning the body for other sports by exercising with weights.

EDFI 3441
INTRODUCTION TO SWIMMING
CREDITS: 2
CONTACT HOURS: 3
The course aims to develop the basic swimming styles and methodology used in teaching these skills. All styles used in competitions and during lifesaving are discussed and practiced.

EDFI 3451
TENNIS
CREDITS: 2
CONTACT HOURS: 3
A study of the history, rules, facilities, equipment and scoring of the game of tennis. Includes practice of the basic skills such as: forehand, backhand and serve.

EDFI 3452
INTERMEDIATE TENNIS
CREDITS: 2
CONTACT HOURS: 3
PRE-REQUISITE: EDFI 3451
Teaches intermediate skills of the game, offensive and defensive techniques and strategies, and double and single games.

EDFI 3475
SOFTBALL, VOLLEYBALL & BASEBALL
CREDITS: 2
CONTACT HOURS: 3
Students will learn about the history, facilities, equipment and rules of these sports. During the practice phase, basic individual and team skills as well as individual and team offensive and defensive techniques will be emphasized.

EDFI 3595
BASKETBALL & SOCCER
CREDITS: 2
CONTACT HOURS: 3
Emphasizes the theory and practice of basketball and soccer, fundamentals of the games, offensive and defensive techniques, and rules followed in each game.

EDFI 3695
FIRST AID & SAFETY
CREDITS: 3
CONTACT HOURS: 3
Discussion about safety, causes and procedures for first aid, management of injuries, sudden illnesses and medical emergencies. Includes discussions about use and abuse of drugs, cigarettes and alcohol. Emphasis on legal implications. Includes practical experience on how to apply basic bandages and how to obtain the cardiopulmonary resuscitation (CPR) certification.

EDFI 3696
LABORATORY OF METHODS & TECHNIQUES IN ADAPTED PHYSICAL EDUCATION
CREDITS: 1
CONTACT HOURS: 1
CO-REQUISITE: EDFI 3098
Students will administer a series of tests in the areas of physical education, program activities and apply teaching methods to individuals with special needs. Requires the preparation of an individualized lesson plan and a log at the end of the semester. Includes initial lectures and informal talks with parents.
EDFI 3697
LABORATORY IN PHYSICAL EDUCATION & RECREATION FOR MENTAL RETARDATION & OTHER CONDITIONS
CREDITS: 1
CONTACT HOURS: 1
CO-REQUISITE: EDFI 4157
Students will carefully examine the performance levels of individuals with mental retardation and/or related conditions; plan and implement individualized and group physical education activities for EDFI 4157; offer orientation; maintain communication with parents; and hold a final activity.

EDFI 3698
PHYCHOMOTORICITY
CREDITS: 3
CONTACT HOURS: 3
Course covers the foundations of neurological, perceptual, and motor development in infancy and childhood with and without disabilities. Emphasis on stages and sequence of motor and perceptual development including influential factors involved. Includes a discussion of the principles of motor learning and development, perceptual-motor intervention techniques, and deviations in motor development and perceptual motor.

EDFI 4009
CURRICULUM & TEACHING OF PHYSICAL EDUCATION FROM K-3
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: EDFI 3039, EDFI 3026, EDFI 3698
CO-REQUISITE: EDFI 4011
Curricular content and design, planning, selection of activities and teaching methods for elementary physical education in grades K-3 according to current content and performance standards in the United States and Puerto Rico. Emphasis on writing unit and daily plans for these grades. Includes activities for concept development in physical fitness, movement education, and motor skills for appropriate development of children from kindergarten to third grade. Requires visits and microteaching in physical education at public and private schools.

EDFI 4011
CURRICULUM & TEACHING OF PHYSICAL EDUCATION FROM 4-6
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: EDFI 3039, EDFI 3016 & EDFI 3034
CO-REQUISITE: EDFI 4009
Curricular content and design, planning, selection of activities and teaching methods for elementary physical education in grades 4-6 according to current content and performance standards in the United States and Puerto Rico. Emphasis on writing unit and daily plans for the development of physical fitness, skills applied to sports and recreation, and activities for the social/affective development of students grades 4-6. Includes group behavior management techniques. Requires visits and microteaching in physical education at public and private schools.
EDFI 4012
LABORATORY OF PHYSICAL ACTIVITIES FOR LIMITED ABILITY
CREDITS: 1
CONTACT HOURS: 1
CO-REQUISITE: EDFI 4169
Students provide physical education to individuals with physical or sensory disabilities as part of the EDFI 4169 laboratory. Includes assessment, and planning of individual and group activities adapted to people with physical or sensory impairments within and outside the department.

EDFI 4013
TEACHING ADAPTED & ELEMENTRY SWIMMING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: EDES 4006
The study of the basic considerations in instructional and recreational aquatics for children with and without disabilities. Emphasis on methodology, programming, and benefits of aquatic activities in overall development. Includes experience with children and young adults with disabilities.

EDFI 4157
PHYSICAL EDUCATION FOR MENTAL RETARDATION
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: EDFI 3098
CO-REQUISITE: EDFI 3697
Analysis of various aspects about individuals with mental retardation, specific learning problems emotional disturbances, and autism (classification, and physical, cognitive and motor characteristics) as well as methodological implications for the teaching physical education. Includes concepts and objectives related to recreation and its impact on these individuals.

EDFI 4159
ANATOMY & KINESIOLOGY WITH LABORATORY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CIBI 3002
Introduction to the study of the structure and composition of the human body involved in movement and physical activity. Emphasis on kinesiological and biomechanical principles essential when preparing to teach physical education. It includes the anatomical and kinesiological factors in childhood growth. The course requires a series of laboratory experiments for the application knowledge. Students will use the anatomical and kinesiological computer software program, ADAM.

EDFI 4165
MANAGEMENT OF PHYSICAL EDUCATION, RECREATION, & SPORTS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: EDFI 3039
Introduction to planning, organization, supervision, and administration procedures involved in a physical education, sports and recreational program. It includes legal implications, professional responsibilities, and motivational skills in the management of physical education, sports and recreational programs. Introduction to computer software for management purposes.

EDFI 4166
INTRODUCTION TO THERAPEUTIC RECREATION
CREDITS: 3
CONTACT HOURS: 3
The course is designed to familiarize students with the therapeutic recreation profession. It includes its history, philosophy, programs, treatments, research and populations served. An opportunity for students to acquire basic experience on the significance of therapeutic recreation will be provided.
EDFI 4168
**PHYSIOLOGY OF EXERCISE WITH LABORATORY**
**CREDITS: 3**  
**CONTACT HOURS: 3**  
**PRE-REQUISITE: EDFI 4159**
Introduction to the human body’s physiological processes and adaptations as a response to physical activity. Examines the functions of the body systems while active or at rest and in different temperature environments. It also includes topics related to physical fitness, nutrition and sports performance with emphasis on the promotion of healthy lifestyles. The course also includes discussions on exercise physiology in childhood and its development, as well as in older populations and in people with disabilities. Includes ten laboratories that reinforce what was learned in class as well as research examinations in the laboratory. The computer software, “Simulated Exercise Physiology Laboratories,” is used in laboratories to emphasize the use of the computer.

EDFI 4169
**PHYSICAL EDUCATION FOR INDIVIDUALS WITH PHYSICAL LIMITATIONS**
**CREDITS: 3**  
**CONTACT HOURS: 3**  
**PRE-REQUISITES: EDFI 3098**  
**CO-REQUISITE: EDFI 4012**
Characteristics, motor performance and handling of students with orthopedic, sensory or chronic health-related disabilities in physical education and sports programs. It includes posture evaluation, causes and handling of posture deviations and an introduction to the evaluation of muscle function and remedial activities. Includes adapted sports (classification and events) for these athletes.

EDFI 4199
**TEACHING PRACTICUM IN SPECIAL PHYSICAL EDUCATION**
**CREDITS: 6**  
**CONTACT HOURS: 15**  
**PRE-REQUISITES: EDFI 3099, EDFI 4157, EDFI 4169**
Student teachers teach adapted physical education to special elementary level groups in nearby schools for three hours a day, five days a week. Cooperative teachers and university supervisors coach and supervise them. The course includes seminars and activities inherent to teaching. It is expected that students will apply evaluation skills and teaching techniques appropriate in the planning and implementation of a variety of activities that foster motor development, motor and physical fitness, and fundamental and appropriate specialized skills. It includes the planning and coordination of a Field Day, an educational field trip, a permanent contribution, and a professional activity.
The Engineering and Engineering Technologies Department is composed of the following programs:
Bachelor’s Degree in Materials Management, Engineering Transfer (Civil, Electrical, Industrial, Mechanical, Chemical, Surveying and Computer) and Associate Degrees in Surveying, Roads and Structural Civil Construction Technology; Civil Engineering Technology-Construction; and Industrial Engineering Technology.

Materials Management
This is a study program at the UPRB towards a Bachelor’s Degree in Materials Management. Skills, attitudes and knowledge necessary for its graduates to be able to administer and manage materials within the supply chain are developed. Graduates are prepared with the required abilities to work in a dynamic and participative environment in the areas of materials management, inventory control, purchases, logistics and storage. Those interested in studying materials management will find that the emphasis of the program is on computerized scientific applications and on research, with special attention to informed decision making. The program will develop qualified graduates with an ethical and moral orientation based within the UPRB and society’s philosophies.

**BACHELOR’S DEGREE IN MATERIALS MANAGEMENT (0315)**

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Sub-Total Credits 15

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Sub-Total Credits 16

Sub-Total Credits 18
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**TOTAL CREDITS: 135**

*Students will be placed according to the score obtained in the English section of the College Board Entrance Exam (CEEB) or Advanced Placement exam.*
SURVEYING, ROADS AND STRUCTURAL CIVIL CONSTRUCTION TECHNOLOGY

This study program at the UPRB is towards an associate degree in Surveying, Roads and Structural Civil Construction Technology. Skills, attitudes and knowledge necessary for its graduates to be able to apply civil construction techniques in the area of surveying, roads and structure are developed. Graduates are prepared with the required abilities to work in a dynamic and participative environment. Students are trained in the area of civil construction technology emphasizing technical and computerized applications. The program prepares technicians to successfully function in the areas of road construction, study and planning of routes, testing of materials, farm and lot measurements, mechanical tests of soil in the country and estimated construction costs. This program combines technical and computerized applications in a participative manner.

ASSOCIATE DEGREE IN SURVEYING, ROADS AND STRUCTURAL CIVIL CONSTRUCTION TECHNOLOGY (2008)
(Applies to students admitted before August 2010)

### FIRST YEAR

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| Sub-Total Credits | 17 |

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| Sub-Total Credits | 17 |

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| Sub-Total Credits | 16 |

| Second Semester | **Code** | **Title** | **Credits** |
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| TECI 2005 | Surveying I | 3 |
| TECI 2007 | Cost Estimates | 2 |
| TECI 2012 | Materials Testing | 2 |
| TECI 2003 | Soils & Foundations | 3 |
| TECI 2005 | Socio–humanistic Elective | 3 |

| Sub-Total Credits | 18 |

**TOTAL CREDITS: 68**

*Students will be placed according to the score obtained in the English section of the CEEB or Advanced Placement exam.*
ASSOCIATE DEGREE IN SURVEYING, ROADS AND STRUCTURAL CIVIL CONSTRUCTION TECHNOLOGY (2010)

(Appplies to admissions, reclassification or transfers effective August 2010)

### FIRST YEAR

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**TOTAL CREDITS: 68**

*Students will be placed according to the score obtained in the English section of the CEEB or Advanced Placement exam.*
ASSOCIATE DEGREE IN SURVEYING, ROADS AND STRUCTURAL CIVIL CONSTRUCTION TECHNOLOGY (2011)

(Appplies to admissions, reclassification or transfers effective August 2011)

## FIRST YEAR

### First Semester

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**Sub-Total Credits:** 17

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**Sub-Total Credits:** 18

**TOTAL CREDITS:** 67

*Students will be placed according to the score obtained in the English section of the CEEB or Advanced Placement exam.*
ASSOCIATE DEGREE IN CIVIL ENGINEERING IN CONSTRUCTION TECHNOLOGY

Study program at the UPRB towards an associate degree in Civil Engineering in Construction Technology. Skills, attitudes and knowledge necessary for its graduates to be able to apply civil engineering in the area of construction are taught. Graduates are prepared with the required abilities to work in a dynamic and participative environment. Students are trained in the area of civil engineering technology emphasizing technical and computerized applications. The program prepares technicians to successfully function in the areas of material testing, surveying, mechanical testing of soil in the country, quality control inspections in construction projects, cost estimation and as design assistants. This program combines technical and computerized applications in a participative manner.

ASSOCIATE DEGREE IN CIVIL ENGINEERING IN CONSTRUCTION TECHNOLOGY (2009)

(Applies to students admitted before August 2010)

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<td>Applied Mechanics-Statics</td>
<td>3</td>
<td>TECI 2011</td>
<td>Material Strength</td>
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<tr>
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<td>3</td>
<td>TECI 2008</td>
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<td>TECI 2007</td>
<td>Cost Estimate</td>
<td>2</td>
<td>TECI 2015</td>
<td>Structural Steel</td>
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<tr>
<td>TECI 2012</td>
<td>Material Testing</td>
<td>2</td>
<td>TECI 2035</td>
<td>Construction Management</td>
<td>4</td>
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<tr>
<td>TECI 2049</td>
<td>Intro. Computerized Systems</td>
<td>2</td>
<td>TECI 2006</td>
<td>Surveying II</td>
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</tbody>
</table>

TOTAL CREDITS: 69

*Students will be placed according to the score obtained in the English section of the CEEB or Advanced Placement exam.
ASSOCIATE DEGREE IN CIVIL ENGINEERING IN CONSTRUCTION TECHNOLOGY (2010)

(Applies to admissions, reclassification or transfers effective August 2010)

**FIRST YEAR**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Title</td>
</tr>
<tr>
<td>ESPA 3101</td>
<td>Basic Spanish I</td>
</tr>
<tr>
<td>*INGL 31__</td>
<td>First Year English</td>
</tr>
<tr>
<td>MATE 3001</td>
<td>Introductory Math</td>
</tr>
<tr>
<td>TECI 2038</td>
<td>Construction Materials</td>
</tr>
<tr>
<td>TECI 2039</td>
<td>Construction Materials Lab</td>
</tr>
<tr>
<td>TECI 1005</td>
<td>Technical Drawing</td>
</tr>
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<td></td>
<td>Elective Socio-humanistic Elective</td>
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**SECOND YEAR**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Title</td>
</tr>
<tr>
<td>TECI 1009</td>
<td>Applied Mechanics-Statics</td>
</tr>
<tr>
<td>TECI 2005</td>
<td>Surveying I</td>
</tr>
<tr>
<td>TECI 2010</td>
<td>Estimation of Construction Costs</td>
</tr>
<tr>
<td>TECI 2012</td>
<td>Material Testing Lab</td>
</tr>
<tr>
<td>TECI 2049</td>
<td>Intro. Computerized Systems</td>
</tr>
<tr>
<td>TECI 2030</td>
<td>Concrete &amp; Asphalt Test. Lab.</td>
</tr>
<tr>
<td>Elective</td>
<td>Socio-humanistic Elective</td>
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**TOTAL CREDITS: 69**

*Students will be placed according to the score obtained in the English section of the CEEB or Advanced Placement exam.*
ASSOCIATE DEGREE IN CIVIL ENGINEERING IN CONSTRUCTION TECHNOLOGY  (2009)
(Appplies to admissions, reclassification or transfers effective August 2011)

**FIRST YEAR**

<table>
<thead>
<tr>
<th>First Semester</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Title</td>
</tr>
<tr>
<td>ESPA 3101</td>
<td>Basic Spanish I</td>
</tr>
<tr>
<td>*INGL 31__</td>
<td>First Year English</td>
</tr>
<tr>
<td>MATE 3001</td>
<td>Introductory Math</td>
</tr>
<tr>
<td>TECI 2038</td>
<td>Construction Materials</td>
</tr>
<tr>
<td>TECI 2039</td>
<td>Construction Materials Lab</td>
</tr>
<tr>
<td>TECI 1005</td>
<td>Technical Drawing</td>
</tr>
<tr>
<td>TECI 1025</td>
<td>Intro. Computer. Systs. Lab</td>
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<td><strong>Sub-Total Credits</strong></td>
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**SECOND YEAR**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Title</td>
</tr>
<tr>
<td>TECI 1009</td>
<td>Applied Mechanics-Statics</td>
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<tr>
<td>TECI 2005</td>
<td>Surveying I</td>
</tr>
<tr>
<td>TECI 2010</td>
<td>Estimation of Construction Costs</td>
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<td>TECI 2012</td>
<td>Material Testing Lab</td>
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<td>TECI 2013</td>
<td>Soils</td>
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<td>TECI 2014</td>
<td>Soils Laboratory</td>
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<tr>
<td>TECI 2030</td>
<td>Concrete &amp; Asphalt Test. Lab.</td>
</tr>
<tr>
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<td><strong>Sub-Total Credits</strong></td>
</tr>
</tbody>
</table>

**TOTAL CREDITS: 68**

*Students will be placed according to the score obtained in the English section of the CEEB or Advanced Placement exam.*
INDUSTRIAL ENGINEERING TECHNOLOGY

Study program at the UPRB towards an associate degree in Industrial Engineering Technology. Skills, attitudes and knowledge necessary for its graduates to be able to apply industrial engineering techniques in both manufacturing and in services. Graduates are prepared with the required abilities to participate in a dynamic environment. Those interested in studying industrial engineering technology are trained in technical and computerized applications. The program prepares technicians to successfully function in the areas of industrial safety, quality control, method design, work measurement, deployment of facilities and inventory control.

ASSOCIATED DEGREE IN INDUSTRIAL ENGINEERING TECHNOLOGY
(Appplies to students admitted before August 2010)

| FIRST YEAR |
|---|---|
| **First Semester** | **Second Semester** |
| Code | Title | Credits | Code | Title | Credits |
| *INGL 31__ | First Year English | 3 | *INGL 31__ | First Year English | 3 |
| MATE 1001 | Technical Math I | 4 | MATE 1002 | Technical Math II | 4 |
| TIIN 1005 | Industrial Organization | 3 | MATE 3015 | Elementary Statistics | 3 |
| ESPA 3101 | Basic Spanish I | 3 | TECI 1005 | Technical Drawing | 3 |
| SICI 1008 | Intro. to Computers | 4 | TIIN 1015 | Industrial Safety | 3 |
| | | | ESPA 3102 | Basic Spanish II | 3 |
| **sub-total credits** | **17** | **sub-total credits** | **19** |

| SECOND YEAR |
|---|---|
| **First Semester** | **Second Semester** |
| Code | Title | Credits | Code | Title | Credits |
| TIIN 1008 | Engineering Materials | 3 | TIIN 2015 | Production Control | 3 |
| TIIN 2010 | Method Design | 4 | TIIN 2017 | Industrial Economics | 3 |
| TIIN 2016 | Accounting for Engineers | 4 | TIIN 2018 | Plant Deployment | 4 |
| TIIN 2009 | Quality Control | 3 | TIIN 2011 | Work Measurement | 3 |
| TIIN 2020 | Method Design Practice | 0 | TIIN 2021 | Measurement Practice | 0 |
| TIIN 2026 | Engineering Const. Project | 0 | TIIN 2028 | Deployment Project | 0 |
| | Directed Elective | 3 | | | |
| **Sub-total Elective** | **3** | **Sub-total Elective** | **16** |

TOTAL CREDITS: 69

*Students will be placed according to the score obtained in the English section of the College Board Entrance Exam (CEEB) or Advanced Placement exam.*
ASSOCIATED DEGREE IN INDUSTRIAL ENGINEERING TECHNOLOGY (2010)

(Applies to admissions, reclassification or transfers effective August 2010)

**FIRST YEAR**

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<thead>
<tr>
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<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Second Semester</th>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
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<td>ESPA 3101</td>
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<td>ESPA 3102</td>
<td>Basic Spanish II</td>
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<td></td>
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<td>First Year English</td>
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<td>*INGL 31__</td>
<td>First Year English</td>
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<td></td>
<td>MATE 3001</td>
<td>Introductory Math</td>
<td>3</td>
<td>MATE 3171</td>
<td>Pre-Calculus I</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>TIIN 1005</td>
<td>Industrial Organization</td>
<td>3</td>
<td>TIIN 1051</td>
<td>Applied Industrial Graphics</td>
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<td></td>
<td>TIIN 1041</td>
<td>Personal Computer Applications in Industry</td>
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<td>TIIN 1052</td>
<td>Applied Industrial Graphics Lab</td>
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<td>TIIN 1042</td>
<td>Personal Computer Applications in Industry Lab</td>
<td>1</td>
<td>TIIN 1015</td>
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**SECOND YEAR**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Second Semester</th>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>TIIN 1008</td>
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<tr>
<td></td>
<td>TIIN 2041</td>
<td>Work Station Design</td>
<td>3</td>
<td>TIIN 2015</td>
<td>Production Control</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>TIIN 2042</td>
<td>Work Station Design Lab</td>
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<td>TIIN 2017</td>
<td>Industrial Economics</td>
<td>3</td>
<td></td>
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<td></td>
<td>TIIN 2013</td>
<td>Accounting Applied to Industry</td>
<td>3</td>
<td>TIIN 2031</td>
<td>Deployment of Physical Installations</td>
<td>3</td>
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<tr>
<td></td>
<td>TIIN 2014</td>
<td>Accounting Applied to Industry - Laboratory</td>
<td>1</td>
<td>TIIN 2032</td>
<td>Deployment of Physical Installations Lab</td>
<td>1</td>
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<tr>
<td></td>
<td></td>
<td>Science Course with Lab</td>
<td>4</td>
<td>TIIN 2051</td>
<td>Time Study</td>
<td>2</td>
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<tr>
<td></td>
<td></td>
<td>Socio-humanistic Elective</td>
<td>3</td>
<td>TIIN 2052</td>
<td>Time Study Lab</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub-Total Credits</td>
<td></td>
<td>18</td>
<td></td>
<td>Sub-Total Credits</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL CREDITS: 68
Engineering Programs - Articulated Transfers to the University of Puerto Rico at Mayagüez

The College of Engineering of the University of Puerto Rico is located at the Mayagüez Campus (RUM). Following the agreement signed in 1972 by the Chancellors of the Mayagüez Campus and the Administration of Regional Colleges, the Bayamón Regional College, today the University of Puerto Rico at Bayamón, was granted permission to begin offering courses in August 1972 towards the first two years of the engineering program. From then on the Engineering Transfer Program has been in effect in our University.

The Program comprises the first two (2) years of study towards the Bachelor of Science degree in Engineering in any of the following areas: Civil, Mechanical, Electrical, Industrial, Chemical and Computers. In addition, since August 2003 transfer programs for the Bachelor’s Degree in Surveying and Topography are also available. Upon satisfactory completion of forty eight (48) credits in the program, students may request transfer to the Mayagüez Campus.

Civil Engineering

The College of Engineering offers a Bachelor of Science Degree in Civil Engineering and a Bachelor of Science Degree in Surveying and Topography, under the Civil Engineering Department.

Civil Engineering is the oldest of the traditional divisions of engineering. It encompasses a broad range of public and private projects for improving the environment with the help of the latest technology. Great networks of highways; bridges; railroad tracks; dams; docks and wharves; runways; buildings; industrial structures; air, soil and water conservation and protection; industrial and residential waste management systems; tunnel and traffic systems designed and monitored by computers and geographical information systems (in sum, a country’s infrastructure) are examples of the work of a civil engineer. Each of the aspects mentioned has a great impact upon the daily living of most citizens. The civil engineer needs to consider in an integrated manner, the social as well as the physical factors that affect the planning, design, construction, operation and maintenance of a country’s infrastructure.

Surveying and Topography

Surveying is a subdivision of geodesy, the science of determining the shape and size of our planet. Surveying also seeks to determine the shape, size and position of portions of land. This discipline requires a solid background in mathematics and sciences, especially on physics, optics and astronomy. Students of this program are involved in a great variety of activities that include basic surveying, cartography, photogrammetry, geodesy and astronomy. Students will have the opportunity to apply the theory discussed in class through laboratory sessions and summer camps.

Electrical Engineering

The electrical engineering profession encompasses electronic devices and systems, electrical machinery, and power generation and transmission, electromagnetism, telecommunications, and signal processing. Electronic devices developed in recent years have almost unlimited applications for residential and industrial use, such as: automation, computers, communication systems, radars, space vehicle components and missile tracking systems, among others.
Industrial Engineering
Graduates of this program are essential in the planning, design, implementation and evaluation of products, services, and systems for the integration of the work force, materials, equipment and information for the progress and improvement of the quality of life of humanity. Industrial engineers make sure that the products, services and systems are economical and respond to the required quality levels. It combines knowledge in mathematics, physics, sociology, physiology and computer sciences with principles and methods of engineering analysis and design.

Mechanical Engineering
Mechanical engineering is characterized by the application of mathematics, science and technology for the analysis, design and production of products and processes. From airplanes to zippers, all physical problems are problems in mechanical engineering. One of the most sought after divisions of this field is the conversion of basic energy for the manufacture of goods and providing services, and the control and conservation of the environment. The mechanical engineering programs at the University of Puerto Rico prepare the student for working with mechanical and thermal systems. The program emphasizes the design, analysis and control of mechanical, electromechanical, thermal, and hydraulic systems; the analysis and control of related natural phenomena; and the management of industrial activities.

Chemical Engineering
The branch of engineering that applies to industries that transform, through chemical processes, raw materials into the large scale production of variety of products. It applies the conservation principles of mass, energy and momentum together with basic principles of engineering, mathematics, chemistry, physics, life sciences, economics, and social sciences to the optimum development in the use of natural resources. The chemical engineer today plays an important role in the solution of problems in areas such as the environment, renewable energy, technology, food, medicines, biotechnology and the development of new materials.

Computer Engineering
The Computer Engineering Program encompasses all aspects of design, theory, and practice related to circuits for computer systems. The electronic devices developed in recent years have a wide variety of applications for industrial and domestic use. Among them are automation systems, computers, and communication systems [radar components in space vehicles and missile tracking systems], among others.
ARTICULATED TRANSFER TO THE UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ
BACHELOR’S DEGREE IN CIVIL ENGINEERING

In the articulated program students may study up to their second year at the University of Puerto Rico at Bayamón and then transfer to the Mayagüez Campus to finish their Bachelor’s Degree. Students will take the following courses at the UPRB:

FIRST YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
</tr>
<tr>
<td>*MATE 3005 OR MATE 3171</td>
<td>Pre-calculus</td>
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<tr>
<td></td>
<td>Pre-calculus I</td>
</tr>
<tr>
<td><strong>ESPA 3101</strong></td>
<td>Basic Spanish I</td>
</tr>
<tr>
<td><strong>QUIM 3001</strong></td>
<td>General Chemistry I</td>
</tr>
<tr>
<td><strong>QUIM 3003</strong></td>
<td>General Chemistry I Lab</td>
</tr>
<tr>
<td><strong>INGE 3011</strong></td>
<td>Engineering Graphics I</td>
</tr>
<tr>
<td><strong>EDFI</strong></td>
<td>Elective in Physical Ed.</td>
</tr>
<tr>
<td><strong>Sub-Total Credits</strong></td>
<td>16/18</td>
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SECOND YEAR

<table>
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<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
</tr>
<tr>
<td>MATE 3032</td>
<td>Calculus II</td>
</tr>
<tr>
<td>FISI 3171</td>
<td>Physics for Engineers I</td>
</tr>
<tr>
<td>FISI 3173</td>
<td>Physics I Lab</td>
</tr>
<tr>
<td>INGE 3016</td>
<td>Algorithms &amp; Computer Programming</td>
</tr>
<tr>
<td><strong>INGL 31</strong></td>
<td>Second Year English</td>
</tr>
<tr>
<td><strong>Sub-Total Credits</strong></td>
<td>18</td>
</tr>
</tbody>
</table>

TOTAL CREDITS: 68/71

Requirements to complete transfer: Pass 48 credits at the UPRB. Grade point average of 2.00 and a 2.00 grade point average in sciences and mathematics courses during the two years of study.

* According to the score obtained in the College Board, students must be placed in MATE 3005 or MATE 3171-3172. If the student is placed during the first year in MATE 3171-3172, she/he should register in MATE 3031 during the summer so as not to alter the curricular sequence of courses during the second year of studies. Students that pass the Pre-Calculus exam offered by the College Board Entrance Exam (CEEB) with a score of 4 or 5 may go directly to MATE 3031.

** Students will be placed according to the score obtained in the English section of the College Board Entrance Exam (CEEB) or Advanced Placement exam.

*** Second Year of English:
1. If student passed INGL 3101-3102 (Basic English II) during the first year, she/he registers in INGL 3201-3202.
2. If student passed INGL 3103-3104 (Intermediate English III) during the first year, she/he registers in INGL 3326 & 3250.
3. If student passed the Advanced Placement with a score of 4 or 5, she/he registers in INGL 3211-3212.
ARTICULATED TRANSFER TO THE UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ
BACHELOR’S DEGREE IN ELECTRICAL ENGINEERING

In the articulated program students may study up to their second year at the University of Puerto Rico at Bayamón and then transfer to the Mayagüez Campus to finish their Bachelor’s Degree. Students will take the following courses at the UPRB:

**FIRST YEAR**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
</tr>
<tr>
<td><em>MATE 3005</em></td>
<td>Pre-calculus or</td>
</tr>
<tr>
<td>OR MATE 3171</td>
<td>Pre-calculus I</td>
</tr>
<tr>
<td><strong>INGL 31__</strong></td>
<td>First Year English</td>
</tr>
<tr>
<td><em>ESPA 3101</em></td>
<td>Basic Spanish I</td>
</tr>
<tr>
<td><em>QUIM 3001</em></td>
<td>General Chemistry I</td>
</tr>
<tr>
<td><em>QUIM 3003</em></td>
<td>General Chemistry I Lab</td>
</tr>
<tr>
<td><em>INGE 3011</em></td>
<td>Engineering Graphics I</td>
</tr>
<tr>
<td><em>EDFI</em>**</td>
<td>Elective in Physical Ed.</td>
</tr>
<tr>
<td><strong>Sub-Total Credits</strong></td>
<td><strong>16/18</strong></td>
</tr>
</tbody>
</table>

**SECOND YEAR**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
</tr>
<tr>
<td>MATE 3032</td>
<td>Calculus II</td>
</tr>
<tr>
<td>FISI 3171</td>
<td>Physics for Engineers I</td>
</tr>
<tr>
<td>FISI 3173</td>
<td>Physics I Lab</td>
</tr>
<tr>
<td>INGE 3035</td>
<td>Applied Mechanics in Electrical Engineering</td>
</tr>
<tr>
<td>INGE 3016</td>
<td>Algorithms &amp; Programming Computer</td>
</tr>
<tr>
<td><strong>INGL 3--</strong></td>
<td>Second Year English</td>
</tr>
<tr>
<td><em>EDFI</em>*</td>
<td>Elective in Physical Ed.</td>
</tr>
<tr>
<td><strong>Sub-Total Credits</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

**TOTAL CREDITS: 68/72**

Requirements to complete transfer: Pass 48 credits at the UPRB. Grade point average of 2.00 and a 2.00 grade point average in sciences and mathematics courses during the two years of study.

*According to the score obtained in the College Board, students must be placed in MATE 3005 or MATE 3171-3172. If the student is placed during the first year in MATE 3171-3172, she/he should register in MATE 3031 during the summer so as not to alter the curricular sequence of courses during the second year of studies. Students that pass the Pre-Calculus exam offered by the CEEB with a score of 4 or 5 may go directly to MATE 3031.

**Students will be placed according to the score obtained in the English section of the CEEB or Advanced Placement exam.

**Second Year of English:
1. If student passed INGL 3101-3102 (Basic English I-II) during the first year, she/he registers in INGL 3201-3202.
2. If student passed INGL 3103-3104 (Intermediate English I-II) during the first year, she/he registers in INGL 3326 & 33250.
3. If student passed the Advanced Placement with a score of 4 or 5, she/he registers in INGL 3211-3212.
ARTICULATED TRANSFER TO THE UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ
BACHELOR’S DEGREE IN INDUSTRIAL ENGINEERING

In the articulated program students may study up to their second year at the University of Puerto Rico at Bayamón and then transfer to the Mayagüez Campus to finish their Bachelor’s Degree. Students will take the following courses at the UPRB:

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**FIRST YEAR**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
</tr>
<tr>
<td><em>MATE 3005</em></td>
<td>Pre-calculus or</td>
</tr>
<tr>
<td>OR MATE 3171</td>
<td>Pre-calculus I</td>
</tr>
<tr>
<td><strong>INGL 31__</strong></td>
<td>First Year English</td>
</tr>
<tr>
<td>ESPA 3101</td>
<td>Basic Spanish I</td>
</tr>
<tr>
<td>QUIM 3001</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>QUIM 3003</td>
<td>General Chemistry I Lab.</td>
</tr>
<tr>
<td></td>
<td>Socio-humanistic Elective</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Sub-Total Credits</strong></td>
</tr>
</tbody>
</table>

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**SECOND YEAR**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
</tr>
<tr>
<td>MATE 3032</td>
<td>Calculus II</td>
</tr>
<tr>
<td>FISI 3171</td>
<td>Physics for Engineers I</td>
</tr>
<tr>
<td>FISI 3173</td>
<td>Physics I Lab.</td>
</tr>
<tr>
<td>INGE 3016</td>
<td>Algorithms &amp; Computer Programming</td>
</tr>
<tr>
<td><strong>INGL 3__</strong></td>
<td>Second Year English</td>
</tr>
<tr>
<td></td>
<td>EDFI</td>
</tr>
<tr>
<td></td>
<td><strong>Sub-Total Credits</strong></td>
</tr>
</tbody>
</table>

**TOTAL CREDITS: 68/71**

Requirements to complete transfer: Pass 48 credits at the UPRB. Grade point average of 2.00 and a 2.00 grade point average in sciences and mathematics courses during the two years of study.

*According to the score obtained in the College Board, students must be placed in MATE 3005 or MATE 3171. If the student is placed during the first year in MATE 3171, she/he should register in MATE 3031 during the summer so as not to alter the curricular sequence of courses during the second year of studies. Students that pass the Pre-Calculus exam offered by the CEEB with a score of 4 or 5 may go directly to MATE 3031.

** Students will be placed according to the score obtained in the English section of the CEEB or Advanced Placement exam.

**Second Year of English:
1. If student passed INGL 3101-3102 (Basic English I-II) during the first year, she/he registers in INGL 3201-3202.
2. If student passed INGL 3103-3104 (Intermediate English I-II) during the first year, she/he registers in INGL 3326 & 3250.
3. If student passed the Advanced Placement with a score of 4 or 5, she/he registers in INGL 3211-3212.
ARTICULATED TRANSFER TO THE UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ
BACHELOR’S DEGREE IN MECHANICAL ENGINEERING

In the articulated program students may study up to their second year at the University of Puerto Rico at Bayamón and then transfer to the Mayagüez Campus to finish their Bachelor’s Degree. Students will take the following courses at the UPRB:

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td><strong>SECOND SEMESTER</strong></td>
</tr>
<tr>
<td><strong>FIRST SEMESTER</strong></td>
<td><strong>SECOND SEMESTER</strong></td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>QUIM 3001</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>QUIM 3003</td>
<td>General Chemistry I Lab</td>
</tr>
<tr>
<td>*INGL 31__</td>
<td>First Year English</td>
</tr>
<tr>
<td>ESPA 3101</td>
<td>Basic Spanish I</td>
</tr>
<tr>
<td>INME 3809</td>
<td>Creative Design I</td>
</tr>
<tr>
<td>Socio Humanistic Elective</td>
<td>3</td>
</tr>
<tr>
<td>Sub-Total Credits</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECOND YEAR</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SECOND YEAR</strong></td>
<td><strong>SECOND SEMESTER</strong></td>
</tr>
<tr>
<td><strong>FIRST SEMESTER</strong></td>
<td><strong>SECOND SEMESTER</strong></td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>MATE 3032</td>
<td>Calculus II</td>
</tr>
<tr>
<td>FISI 3171</td>
<td>Physics for Engineers I</td>
</tr>
<tr>
<td>FISI 3173</td>
<td>Physics I Lab</td>
</tr>
<tr>
<td>***INGL 3--</td>
<td>Second Year English</td>
</tr>
<tr>
<td>EDFI Elective in Physical Ed.</td>
<td>1</td>
</tr>
<tr>
<td>Sub-Total Credits</td>
<td>15</td>
</tr>
</tbody>
</table>

**TOTAL CREDITS: 62**

Requirements to complete transfer: Pass 48 credits at the UPRB. Grade point average of 2.00 and a 2.00 grade point average in sciences and mathematics courses during the two years of study.

*According to the score obtained in the College Board, students must be placed in MATE 3005 or MATE 3171-3172. If the student is placed during the first year in MATE 3171-3172, she/he should register in MATE 3031 during the summer so as not to alter the curricular sequence of courses during the second year of studies. Students that pass the Pre-Calculus exam offered by the CEEB with a score of 4 or 5 may go directly to MATE 3031.

*The equivalency of QUIM 3131 and QUIM 3132 in the UPR-Bayamón is QUIM 3001 and QUIM 3002.

** Students will be placed according to the score obtained in the English section of the CEEB or Advanced Placement exam.

*** Second Year of English:
1. If student passed INGL 3101-3102 (Basic English III) during the first year, she/he registers in INGL 3201-3202.
2. If student passed INGL 3103-3104 (Intermediate English III) during the first year, she/he registers in INGL 3326 & 3250.
3. If student passed the Advanced Placement with a score of 4 or 5, she/he registers in INGL 3211-3212.
ARTICULATED TRANSFER TO THE UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ
BACHELOR’S DEGREE IN CHEMICAL ENGINEERING

In the articulated program students may study up to their second year at the University of Puerto Rico at Bayamón and then transfer to the Mayagüez Campus to finish their Bachelor’s Degree. Students will take the following courses at the UPRB:

FIRST YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
</tr>
<tr>
<td><em>MATE 3005 o MATE 3171</em></td>
<td>Pre-calculus or Pre-calculus I</td>
</tr>
<tr>
<td>*INGL 31__</td>
<td>First Year English</td>
</tr>
<tr>
<td>ESPA 3101</td>
<td>Basic Spanish I</td>
</tr>
<tr>
<td>QUIM 3001</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>QUIM 3003</td>
<td>General Chemistry I Lab</td>
</tr>
<tr>
<td>Socio Humanistic Elective</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub-Total Credits</td>
</tr>
</tbody>
</table>

SECOND YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Title</td>
</tr>
<tr>
<td>MATE 3032</td>
<td>Calculus II</td>
</tr>
<tr>
<td>FISI 3171</td>
<td>Physics for Engineers I</td>
</tr>
<tr>
<td>FISI 3173</td>
<td>Physics I Lab</td>
</tr>
<tr>
<td>QUIM 3055</td>
<td>Analytical Chemistry for Engineering</td>
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<td>***INGL 3--</td>
<td>Second Year English</td>
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<td>Free Elective</td>
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<tr>
<td></td>
<td>Sub-Total Credits</td>
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</table>

TOTAL CREDITS: 69/72

Requirements to complete transfer: Pass 48 credits at the UPRB. Grade point average of 2.00 and a 2.00 grade point average in sciences and mathematics courses during the two years of study.

*According to the score obtained in the College Board, students must be placed in MATE 3005 or MATE 3171-3172. If the student is placed during the first year in MATE 3171-3172, she/he should register in MATE 3031 during the summer so as not to alter the curricular sequence of courses during the second year of studies. Students that pass the Pre-Calculus exam offered by the CEEB with a score of 4 or 5 may go directly to MATE 3031.

** Students will be placed according to the score obtained in the English section of the CEEB or Advanced Placement exam.

** Second Year of English:
1. If student passed INGL 3101-3102 (Basic English I-II) during the first year, she/he registers in INGL 3201-3202.
2. If student passed INGL 3103-3104 (Intermediate English I-II) during the first year, she/he registers in INGL 3326 & 3250.
3. If student passed the Advanced Placement with a score of 4 or 5, she/he registers in INGL 3211-3212.
ARTICULATED TRANSFER TO THE UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ
BACHELOR’S DEGREE IN SURVEYING AND TOPOGRAPHY

In the articulated program students may study up to their second year at the University of Puerto Rico at Bayamón and then transfer to the Mayagüez Campus to finish their Bachelor’s Degree. Students will take the following courses at the UPRB:

### FIRST YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

**FIRST YEAR**

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Total Credits</td>
<td>16/18</td>
</tr>
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</table>

### SECOND YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
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<tr>
<td>...</td>
<td>...</td>
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</table>

**SECOND YEAR**

<table>
<thead>
<tr>
<th>SECOND YEAR</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Total Credits</td>
<td>18</td>
</tr>
</tbody>
</table>

**TOTAL CREDITS: 71/74**

Requirements to complete transfer: Pass 48 credits at the UPRB. Grade point average of 2.00 and a 2.00 grade point average in sciences and mathematics courses during the two years of study.

*According to the score obtained in the College Board, students must be placed in MATE 3005 or MATE 3171. If the student is placed during the first year in MATE 3171-3172, she/he should register in MATE 3031 during the summer so as not to alter the curricular sequence of courses during the second year of studies. Students that pass the Pre-Calculus exam offered by the CEEB with a score of 4 or 5 may go directly to MATE 3031.

** Students will be placed according to the score obtained in the English section of the CEEB or Advanced Placement exam.

***Second Year of English:

1. If student passed INGL 3101-3102 (Basic English III) during the first year, she/he registers in INGL 3201-3202.
2. If student passed INGL 3103-3104 (Intermediate English III) during the first year, she/he registers in INGL 3326 & 3325.
3. If student passed the Advanced Placement with a score of 4 or 5, she/he registers in INGL 3211-3212.
ARTICULATED TRANSFER TO THE UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ
BACHELOR’S DEGREE IN COMPUTER ENGINEERING

In the articulated program students may study up to their second year at the University of Puerto Rico at Bayamón and then transfer to the Mayagüez Campus to finish their Bachelor’s Degree. Students will take the following courses at the UPRB:

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>*MATE 3005</td>
<td>Pre-calculus or Pre-calculus I</td>
<td>5</td>
<td>MATE 3031</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATE 3171</td>
<td>Pre-calculus II</td>
<td></td>
<td>MATE 3172</td>
<td>Pre-calculus II</td>
<td></td>
</tr>
<tr>
<td><strong>INGL 31__</strong></td>
<td>First Year English</td>
<td>3</td>
<td><strong>INGL 3--</strong></td>
<td>First Year English</td>
<td>3</td>
</tr>
<tr>
<td>ESPA 3101</td>
<td>Basic Spanish I</td>
<td>3</td>
<td>ESPA 3102</td>
<td>Basic Spanish II</td>
<td>3</td>
</tr>
<tr>
<td>QUIM 3001</td>
<td>General Chemistry I</td>
<td>4</td>
<td>QUIM 3002</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>QUIM 3003</td>
<td>General Chemistry I Lab</td>
<td>0</td>
<td>QUIM 3004</td>
<td>General Chemistry II Lab</td>
<td>0</td>
</tr>
<tr>
<td>INGE 3011</td>
<td>Engineering Graphics I</td>
<td>2</td>
<td>Elective in Physical Ed.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EDFI</td>
<td>Elective in Physical Ed.</td>
<td>1</td>
<td>*<strong>INGL 3--</strong></td>
<td>Socio Humanistic Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Sub-Total Credits: 16/18

**SECOND YEAR**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATE 3032</td>
<td>Calculus II</td>
<td>4</td>
<td>MATE 3063</td>
<td>Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>FISI 3171</td>
<td>Physics for Engineers I</td>
<td>4</td>
<td>FISI 3172</td>
<td>Physics for Engineers II</td>
<td>4</td>
</tr>
<tr>
<td>FISI 3173</td>
<td>Physics I Lab</td>
<td>1</td>
<td>FISI 3174</td>
<td>Physics II Lab</td>
<td>1</td>
</tr>
<tr>
<td>ICOM 4075</td>
<td>Funds. Of Computing</td>
<td>3</td>
<td>INEL 3105</td>
<td>Analysis Electrical Systems I</td>
<td>3</td>
</tr>
<tr>
<td>INGE 3016</td>
<td>Algorithms &amp; Programming Computer</td>
<td>3</td>
<td>INGE 3045</td>
<td>Materials Science for Electrical Engineers</td>
<td>3</td>
</tr>
<tr>
<td>**<strong>INGL 3--</strong></td>
<td>Second Year English</td>
<td>3</td>
<td>**<strong>INGL 3--</strong></td>
<td>Second Year English</td>
<td>3</td>
</tr>
</tbody>
</table>

Sub-Total Credits: 17/18

**TOTAL CREDITS: 68/71**

Requirements to complete transfer: Pass 48 credits at the UPRB. Grade point average of 2.00 and a 2.00 grade point average in sciences and mathematics courses during the two years of study.

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** Students will be placed according to the score obtained in the English section of the College Board Entrance Exam (CEEB) or Advanced Placement exam.

***Second Year of English:
1. If student passed INGL 3101-3102 (Basic English I-II) during the first year, she/he registers in INGL 3201-3202.
2. If student passed INGL 3103-3104 (Intermediate English I-II) during the first year, she/he registers in INGL 3326 & 3250.
3. If student passed the Advanced Placement with a score of 4 or 5, she/he registers in INGL 3211-3212.
ICOM 4075
FUNDAMENTALS OF COMPUTING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: INGE 3016
The study of the discrete structures relevant to computer sciences and computer engineering with an emphasis on problem solving and programming.

INCI 4001
TOPOGRAPHY I
CREDITS: 3
CONTACT HOURS: 5
PRE-REQUISITE: INGE 3012 & MATE 3032
Measuring distance, angles and elevations. Measuring with levels and transits; transverse measurement and calculation of transversals and methods of stay. Includes thematic content covered in other courses. Delves into advanced mathematical concepts, knowledge of physics and spatial geometry analysis, and distances and angles between planes.

INEL 3105
ANALYSIS OF ELECTRICAL SYSTEMS I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: FISI 3011 OR 3171 & MATE 3032
CO-REQUISITE: FISI 3172 & MATE 3063
Introduction to the analysis of electrical circuits. Includes basic devices of circuits and their models, Kirchhoff laws of voltage and current, and analysis methods.

INEL 4115
ELECTRICAL MEASUREMENTS LABORATORY
CREDITS: 1
CONTACT HOURS: 2
CO-REQUISITE: INEL 3105
Experiments with equipment and electronic components and measuring techniques.

INGE 3011
ENGINEERING GRAPHICS I
CREDITS: 2
CONTACT HOURS: 4
Emphasis on the basic principles of graphic language. Fundamentals of delineation, analysis and solution of spatial problems, symbols and standards as applied to engineering, spatial geometry: distances between planes and lines, angles between lines and planes, rotation problems. Introduction to vectors, graphical mathematics and design.

INGE 3012
ENGINEERING GRAPHICS II
CREDITS: 2
CONTACT HOURS: 4
PRE-REQUISITE: INGE 3011
Experiments with equipment and electronic components and measuring techniques.

INGE 3016
ALGORITHMS AND COMPUTER PROGRAMMING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3031
Development of algorithms and their implementation in a high level structured language. Programming techniques applied to problem solving in engineering and mathematics.
INGE 3017

**COMPUTER AIDED GRAPHICS**

**CREDITS:** 2
**CONTACT HOURS:** 4

**PRE-REQUISITES:** INGE 3011 & INGE 3016

Fundamentals of computer aided graphics in engineering. Description of the equipment, development of programs and data systems, use of commercial programs, and modeling of geometric figures.

INGE 3031

**ENGINEERING MECHANICS STATICS**

**CREDITS:** 3
**CONTACT HOURS:** 3

**PRE-REQUISITE:** MATE 3031

Fundamental properties of force systems. Presents the static of particles and solids, equivalent force systems, and free body diagrams. Introduction to the application of vector algebra, equilibrium of solids, force distribution, centroids and centers of gravity. Analysis of structures, frames and machines, and beams and cables. Laws of friction, movement, force distribution, moments of inertia in areas (seconds, moments) and masses, and applications. Introduction to the principle of virtual work and equilibrium positions.

INGE 3032

**ENGINEERING MECHANICS DYNAMICS**

**CREDITS:** 3
**CONTACT HOURS:** 3

**PRE-REQUISITES:** INGE 3031 & FISI 3171

Kinematics and kinetics of particles, Newton’s Second Law, energy and momentum methods, systems of particles, variable systems. Kinetics of solids in three dimensions. Introduction to mechanical vibrations.

INGE 3035

**MECHANICS APPLIED TO ELECTRICAL ENGINEERING**

**CREDITS:** 3
**CONTACT HOURS:** 3

**PRE-REQUISITE:** MATE 3031
**CO-REQUISITE:** FISI 3171

Analysis of force systems, the laws of equilibrium, friction; centroids and moments of inertia, kinematics and dynamics of particles and rigid bodies; vibrations.

INGE 3045

**MATERIALS SCIENCE FOR ELECTRICAL ENGINEERS**

**CREDITS:** 3
**CONTACT HOURS:** 3

**PRE-REQUISITE:** QUIM 3002
**CO-REQUISITE:** FISI 3172

Principles that determine the properties of conductors, semiconductors, and insulators. Electromechanical properties; diffusion, electrical conduction, thermal conduction; magnetic and optical properties.

INGE 4001

**ENGINEERING MATERIALS**

**CREDITS:** 3
**CONTACT HOURS:** 3

**PRE-REQUISITES:** QUIM 3002 & FISI 3171

This course covers the fundamental principles that govern the behavior of materials used in engineering. Their mechanical, electrical, magnetic, thermal and optical properties are studied in term of atomic and intratomic structure. The capabilities and limitations of metals, abrasions, ceramics and polymers are studied in terms of their microstructure, phases and composition. The theory and applications to semiconductors are discussed as well as the effect the environment has on materials (corrosion).

INGE 4011

**MECHANICS OF MATERIALS I**

**CREDITS:** 3
**CONTACT HOURS:** 3

**PRE-REQUISITES:** INGE 3031 & MATE 3032

Stresses and strains due to axial loads; torsional loads; stresses due to flexural loadings and stress; shear force and bending moment diagrams.
INME 3809
CREATIVE DESIGN
CREDITS: 3
CONTACT HOURS: 4
Introduction to the principles and methodologies of graphic communication in engineering as a tool for problem solving in engineering. Fundamentals of graphic visualization, sketches, computer assisted design (CAD) using a personal computer, and technical presentations. Introduction to CAD software and principles of parametric solid modeling of mechanical parts and assembly including dimensioning and tolerancing. Solid modeling is a tool for the visualization and analysis engineering problems.

GEMA 3000
MANUFACTURING ENGINEERING
CREDITS: 2
CONTACT HOURS: 3
Course developed with the aim to help students learn about the duties of a manufacturing engineer. The course covers the processes of planning, materials handling and the development of manufacturing processes and equipment.

INME 3810
CREATIVE DESIGN II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: INGE 3011 OR INME 3809
Product dissection uses practical dissection exercises to develop students’ ability to understand a machine, not only about its functions but also about its history, social impact, design methodology, market restrictions and client needs. The use of technical vocabulary appropriate for describing mechanical and electrical components is encouraged. Students will develop their oral and written communication skills through free-hand sketches.

GEMA 3005
INTRODUCTION TO PURCHASING MANAGEMENT
CREDITS: 3
CONTACT HOURS: 3
This course is geared towards the area of materials, specifically towards the cost control of materials. Purchasing is highlighted as the main activity of the system, while this activity is integrated to other materials related activities.

GEMA 3006
INVENTORY SYSTEMS PLANNING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3015
Forecasting, independent demand systems and the planning of materials’ requirements for a dependent demand system are studied.

GEMA 3007
ADVANCED PURCHASING TECHNIQUES
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: GEMA 3005
This course is concerned with company functions related to materials; such as, transportation, incoming deliveries and storage. Governmental agency administration and purchasing activities are also covered. Each topic studied will be accompanied by a case study analysis.

GEMA 3009
PHYSICAL DISTRIBUTION MANAGEMENT
CREDITS: 3
CONTACT HOURS: 3
The course is designed to provide basic knowledge of materials distribution. Real situations and their problems will be studied. Topics include: transportation, packing and marketing of products and organization for effective distribution systems.
GEMA 3106
PRODUCTION MANUFACTURING
CREDITS: 3
CONTACT HOURS: 3
This course studies the different manufacturing production systems in order to identify the responsibilities, objectives and restrictions faced by production manager. Various decision-taking models under certainty and uncertainty are studied. The course also covers the study of the design and planning of a production process.

GEMA 3107
PRODUCTIVITY MANAGEMENT
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 1001 OR 3171
A course designed to examine the importance of productivity for the success of any business. Case studies from different types of industries are discussed.

GEMA 3108
SERVICE OPERATION ADMINISTRATION
CREDITS: 2
CONTACT HOURS: 2
This course examines the nature of non-manufacturing operations of a variety of service organizations. Most service systems are so fully integrated with other organization activities that it is practically impossible to separate one operational function from another. Service systems become planned and integrated activities with other company functions, such as marketing and finance.

GEMA 3109
PROJECT MANAGEMENT
CREDITS: 3
CONTACT HOURS: 3
A course designed to help students develop an understanding of the importance of effective resource management during the development and establishment of a manufacturing company.

GEMA 4105
PRODUCT MANAGEMENT POLICY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TIIN 2035, GEMA 3006 & TIIN 2016
Course integrates knowledge obtained in other courses. Emphasizes the need to make short and long-term decisions. In order to develop decision-making skills, case studies will be analyzed.

TECI 1005
TECHNICAL DRAWING
CREDITS: 3
CONTACT HOURS: 3
Fundamental principles of drafting in engineering as a means of technical and graphic expression. Includes applied geometry, letter practice, orthographic projection of points, lines, planes, and objects, as well as reading of blueprints, analysis and solution of problems by means of orthographic projection, auxiliary views, sections, procedures and practice norms. The course also covers pictorial drafting: oblique isometrics, perspective principles and free-hand drafting; dimensions; notes and dimensioning details; and assembly drawings.
TECI 1007
ARCHITECTURAL DRAFTING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: TECI 1005
The study of the basic principles of mechanical engineering and their application in engineering problems. The course covers power systems (components, resultants, and equivalence), centroids and the center of gravity of particles and composite areas, laws of equilibrium and free body diagrams, structural strength analysis, and the moment of inertia of areas and bodies.

TECI 1009
APPLIED MECHANICS-STATICS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: MATE 1001 & FISI 1001
The study of the basic principles of mechanical engineering and their application in engineering problems. The course covers power systems (components, resultants, and equivalence), centroids and the center of gravity of particles and composite areas, laws of equilibrium and free body diagrams, structural strength analysis, and the moment of inertia of areas and bodies.

TECI 2003
SOILS AND FOUNDATIONS
CREDITS: 3
CONTACT HOURS: 3
The study of the index properties of soils, soil drainage, consolidation, pressure, stability and soil compression, compressibility and foundations, and the theory of soil testing.

TECI 2005
SURVEYING I
CREDITS: 3
CONTACT HOURS: 6
PRE-REQUISITE: MATE 1001
The study of the basic principles of surveying including the use, care and adjustment of instruments: the level, distance measurements, direct and differential leveling; transit, measurement of angles and directions; measurement and calculation of areas.

TECI 2006
SURVEYING II
CREDITS: 3
CONTACT HOURS: 6
PRE-REQUISITE: TECI 2005
Continuation of Surveying I. Includes horizontal and vertical curves, topographical maps, methods of stadia and land volume; also includes a special project on topography, triangulation and Lambert coordinates.

TECI 2007
COST ESTIMATION
CREDITS: 2
CONTACT HOURS: 2
PRE-REQUISITE: TECI 1007 & MATE 1001
The study of the costs of equipment, materials, and labor for different engineering projects such as: buildings, roads, land movement and others.

TECI 2008
REINFORCED CONCRETE
CREDITS: 3
CONTACT HOURS: 3
CO-REQUISITE: TECI 2011
The study of the theory of reinforced concrete. Includes the design of structural elements, such as beams, columns, walls, foundations, retaining walls, floors and ceilings.

TECI 2010
ESTIMATION OF CONSTRUCTION COSTS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: TECI 2034 & MATE 3171
Carry out estimation of construction costs based on calculations of work units (Quantity Take-Off); calculate direct costs, such as, labor, volume of materials, equipment, construction procedures for buildings and roadwork; indirect costs, like, insurance and rent.
TECI 2011
MATERIAL STRENGTH
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: TECI 1009
The study of the fundamental relationship between applied forces and internal effects on structural parts. It also covers effort and deformation concepts, shear and moment diagrams, beam stress, bending of beams, indeterminate static beams, beam loading and deflections, combined axial and bending stress, and columns.

TECI 2012
MATERIAL TESTING
CREDITS: 2
CONTACT HOURS: 4
Experimental studies of the materials most commonly used in construction. Samples are prepared for testing and a special report is written for each test. Each student must submit a final report at the end of the course.

TECI 2013
SOILS
CREDITS: 2
CONTACT HOURS: 2
CO-REQUISITE: TECI 2014
Study of the soil index properties. Includes consolidation, pressure, stability and soil compaction, compressibility and foundation design concepts.

TECI 2014
SOILS LABORATORY
CREDITS: 1
CONTACT HOURS: 2
CO-REQUISITE: TECI 2013
Experimental studies of soils in engineering. Preparation of samples for testing, carrying out tests and the preparation of reports on each, preparation of a special report by the student at the end of the course.

TECI 2015
STRUCTURAL STEEL
CREDITS: 3
CONTACT HOURS: 3
CO-REQUISITE: TECI 2011
Introduction to structural steel design, including design of beams, small beams, columns and connections with bolts and welding. The course also covers the design of the most common structural parts of construction and the application of engineering principles and formulas.

TECI 2016
ROAD CONSTRUCTION & DESIGN
CREDITS: 3
CONTACT HOURS: 3
CO-REQUISITE: TECI 2011
Construction of bases and subbases. Course includes the study of types of pavements, their characteristics, composition and design.

TECI 2017
STUDY & DESIGN OF ROUTES
CREDITS: 3
CONTACT HOURS: 2
PRE-REQUISITE: TECI 2005
CO-REQUISITE: TECI 2056
Studies the effect of traffic and speed in the design of roads, including width, curves and grades. Vertical, horizontal, simple, compound and spiral curves are also studied.

TECI 2030
CONCRETE & ASPHALT TESTING LABORATORY
CREDITS: 2
CONTACT HOURS: 4
PRE-REQUISITE: TECI 2038
Introduction to the theory and applications of asphalt mixtures related to cementitious and the interaction with aggregates.

TECI 2035
CONSTRUCTION MANAGEMENT
CREDITS: 4
CONTACT HOURS: 4
Methodology for the planning, execution, and control of construction projects. Inspection techniques are also covered.
TECI 2037
CONSTRUCTION MATERIALS & PROCESSES
CREDITS: 4
CONTACT HOURS: 4
The study of construction materials and processes utilized. Includes selection of materials, soils, worksites, foundations and pavements, concrete, wood and related products, masonry, ferrous metals and steel frameworks, non-ferrous metals and alloys, acoustic materials, ceilings, walls and floors. Also included are materials, equipment, accessories, finishes, and mechanical and electrical equipment.

TECI 2038
CONSTRUCTION MATERIALS
CREDITS: 3
CONTACT HOURS: 3
CO-REQUISITE: TECI 2039
Presents a description of the construction process, organizations, personnel, methods, equipment and materials, codes and ethics, and safety considerations common in all types of projects in the industry.

TECI 2039
CONSTRUCTION MATERIALS & PROCEDURES LABORATORY
CREDITS: 1
CONTACT HOURS: 2
LABORATORY: TECI 2038
Laboratory experiences that give students the opportunity to participate in activities which facilitate the development of specific abilities related to the construction process, organizations, personnel, methods, equipment and materials, codes and ethics, and safety aspects common in all types of projects.

TECI 2046
ARCHITECTURAL MODELS
CREDITS: 2
CONTACT HOURS: 4
PRE-REQUISITE: TECI 1007
Includes both a one hour lecture and a three hour laboratory each week. The study of the techniques necessary for the construction of architectural models, including the analysis of tools and materials (traditional and contemporary) used in the construction of models based on blueprints. Emphasis will be given to the study and planning of the models, equipment, materials and methods used in the construction of models, as well as to the representation of materials and elements in the models.

TECI 2048
ENERGY CONSIDERATIONS IN CONSTRUCTION
CREDITS: 2
CONTACT HOURS: 2
Two hours per week of lectures on active and passive systems of utilization and economy of energy in construction. Includes the study of construction codes from the point of view of energy, emphasizing the diverse design techniques for the optimum use of natural sources of energy: illumination, ventilation, orientation, etc.

TECI 2049
INTRODUCTION TO COMPUTER SYSTEMS
CREDITS: 2
CONTACT HOURS: 3
Description and use of computer languages applicable to civil engineering technology. Emphasis will be given to the solution of technical problems related to the design and construction of structures using software available on the market.
TECI 2050
FILES PERMISSIONS & BLUEPRINT READING LABORATORY
CREDITS: 1
CONTACT HOURS: 2
PRE-REQUISITE: TECI 1005 & TECI 2038
Practical experience regarding permissions/permits required by the government of Puerto Rico. Understanding construction blueprints. Data collection from blueprints.

TECI 2055
ROAD LAYOUT
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITE: TECI 2005
CO-REQUISITE: TECI 2017
Layout of roads and trails on land, demarcation of limits and benchmarks. The course is based on the application of the study and design of roads.

TECI 2056
STUDY & LAYOUT OF ROADS LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITE: TECI 2005
CO-REQUISITE: TECI 2017
Laboratory on the layout of roads and trails on the ground. Course involves the application and design of routes. Use of surveying instruments (Total Station and Self Level) on the ground for the redesign of routes in both vertical and horizontal alignment.

TECI 2057
COMPUTER TECHNICAL DRAWING
CREDITS: 2
CONTACT HOURS: 4
PRE-REQUISITE: TECI 1007
Two lecture hours and two supervised hours of computer drawing weekly.

TECI 2060
GEOGRAPHIC INFORMATION SYSTEMS LABORATORY
CREDITS: 2
CONTACT HOURS: 4
PRE-REQUISITES: MATE 3171 & TECI 1005
Introduction to the theory and use of geospatial information technology. Collect, trace and if necessary correct data on geographic information.

TECI 2061
CAPSTONE PROJECT
CREDITS: 2
CONTACT HOURS: 4
PRE-REQUISITES: TECI 2012, TECI 2050
CO-REQUISITE: TECI 2006, TECI 2008
Development of a comprehensive project implementing the procedures and techniques of a project applied to the area of construction, surveying or roads. Includes having experience in all stages and documentation a professional should produce as part of a construction project.

TIIN 1005
INDUSTRIAL ORGANIZATION
CREDITS: 3
CONTACT HOURS: 3
Principles of industrial management. Includes production, the science of management, mechanization, specialization, structure and control of an organization, manufacturing methods and facilities, purchases, sales, marketing, compensation methods, budget control, costs and administration.

TIIN 1008
ENGINEERING MATERIALS
CREDITS: 3
CONTACT HOURS: 3
Three hours a week of lectures and demonstrations. An introduction to engineering materials used in the industry: their application and properties. An explanation of the manufacturing processes to which materials are subjected. Test demonstrations to determine the characteristics and properties of materials and the effects of certain treatments on these properties.
TIIN 1015
INDUSTRIAL SAFETY
CREDITS: 3
CONTACT HOURS: 3
A discussion of the factors that affect the safety of an industrial operation. Accident prevention; safety as a work tool; how to create safety awareness; accident cost and control; and safety programs.

TIIN 1041
APPLICATIONS OF PERSONAL COMPUTER IN INDUSTRY
CREDITS: 2
CONTACT HOURS: 2
CO-REQUISITE: TIIN 1042
Students will recognize the components of a personal computer with industrial attachments. Students will also learn to utilize programs for word processors, presentations and spreadsheets incorporating technical details of safety systems, work stations, work measurements, accounting, deployment of facilities and industrial economy, among others, using modern techniques and standard graphics.

TIIN 1042
APPLICATIONS OF PERSONAL COMPUTER IN INDUSTRY LABORATORY
CREDITS: 1
CONTACT HOURS: 3
CO-REQUISITE: TIIN 1041
Concepts learned in lectures will be applied. Students will be able to generate documents, presentations and spreadsheets that contain technical details of safety systems, work stations, work measurements, accounting, deployment of facilities and industrial economy, among others, using modern techniques and standard graphics.

TIIN 1051
APPLIED INDUSTRIAL GRAPHICS
CREDITS: 2
CONTACT HOURS: 2
CO-REQUISITE: TIIN 1052
Students will be able to interpret industrial blueprints and learn techniques of freehand drawing with instruments and computer design programs. In addition, students will generate documents that incorporate details utilizing modern techniques and standard graphics.

TIIN 1052
APPLIED INDUSTRIAL GRAPHICS LABORATORY
CREDITS: 2
CONTACT HOURS: 4
CO-REQUISITE: TIIN 1051
Application of the concepts learned in TIIN 1051 - Applied Industrial Graphics. Student will be able to generate documents and plans that contain industrial details utilizing modern techniques and standard graphics.

TIIN 2009
QUALITY CONTROL
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3015
A basic approach to the analysis of quality control for those with no experience in the field. Includes basic information on statistical formulas and diagrams used for quality control. Includes inspection techniques of samples and the preparation and interpretation of control graphs. The relationship between theoretical concepts and the practice of current manufacturing processes will be established.
TIIN 2010
METHODS DESIGN
CREDITS: 4
CONTACT HOURS: 3
CO-REQUISITE: TIIN 2020
This course is designed to help students figure out the most efficient work method. The different types of graphs used in methods analysis are studied. The course includes three lecture hours per week.

TIIN 2011
WORK MEASUREMENT
CREDITS: 3
CONTACT HOURS: 2
PRE-REQUISITES: TIIN 2010 & MATE 1001
CO-REQUISITE: TIIN 2021
The study of the different techniques used in the industry to measure the time required for a specific task. The course covers techniques, such as, the study of time through a chronometer, predetermined time systems, work sampling, standardized data, etc. The use of standard time in formulating incentive plans is also studied.

TIIN 2013
ACCOUNTING APPLIED TO INDUSTRY
CREDITS: 3
CONTACT HOURS: 3
CO-REQUISITE: TIIN 2014
Introduction to the utility of accounting in engineering management. The course describes different accounting procedures that aid in understanding the processes in industrial engineering accounting. Emphasis is placed on how these procedures supply information to the engineer which aid in controlling production, quality and safety when making decisions among the best alternative at management level.

TIIN 2014
ACCOUNTING APPLIED TO INDUSTRY LABORATORY
CREDITS: 3
CONTACT HOURS: 3
CO-REQUISITE: TIIN 2013
Students will apply accounting procedures learning in TIIN 2013 -Accounting Applied to Industry to solve accounting problems related to industrial engineering.

TIIN 2015
PRODUCTION CONTROL
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: MATE 1001 OR MATE 3171 & MATE 3015
An introduction to the controls necessary for coordinating and regulating the handling of materials in the industry. It includes the main goals, norms and procedures of production control and the factors and practical application of production control. Deliveries, shipments, storage, planning, follow-up and inspections are discussed.
TIIN 2016
ACCOUNTING FOR ENGINEERS
CREDITS: 4
CONTACT HOURS: 3
CO-REQUISITE: TIIN 2026
Introduction to the use of accounting in engineering management. The course begins by describing the different engineering tools applicable to accounting (financial statements, profit and loss statements) and goes on to emphasize how these give information to the engineer in order to control production, quality, safety and decision-making at top management levels. The course is designed for students with no formal background in accounting, but who need to know the relationship between engineering and accounting. This course gives the student the opportunity to appreciate accounting theories and apply them to engineering management problems during class discussions and projects. It exposes the technician to the basic concepts of accounting necessary to interpret and use financial documents in making decisions regarding production alternatives.

TIIN 2017
INDUSTRIAL ECONOMY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: TIIN 2016 & MATE 1001 OR MATE 3171
The application of basic economic analysis to the decision-making process at the management level. The study of demand, and analysis of costs and profit, price discrimination and capital budgets.

TIIN 2018
PLANT LAYOUT
CREDITS: 4
CONTACT HOURS: 3
PRE-REQUISITES: MATE 1001 & TECI 1005
CO-REQUISITE: TIIN 2028
Planning and location of industrial buildings considering the process, handling of materials, transportation and type of industry. Also included are the selection and layout of production machinery, manufacturing processes and production flow, as well as balance, flexibility and operation of the production lines.

TIIN 2020
METHODS DESIGN PRACTICE
CREDITS: 0
CONTACT HOURS: 3
CO-REQUISITE: TIIN 2010
Application of techniques learned in methods design lectures to real-life problems. The student faces real-life situations and is asked to give recommendations following the theories studied. This course is a co-requisite of Methods Design (TIIN 2010) and consists of three hours of practice per week.

TIIN 2021
WORK MEASUREMENT PRACTICE
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITES: TIIN 2010 & MATE 1001
CO-REQUISITE: TIIN 2011
Application of the theory discussed in the Work Measurement (TIIN 2011) course. The student gets acquainted with the equipment used in work measurement and will learn through simulations to determine the standard time of an operation. Includes three hours of weekly practice.
TIIN 2026
ENGINEERING ACCOUNTING PROJECT
CREDITS: 0
CONTACT HOURS: 3
CO-REQUISITE: TIIN 2016
A discussion of accounting problems and their application to engineering problems. Typical case studies are studied and analyzed.

TIIN 2028
PLANT LAYOUT PROJECT
CREDITS: 0
CONTACT HOURS: 3
PRE-REQUISITE: TECI 1005
CO-REQUISITE: TIIN 2018
The study of real or simulated situation. Students carry out study projects and proposals for improvement, where most concepts related to industrial engineering are incorporated.

TIIN 2035
MATERIALS REQUIREMENT PLANNING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: TIIN 2015
This course studies the concepts and objectives of inventory control using the system of Material Requirements Planning (MRP). It also studies the logic of the system, its possible use and effectiveness.

TIIN 2031
MATERIALS REQUIREMENT PLANNING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3171 & TIIN 1051
CO-REQUISITE: TIIN 2032
Planning and placement of the industrial building considering the following: manufacturing processes, handling of materials, transportation, and product flow, in addition to balance, flexibility and operation on the production lines.

TIIN 2032
PHYSICAL INSTALLATIONS LAYOUT LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3171 & TEIN 1051
CO-REQUISITE: TIIN 2033
Planning and placement of the industrial building considering the following: manufacturing processes, handling of materials, transportation, and product flow, in addition to balance, flexibility and operation on the production lines.

TIIN 2033
PHYSICAL INSTALLATIONS LAYOUT LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3171 & TEIN 1051
CO-REQUISITE: TIIN 2034
Real or simulated situations are studied. Laboratory is directed towards familiarizing students with the concepts learned in TIIN 2032 Physical Installations Design. Students carry out study projects and proposals for the improvement of the physical facilities related to industrial engineering.

TIIN 2041
WORK STATIONS DESIGN
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: TIIN 1051 & TEIN 1052
CO-REQUISITE: TIIN 2042
Course directed towards the search for the most efficient work method. Students study the different types of graphs utilized in the analysis of methods, learn to recognize and analyze manufacturing processes, and construct flow charts that describe the operation of a work station.

TIIN 2042
WORK STATIONS DESIGN LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITE: TIIN 1051 & TEIN 1052
CO-REQUISITE: TIIN 2043
Students will put into practice the concepts learned in TIIN 2041 -Work Stations Design through laboratory practices assigned by the professor. Students work in pairs and during the semester develop a project in the industry.
TIIN 2051

TIME STUDY

CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3171 & TEIN 2041
CO-REQUISITE: TIIN 2052

Study of the different techniques used in industry to determine the time needed to carry out a task. Techniques, such as, the study of time through chronometers, predetermined time systems, work samples, standardized data, etc. are presented. Also studied is the use of standard time in the development of incentive plans.

TIIN 2052

TIME STUDY LABORATORY

CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3171 & TEIN 2041
CO-REQUISITE: TIIN 2051

Application of the theory discussed in TIIN 2051-Time Study. Students become familiarized with the equipment used in work measurement and learn through simulations how to determine the standard time of an operation.
The Humanities Department provides academic offerings for all of the UPRB departments and has an articulated transfer program with the University of Puerto Rico, Río Piedras Campus for a Bachelor’s Degree in Arts. The program consists of a Bachelor’s Degree in Arts with a major in Drama, Hispanic Studies, Philosophy, European History, History of the Americas, Art History, Modern Languages, Comparative Literature and Music. Students must complete 60 credits and maintain a general grade point average of 2.50 or greater to transfer.

The following presents the curriculums for the different majors of the Department:

**ARTICULATED TRANSFER TO THE HUMANITIES FACULTY OF THE UNIVERSITY OF PUERTO RICO AT RIO PIEDRAS BACHELOR OF ARTS DEGREE MAJORING IN DRAMA (0911)**

### First Year

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### Second Year

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**Total Credits to complete transfer: 60**

1. First year English requirements may also be met with INGL 3103-3104 (Intermediate) or Honor English (INGL 3011-3012). Course will be assigned according to score obtained on the CEEB (College Board Entrance Exam). If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3101-3102.

2. From these three courses students select two to complete 15 credits per semester.

Note: All courses in this curriculum count toward the degree.

The Theatrical Arts Program specializes in the theoretical and practical teaching of the theater. It serves to prepare theater and dance teachers. Graduates of this program may work as producers of plays, become theater, television or movie actors, and teachers, among others.
ARTICULATED TRANSFER TO THE HUMANITIES FACULTY OF THE UNIVERSITY OF PUERTO RICO AT RIO PIEDRAS
BACHELOR OF ARTS DEGREE MAJORING IN HISPANIC STUDIES (0909)

First Year

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Sub-Total Credits: 15

Second Year

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<td>LITE 3012</td>
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Sub-Total Credits: 15

Total Credits to complete transfer: 60

1. First year English requirements may also be met with INGL 3103-3104 (Intermediate) or Honor English (INGL 3011-3012). Course will be assigned according to score obtained on the CEEB (College Board Entrance Exam). If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.
2. From these three courses students select two to complete 15 credits per semester.

Note: All courses in this curriculum count toward the degree.

The second year English courses, INGL 3201-3202 (Grammar, Composition and Reading I & II) will not be accepted in this program towards the degree.

The Hispanic Studies Program concentrates on the study of Spanish, languages in contact and Puerto Rican culture and literature. Graduates of this program may work as Spanish teachers, in public and private offices dedicated to linguistic editing, among others.
ARTICULATED TRANSFER TO THE HUMANITIES FACULTY OF THE UNIVERSITY OF PUERTO RICO AT RIO PIEDRAS
BACHELOR OF ARTS DEGREE MAJORING IN PHILOSOPHY (0908)

FIRST YEAR

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<td>Basic Spanish I</td>
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<tr>
<td>CIBI 3001 or CIFI 3001</td>
<td>Intro. Biological Science I or Intro. Physical Science I</td>
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SECOND YEAR

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<td>Intro. Spanish Literature I</td>
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<td>History of Puerto Rico I</td>
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<td>FILO 3001</td>
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Total Credits to complete transfer: 60

1. First year English requirements may also be met with INGL 3103-3104 (Intermediate) or Honor English (INGL 3011-3012). Course will be assigned according to score obtained on the CEEB (College Board Entrance Exam). If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.
2. From these three courses students select two to complete 15 credits per semester.

Note: All courses in this curriculum count toward the degree.

The Philosophy program emphasizes the critical analysis of philosophical thought. Alumni may pursue graduate studies or work in government or the private sector in offices dedicated to ethics, among others.
ARTICULATED TRANSFER TO THE HUMANITIES FACULTY OF THE UNIVERSITY OF PUERTO RICO AT RIO PIEDRAS BACHELOR OF ARTS DEGREE MAJORING IN EUROPEAN HISTORY (0919)

FIRST YEAR

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SECOND YEAR

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Total Credits to complete transfer: 60

1. First year English requirements may also be met with INGL 3103-3104 (Intermediate) or Honor English (INGL 3011-3012). Course will be assigned according to score obtained on the CEEB (College Board Entrance Exam). If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.

2. From these three courses students select two to complete 15 credits per semester.

Note: All courses in this curriculum count toward the degree.

The European History Program promotes research and the study of European history. Graduates may work as teachers and in international business offices, among others.
ARTICULATED TRANSFER TO THE HUMANITIES FACULTY OF THE UNIVERSITY OF PUERTO RICO AT RIO PIEDRAS
BACHELOR OF ARTS DEGREE MAJORING IN HISTORY OF THE AMERICAS (0918)

FIRST YEAR

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SECOND YEAR

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Total Credits to complete transfer: 60

1. First year English requirements may also be met with INGL 3103-3104 (Intermediate) or Honor English (INGL 3011-3012). Course will be assigned according to score obtained on the CEEB (College Board Entrance Exam). If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.

2. From these three courses students select two to complete 15 credits per semester.

Note: All courses in this curriculum count toward the degree.

The History Program promotes the study and research of the history of the Americas. Graduates may work as history teachers or archivists. Alumni may also work in history museums, historic preservation or international business offices, and archaeology, among others.
ARTICULATED TRANSFER TO THE HUMANITIES FACULTY OF THE UNIVERSITY OF PUERTO RICO AT RIO PIEDRAS

BACHELOR OF ARTS DEGREE MAJORING IN ART HISTORY (0915)

**FIRST YEAR**

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**SECOND YEAR**

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<td>HIST 3241</td>
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<td>ARTE 3116</td>
<td>Art History&lt;sup&gt;2&lt;/sup&gt;</td>
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<td>LITE 3011</td>
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**Total Credits to complete transfer: 60**

1. First year English requirements may also be met with INGL 3103-3104 (Intermediate) or Honor English (INGL 3011-3012). Course will be assigned according to score obtained on the CEEB (College Board Entrance Exam). If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.
2. From these three courses students select two to complete 15 credits per semester.

Note: All courses in this curriculum count toward the degree.

The Fine Arts program centers on the study, research and creation of the arts while shaping professionals in the field. Alumni may work as artists (painting, drawing, sculpture and engraving), art historians and teachers, among others.
## ARTICULATED TRANSFER TO THE HUMANITIES FACULTY OF THE UNIVERSITY OF PUERTO RICO AT RIO PIEDRAS

### BACHELOR OF ARTS DEGREE MAJORING IN MODERN LANGUAGES (0925)

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#### SECOND YEAR

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**Total Credits to complete transfer: 60**

1. First year English requirements may also be met with INGL 3103-3104 (Intermediate) or Honor English (INGL 3011-3012). Course will be assigned according to score obtained on the CEEB [College Board Entrance Exam](https://www.collegeboard.org/ceeb). If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.

2. From these three courses students select two to complete 15 credits per semester.

   **Note:** All courses in this curriculum count toward the degree.

Modern Languages promotes the development of language skills in the main European languages. Alumni may work in cruise ships, airlines, and consulates, or as translators or teachers, among others.
ARTICULATED TRANSFER TO THE HUMANITIES FACULTY OF THE UNIVERSITY OF PUERTO RICO AT RIO PIEDRAS

BACHELOR OF ARTS DEGREE MAJORING IN COMPARATIVE LITERATURE (0901)

**FIRST YEAR**

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**SECOND YEAR**

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**Total Credits to complete transfer: 60**

1. First year English requirements may also be met with INGL 3103-3104 (Intermediate) or Honor English (INGL 3011-3012). Course will be assigned according to score obtained on the CEEB (College Board Entrance Exam). If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.

2. From these three courses students select two to complete 15 credits per semester.

Note: All courses in this curriculum count toward the degree.

The second year English courses, INGL 3201-3202 (Grammar, Composition & Reading I & II) will not be accepted in this program towards the degree.

Comparative Literature is the theoretical study of literature. Graduates may work as literature teachers or in government or private offices in areas related to reading and writing skills and analysis.
# Articulated Transfer to the Humanities Faculty of the University of Puerto Rico at Rio Piedras

## Bachelor of Arts Degree Majoring in Music (0910)

### First Year

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### Second Year

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<td>LITE 3011</td>
<td>Modern &amp; Contemp. Lit I²</td>
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**Total Credits to complete transfer: 60**

1. First year English requirements may also be met with INGL 3103-3104 (Intermediate) or Honor English (INGL 3011-3012). Course will be assigned according to score obtained on the CEEB (College Board Entrance Exam). If students have passed the Advanced Placement with a score of 4 or 5, they go on to second year English and register in INGL 3211-3212.

2. From these three courses students select two to complete 15 credits per semester.

Note: All courses in this curriculum count toward the degree.

The Music program offers artistic education and motivates music creation and interpretation. Alumni may work as musicians, composers, singers, performers and music teachers, among others.
ARTE 3116
HISTORY OF ART (COMPENDIUM)
CREDITS: 3
CONTACT HOURS: 3
The study of the art process in its historic context with emphasis on understanding contemporary art. An ample chronological order is followed to facilitate the study of such an ambitious compendium.

ARTE 3125
DRAWING I
CREDITS: 3
CONTACT HOURS: 3
Study of the basic elements of drawing and composition. Uses different mediums and experimental techniques. Still life drawing, random objects and the human figure are utilized as starting points.

ARTE 3135
BASIC PAINTING
CREDITS: 3
CONTACT HOURS: 4
Introduction to basic elements of painting and composition principles using oils and acrylcs following themes as well as in free style painting.

ARTE 4335
CONTEMPORARY ART
CREDITS: 3
CONTACT HOURS: 3
A study of the history of European art and its historic development from the romantic period to the present.

FILO 3001
INTRODUCTION TO PHILOSOPHY
CREDITS: 3
CONTACT HOURS: 3
The study and analysis of important problems in philosophy throughout its historical development. Emphasis on problems in epistemology, metaphysics, ethics, and philosophic anthropology. Special attention is given to the classical Greek period and the beginnings of philosophical thought in the Middle Ages.

FILO 3005
INTRODUCTION TO ETHICS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: HUMA 3102
Introduction to reasoning about criteria and principles on which human behavior is based and criteria for differentiating ethics from moral experiences. Based on this analysis, different ethical theories, which have appeared through history, are discussed.

FILO 3178
BUSINESS ETHICS
CREDITS: 3
CONTACT HOURS: 3
Introduction basic aspects of business ethics, including morality in production, consumption, marketing, advertising, labor relations and multinational organizations. Topics will be discussed from the perspective of the western philosophical ethical tradition.

FILO 4028
BIOETHICS
CREDITS: 3
CONTACT HOURS: 3
The study of the problems brought about by advances in biomedical science and technological developments. Includes reading and discussion of case studies.

FILO 4031
LOGIC I
CREDITS: 3
CONTACT HOURS: 3
An introductory course on logic as studied in modern times. The course covers the nature of the argument: validity, invalidity, and deductive and inductive arguments; the truth functions of logic: truth table and semantic trees; natural deduction and derivation of logic theorems; predicate logic with identity; and scope and limits of logic.

FRAN 3031
INTENSIVE FRENCH I
CREDITS: 3
CONTACT HOURS: 5
The practice consists of 1 ¼ hours, and classes are complemented with a 15-minute daily practice. The practice is offered by a native speaker of French, who will be the teacher’s aide or assistant. Three students attend each 15-minute session.
FRAN 3032
INTENSIVE FRENCH II
CREDITS: 3
CONTACT HOURS: 5
PRE-REQUISITE: FRAN 3031
The practice consists of 1 ¼ hours, and classes are complemented with a 15-minute daily practice. The practice is offered by a native speaker of French who will be the teacher’s aide or assistant. Three students attend each 15-minute session. The assistant will help with oral practice and conversational skills as well as phonetic correction.

HIST 3115
HISTORY OF THE UNITED STATES (COMPLENUIUM)
CREDITS: 3
CONTACT HOURS: 3
Study of the history of the United States of America from its independence to present times.

HIST 3241
HISTORY OF PUERTO RICO I
CREDITS: 3
CONTACT HOURS: 3
The study of the historical evolution of Puerto Rico from its discovery to the end of the nineteenth century including indigenous origins, Spanish conquest and colonization, the rise of “criollismo,” and Puerto Rican cultural identity.

HIST 3242
HISTORY OF PUERTO RICO II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: HIST 3241
Study of Puerto Rican history from 1898 to the present, including political changes and their economic and cultural consequences.

HIST 3245
HISTORY OF PUERTO RICO (COMPLENUIUM)
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: HIST 3241
Study of Puerto Rican history from 1898 to the present, including political changes and their economic and cultural consequences.

HIST 3242
HISTORY OF CONTEMPORARY LATIN AMERICA
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: HIST 3212
Analysis of the historical roots of Latin America’s contemporary problems, including: mixed races, economic underdevelopment, political conditions, the position American countries occupy in international politics and the development of self-awareness in America. The course is based on the examination and analysis of contemporary texts on each of these issues.

HIST 3505
HISTORY OF THE MODERN CARIBBEAN
CREDITS: 3
CONTACT HOURS: 3
Panoramic view of the history of the Caribbean from World War II to present time.
HUMA 3010
STUDY TRIP TO EUROPE
CREDITS: 6
CONTACT HOURS: 6
Through this study trip students will have direct experience with the culture, geography, social organization, and idiosyncrasy of the countries visited with the aim of later integrating this personal assessment to theoretical courses. This course contributes to a formative aspect of undeniable utility that complements each type of intellectual information. Before the trip students will be exposed to a theoretical component (lectures, videos, short tutorials on foreign languages, and printed material) to prepare them for the experience. Then they will move on to the practical component which is the trip itself. They will visit museums and monuments and will be given quizzes from time to time throughout the trip. They will also listen to lectures on the bus and complete a final evaluation. Students will also hand in a written report based on the trip.

HUMA 3055
PROFESSIONAL ETHICS
CREDITS: 3
CONTACT HOURS: 3
Critical study of basic aspects of Western ethics as a philosophical discipline, its relevance and applicability to the contemporary world and its adaptation to industries, specifically the hotel industry.

HUMA 3101
WESTERN CIVILIZATION I
CREDITS: 3
CONTACT HOURS: 3
The study of the most representative aspects of western culture taking into consideration its Greek origins through critical analysis of great original literary, philosophical, artistic, and religious works.

HUMA 3102
WESTERN CIVILIZATION II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: HUMA 3101
The study of the most relevant aspects of western culture taking into consideration its Roman and Medieval origins through critical analysis of great original literary, philosophical, artistic, and religious works.

HUMA 3105
SOCIO-JUDICIAL FOUNDATIONS OF WESTERN CULTURE
CREDITS: 3
CONTACT HOURS: 3
A critical reflection from a humanistic perspective of the crucial foundations of western culture. Emphasis will be given to the ethical, judicial and political constructs that characterize it. The course includes the analysis of fragments/chapters of the most significant literary works and original texts from different cultures and the following historical periods: Mesopotamia, Hebrew, Greek, Roman, medieval Christian, and their relationship to present time.

HUMA 3111
COMPENDIUM OF WESTERN CIVILIZATION I & II
CREDITS: 3
CONTACT HOURS: 3
The study of the most representative aspects of western culture throughout Greek, Roman, and medieval periods through critical analysis of great original literary, philosophical, artistic, and religious works. This course will be equal to three credits of HUMA 3101, at the Río Piedras Campus, effective on the academic year 1993-94.
HUMA 3112
COMPRENDIUM OF WESTERN CIVILIZATION III & IV
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: HUMA 3111
The study of the most relevant aspects of western culture from the Renaissance to present times, paying special attention to the modern age. Includes the critical analysis of great original literary, philosophical, artistic, and religious works. This course will be equal to three credits of HUMA 3101, at the Río Piedras Campus, effective on the academic year 1993-94.

HUMA 3135
HISTORY OF IDEAS & SOCIAL MOVEMENTS
CREDITS: 3
CONTACT HOURS: 3
This course studies the most important values that have remained in western culture as a result of ideas and social movements. The most significant literary works and original texts of western culture will be analyzed.

HUMA 3201
WESTERN CIVILIZATION III
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: HUMA 3102
Study of development of the contemporary world from the Renaissance to the French Revolution including critical analysis of ideas and problems raised by representative works of each period.

HUMA 3202
WESTERN CIVILIZATION IV
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: HUMA 3201
The study of humanity in contemporary times from the French Revolution to the present and critically considering the ideas and problems raised in representative works of each period.

LITE 3012
CONTEMPORARY LITERATURE
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: LITE 3011
Overview of the most representative works in universal literature including romanticism, realism, and surrealism with emphasis on genres and changes in traditional literature.

MUSI 3141
BAND I
CREDITS: 2
CONTACT HOURS: 3
Prerequisite: Basic knowledge of music, ability to play a band instrument, and permission from the band’s director.

MUSI 3142
BAND II
CREDITS: 2
CONTACT HOURS: 3
PRE-REQUISITE: MUSI 3141
Continuation of Band I (MUSI 3141)

MUSI 3143
BAND III
CREDITS: 2
CONTACT HOURS: 3
PRE-REQUISITE: Continuation of Band I and/or Band II or upon professor’s permission. Concentrates on improvement of instrument techniques and theory and includes participation in concerts, and university and community activities.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Contact Hours</th>
<th>Pre-requisite(s)</th>
<th>Description</th>
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<tr>
<td>MUSI 3144</td>
<td>BAND IV</td>
<td>2</td>
<td>3</td>
<td>MUSI 3143</td>
<td>Continuation of Band III or with instructor’s permission. Improvement of instrument techniques and theory and participation in concerts, and university and community activities.</td>
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<tr>
<td>MUSI 3175</td>
<td>INTRODUCTION TO MUSIC READING &amp; DICTATION</td>
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<td>Course covers the fundamentals of music that include the development of aural skills, rhythm and melody and music reading. It also covers music elements such as: timbre, dynamics, texture, form and technical knowledge.</td>
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<td>MUSI 3176</td>
<td>INTRODUCTION TO MUSIC READING &amp; DICTATION (CONTINUATION)</td>
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<td>3</td>
<td>MUSI 3175</td>
<td>Continuation of the introduction to music reading and dictation. The course will continue with the topics covered in MUSI 3175: musical theory, reading, intonation and aural training.</td>
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<tr>
<td>MUSI 3225</td>
<td>HISTORY OF MUSIC</td>
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<td></td>
<td>Panoramic overview of musical development in the West, from Greek and Roman times to the present. Emphasis on works of great composers as part of the historical period in which they were created.</td>
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<tr>
<td>MUSI 3227</td>
<td>HISTORY OF PUERTO RICAN MUSIC</td>
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<td>The course covers the following topics: Pre-Columbian music, European and African contributions, popular traditions, development of distinctive musical forms; origins and development of folkloric instruments, music and musicians of the 19th century, Romanticism and the lyrical theater, formation of the first musical groups and teaching/broadcasting institutions, music and musicians of the 20th century, Modernism, Nationalism and Post Nationalism, institutionalized music and the development of music teaching.</td>
</tr>
<tr>
<td>MUSI 3241</td>
<td>CHOIR I</td>
<td>2</td>
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<td></td>
<td>Trains students in the general principles of voice and choir techniques, music theory and solfege. The course is organized as a choir of mixed voices with accompaniment or a cappella. The study and performance of religious, secular, and folkloric choral compositions. Includes two hours of lecture and three hours of practice per week.</td>
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<tr>
<td>MUSI 3242</td>
<td>CHOIR II</td>
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<td>MUSI 3241 or Audition</td>
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<td>CHOIR III</td>
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<td>MUSI 3242 or Audition</td>
<td>Continuation of HUMA 3242, Choir II.</td>
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MUSI 3244  
**CHOIR IV**  
CREDITS: 2  
CONTACT HOURS: 5  
PRE-REQUISITE: MUSI 3243 OR  
AUDITION  
Continuation of MUSI 3243, Choir III.

MUSI 3301  
**MUSIC & COMPUTERS I**  
CREDITS: 3  
CONTACT HOURS: 3  
This course is designed to introduce and familiarize the student with the computer as a tool and instrument to create music. It is focused on developing the knowledge and skills necessary to utilize the computer in a practical and creative way.

MUSI 3302  
**MUSIC & COMPUTERS II**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: MUSI 3301  
Continuation of Music and Computers I. Completes and reaffirms the knowledge and skills acquired while emphasizing creativity.

TEAT 3011  
**ACTING I**  
CREDITS: 3  
CONTACT HOURS: 3  
Fundamentals of acting techniques.

TEAT 3012  
**ACTING II**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: TEAT 3011  
Fundamentals of acting techniques.

TEAT 3025  
**THEATRE APPRECIATION**  
CREDITS: 3  
CONTACT HOURS: 3  
Analysis of the different elements involved in a theatre production. A brief history of theatre. Reading and presentations of plays. Workshop optional.
Articulated Transfer Program of the University of Puerto Rico at Río Piedras

In this transfer program the student may take a maximum of 61 credits, which correspond to the first and second year of study. In addition, students must maintain academic progress and grade point averages equal or greater than the following during the first and second year: Political Science, 2.50; General Social Science, 2.30; Anthropology, 2.30; Economics, 2.30; Geography, 2.30; Psychology, 3.00; and Sociology, 2.30. Students will have the following course options at the UPRB:

BACHELOR OF ARTS DEGREE MAJORING IN ANTHROPOLOGY (1607)

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<td>Western Culture I</td>
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<td>HUMA 3102</td>
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<td>INGL 3xxx</td>
<td>English²</td>
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<td>INGL 3xxx</td>
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<td>ESPA3102</td>
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Sub-Total Credits 15

SECOND YEAR

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<td>Literature⁴</td>
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<td>ANTR 3006</td>
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<td>Principles of Political Science</td>
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<td>PSIC 3003</td>
<td>Introduction to Psychology</td>
<td>4</td>
<td>Social Science Elective</td>
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Sub-Total Credits 15

Notes regarding the Articulated Transfer Programs to the University of Puerto Rico at Río Piedras campus (UPRRP) toward a Bachelor of Arts Degree majoring in one of the following: Anthropology, Social Science, Political Science, Economics, Geography, Psychology and Sociology:

1. Students are recommend to take three credits in CIBI and three credits in CIFI (At the UPRB) from the following: CIBI 3001-3002, CIFI 3001-3002, [At the UPRP] CIBI 3003-3004, CIBI 3005, 3006-3007, 3015-3016, 3017, 3025-3026, 3035, 4105, CIFI 3003-3004, 3005-3006, and CIFI 3013-3014, 3021-3022; 3010, 3055, 3065, 4005, 4015.

2. Student will take the courses according to the score obtained on the English section of the CEEB (College Entrance Exam): (At the UPRB) INGL 3011-3012, INGL 3101-3102 and INGL 3101-3102 [Labs], INGL 3103-3104, (At the UPRP) INGL 3003-3004 or INGL 3123-3124.

3. Students may take: [At the UPRB] ESPA 3001-3002, [At the UPRP] ESPA 3001-3002, ESPA 3003-3004, ESPA 3111-3112.

4. Students may take: (At the UPRB) ESPA 3201-3202; ESPA 3211-3212; (At the UPRP) ESPA 3018, 3035; 3306, HUMA 3121-3212, INGL 3151-3152; ESPA 3213; INGL 3001-3002; INGL 3063, 3045, 3165; INGL 3215; 3226, INGL 3029; 3259; 3285; INGL 3251-3252; INGL 4005, 4009, 4035; INGL 4048, 4049, 4056; INGL 4725; 5036; LITE 3011-3012; LITE 3051-3052; LITE 3061-3062.

5. Students may take: [At the UPRB] TEAT 3025; [At the UPRP] ARQU 3121, HUMA 3017; ARTE 3118, 3199, 3716; ARTE 3901; MUSI 3145.
### BACHELOR OF ARTS DEGREE MAJORING IN SOCIAL SCIENCE (1616)

**FIRST YEAR**

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<td>Western Culture I</td>
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<td>Basic Spanish I ²</td>
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**SECOND YEAR**

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<td>Political Science Principles</td>
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### BACHELOR OF ARTS DEGREE MAJORING IN POLITICAL SCIENCE (1604)

**FIRST YEAR**

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**SECOND YEAR**

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**BACHELOR OF ARTS DEGREE MAJORING IN ECONOMICS (1603)**

**FIRST YEAR**

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**SECOND YEAR**

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**BACHELOR OF ARTS DEGREE MAJORING IN GEOGRAPHY (1608)**

**FIRST YEAR**

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<td>English I(^2)</td>
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<tr>
<td>ESPA 3101</td>
<td>Basic Spanish I(^2)</td>
</tr>
<tr>
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**SECOND YEAR**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Code</strong></td>
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<tr>
<td>MATE 3105</td>
<td>Mathematics Appreciation</td>
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<tr>
<td>GEOG 3155</td>
<td>Literature(^4)</td>
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<tr>
<td>ECON 3005</td>
<td>Principles of Economics I</td>
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<td>PSIC 3003</td>
<td>Elements of Geography</td>
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<td>Introduction to Psychology</td>
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</table>
# Bachelor of Arts Degree Majoring in Psychology (5727)

## First Year

<table>
<thead>
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<tbody>
<tr>
<td><strong>Code</strong></td>
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</tr>
<tr>
<td>CISO 3121</td>
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</tr>
<tr>
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<tr>
<td>HUMA 3101</td>
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<tr>
<td>INGL 3XXX</td>
<td>English²</td>
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<td>ESPA 3101</td>
<td>Basic Spanish I² ™</td>
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**Sub-Total Credits**: 15

## Second Year

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<tbody>
<tr>
<td><strong>Code</strong></td>
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<tr>
<td>MATE 3105</td>
<td>Mathematics Appreciation</td>
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<tr>
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<td>Intro. to Psychology</td>
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<tr>
<td>ANTR 3006 OR3046</td>
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<tr>
<td>CIPO 3011</td>
<td>Principles in Political Science</td>
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**Sub-Total Credits**: 16

Notes regarding the Articulated Transfer Programs to the University of Puerto Rico at Rio Piedras campus (UPRRP) toward a Bachelor of Arts Degree majoring in one of the following: Anthropology, Social Science, Political Science, Economics, Geography, Psychology and Sociology:

1. Students are recommended to take three credits in CIBI and three credits in CIFI (At the UPRB) from the following: CIBI 3001-3002, CIFI 3001-3002, (At the UPRRP) CIBI 3003-3004, CIBI 3005, 3006-3007, 3015-3016, 3017, 3025-3026, 3035, 4105, CIFI 3003-3004, 3005-3006, and CIFI 3013-3014, 3021-3022, 3010, 3055, 3065, 4005, 4015.

2. Students will take the courses according to the score obtained on the English section of the CEEB (College Entrance Exam): (At the UPRB) INGL 3001-3012, INGL 3101-3102 and INGL 3011-3012 (Lab), INGL 3103-3104, (At the UPRRP) INGL 3003-3004 or INGL 3123-3124.

3. Students may take: (At the UPRB) ESPA 3101-3102, (At the UPRRP) ESPA 3001-3002, ESPA 3003-3004, ESPA 3111-3112.

4. Students may take: (At the UPRB) ESPA 3201-3202, ESPA 3211-3212; (At the UPRRP) ESPA 3018, 3035, 3306, HUMA 3121-3122, INGL 3151-3152, ESPA 3213, INGL 3001-3002, INGL 3036, 3045, 3165, INGL 3125, 3217, 3226, INGL 3229, 3259, 3285, INGL 3251-3252, INGL 4005, 4009, 4035, INGL 4048, 4049, 4056, INGL 4265, 5036, LITE 3011-3012, LITE 3051-3052, LITE 3061-3062.

5. Students may take: (At the UPRB) TEAT 3025, (At the UPRRP) ARQU 3121, HUMA 3017, ARTE 3118, 3199, 3716, ARTE 3901, MUSI 3145.
# Bachelor of Arts Degree Majoring in Sociology (1606)

## First Year

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<tbody>
<tr>
<td>Code</td>
<td>Title</td>
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<tr>
<td>CISO 3121</td>
<td>Intro. Social Science I</td>
</tr>
<tr>
<td>CIBI 3XXX</td>
<td>Biological Science I</td>
</tr>
<tr>
<td>HUMA 3101</td>
<td>Western Culture I</td>
</tr>
<tr>
<td>INGL 3XXX</td>
<td>English I</td>
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<tr>
<td>ESPA 3101</td>
<td>Basic Spanish I</td>
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## Second Year

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
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<td>Title</td>
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<tr>
<td>MATE 3105</td>
<td>Mathematics Appreciation</td>
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<td></td>
<td>Literature IV</td>
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<tr>
<td>CIPO 3011</td>
<td>Political Science Principles</td>
</tr>
<tr>
<td>SOCI 3245</td>
<td>Principles of Sociology</td>
</tr>
<tr>
<td>PSIC 3003</td>
<td>Introduction to Psychology</td>
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<td><strong>Sub-Total Credits</strong></td>
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**Total Credits: 61**

Notes regarding the Articulated Transfer Programs to the University of Puerto Rico at Rio Piedras campus (UPRRP) toward a Bachelor of Arts Degree majoring in one of the following: Anthropology, Social Science, Political Science, Economics, Geography, Psychology and Sociology:

1. Students are recommended to take three credits in CIBI and three credits in CIFI (At the UPRB) from the following: CIBI 3001-3002, CIFI 3001-3002, [At the UPRR] CIBI 3003-3004, CIFI 3005, 3006-3007, 3015-3016, 3017, 3025-3026, 3035, 4105, CIFI 3003-3004, 3005-3006, and CIFI 3013-3014, 3021-3022, 3010, 3055, 3065, 4005, 4015.

2. Students will take the courses according to the score obtained on the English section of the CEEB (College Entrance Exam): (At the UPRB) INGL 3011-3012; INGL 3101-3102 and INGL 3101-3102 (Lab); INGL 3103-3104; [At the UPRR] INGL 3003-3004 or INGL 3123-3124.

3. Students may take: [At the UPRB] ESPA 3101-3102; [At the UPRR] ESPA 3001-3002; ESPA 3003-3004; ESPA 3111-3112.

4. Students may take: [At the UPRB] ESPA 3201-3202; ESPA 3211-3212; [At the UPRR] ESPA 3018, 3035; 3306; HUMA 3121-3122; INGL 3151-3152; ESPA 3213, INGL 3001-3002, INGL 3036, 3045, 3165; INGL 3215, 3217, 3226; INGL 3229, 3259, 3285; INGL 3251-3252; INGL 4005, 4009, 4035; INGL 4048, 4049, 4056; INGL 4265, 5036; LITE 3011-3012; LITE 3051-3052; LITE 3061-3062.

5. Students may take: [At the UPRB] TEAT 3025; [At the UPRR] ARQU 3121; HUMA 3017; ARTE 3118, 3199, 3716; ARTE 3901; MUSI 3145.
ARTICULATED TRANSFER PROGRAM TO THE UNIVERSITY OF PUERTO RICO AT CAROLINA
BACHELOR’S DEGREE IN CRIMINAL JUSTICE MAJORING IN LAW & SOCIETY (1622)

Students may complete up to their third year at the UPR-Bayamón and then transfer to the UPR at Carolina to finish their bachelor’s degree. They must demonstrate academic progress and have a minimum grade point average of 3.00 in the first and second year of study.

Students may take the following courses during their first two years at the UPRB:

### FIRST YEAR

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
</tr>
<tr>
<td>CISO 3121</td>
<td>Intro. to Social Science I</td>
</tr>
<tr>
<td>CIBI 3001</td>
<td>Biological Science I</td>
</tr>
<tr>
<td>HUMA 3101</td>
<td>Western Culture I</td>
</tr>
<tr>
<td>ESPA 3331</td>
<td>Critical Thinking &amp; Argumentative Writing I</td>
</tr>
<tr>
<td>INGL 1</td>
<td>English</td>
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<td><strong>Sub-Total Credits</strong></td>
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### SECOND YEAR

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<tbody>
<tr>
<td><strong>Code</strong></td>
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<tr>
<td>INCO 4015</td>
<td>Conversational English</td>
</tr>
<tr>
<td>SOCI 3245</td>
<td>Principles of Sociology</td>
</tr>
<tr>
<td>ESPA 3201 6</td>
<td>Intro. to Literary Genres I or II</td>
</tr>
<tr>
<td>ESPA 3211</td>
<td>Intro. to Literature I</td>
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**TOTAL CREDITS: 61**

Notes regarding the Articulated Transfer Programs to the University of Puerto Rico at Rio Piedras campus (UPRRP) toward a Bachelor of Arts Degree majoring in one of the following: Anthropology, Social Science, Political Science, Economics, Geography, Psychology and Sociology:

1. Students are recommended to take three credits in CIBI and three credits in CIFI (At the UPRB) from the following: CIBI 3001-3002, CIFI 3001-3002, [At the UPRRP] CIBI 3003-3004, CIFI 3005, 3006-3007, 3015-3016, 3017, 3025-3026, 3035, 4105, CIBI 3003-3004, 3005-3006, and CIFI 3013-3014, 3021-3022, 3010, 3055, 3065, 4005, 4015.

2. Students will take the courses according to the score obtained on the English section of the CEEB (College Entrance Exam): (At the UPRB) INGL 3011-3012, INGL 3101-3102 and INGL 3111-3122; (At the UPRRP) INGL 3103-3104; (At the UPRRP) INGL 3003-3004 or (In GL 3123-3124).

3. Students may take: (At the UPRB) ESPA 3101-3102; (At the UPRRP) ESPA 3001-3002, ESPA 3003-3004, ESPA 3111-3112.

4. Students may take: (At the UPRB) ESPA 3201-3202, ESPA 3211-3212; (At the UPRRP) ESPA 3018, 3035, 3306, HUMA 3121-3122, INGL 3151-3152; ESPA 3213, INGL 3001-3002, INGL 3036, 3043, 3165, INGL 3125, 3217, 3226, INGL 3229, 3259, 3285, INGL 3251-3252, INGL 4005, 4009, 4035, INGL 4048, 4049, 4056, INGL 4265, 5036, LITE 3011-3012, LITE 3051-3052; LITE 3061-3062.

5. Students may take: (At the UPRB) TEAT 3025, (At the UPRRP) ARQU 3121, HUMA 3017, ARTE 3118, 3199, 3716; ARTE 3901, MUSI 3145.
# Bachelor's Degree in Criminal Justice Majoring in Forensic Psychology (1621)

## First Year

### First Semester

<table>
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<th>Credits</th>
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<tbody>
<tr>
<td>CISO 3121</td>
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<td>3</td>
<td>CISO 3122</td>
<td>Intro. to Social Science II</td>
<td>3</td>
</tr>
<tr>
<td>CIBI 3001</td>
<td>Biological Science I</td>
<td>3</td>
<td>CIBI 3002</td>
<td>Biological Science II</td>
<td>3</td>
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<tr>
<td>HUMA 3101</td>
<td>Western Culture I</td>
<td>3</td>
<td>HUMA 3102</td>
<td>Western Culture II</td>
<td>3</td>
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<tr>
<td>ESPA 3331</td>
<td>Critical Thinking &amp; Argumentative Writing I</td>
<td>3</td>
<td>ESPA 3332</td>
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<td>3</td>
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<tr>
<td>INGL 1</td>
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**Sub-Total Credits:** 15

### Second Semester

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<td>SOCI 3285</td>
<td>Group Dynamics</td>
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<tr>
<td>MATE 3001</td>
<td>Introductory Mathematics</td>
<td>3</td>
<td>SOCI 3277</td>
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<td>ESPA 3211</td>
<td>Intro. to Literature I</td>
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<td>ESPA 3201</td>
<td>Directed Elective in the Arts/ Humanities³</td>
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**Sub-Total Credits:** 15

## Second Year

### First Semester

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<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>MATE 3001</td>
<td>Introductory Mathematics</td>
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<td>INCO 4015</td>
<td>Conversational English</td>
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<td>CIPO 3001</td>
<td>Political Science Principles</td>
<td>3</td>
<td>SOCI 3245</td>
<td>Principles of Sociology</td>
<td>3</td>
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<tr>
<td>GEOG 3555</td>
<td>Geographic Elements</td>
<td>3</td>
<td>PSIC 3006</td>
<td>Introduction to Psychology</td>
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<td>ESPA 3201</td>
<td>Intro. to Literary Genres I</td>
<td>3</td>
<td>ESPA 3211</td>
<td>Intro. to Literature I</td>
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**Sub-Total Credits:** 16

### Second Semester

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<tr>
<td>INCO 4015</td>
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<td>PSIC 3015</td>
<td>Personality Theories</td>
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<td>SOCI 3245</td>
<td>Principles of Sociology</td>
<td>3</td>
<td>CISO 3155</td>
<td>Fundamentals of Statistical Reasoning</td>
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<td>PSIC 3006</td>
<td>Introduction to Psychology</td>
<td>4</td>
<td>SOCI 3285</td>
<td>Group Dynamics</td>
<td>3</td>
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<td>MATE 3001</td>
<td>Introductory Mathematics</td>
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<td>SOCI 3277</td>
<td>Social Science Elective³</td>
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<td>ESPA 3211</td>
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<td>ESPA 3201</td>
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**Sub-Total Credits:** 15

## Total Credits: 61

1. Student will take the courses according to the score obtained on the English section of the CEEB (College Entrance Exam): INGL 3011-3012; INGL 3101-3102 and INGL 3011-3102 (Lab); or INGL 3103-3104.

2. Students will take one of the following courses: ANTR 3005-Cultural Anthropology; CIPO 3011- Political Science Principles; GEOG 3155-Geographic Elements; ECON 3006-Introduction to Economics; PSIC 3006-Social Psychology; PSIC 3116-Industrial Sociology; SOCI 3277-Women’s Rights in Society; SOCI 3335-Social Problems.

3. Students may take the following courses: HUMA 3105-Socio-Judicial Foundations of Western Culture; HUMA 3135- History of Ideas and Social Movements; HUMA 3201-Western Culture III; ARTE 3118; 3199; 3716; ARTE 3901; MUSI 3145.
ARTICULATED TRANSFER PROGRAM TO THE UNIVERSITY OF PUERTO RICO AT CAYEY

BACHELOR OF ARTS DEGREE MAJORING IN PSYCHOLOGY AND PSYCHOLOGY & MENTAL HEALTH

Students may complete up to their third year at the UPR-Bayamón and then transfer to the UPR at Cayey to finish their bachelor’s degree. They must demonstrate academic progress and have a minimum grade point average of 3.00 in the first and second year of study.

Students may take the following courses during their first two years at the UPRB:

FIRST YEAR

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<th>First Semester</th>
<th>Second Semester</th>
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</thead>
<tbody>
<tr>
<td>Code</td>
<td>Title</td>
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<tr>
<td>CISO 3121</td>
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<td>MATE 3041</td>
<td>Intro. to Mathematics I</td>
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<td>INGL 3</td>
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SECOND YEAR

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<th>Second Semester</th>
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<tbody>
<tr>
<td>Code</td>
<td>Title</td>
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<tr>
<td>CIBI 3001</td>
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<td>ORCIFI 3001</td>
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<tr>
<td>HUMA 3201</td>
<td>Western Culture III</td>
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<tr>
<td>INGL2</td>
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<td>PSIC 3003</td>
<td>Intro. to Psychology</td>
</tr>
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<td>Sub-Total Credits</td>
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</table>

1. Students who have taken the Spanish Advanced Placement Exam offered by the College Board Entrance Exam and passed with a score of 4 or 5 obtain credit (6 Credits) for the first year of Spanish (equivalent to ESPA 3101-3102) and may go on to second year Spanish courses.

2. Students will take first and second year English courses according to the score obtained on the College Board Entrance Exam. With a score of 580 or less students take Basic English and its laboratory, INGL 3101-3102 and INGL 3113-3114, from 581 – 650, Intermediate English, INGL 3103-3104 and Introduction to Literature, INGL 3221-3222, and from 651 – 800 students take Honor English, INGL 3011-3012 and Introduction to Literature, INGL 3221 y 3222. Students who have taken the English Advanced Placement Exam offered by the College Board and passed with a score of 4 or 5 obtain credit (6 Credits) for the first year of English and take INGL 3211-3212.

3. Students will select a course among the following: ANTR 3005-Cultural Anthropology; CIPO 3011- Political Science Principles; GEOG 3155-Geographic Elements; SOCI 3245-Sociology Principles; CISO 3155-Fundamentals of Statistical Reasoning; ECON 3021-Principles of Economics I; SOCI 3265-Social Science Methodology; SOCI 3277-Women’s Rights in Society; SOCI 3335-Social Problems; PSIC 3025 - Human Development.

204 GENERAL CATALOG 2012-2015
ANTR 3005  
**INTRODUCTION TO CULTURAL ANTHROPOLOGY**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: CISO 3121  
Introduction to the different branches of anthropology with emphasis on its social-cultural aspects. Includes the comparative study of economic, political, religious, and family systems. Special attention is given to the Caribbean.

CIPO 3011  
**PRINCIPLES & PROBLEMS OF POLITICAL SCIENCE**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: CISO 3122  
Familiarizes students with the concept of politics and methods used in its study. Includes an analysis of ideological assumptions, basic problems, and general types of institutions and political systems.

CIPO 3025  
**POLITICAL SYSTEM OF THE UNITED STATES**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: CISO 3122  
The study of the historical background of North American constitutional government and political theory that serves as the basis for this system of government. An analysis of the government structure at the national level and the particular style of its political process with emphasis on separation of powers, federalism, and the role of interest groups and political parties.

CIPO 3025  
**POLITICAL SYSTEM OF PUERTO RICO**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: CISO 3122  
Historical and analytical study of the government of Puerto Rico from 1898 until the present. Includes the institutions developed during 1898-1952, the constitution of the Commonwealth; the political process in Puerto Rico; the legislative, executive and judicial branches; the municipal governments; and the relationship between Puerto Rico and the United States.

CIPO 3045  
**INTERNATIONAL ORGANIZATIONS**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: CISO 3122  
Historical study of international relations with special emphasis on the balance of power, the European Council, the League of Nations, and the United Nations.

CIPO 3055  
**LEGISLATIVE PROCESS**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: CISO 3122  
Comparative study of the United States Congress and the Puerto Rican Legislature. Includes an analysis of the structure, composition and functions of the different bodies of the legislative branch. Examination of modern techniques and means of legislation, drafting of laws/bill, and investigation of legislative problems in Puerto Rico.
CISO 3121
INTRODUCTION TO SOCIAL SCIENCE I
CREDITS: 3
CONTACT HOURS: 3
The scientific study of human interaction through conscientious examination of the scientific method and its application to the study of human behavior. An examination of social forces that have shaped the world we live in. The study of basic principles of sociology, anthropology and psychology in order to analyze the link between individuals and social issues. An analysis of the basic principles of personality theories and factors affecting their development.

CISO 3122
INTRODUCTION TO SOCIAL SCIENCE II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CISO 3121
study of the main social institutions with emphasis on the family, the study of political issues, and the economic forces affecting social life. Includes notions of ecology, demography, and universal social processes. The case of Puerto Rico is analyzed within this context.

CISO 3131
INTRODUCTION TO SOCIAL SCIENCE I – HONORS
CREDITS: 3
CONTACT HOURS: 3
The scientific study of human interaction through the conscientious examination of the scientific method and its application to the study of human behavior. An examination of the social forces, which have shaped the world in which we live. Also includes the study of the basic principles of sociology, anthropology and psychology in order to analyze the incorporation of the individual to social issues. An analysis of the basic principles of the personality theory and the elements that affect its formation. This course will require reading and analysis of original works. Students will also be asked to conduct research and write related monographs. The course will be conducted as a seminar.

CISO 3132
INTRODUCTION TO SOCIAL SCIENCE II – HONORS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CISO 3131
The scientific study of human interaction through the conscientious examination of the scientific method. The study of the main social institutions with emphasis on the study of political issues and the economic powers that affect social life. Includes the study of concepts from ecology, demography, and universal social processes. The case of Puerto Rico is analyzed within this context. This course will require reading and analysis of original works. Students will also be asked to conduct research and write related monographs. The course will be conducted as a seminar.

CISO 3145
BIBLIOGRAPHY & LIBRARY RESEARCH IN SOCIAL SCIENCE
CREDITS: 3
CONTACT HOURS: 3
Students will learn to create library resources, become acquainted with reference sources, and prepare reports or bibliographic research papers in social science.
CISO 3155
FUNDAMENTALS OF STATISTICAL REASONING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CISO 3122, MATE 3001 OR 3105
Designed to teach basic concepts of statistical reasoning as well as changes in the mechanics involved in the computation of basic statistical measurements applied to socio-psychological problems. Emphasis will be placed on why and when certain statistical measures are used and the limitations they present.

ECON 3005
INTRODUCTION TO ECONOMICS I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CISO 3122
Introduction to theoretical concepts and applications of the fundamentals of economics: historical concept and perspective, basic problems, methods of analysis, basic principles of micro-economics, basic principles of macro-economics, and contemporary and future problems.

ECON 3085
ECONOMIC & SOCIAL DEVELOPMENT OF PUERTO RICO
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: ECON 3005
The study of the economic problems of Puerto Rico through the analysis of the characteristics and trends of our economy. Includes: economic geography and history, the role of agriculture and specific crops, land tenure, the population and labor force, Puerto Rico-United States economic relations, public revenues and expenditures, banking and credit facilities, transportation and communication, net and gross income and balance of external payments, industrial development and the possibilities of its future development, and the economic policy of the state government.

GEOG 3155
ELEMENyS OF GEoGRAPHY
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CISO 3122
Introductory course to geography as a synoptic field that conceptually integrates the physical environment (atmosphere, lithosphere, hydrosphere and biosphere) and human systems (social, cultural, economic and political).

ECON 3085
GEOGRAPHY OF PUERTO RICO
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CISO 3122
Study and analysis of the physical, environmental and human geography of Puerto Rico, its spatial (land use) planning, and its status in the contemporary world.

GEOG 3165
POLITICAL GEoGRAPHy
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: GEOG 3155
The general study of geographic foundations of human activity organized into states.

PSIC 3003
INTRODUCTION TO GENERAL PSYCHOLOGY
CREDITS: 4, CONTACT HOURS: 4
PRE-REQUISITE: CISO 3121
An introduction to general sociology in its concern for the human subject as a result of the evolution of the species through social and cultural organizations.
PSIC 3005  
**GENERAL PSYCHOLOGY**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: CISO 3121  
This course offers a sample of the basic topics in psychology. Familiarizes students with the scientific method as an instrument of study in this science. Includes a study of the basic problems of individuals and society, as well as different approaches and methodologies used to solve these problems.

PSIC 3006  
**SOCIAL PSYCHOLOGY**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: CISO 3121-3122 OR BE A STUDENT OF BUSINESS ADVERTISING/PUBLICITY  
A psychological approach to social life from the individual’s point of view, including study of the psychology of institutions and social conflicts. Also includes a critical analysis of the relationship between culture and personality.

PSIC 3015  
**PERSONALITY THEORIES**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: PSIC 3003 OR PSIC 3005  
The study of the development of the normal personality from the point of view of dynamic psychology. An introduction to personality theories. The course also examines the techniques used to measure personality.

PSIC 3025  
**HUMAN DEVELOPMENT**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: PSIC 3005 OR PSIC 3003  
The study of human development from infancy to adulthood. The importance of genetic and environmental factors in the evolution process will be clarified. The course also describes factors that characterize the physical, intellectual, emotional, social and moral aspects of the different stages of development. It includes the most relevant theories in the interpretation of that development.

PSIC 3116  
**INDUSTRIAL PSYCHOLOGY**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: CISO 3122  
The study of psychology techniques and their application to industrial and business environments. Topics include advertising procedures, and selection and promotion of employees. The course also covers the study the psychological factors that contribute to the efficiency of a business or industrial organization.

SOCI 3245  
**PRINCIPLES OF SOCIOLOGY**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: CISO 3121  
Introduction to the basic concepts and diverse approaches of the discipline. Study of the analytical, theoretical and methodological tools used to understand and analyze society, its institutions as well as its formation and change processes.
**SOCI 3265**

**SOCIAL RESEARCH TECHNIQUES**

**CREDITS: 3**  
**CONTACT HOURS: 3**  
**PRE-REQUISITE: SOCI 3245**

The course has two phases: (1) The study of sociological and anthropological research designs, including the discussion of theories, problems, hypothesis, definitions of variables, and sampling techniques and the analysis and interpretation methods. (2) An empirical research by the student where theoretical concepts and methods will be applied.

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**SOCI 3277**

**WOMEN’S RIGHTS IN SOCIETY**

**CREDITS: 3**  
**CONTACT HOURS: 3**  
**PRE-REQUISITE: CISO 3122**

An analysis of the status of women in different societies and its evolution. Emphasis on women’s status in the social, cultural, and legal and political development of Puerto Rico. The course includes the study of institutions for the protection and integral development of women in Puerto Rican society.

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**SOCI 3285**

**GROUP DYNAMICS**

**CREDITS: 3**  
**CONTACT HOURS: 3**  
**PRE-REQUISITE: CISO 3121**

The study of the structure and function of groups as agents in the process of improving social behavior. Includes concepts of group dynamics, roles, individual and group interaction, leadership, and different types of groups. Emphasis is placed on modern contribution, both theoretical as well as methodological, with the aim of illustrating basic concepts when working with groups.

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**SOCI 3335**

**SOCIAL PROBLEMS**

**CREDITS: 3**  
**CONTACT HOURS: 3**  
**PRE-REQUISITE: SOCI 3245**

A sociological approach to the conceptualization of social problems. An analysis of different aspects of the concept, with emphasis on who are considered to be social problems and why. The study of different factors that explain the causes of social problems including social disorganization, deviant behavior, and value conflicts.
INCO 3005
BUSINESS COMMUNICATION I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: INGL 3102, INGL 3104 OR INGL 3012
Designed for students of business administration and office systems students. Students are given training in the correct way of writing and communicating in business. Special emphasis on achieving effective communication and understanding the logical processes involved in writing business documents.

INCO 3006
BUSINESS COMMUNICATION II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: INCO 3005
Continuation of INCO 3005: Techniques for preparing written reports is introduced.

INCO 3025
CONVERSATIONAL ENGLISH FOR OFFICE SYSTEMS
CREDITS: 1
CONTACT HOURS: 2
PRE-REQUISITES: INGL 3102, INGL 3104 OR INGL 3012
Designed for students seeking an associate or bachelor’s degree in Office Systems. Practice is provided for the development of abilities to communicate orally in situations relevant to office routines.

INCO 4006
REPORT WRITING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: INCO 3006
Provides students with experience in analyzing and writing various types of business reports, emphasizing long; formal reports that require research. Considerable practice is given to helping students use the English language correctly. Students are trained in report writing techniques. A long, formal analytical report is required to develop skills in presentation and interpretation of report findings. Theoretical aspects of report writing are presented, including different types of reports, their functions, purposes and formats. Also includes research methods as well as basic principles of communication. Students should master the skills needed to produce dynamic and effective writing.

INCO 4015
CONVERSATIONAL ENGLISH
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: INGL 3102, INGL 3104 OR INGL 3012
This course is designed to help students increase their self-confidence, fluency and accuracy in spoken English. Emphasis is placed on pronunciation and vocabulary; aiding students in helping themselves toward improving oral English. Students progress from simple conversations to dialogues involving specialized words and usage, and finally to the organization and delivery of a speech and oral report.

INCO 4025
TECHNICAL REPORT WRITING
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: INGL 3201 OR INGL 3221
Introduction to the preparation of technical reports. Designed for electronics and computer sciences students. Prepares students to plan, organize, and write technical reports in English.
INCO 4035
BUSINESS TRANSLATION
CREDITS: 2
CONTACT HOURS: 2
PRE-REQUISITE: INCO 3006
This course is designed to develop skills in the techniques used in Spanish/English and English/Spanish translations. Emphasis is given to vocabulary, idioms, and structure of both languages as they apply to business, with special emphasis on the style and tone of business documents.

INCO 4055
ADVANCED CONVERSATIONAL ENGLISH
CREDITS: 1
CONTACT HOURS: 2
PRE-REQUISITE: INCO 3025
This course is designed for students in the office systems program. Students are given training in aural-oral skills. Special attention is given to developing a strong vocabulary and those features present in oral language such as language clichés and idiomatic expressions; stress and intonation are also emphasized throughout the course.

INGL 3011
HONORS ENGLISH I
CREDITS: 3
CONTACT HOURS: 3
This course is designed for students that scored 691 or more on the English sub-test of the CEEB (College Entrance Examination Board) and who are fluent in English. Study of the essay, short story, poetry, drama and novel. It also includes oral and written practice by means of compositions related to these literary genres.

INGL 3012
HONORS ENGLISH II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: INGL 3011
Continuation of INGL 3011.

INGL 3011
HONORS ENGLISH I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: INGL 3006
This course is designed for students that scored 691 or more on the English sub-test of the CEEB (College Entrance Examination Board) and who are fluent in English. Study of the essay, short story, poetry, drama and novel. It also includes oral and written practice by means of compositions related to these literary genres.

INGL 3101
BASIC ENGLISH I
CREDITS: 3
CONTACT HOURS: 3
CO-REQUISITE: INGL 3113
Course designed for students who obtained a score of 451 or less on the English test of the CEEB. This course integrates the four language skills: listening, speaking, reading, and writing while developing students’ vocabulary and grammatical structures in the English language.

INGL 3102
BASIC ENGLISH II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: INGL 3101
CO-REQUISITE: INGL 3114
This course integrates the four language skills: listening, speaking, reading, and writing while developing students’ vocabulary and grammatical structures.

INGL 3103
INTERMEDIATE ENGLISH I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: INGL 3101
CO-REQUISITE: INGL 3114
This course integrates the four language skills: listening, speaking, reading, and writing while developing students’ vocabulary and grammatical structures.

INGL 3104
INTERMEDIATE ENGLISH II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: INGL 3103
Continuation of INGL 3103 with the analysis of selected readings, such as essays, fiction, poetry or drama, and practice in writing with attention given to grammar and idiomatic expressions.
INGL 3113  
**BASIC ENGLISH ORAL PRACTICE I**  
CREDITS: 0  
CONTACT HOURS: 1  
CO-REQUISITE: INGL 3101  
Practice for INGL 3101.

INGL 3114  
**BASIC ENGLISH ORAL PRACTICE II**  
CREDITS: 0, CONTACT HOURS: 1  
PRE-REQUISITE: INGL 3113  
CO-REQUISITE: INGL 3102  
Practice for INGL 3102.

INGL 3117  
**CONVERSATIONAL ENGLISH FOR STUDY & TRAVEL**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITES: INGL 3102, INGL 3104 OR 3012  
Designed for students who will be traveling to and studying in an English-speaking country outside of Puerto Rico. Students will engage in communicative activities such as role-playing, dialogues, speeches, oral reports and essays, interviews, simulations, etc. The environment will serve as a living laboratory where students will apply the skills learned in spontaneous situations at shopping malls, restaurants, offices on campus, transportation systems, amusement parks, museums, theaters, and sporting events activities, among others. Emphasis is placed on pronunciation, vocabulary development, and problem-solving techniques that are needed to communicate effectively in English.

INGL 3201  
**GRAMMAR, COMPOSITION & READING I**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITES: INGL 3102  
The study of more advanced grammatical techniques and compositions based on careful analysis of selected readings.

INGL 3202  
**GRAMMAR, COMPOSITION & READING II**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: INGL 3201  
Continuation of English 3201, with an introduction to outlining and research techniques.

INGL 3211  
**ADVANCED ENGLISH I**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: SCORE OF 4 OR 5 ON ADVANCE PLACEMENT TEST  
An introduction to the experience, interpretation, and evaluation of literature. Reading and writing assignments will focus on short fiction, modern drama, the elements of poetry and the essay. Fundamental library skills related to literary study will be introduced.

INGL 3212  
**ADVANCED ENGLISH II**  
CREDITS: 3, CONTACT HOURS: 3  
PRE-REQUISITE: INGL 3211  
Development of reading, discussion, and writing skills through the experience, interpretation, and evaluation of the novel, Shakespearean drama, the complex texture of poetry. A research paper related to literary study will be required.

INGL 3221  
**INTRODUCTION TO LITERATURE I**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: INGL 3102, INGL 3104 OR INGL 3012  
Analysis and appreciation of the essay, the short story, poetry, drama, and novel through reading and writing of related topics.

INGL 3222  
**INTRODUCTION TO LITERATURE II**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: INGL 3221  
Continuation of English 3221. Analysis and appreciation of poetry, drama and the novel.
**INGL 4021**  
**TECHNICAL REPORT WRITING FOR BIOLOGY**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: INGL 3102, INGL 3104 OR INGL 3012  
CO-REQUISITE: INGL 4022  
An introduction to technical report writing, designed to provide students with skills for writing reports that require research on biology topics. The analysis of scientific journal articles or scientific and professional documents will be emphasized.

**INGL 4022**  
**TECHNICAL REPORT WRITING FOR BIOLOGY LABORATORY**  
CREDITS 1  
CONTACT HOURS: 1  
PRE-REQUISITE: INGL 3102, INGL 3104 OR INGL 3012  
CO-REQUISITE: INGL 4021  
Supplements the Technical Report Writing for Biology course. Students, together with the professor, prepare reports in the computer laboratory; an oral presentation of the final report will be required.

**INGL 3250**  
**PUBLIC SPEAKING**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: INGL 3202, INGL 3104 OR INGL 3212  
Principles and practice of making oral presentations: preparation, composition, and delivery of oral presentations including the formal, the informal and the impromptu speech.

This course is designed for students in the articulated program of the Engineering Department. It intends to help students improve their listening and communication skills. Special attention is given to the practical application of the principles, organization and practice of effective public speaking. The purpose is for students to successfully deliver formal, informal and impromptu speeches.

**INGL 3326**  
**UNITED STATES MINORITY LITERATURE**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: INGL 3202, INGL 3104 OR INGL 3012  
English language minority literature of the United States with particular attention to African American, Asian American, Native American and Latino/a works.
CIFI 2005
MODERN ASTRONOMY
CREDITS: 2
CONTACT HOURS: 2
Study of the universe, galaxies, solar systems and planets based on conventional astronomical observations and analyses. Emphasizes the following topics in general: origin and laws that govern the universe and the solar system, and the origin of life in the universe and in our planet. These topics will be complemented with visits to space observatories.

CIFI 3001
FUNDAMENTALS OF THE DEVELOPMENT OF PHYSICAL SCIENCE I
CREDITS: 3
CONTACT HOURS: 3
Study of the origin and construction of the fundamental concepts of the diverse physical science disciplines, their theoretical evolution and the methodology used for obtaining scientific knowledge. This course discusses the fundamental concepts of astronomy, kinematics, dynamics and energy. The course includes laboratory experiences where course topics and concepts are illustrated and applied.

CIFI 3002
FUNDAMENTALS OF THE DEVELOPMENT OF PHYSICAL SCIENCE II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: CIFI 3001
The origin and construction of the fundamental concepts of the diverse physical science disciplines are studied together with their theoretical evolution and the methodology used for obtaining scientific knowledge. This course discusses the fundamental concepts of thermodynamics, electricity, magnetism, waves and the structure of matter. The course includes laboratory experiences where course topics and concepts are illustrated and applied.

FISI 1001
TECHNICAL PHYSICS I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 1001 OR MATE 3171
Introductory course in physics that emphasizes the technical applications of the fundamental concepts of kinematics, dynamics, analytical static, energy, hydraulics and thermodynamics.

FISI 1002
TECHNICAL PHYSICS I LABORATORY
CREDITS: 1
CONTACT HOURS: 3
CO-REQUISITE: MATE 1001 OR MATE 3171
Weekly experimental laboratory that includes laboratory practice in mechanics and heat.

FISI 1003
TECHNICAL PHYSICS II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: MATE 1001 OR MATE 3171 & FISI 1001
CO-REQUISITE: MATE 1002 OR MATE 3172
This course examines the technical applications of electromagnetism, optics and modern physics.

FISI 1004
TECHNICAL PHYSICS II LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITE: FISI 1002
Laboratory course consisting of experiments in electromagnetism and optics.
FISI 3013  
**UNIVERSITY PHYSICS I**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITE: MATE 3031  
Introductory physics course where differential and integral calculus skills are used. The course includes the following: vector algebra, particle kinematics in one and two dimensions, equilibrium, Newton’s laws (gravitation, motion, etc.), conservation of linear momentum, conservation of mechanical energy, rotational kinematics and dynamics of a rigid body, conservation of energy as well as angular momentum for rotating bodies in fluid mechanics, and thermophysical and thermodynamic fundamentals.

FISI 3171  
**PHYSICS FOR ENGINEERING I**  
CREDITS: 4  
CONTACT HOURS: 4  
PRE-REQUISITE: MATE 3031  
CO-REQUISITE: MATE 3032  
Principles of mechanics: physical quantities, motion, thermodynamics, energy, systems of particles, rotational dynamics, fluid mechanics, waves: harmonic motion and optical sound; geometrical and physical optics.

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FISI 3012  
**UNIVERSITY PHYSICS II**  
CREDITS: 3  
CONTACT HOURS: 3  
PRE-REQUISITES: FISI 3011, FISI 3013  
Second part of the introductory physics course where differential and integral calculus skills are used. This course includes harmonic and ondulatory motion, electrostatics, electrical potential, continuous current, and the components of electric circuits: magnetism, alternating current, Maxwell equations, and wave theory of light.

FISI 3172  
**PHYSICS FOR ENGINEERING II**  
CREDITS: 4  
CONTACT HOURS: 4  
PRE-REQUISITE(S): FISI 3171, FISI 3173  
CO-REQUISITE: MATE 3063  
An introduction to the fundamental concepts and laws of electromagnetism and modern physics: electrostatic, electromagnetism, DC and AC circuits. Fundamental theorems of electromagnetism are studied, and Maxwell’s equations are derived. The principles of modern physics are introduced: quantization of light and matter, wave particle duality, the Pauli principle, electrical conductivity in solids, atoms and nuclei.
FISI 3173
PHYSICS FOR ENGINEERING I LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3031
CO-REQUISITE: MATE 3032
This course consists of a series of laboratory practices intended to verify the laws of mechanics and thermodynamics. Includes experiments in electromagnetism, optics and modern physics.

FISI 3174
PHYSICS FOR ENGINEERING II LABORATORY
CREDITS: 1
CONTACT HOURS: 3
PRE-REQUISITE: FISI 3171,
FISI 3173
Laboratory to complement FISI 3172.

FISI 4985
UNDERGRADUATE RESEARCH
CREDITS: 2
CONTACT HOURS: 6
PRE-REQUISITE(S): FISI 3171 & FISI 3173
Course consists of supervised research in an area of physics. It aims to generate interest, motivate and provide the student with experiences and training in scientific research.
MATE 0011  
**PRE-UNIVERSITARY MATHEMATICS**  
**CREDITS: 0**  
**CONTACT HOURS: 3**  
This course is optional and recommended as follows based on the score obtained on the mathematics section of the College Board Entrance Exam (CEEB): business administration, natural science and basic pedagogy students who obtain less than 600; pre-engineering students who obtained less than 650; and to all other students who scored less than 550.

MATE 1001  
**TECHNICAL MATHEMATICS I**  
**CREDITS: 4**  
**CONTACT HOURS: 4**  
Includes the study of exponents and radicals, operations with polynomials, algebraic fractions, solving of linear and quadratic equations, systems of equations, algebraic and trigonometric functions and their applications.

MATE 1002  
**TECHNICAL MATHEMATICS II**  
**CREDITS: 4**  
**CONTACT HOURS: 4**  
**PRE-REQUISITE: MATE 1001**  
Review of elementary algebra, factoring, algebraic fractions, exponents and radicals, complex numbers, equations and inequalities.

MATE 3001  
**INTRODUCTORY MATHEMATICS II**  
**CREDITS: 3**  
**CONTACT HOURS: 3**  
Review of elementary algebra, factoring, algebraic fractions, exponents and radicals, complex numbers, equations and inequalities.

MATE 3005  
**PRE-CALCULUS**  
**CREDITS: 5**  
**CONTACT HOURS: 5**  
Includes number systems; properties of real numbers; exponents; roots and radicals; inequalities; absolute values, relations and functions; graphs; inverse functions, exponentials, logarithmic and circular functions. Laws of sine, cosine, complex numbers; polynomials; systems of equations; matrices; determinants; analytic geometry, and the Binomial Theorem. Students must have a score of 700 or more in College Board to register.

MATE 3006  
**INTEGRATED MATHEMATICS WITH APPLICATIONS**  
**CREDITS: 3**  
**CONTACT HOURS: 3**  
The course covers the following applications: set theory, numerical sets (N, Z, Q, R), percentage, linear equations, applied geometry, mathematical finance, statistics, probability and measuring systems. Course for SOFI and EDFI (BA level) students.

MATE 3011  
**QUANTITATIVE METHODS I**  
**CREDITS: 3**  
**CONTACT HOURS: 3**  
Includes linear and quadratic equations, linear and quadratic inequalities, relations and functions, polynomial and rational functions. Applications.

MATE 3012  
**QUANTITATIVE METHODS II**  
**CREDITS: 3**  
**CONTACT HOURS: 3**  
**PRE-REQUISITE: MATE 3011**  
Includes matrices and determinants, systems of equations, inequalities and systems of linear inequalities in two variables, linear programming, exponential and logarithmic functions, sequences, binomial theorem, and financial mathematics.

MATE 3013  
**QUANTITATIVE METHODS III**  
**CREDITS: 3**  
**CONTACT HOURS: 3**  
Includes review of functions, limits and sequences, differential calculus; introduction to integral calculus and its use in the business field.
MATE 3015
**ELEMENTARY STATISTICS**
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3001 ORMATE 3171
Includes frequency distribution, graphs, descriptive measures, permutations and combinations, probability, mathematical expectations, probability distribution, sampling distributions, estimation, hypothesis test, and simple regression and correlation.

MATE 3026
**INTRODUCTION TO STATISTICS WITH COMPUTERS**
CREDITS: 3
CONTACT HOURS: 5
PRE-REQUISITE: MATE 3001 ORMATE 3171
Introduction to the use of computers, basic concepts of scientific programming, introduction to descriptive statistics, permutations, combinations, the Binomial Theorem, Bayes Theorem, random variables, normal distribution, hypothesis testing, Chi-Square distribution and regressions.

MATE 3031
**CALCULUS I**
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: MATE 3005 ORMATE 3172 ORMATE 1002
Includes continuity, differentiation, chain rule for derivatives, higher order and implicit derivatives, differentials; maxima and minima, rates of change, concavity, curve sketching, definite integrals, differentiation and integration of transcendental functions and applications.

MATE 3032
**CALCULUS II**
CREDITS: 4
CONTACT HOURS: 4
PRE-REQUISITE: MATE 3031
Includes integration techniques, polar coordinates, parametric equations, indeterminate forms, improper integrals, vectors, vector-valued functions, surfaces, series and their applications.

MATE 3041
**INTRODUCTION TO MATHEMATICS I**
CREDITS: 3
CONTACT HOURS: 3
Includes notions about set theory, notions about logic, algebraic axioms, real number system starting from natural numbers, properties of operations and numbers, numeration systems, decimals and graphic representations on the number line, equivalence, equality, and order relationships.

MATE 3042
**INTRODUCTION TO MATHEMATICS II**
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3041
Includes rational and irrational numbers, exponents and roots, polynomials, factoring, rational expressions, equations and inequalities, functions and graphs, systems of linear equations, elements of intuitive geometry, congruence, areas, volume, probability, and normal distribution.

MATE 3063
**CALCULUS III**
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3032
Includes the functions of several variables, partial differentiation, multiple integration, vector fields. Introduction to differential equations. Applications.

MATE 3105
**MATHEMATICS APPRECIATION**
CREDITS: 3
CONTACT HOURS: 3
The nature of modern mathematics. Includes elements of the set theory, logic, numerical systems, some properties of real numbers, probability and statistics.
MATE 3131*
FUNDAMENTAL CONCEPTS OF ARITHMETIC & ALGEBRA FOR ELEMENTARY SCHOOL TEACHERS
CREDITS: 3
CONTACT HOURS: 3
Study of algebraic properties of whole, natural and rational numbers; rational number system; ordering of numbers; number line; solving of simple and unequal equations; measurement and approximation; division rules; largest common denominator and least common multiplier; percent, ratios and proportions; verbal problems; graphs; correspondence; and real numbers. Will be offered beginning on the academic year 2012-2013 to new incoming students in the Pedagogy Department.

MATE 3132*
FUNDAMENTAL CONCEPTS OF GEOMETRY, PROBABILITY & STATISTICS FOR ELEMENTARY SCHOOL TEACHERS
CREDITS: 3
CONTACT HOURS: 3
Plane Euclidean Geometry: Axioms and primitive concepts; simple geometry proofs; elementary properties of triangles, quadrilaterals and circles; constructions using compass and ruler; Cartesian Coordinate System; and angle and area measurements. Geometry: elemental properties of pyramids, prisms, cylinders, cones & spheres; volume measurements and applications. Statistics: exploratory analysis of data, grouped and ungrouped data, central tendency and dispersion measurements, probability, independent events and mutually exclusive, normal distribution and applications. Course will be offered beginning on the academic year 2012-2013 to new incoming students in the Pedagogy Department.

MATE 3171
PRE-CALCULUS I
CREDITS: 3
CONTACT HOURS: 3
Includes a review of Algebra, quadratic equations, equations with radicals; inequalities: linear, quadratic, rational and absolute value; Cartesian coordinates; relations and functions; algebraic functions and their graphs, and analytic geometry.

MATE 3172
PRE-CALCULUS II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3171
Includes trigonometric functions and their inverses; exponential and logarithmic functions and their graphs; complex numbers; sequences; and systems of equations.

MATE 3175
DISCRETE MATHEMATICS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3172
The student will become familiar with the basic concepts of discrete mathematics. Includes graph theory, basic graph properties, directed graphs, trees, combinatorial analysis, permutations, combinations and recurrence relations.
MATE 4009
ORDINARY
DIFFERENTIAL
EQUATIONS
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3063
Includes study of first and second order differential equations, higher order equations, fundamental existence theorem, linear systems, solution to differential equations through the use of Laplace transform, and by series and numerical methods.

MATE 4031
LINEAR ALGEBRA
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: MATE 3031
Course includes matrix theory, elemental operations, solution of systems of linear equations by triangulation, vector spaces, subspaces, bases, linear transformations, theory of determinants, Euclidean spaces, orthogonality, proper values and vectors of an endomorphism. Third year second semester course of study.
ESCO 3001

PSYCHOLOGY OF COMMUNICATION I
CREDITS: 3
CONTACT HOURS: 3
Pre-requisite: ESPA 3102
The study of writing and writing style. Emphasis on the psychology of business communication and language by working on oral and written communication techniques.

ESCO 3002

PSYCHOLOGY OF COMMUNICATION II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: ESCO 3001
The study of the business letter and its importance in the business world. Exercises on writing different types of business letters are given. Includes the study of techniques, ethics, and style, as well as the importance of editing to achieve effective written communication.

ESCO 3005

ORAL AND WRITTEN BUSINESS COMMUNICATION I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: ESPA 3102
The study of writing in business communication as well as communication methods and techniques. Different types of business letters and other business related documents are presented and students are given the systematic practice on how to write them.

ESCO 3006

ORAL AND WRITTEN BUSINESS COMMUNICATION II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: ESPA 3102 & ESCO 3005
The study of techniques and methodology of writing and presentation of oral reports. In addition, the writing of proposals and other types of business communication are studied.

ESPA 3101

BASIC SPANISH I
CREDITS: 3
CONTACT HOURS: 3
Introduction to the study of literature and the Spanish language. Includes the analysis of expository and argumentative texts, both historically as well as grammatically. Presents the vision of Spanish literary creation in Spanish in the short story and novel genres, considered in the light of fundamental topics.

ESPA 3102

BASIC SPANISH II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: ESPA 3101
Introduction to the study of Hispanic literature. Includes the analysis of texts representative of the different literary genres. The grammatical aspects and the vision of the creation of contemporary literature in Spanish in the genres of essays, plays and poetry, considered in the light of fundamental topics.
ESPA 3135
COMPREHENSIVE SPANISH GRAMMAR
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: ESPA 3102
Compendium of Spanish grammar including the study of phonetics, orthography, morphology, and syntax. Emphasis on practical aspects to allow students to develop and enrich their linguistic competence. Designed to enable teachers to give their students the techniques for constructing and organizing the thought process.

ESPA 3201
INTRODUCTION TO LITERARY GENRES I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITES: ESPA 3101 & ESPA 3102
Study of the origin and evolution of the literary genres in the Latin American setting and its connection with the classical tradition. This is an introductory course to the particularities of the literary genres with emphasis on Latin American literature and centered on the specificity of literary discourse. The narrative (short story and novel) are studied during the first semester.

ESPA 3202
INTRODUCTION TO LITERARY GENRES II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: ESPA 3201
Study of the origin and evolution of the literary genres in the Latin American setting and its connection with the classical tradition. This is an introductory course to the particularities of the literary genres with emphasis on Latin American literature and centered on the specificity of literary discourse. Poetry, essays and plays are studied during the second semester.

ESPA 3211
INTRODUCTION TO SPANISH LITERATURE I
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: ESPA 3102
Study of literary styles, authors, and works representative of Spanish literature from its medieval origins to the Renaissance.

ESPA 3212
INTRODUCTION TO SPANISH LITERATURE II
CREDITS: 3
CONTACT HOURS: 3
PRE-REQUISITE: ESPA 3211
Study of literary styles, authors, and works representative of the history of Spanish literature from the Golden Age to the present.

ESPA 3331
CRITICAL THINKING & ARGUMENTATIVE RHETORIC I
CREDITS: 3
CONTACT HOURS: 3
This course will address the development of basic competencies in the language, communication, thought, and research through the practice of critical discourse analysis, the evaluation of propositions and reasoning, and writing. It also seeks to promote the integration of knowledge and experiences, the exploration of individual and collective identity, the appreciation of knowledge, and the development of solidarity as well as critical and ethical awareness.

ESPA 3332
CRITICAL THINKING & ARGUMENTATIVE RHETORIC II
CREDITS: 3
CONTACT HOURS: 3
This course is oriented towards enabling students to analyze and write diverse argumentative documents. Through the functional study of various grammatical units, the students will have the opportunity to refine basic skills allowing for the interpretation and structuring of argumentative texts with critical, logical, precise, coherent, and linguistically correct consciousness.
RÍO PIEDRAS CAMPUS – BACHELOR’S DEGREES

- Comparative Literature
- Philosophy
- Hispanic Studies*
- Music
- Drama *
- Art History *
- History of the Americas
- History of Europe
- Modern Languages*
- Economics *
- Political Science*
- Psychology
- Sociology *
- Anthropology *
- Geography *
- Social Sciences *

CAROLINA CAMPUS – BACHELOR’S DEGREES

- Criminal Justice
- Forensic Psychology
- Law and Society

*Information on the area and emphasis are available in the academic offerings of the Río Piedras campus.

MAYAGÜÉZ CAMPUS – BACHELOR’S DEGREES

- Civil Engineering
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering
- Chemical Engineering
- Computer Engineering
- Surveying
- Topography

MEDICAL SCIENCES CAMPUS - BACHELOR’S DEGREES

- Nursing

CAYEY CAMPUS – BACHELOR’S DEGREES

- Chemistry
- Psychology
- Psychology and Mental Health

*Information on the area and emphasis are available in the academic offerings of the Río Piedras campus.
HONORS PROGRAM
This program offers courses to talented students who want to enrich their university education within an interdisciplinary framework. The program encourages the development of an analytical attitude conducive towards research, independent work skills, and leadership among the students.

New incoming students must meet the following requirements:

1. Admission index of 3.50 and a score greater than 500 in the aptitude and achievement exams given by the College Entrance Examination Board Test (CEEB).
2. Registered in an associate or bachelor’s degree program.
3. Complete an application form for the program.
4. Submit recommendation letters from a university professor and from two of the student’s high school teachers.
5. Be interviewed by the program’s director and members of the Board of Directors.

Regular students with a general grade point index of 3.40 or more, may apply to the program if they meet the admission requirements of new incoming students excluding consideration of the admission index (IGS). Benefits for the student are as follows:

1. Early registration.
2. Meeting room with computers, printer and access to the Internet.
3. Priority for the use of study rooms and access to library shelves and special loan benefits.
4. Participation in internships and congresses.
5. Orientation regarding additional financial aid.
6. Access to personal, group and individual counseling.

INTERNATIONAL STUDIES AND STUDENT EXCHANGE PROGRAM

IN SPAIN:
• Universidad Complutense
• Universidad Autónoma
• Universidad de Salamanca

REQUIREMENTS AND ELIGIBILITY:
• Be registered in a bachelor’s degree program with a course load of 12 or more credits.
• Be at least a second year student and have passed at least 48 credits.
• Have and maintain a general grade point average of at least 2.50.
• Attend orientations regarding the program, scholarships and student loans.
• Complete the program’s application form. (Students under 21 need parental written authorization.)
• Have knowledge and mastery of the English language.
• Pass the TOEFL exam (language evaluation test), if required.

IN THE UNITED STATES:
• Florida International University
• Washington State University
• California State University
• Los Angeles

REQUIREMENTS AND ELIGIBILITY:
• Be registered in a bachelor’s degree program with a course load of 12 or more credits.
• Be at least a second year student and have passed at least 48 credits.
• Have and maintain a general grade point average of at least 2.50.
• Attend orientations regarding the program, scholarships and student loans.
• Complete the program’s application form. (Students under 21 need parental written authorization.)
• Have knowledge and mastery of the English language.
• Pass the TOEFL exam (language evaluation test), if required.
• For a list of the participating universities, check out www.nse.org.
• Please access the link of the United States brochure for additional information regarding the documents, participation fee, costs, financial aid and other valuable information that would make your participation in the program successful.
for additional information regarding the documents, participation fee, costs, financial aid and other valuable information that would make your participation in the program successful.

CÓRDOVA PROGRAM OF CONGRESSIONAL INTERNSHIPS

Law 59 of 1993 developed the Córdova Program of Congressional Internships where university students of different institutions are given the opportunity to work and study for one semester in the United States Congress at Washington, D.C.

Regular students of any accredited university in Puerto Rico qualify if they have a general grade point index of 2.75 or more, have passed a minimum of 60 credits upon beginning the internship and are not candidates for graduation during this semester.

Students who are selected will be placed to work during the semester they were chosen to do so in the office of a Congressional senator or representative or in one of the assigned offices; such as, the Library of Congress, Office of Science and Technology and congressional committee or subcommittee offices. Students will also participate in an academic program under the sponsorship of the Washington Center and will receive a stipend to cover their meals and basic personal expenses.

Program participants obtain 12 academic credits towards their degree of the University of Puerto Rico.

TO APPLY, STUDENTS MUST:

1. Complete the program’s application.
2. Submit two letters of recommendation.
3. Write an essay.
4. Send an official university transcript.

EDUCATIONAL SERVICE PROGRAM

This program is financed with federal funds and is assigned to the Dean’s Office of Academic Affairs. First year students must meet the following requirements for eligibility in the program:

1. Have limited financial resources
2. Neither parent has completed a bachelor’s degree in an accredited university.
3. Obtained 525 or less on the College Entrance Examination Board Test (CEEB) in the English and Spanish sections and 600 or less on the mathematics section.
4. Be a citizen or permanent resident of the United States of America.

The program offers individual help to its participants and tutoring services in the basic courses of Spanish, English, mathematics, and natural sciences (Biology and Chemistry). In addition, individual and group counseling is given. Participants are also exposed to cultural activities.
The Division of Continuing Education and Professional Studies (known as DECEP by its Spanish acronym) is under the Dean’s Office of Academic Affairs and offers a variety of programs for personal, professional and technical development of the community in general. These offerings include a Program of Short-Term Courses and programs towards the obtainment of degrees through the Extended University (known as UNEX by its Spanish acronym). Other initiatives include lectures, seminars, workshops, special projects developed through proposals, pre-university courses in mathematics, English and Spanish, and the Public Employee Program.

Scheduled activities are aimed to satisfy the specific demands of public and private institutions, employees and the community in general. The DECEP and the UNEX promote an optimum level of professionalism in its courses and high quality trainings to foment and maintain technical and administrative competency in business and the community served.

The Division of Continuing Education and Professional Studies has the following objectives:

1. Develop and maintain programs that facilitate service and public relations with the community, thus extending the university’s work.

2. Promote the creation of programs that improve the quality of education, service to the community and lifelong learning.

3. Provide educational opportunities that are in accord with the needs of the community.

4. Recruit, develop and maintain a faculty of excellence that contributes to the holistic development of the non-traditional student.

5. Foment faculty creativity and an interest towards research in areas that contribute to the educational, social and cultural development of the community and the Institution.

6. Provide an optimal Institutional environment to meet these objectives.

To maintain a culture of constant enrichment of its services, the DECEP constantly evaluates its programs and resources with the aim of improving its academic offerings and other opportunities.

Short-Term Courses Program, Lectures, Workshops and Seminars
The Short-Term Courses Program covers various areas that respond to the needs and interests of the community and current advances; such as, biotechnology, information networks, child development, child care and pre-school learning environment, electronics and computer workshops, business administration, business education, programming languages, art, handicrafts, sports and culture in general. The Lecture, Workshop and Seminar Program achieves an interaction between the DECEP and the university community through educational strategies that respond to the present needs of industries in the public or private sector of our society.

CLASS ATTENDANCE
All programs (Short-Term Courses) are offered in the evening and on Saturdays and do not accumulate academic credits. Courses are offered with the rigor and academic excellence characteristic of the UPRB. Attendance is mandatory. Participants must attend to more than 80% of the total class hours and meet the minimum requirements in order to receive the participation certificate conferred by the Institution.

The offerings of the DECEP are published in the major newspapers of the Island and on the University web page (www.uprb.edu). In addition, a brochure of the short term courses may be sent via mail to those who have participated in a course or who have applied at our offices. The DECEP reserves the right to cancel any course that does not have the required number of students. The office also has a policy regarding course withdrawals and reimbursements.

Withdrawals under the Division of Continuing Education and Professional Studies
Participants of the Short-Term
Courses Program may withdraw from a course up to one day prior to the end of the course or seminar. The participant should complete the DECEP’s Add/Drop form and file the withdrawal at the division’s offices in person. This form must have the date, time and signature of DECEP’s authorized representative when the course is dropped and include the reason for doing so.

The DECEP will indicate “Baja” or “W” on the official class list and on the registration form in the space provided for official use or anywhere else deemed convenient. Once checked and signed by the authorized representative, the student will be given a copy.

CANCELATION OF COURSES/SEMINARS AT THE DIVISION OF CONTINUING EDUCATION AND PROFESSIONAL STUDIES

The DECEP reserves the right to cancel any course or seminar that does not have enough students or that is not financially self-sustainable. The Division will be responsible for notifying the participant, through any means, that the course was cancelled and may give the alternative of taking another course at the same cost or if the course is less, reimburse the participant for the difference.

In those cases where the participant registered through a billing system, the DECEP will send a written communication to the Billing and Claims Office indicating that the corresponding company or agency should not be billed for the participant’s registration.
The Extended University (Known by the Spanish acronym as UNEX) is an academic administrative initiative that provides non-traditional students with degree programs in non-traditional times and formats. According to the Board of Trustees Certification No. 190-2000-2001, “the non-traditional student is an individual with educational or training needs and interests who, because of personal or work reasons, cannot benefit from the university services designed for traditional students.”

The purpose for offering academic courses and programs through the UNEX is so non-traditional students may achieve a holistic formation in tune with the most recent social, economic and cultural tendencies of the contemporary world. Non-traditional students participate in the teaching-learning process thereby achieving excellence and gaining the necessary experience for their optimum professional development.

### Admission to the Extended University

Admission requirements to the UNEX are the same as those for the daytime program. The Admissions Office orients and guides those interested during the application process. According to the UPRB Administrative Board Certification No. 94 (2002-2003), a special quota of $30 per credit is added. This quota guarantees the availability of the administrative phase (financially self-sustainable) and services for the evening students. This quota is added to the cost per credit paid in the regular daytime programs.

### Academic Programs in the Extended University

Presently, the academic programs of the UNEX include the Associate Degree in Instrumentation and the Bachelor’s Degrees in Business Administration (Majoring in Accounting, Finance, Management or Marketing), Computer Sciences, and Pre-school and Elementary Education. Courses are offered in three to four-hour sessions per course during one day a week.
BUSINESS ADMINISTRATION

AVILÉS GONZÁLEZ, ARTURO. Associate Professor. Ed.D. Educational Administration & Supervision, University of Puerto Rico, Río Piedras campus.

FELICIANO GONZÁLEZ, SONIA. CPA. Associate Professor. M.B.A. Accounting, University of Puerto Rico, Río Piedras campus.


LA TORRE RODRÍGUEZ, ÁNGEL E. Assistant Professor. M.B.A. Marketing, Inter American University of Puerto Rico.

LESPIER VINCENTY, LIZZA. Associate Professor. M.B.A. Finance, Pontificia Universidad Católica de Puerto Rico.

LÓPEZ LEÓN, JORGE, Assistant Professor. M.B.A. Accounting, Inter American University of Puerto Rico.

MARTÍNEZ DE PADRÓ, LUZ T. Associate Professor. M.B.A. Marketing, Inter American University.

MATOS DÍAZ, HORACIO, Professor. Ph.D. Economics, Kansas State University, Kansas.

MEDINA IRIZARRY, EVARISTO, Associate Professor. M.A. Economics, University of Puerto Rico, Río Piedras campus.

PERDOMO ÁLVAREZ, FAUSTINO, Professor. M.B.A. Accounting, Inter American University of Puerto Rico.

PÉREZ HERNÁNDEZ, NORMA, Associate Professor. M.B.A. Marketing, University of Puerto Rico, Río Piedras campus.

PÉREZ OLMO, CARLOS, Assistant Professor. M.B.A. Finance, Inter American University of Puerto Rico.

RAMÍREZ ACEVEDO, ILIA E., Associate Professor. Ph.D. Human Resources, Inter American University of Puerto Rico.

RAMOS MATOS, MARGARITA, Assistant Professor. M.P.A. Public Administration, University of Puerto Rico, Río Piedras campus.

RAMOS RIVERA, ELBA, Professor. M.P.A. Public Administration, University of Puerto Rico, Río Piedras campus.

SERRANO ROLDÁN, ELIZABETH, Assistant Professor. Ph.D. Business Administration, Pontificia Universidad Católica de Puerto Rico.


UBARRI DE LEÓN, LYDIA, Professor. M.B.A. Accounting, University of Puerto Rico, Río Piedras campus.

BIOLOGY DEPARTMENT

DE JESÚS ROMÁN, SANDRA, Associate Professor. M.S. Biology, University of Puerto Rico, Río Piedras campus.

DÍAZ-BLANCO, NITZA L., Associate Professor. Ph.D. Biochemistry, University of Puerto Rico, Medical Sciences campus.

GONZÁLEZ GONZÁLEZ, ORLANDO, Associate Professor. Ph.D. Medical Physiology, University of Puerto Rico, Medical Sciences campus.

LÓPEZ TORRES, ARLEEN J., Professor. Ph.D. Microbiology, Arizona State University, Tempe, Arizona.

MEDINA-RIVERA, NORA GINETTE, Associate Professor. M.S. Biology, University of Puerto Rico, Río Piedras campus.
ORTIZ BÁEZ, JULIO, Assistant Professor. M.S. Biology, University of Puerto Rico, Mayagüez campus.

QUIÑONES CRUZ, MIRIAM I., Associate Professor. Ph.D. Immunology, Yale University.

RODRÍGUEZ CONCEPCIÓN, WILLIAM, Professor. Ph.D. Physiology, University of Cincinnati, Ohio.

RODRÍGUEZ FOURQUET, CONCEPCIÓN, Assistant Professor. Ph.D. Biology, University of Puerto Rico, Río Piedras campus.

SLOAN PUSCHHAVER, STEVEN A., Associate Professor. Ph.D. Biology, University of Puerto Rico, Río Piedras campus.

CHEMISTRY DEPARTMENT

AÑESES GRAJALES, MARÍA DE LOS A., Professor. Ph.D. Inorganic Chemistry, University of Puerto Rico, Río Piedras campus.

BENÍTEZ RAMÍREZ, SOLANGE, Associate Professor. Ph.D. Physical Chemistry, University of Puerto Rico, Río Piedras campus.

CUADRADO ROUSSEL, SANDRA I., Associate Professor. Ph.D. Inorganic Chemistry, University of Puerto Rico, Río Piedras campus.

CUervas RAMÍREZ, SONIA N., Assistant Professor. M.S. Analytical Chemistry, University of Puerto Rico, Río Piedras campus.

DE JESÚS CARDONA, HÉCTOR, Professor. Ph.D. Analytical Chemistry, University of Puerto Rico, Río Piedras campus.

LEÓN COLÓN, GISELA, Associate Professor. Ph.D. Organic Chemistry, University of Puerto Rico, Río Piedras campus.

MORALES MALAVÉ, SONIA E., Professor. M.S. Theoretical Physical Chemistry, University of Puerto Rico, Río Piedras campus.


SIERRA ARCHILLA, AMINDA, Associate Professor. Ph.D. Analytical Chemistry, University of Puerto Rico, Río Piedras campus.

COMPUTER SCIENCES DEPARTMENT

ARNIELLA MARTÍNEZ, FILIBERTO, Assistant Professor. M.S. Applied Mathematics, University of California at Berkeley.

BRAS CUMMINGS, LILLIAN, Associate Professor. M.A. Applied Mathematics, University of Puerto Rico, Río Piedras campus.

DÍAZ CABALLERO, JOSÉ J., Associate Professor. M.S. Computer Science, Fairleigh Dickinson University, Teaneck, New Jersey.


HUERTAS BERMÚDEZ, ANTONIO F., Assistant Professor. M.S. Open Information Computing Systems, Inter American University of Puerto Rico.

LOZANO INCA, ELIO, Assistant Professor. Ph.D. Science and Computing and Information Engineering, University of Puerto Rico, Mayagüez campus.

RODRÍGUEZ VÁZQUEZ, RENÉ A., Associate Professor. M.S. Computer Science, Nova Southeastern University, Fort Lauderdale, Florida. M.S. Applied Mathematics in Computer Sciences, University of Puerto Rico, Río Piedras campus.

SOLÁ SLOAN, JUAN M., Assistant Professor. Ph.D. Science and Computing and Information Engineering, University of Puerto Rico, Mayagüez campus.
TORRES BATISTA, NELLIUD D., Associate Professor.  
D.B.A. Information Systems, University of Turabo, 
Caguas, Puerto Rico.

VÉLEZ RUBIO, MIGUEL, Associate Professor.  M.S.  
Computer Engineering majoring in Programming 
Engineering, University of Puerto Rico, Mayagüez 
campus.

PEDAGOGY DEPARTMENT

ACEVEDO RHODES, EILEEN, Professor.  Ed.D.  
Education, Inter American University of Puerto Rico.

COSTA COLÓN, MARÍA DEL R., Professor.  Ed.D.  
Reading & Writing, University of Massachusetts, 
Amherst.

FALCÓN HUERTAS, MILDRED, Assistant Professor.  
Ph.D. Early Childhood Education, University of South 
Florida.

FLORES SANTOS, SONIA, Associate Professor.  Ed.D.  
Curriculum & Instruction, Inter American University of 
Puerto Rico.

MIRANDA RODRÍGUEZ, EDNA, Assistant Professor.  
Ed.D. Educational Supervision & Administration, 
University of Puerto Rico Río Piedras campus.

MORÁN RÍOS, MARÍA DEL C., Associate Professor.  
Ph.D. Curriculum & Teaching, Fordham University, New 
York.

REYES PÉREZ, IBET, Instructor.  M.A. Special Education, 
University of Puerto Rico, Río Piedras campus.

RIVERA TORRES, CARMEN A., Associate Professor.  
Ed.D. Educational Administration & Technology, 

RODRÍGUEZ RIVERA, NEREIDA J., Assistant Professor.  
M.Ed. Early Childhood Education, University of Puerto 
Rico, Río Piedras campus.

ELECTRONICS DEPARTMENT

BERRÍOS RODRÍGUEZ, AIDA R., Associate Professor.  
M.S. Physics, University of Puerto Rico, Río Piedras 
campus.

CHÉVEREZ GONZález, DANIEL, Assistant Professor.  
Ph.D. Electrical Engineering, University of Wisconsin at 
Madison, Wisconsin.

JIMÉNEZ DÁVILA, ISMAEL A., Assistant Professor.  
M.S. Electrical Engineering, University of Puerto Rico, 
Mayagüez campus.

LUGO VÉLEZ, SAMUEL E., Assistant Professor.  M.S.  
Electrical Engineering, University of Puerto Rico, 
Mayagüez campus.

MEDIAVILLA SANTIAGO, RICARDO, Professor.  Ph.D. 
Electrical Engineering, Rensselaer Polytechnic, Troy, 
New York.

ORTIZ ALVAREZ, JORGE L., Professor.  Ph.D. Electrical 
Engineering, University of Houston.

ORTIZ CINTRÓN, JESÚS A., Associate Professor.  M.A. 
Education, Universidad del Sagrado Corazón, Puerto 
Rico.

RAMÓN VEGA, JORGE A., Associate Professor.  M.S.  
Electrical Engineering, University of Akron, Ohio.

RODRÍGUEZ MENÉNDEZ, WILFREDO, Professor.  
Ph.D. Chemistry-Physics, University of Puerto Rico, Río 
Piedras campus.

SANDOVAL LEMUS, CARLOS, Associate Professor.  
M.S. Electrical Engineering, University of Puerto Rico, 
Mayagüez campus.

SÁNCHEZ MÉNDEZ, JUAN H., Associate Professor.  
Ph.D. Electrical Engineering, University of Arkansas, 
Fayetteville, Arkansas.
SÁNCHEZ RÍOS, ISMAEL, Associate Professor. M.S. Electrical Engineering, Purdue University, Indiana.

SOSA SÁNCHEZ, LUISA, Assistant Professor. M.S. Electrical Engineering, University of Detroit, Michigan.

OFFICE SYSTEMS DEPARTMENT

CASTRO PAGANI, CLARITZA, Assistant Professor. Ed.D. Supervision & Administration, University of Puerto Rico, Río Piedras campus.

COLÓN SANTOS, MARÍA I., Assistant Professor. M.A. Business Education, University of New York.


RODRÍGUEZ RIVERA, ARNALDO, Professor. M.A. BUSINESS EDUCATION, University of New York

SANTIAGO LÓPEZ, PEGGY Y., Assistant Professor. M.A. Business Education, Inter American University of Puerto Rico.

SOTERO FIGUEROA, CARMEN E., Assistant Professor. M.A. Business Education, Inter American University of Puerto Rico.

SPECIAL & ELEMENTARY PHYSICAL EDUCATION DEPARTMENT

ÁLVAREZ MARTÍNEZ, JOSÉ A., Professor. M.A. Adapted Physical Education, University of Tennessee.

MARICHAL LUGO, CARLOS J., Assistant Professor. M.A. Physical Education, (Exercise Physiology), University of Houston.

MUÑOZ SOTO, MIGUEL, Associate Professor. Ph.D. Health Promotion & Education, University of New Mexico.

RIVERA MULERO, EDUARDO, Assistant Professor. M.A. Physical Education, Inter American University of Puerto Rico.

RODRÍGUEZ CANDELARIA, SARAH, Associate Professor. M.A. Adapted Physical Education, Springfield College, Massachusetts.

SAMALOT RIVERA, AMAURY, Assistant Professor. Ph.D. Exercise & Sports Education, majoring in Adapted Physical Education, Columbus Ohio State University.

SANTINI RIVERA, MARIANO, Professor. Ph.D. Physical Education & Sports (Therapeutic Recreation), New York University.

ENGINEERING & ENGINEERING TECHNOLOGIES DEPARTMENT

DÍAZ SANTIAGO, SAMUEL I., Professor. Ph.D. Structural Engineering, University of Illinois.

LIZARDI CAMACHO, RAFAEL A., Assistant Professor. M.S. Engineering Management Systems, University of Puerto Rico, Mayagüez campus.

PADRORABREU, HÉCTOR J., Assistant Professor. M.S. Civil Engineering, Georgia Institute of Technology.

PELLERANO SENCIÓN, ROSA M., Assistant Professor. M.A. Architecture, Universidad Autónoma de Santo Domingo, Dominican Republic.


RODRÍGUEZ GONZÁLEZ, MARÍA DE L., Associate Professor. J.D. University of Puerto Rico, Río Piedras campus. M.S. Industrial Engineering, Texas A & M University.

SULSONA ANZIANI, FERNANDO J., Assistant Professor. M.S. Mechanical Engineering, University of Puerto Rico, Mayagüez campus.
VELAR PRIETO, JORGE F., Assistant Professor. M.S. Civil Engineering, -Transportation, University of Puerto Rico, Mayagüez campus.

HUMANITIES DEPARTMENT


FERRER DUCHESNE, HEBERTO, Professor. M.A. Arts-Theater, University of Illinois.

GARCÍA RODRÍGUEZ, FRANCISCO JOSÉ, Assistant Professor. M.A. History, University of Puerto Rico, Río Piedras campus.

GELPÍ BAÍZ, ELSA, Professor. Ph.D. History of Colonial America, Universidad de Sevilla, Spain.

ORTIZ ALVARADO, WILLIAM, Professor. Ph.D. Musical Composition, University of Buffalo, New York.

PÁBÓN BATLLE, LUIS H., Associate Professor. Ph.D. History, Centro de Estudios Avanzados de Puerto Rico y El Caribe, Puerto Rico.

RODRÍGUEZ VALLÉS, NORA, Assistant Professor. M.A. Art & Gender Studies, Vermont College of Norwich University.

ROSARIO RIVERA, RAQUEL, Professor. Ph.D. History of the Americas, Universidad de Valladolid, Spain.

SANTIAGO CARABALLO, JOSEFA, Associate Professor. Ph.D. History, University of Puerto Rico, Río Piedras campus.

VILLARONGA SWEET, LUIS GABRIEL, Associate Professor. Ph.D. History, University of Connecticut.

SOCIAL SCIENCES DEPARTMENT

ARILL VIZCARRONDO, MARIO, Professor. Ph.D. Research in Academic Psychology, University of Puerto Rico, Río Piedras campus.

BABILONIA PÉREZ, ANA J., Professor. M.A. Public Administration, University of Puerto Rico, Río Piedras campus.

CRESPO KEBLER, ELIZABETH, Associate Professor. Ph.D., Sociology, New York State University at Binghamton.

DELIZ SAGARDÍA, RITA, Associate Professor. Ph.D. Industrial Organizational Psychology, University of Puerto Rico, Río Piedras campus.


NEGRÓN AYALA, JUAN L., Assistant Professor. Ph.D. Medical Anthropology, University of Pennsylvania.


ROVIRA ALVAREZ, JORGE F., Associate Professor. Ph.D. Academic Research Psychology, University of Puerto Rico, Río Piedras campus.

SALICRUP MIRANDA, ANA I., Assistant Professor. M.A. Urbanism, Université de Vicenes, Paris, France.

VILLANUEVA COLÓN, NANCY, Professor. Ph.D. Geography, Clark University, Massachusetts.

ENGLISH DEPARTMENT

HERNÁNDEZ VIRELLA, ROSE M., Professor. M.A. Secondary Education-English, University of Puerto Rico,
Río Piedras campus.

MUÑOZ VINCENTY, LUIS, Associate Professor. M.A. Secondary Education-English, University of Puerto Rico, Río Piedras campus.

OCASIO CORREA, AMELIA, Associate Professor M.A. Secondary Education-English, University of Puerto Rico, Río Piedras.

PAGÁN CÁCERES, SONIA M., Assistant Professor. Ed. D. Curriculum & Instruction, Inter American University of Puerto Rico.

RIVERA PRATTS, PAULA, Associate Professor. J.D., Pontificia Universidad Católica de Puerto Rico. M.S. Education, Hunter College (CUNY).

RODRÍGUEZ GONZÁLEZ, JUAN, Associate Professor. Ph.D. Curriculum, Instruction, Language & Literacy, Pennsylvania State University.

SKERRETT LLANOS, CARMEN M., Associate Professor. M.A. TESOL Inter American University of Puerto Rico.

SOSTRE RODRÍGUEZ, MARITZA, Associate Professor. Ed.D. Curriculum & Instruction: English, University of Puerto Rico, Río Piedras campus.

TORRUELLA LAWTON, ALFREDO, Professor. Ph.D. Physical Oceanography, Scripps Institution of Oceanography, University of California, San Diego, California.

PHYSICS DEPARTMENT

ALGAZE BEATO, ANTONIO, Associate Professor. Ph.D. Biomedical Engineering, Ohio State University.

ALGAZE TENEMBAUM, ROBERTO, Professor. M.S. Physics, University of Puerto Rico, Río Piedras campus.

ÁVALOS SÁNCHEZ, JAVIER, Assistant Professor. Ph.D. Physics – Chemistry, University of Puerto Rico, Río Piedras campus.

LEGAULT PLEAU, MARC D., Professor. Ph.D. Physics – Chemistry, University of Puerto Rico, Río Piedras campus.

MEDÍN MOLINA, JOAQUÍN, Professor. M.S. Physics, New York State University, Stony Brook.

MIRANDA WAGNER, CARMELO, Professor. Ph.D. Physics – Chemistry, University of Puerto Rico, Río Piedras campus.

MATHEMATICS DEPARTMENT

AGOSTO LEÓN, ADALBERTO, Assistant Professor. M.S. Applied Mathematics, University of Puerto Rico, Río Piedras campus.

CARO LÓPEZ, EDWARD A., Professor. M.A. Mathematics, University of Puerto Rico, Río Piedras campus.

CORREA ROSADO, ÁLVARO, Instructor. Ph.D. Pure Mathematics, University of Iowa.

HERNÁNDEZ RIVERA, ESTEBAN, Professor. M.S. Mathematics, University of Puerto Rico, Río Piedras campus.

IRIZARRY MALDONADO, RUBÉN, Professor. M.A. Mathematics, University of Puerto Rico, Río Piedras campus.
LA LUZ CONCEPCIÓN, JOSÉ J., Assistant Professor. Ph.D. Mathematics, Graduate Center, City University of New York.

MARTES PAGÁN, MARIANO, Professor. M.A. Mathematics, University of Puerto Rico, Río Piedras campus.

MORERA GONZÁLEZ, ÁNGEL, Professor. M.S. Mathematics, University of Puerto Rico, Río Piedras campus.

VÁZQUEZ DE SERRANO, EILEEN, Professor. M.S. Mathematics, University of Puerto Rico, Río Piedras campus.


VÉLEZ GÓMEZ, ESPERANZA, Assistant Professor. M.S. Applied Mathematics, University of Puerto Rico, Mayagüez campus.

LÓPEZ JIMÉNEZ, IVETTE, Professor. Ph.D. Hispanic Studies, Yale University, Connecticut.

MORALES-ZENO, ANA J., Associate Professor. Ph.D. Hispanic Studies, Cornell University, New York.

RIVERA ÁLAMO, ROSA, Professor. Ph.D. Hispanic Studies, University of Puerto Rico, Río Piedras campus.

ROBLEDO GONZÁLEZ, LAURA, Assistant Professor. Ph.D. Hispanic Studies, University of Puerto Rico, Río Piedras campus.

SANTINI RIVERA, CARMEN H., Associate Professor. Ph.D. Hispanic Studies, University of Puerto Rico, Río Piedras campus.

TORRES FUENTES, AMÁRIUS, Assistant Professor. Ph.D. Hispanic Linguistics, University of Puerto Rico, Río Piedras campus.

SPANISH DEPARTMENT

CENTENO AÑESES, CARMEN, Associate Professor. Ph.D. Puerto Rican Literature, Centro de Estudios Avanzados de Puerto Rico y El Caribe, Puerto Rico.

COSME MONTALVO, WANDA M., Instructor. M.A. Hispanic Studies, University of Puerto Rico, Río Piedras campus.

GARCÍA CUEVAS, EUGENIO, D., Assistant Professor. Ph.D. Hispanic Studies, University of Puerto Rico, Río Piedras campus.

GARCÍA VÁZQUEZ, DWIGHT H., Professor. Ph.D. Hispanic Studies, University of Puerto Rico, Río Piedras campus.

GUADALUPE DE JESÚS, RAÚL, Associate Professor. Ph.D. Hispanic American Literature, University of Texas at Austin, Texas.

LEARNING RESOURCE CENTER

MALDONADO RIVERA, IVETTE, Librarian II. M.L.S. [Master’s in Library Sciences], University of Puerto Rico, Río Piedras campus.

NEGRÓN RIVERA, DAVID, Librarian I. M.I.S. [Master’s in Library Sciences], University of Puerto Rico, Río Piedras campus.

OSORIO GABRIEL, ALBA I., Librarian II. M.L.S. [Master’s in Library Sciences], University of Puerto Rico, Río Piedras campus.


TORRES PÉREZ, MYRNA LEE, Librarian I. M.I.S. [Master’s in Information Science], University of Puerto Rico, Río Piedras campus.
ZAVALA COLÓN, MARÍA DE LOS ÁNGELES, Librarian I. M.L.S. [Master’s in Library Sciences], University of Puerto Rico, Río Piedras campus.

COUNSELING & GUIDANCE DEPARTMENT

BRACERO ROSA, VIVIAN, Professional Counselor I. M.A. Guidance & Counseling, Inter American University of Puerto Rico, Metro Campus.


COLÓN HONDA, NOELANI N., Psychologist IV. Ph.D. Industrial-Organizational Psychology, Centro Caribeño de Estudios Postgraduados de Puerto Rico.

DÍAZ DÍAZ, JUDITH N., Professional Counselor IV. M.Ed. Guidance & Counseling, University of Puerto Rico, Río Piedras campus.

DÍAZ MELÉNDEZ, MARÍA J., Professional Counselor IV. M.A. Rehabilitation Counseling, University of Puerto Rico, Río Piedras campus.

DONES MEDINA, RAÚL, Professional Counselor III. M.A. Rehabilitation Counseling, University of Puerto Rico, Río Piedras campus.

GONZÁLEZ CRUZ, MIGUELINA, Professional Counselor III. M.A. Guidance & Counseling, Inter American University of Puerto Rico.

MOREU AGRAIT, EDITH, Professional Counselor I. M.A. Guidance & Counseling, Inter American University of Puerto Rico, Metro Campus.

RODRIGUEZ RAMOS, EDUARDO L, Psychologist II. Ph.D. Clinical Psychology, Carlos Albizu University, Puerto Rico.

RUCABADO VÉLEZ, ÁNGEL E., Professional Counselor IV. M.A. Rehabilitation Counseling, University of Puerto Rico, Río Piedras campus.

VÁZQUEZ ESPEJO, NELSON, Professional Counselor III. M.A. Guidance & Counseling, Inter American University of Puerto Rico, Metro Campus.

VEGA GUTIÉRREZ, GUADALUPE, Professional Counselor III. M.A. Rehabilitation Counseling, University of Puerto Rico, Río Piedras campus.