

**CARIBBEAN UNIVERSITY**

Bayamon, Puerto Rico

**UNDERGRADUATE CATALOG**



**2018-2023**

## **Non-Discrimination Policies**

Caribbean University does not discriminate in its educational policies or activities, admissions policies and financial assistance programs on the basis of race, color, sex, age, marital status, national or ethnic origin, religion, disability limitations or status, military or veteran's status; privileges and programs generally accorded or made available to students at the Institution.

### **Title IX of the Education Amendments of 1972 (Non-Discrimination on the Basis of Sex)**

Caribbean University enforces the policy of non-discrimination on the basis of sex in compliance with Title IX of the Education Amendments of 1972. Title IX requires that the University does not discriminate on the basis of sex in the educational programs and activities. This requirement covers employment therein, and admission there to. Inquiries or alleged injustice regarding the University.

### **Rehabilitation Act of 1973-Section 504 (Non-Discrimination on the Basis on Disability)**

Caribbean University is committed to comply with provisions of Section 504 of the Rehabilitation Act of 1973 (and regulations issued pursuant hereto effective June 3, 1977) which prohibits discrimination to each qualified student on the basis of disability in its educational programs and its activities. This policy and requirement of non-discrimination includes admission; access to, and employment at the University. In agreement with section 504 and standing regulations, the University has designated the Vice presidency of Administrative Affairs to coordinate efforts to comply with the requirements and regulations under Section 504. The Vice presidency of Academic and Students Affairs is responsible for providing direct service and assistance to individuals with a disability.



Dr. Angel E. Juan Ortega Building

## **Central Administration**

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Bayamon, PR 00960

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Tel. 787-780-0070  
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Forest Hills  
[www.caribbean.edu](http://www.caribbean.edu)

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# **GOVERNMENT OF CARIBBEAN UNIVERSITY**

## **Board of Trustees**

Prof. Evaristo Medina, President  
Mr. Kenneth Oliveras, Secretary  
Mr. Hector Horta, Treasurer  
Mrs. Teresita Rivera, Member  
Mr. Julio Cay, Member  
Dr. Ana E. Cucurella, Ex-Officio

## **Standing Committees of the Board of Trustees**

Executive Committee  
Finance Committee  
Development Committee  
Grievance Appeal Committee

## **Standing Committees of the University**

Admissions Committee  
Academic Standing Committee  
Curriculum Committee  
Library Committee  
Professional and Cultural Activities Committee  
Complaints and Grievances Committee  
Satisfactory Academic Norm Committee  
Institutional Assessment Committee



## **ADMINISTRATIVE OFFICERS AND OFFICIALS**

### **President**

Dr. Ana E. Cucurella-Adorno

### **Vice President of Academic and Student Affairs**

Dr. Maritza Del Valle Guzman

### **Vice President of Financial and Administrative Affairs**

Mr. Hector Gracia

### **Vice President of Planning and Development**

Prof. Lillian Matos

### **Dean of Student Affairs**

Prof. Alex Claudio

### **Compliance, Monitoring and Student Services Director**

Mrs. Elena Garcia

### **Registrar**

Mrs. Maranjani Borrero

### **Financial Aid Coordinator**

Mrs. Denisse Ortega

### **Human Resources Director**

Dr. Rebeca Quintana

### **IT Director**

Mr. Luis Pratts

## **Bayamon Campus**

### **Campus Director**

Mr. Alex Claudio

### **Academic Dean**

Dr. Zoraida Alonso

### **Associate Dean of Graduate Programs**

Dr. Zulma Peña

### **Admissions and Marketing Director**

Mrs. Gricelie Torres

### **Bursar Technician**

Mrs. Norma Rivera

### **Librarian Director**

Mrs. Yanit Delgado

### **Counselor**

Mrs. Maria Pérez Bruno

Mrs. Shirley Ramos

### **Department of Liberal Arts Director**

Prof. Arelis Nevarez

### **Department of Business Administration Director**

**Department of Education Director**

Prof. Arelis Nevarez

**Department of Engineering and Informatics Technology Director**

Dr. Hermes Calderon

**Department of Health Allied Sciences Director**

Dr. Ricardo Melgarejo

**Department of Human and Social Sciences Director**

Prof. Alicia Cruz

**Carolina Center**

**Director**

Prof. Melba Martinez

**Librarian**

Mr. Jose Feliciano

**Admission Technician**

Mrs. Walleska Davila

**Bursar Technician**

Mrs. Nereida Molina

**Financial Aid Technician**

Mrs. Norma Diaz Colón

**Registrar Technician**

Ms. Lydia Merly

**Counselor**

Mrs. Kassandra Bordado

Mrs. Pamela Mena

## **Vega Baja Center**

### **Director**

Prof. Christian de Jesús

### **Librarian**

Mrs. Cynthia Miranda

### **Admission Technician**

Mrs. Ana Rivera

### **Bursar Technician**

Mrs. Linette Caraballo

### **Financial Aid Technician**

Mrs. Joyce Hernández

### **Registrar Technician**

Mrs. Maritza Vega

### **Counselor**

Mrs. Christine Jimenez

Mrs. Iraida Vega

## **Ponce Center**

### **Director**

Prof. Sonia Pacheco

### **Assistant Dean of Graduate Programs**

Dr. Rosario Ríos

### **Librarian**

Mrs. Liz Ramirez

Mr. Orlando Santiago

### **Admission Technician**

Mrs. Damaris Rodriguez

### **Bursar Technician**

Mrs. Jannette Pola

### **Financial Aid Technician**

Mrs. Mayra Echevarria

### **Registrar Technician**

Mrs. Damaris Montalvo

### **Counselor**

Mrs. Virginia Martinez

Mr. Wilmer Laboy

## ACADEMIC UNITS

### Bayamon Campus

The 16 acre main campus of Caribbean University is conveniently located at Highway 167, km 21.2 in a residential-commercial sector. The physical facilities consist of two historic and Hostos buildings. The facilities houses the Library, Audiovisual Center, seven Science laboratories, Infirmary, eight (8) computer laboratories, eight (8) Engineering laboratories, Video conference room, Conservation laboratory, 37 classrooms, administrative offices, cafeteria, gymnasium, tennis and basketball courts, aerobics room and 525 parking spaces.



### Carolina Center



The Carolina Center is located in a residential-commercial area in the metropolitan city of Carolina. Physical facilities consist of one story building, which houses twenty-eight (28) classrooms, a Video conference room, two (2) computer laboratories, two (2) Science laboratories and a Nursing laboratory; Library, administrative offices and support services to the student. The annex building houses the Student Center, game room, gymnasium and cafeteria. The buildings are equipped with 73 parking spaces. The central location of the Carolina Center offers accessibility to the population of Carolina and surrounding municipalities.

## Vega Baja Center

The Vega Baja Center facilities consist of four (4) buildings, A, B, C and Annex C. The buildings houses twenty-three (23) classrooms, two (2) Science laboratories, Infirmary and three (3) computer laboratories. In addition, a Video conference room, nineteen (19) administrative offices, Student Center, cafeteria, Library, Faculty room, basketball and volleyball courts, sand volleyball court. The Center has 299 parking spaces.



## Ponce Center



The Ponce Center located at La Ceiba Avenue #1015 within the central historical zone of this beautiful colonial city. The physical facilities consist of one (1) building that houses twenty-four (24) classrooms, Video conference center, three (3) Science laboratories, four (4) Engineering laboratories, Infirmary, basketball court, Student Center, administrative offices, support services to the student, Library and cafeteria. The Center has 402 parking spaces.

## **DIRECTORY**

### **Main Campus – Bayamon**

Urb. Forest Hills  
State Road 167, Km. 21.2,  
Ext. Forest Hills,  
Bayamon, PR 00961  
PO BOX 493  
Bayamon, PR 00960  
Tel. 787-780-0070  
1-888-780-0070

### **Carolina**

Ignacio Arzuaga Street #106  
Carolina, PR 00985  
PO BOX 4760  
Carolina PR 00984-4760  
787-769-0007

### **Vega Baja**

State Road 671 Km 5  
Bo Algarrobo, Sector El Criollo  
Vega Baja, PR 00693  
PO BOX 4258  
Vega Baja PR 00694  
787-858-3668

### **Ponce**

1015 La Ceiba Avenue  
Ponce, PR  
PO BOX 7733  
Ponce PR 00732-7733  
787-840-2955

## **GENERAL INFORMATION**

### **History of the university**

Caribbean University represents the evolution of Caribbean Junior College, established in 1969, in the city of Bayamon, Puerto Rico. It was founded as a private, not-for-profit, co-educational and non-sectarian educational institution. Currently, the University consists of a campus located in Bayamon and three centers located in Carolina, Vega Baja and Ponce. The campus and centers are located so that they can adequately serve the population of Puerto Rico.

### **Vision**

Caribbean University has as a vision to promote social and economic change that aims to increase the personal and intellectual maturity of society by offering a service of education of excellence.

### **Mission**

Caribbean University is committed to the principles of accessibility, comprehensibility and adaptability to meet the needs of the community. It accepts the responsibility to foster in their students respect for human dignity, the ethical and intellectual growth and personal commitment to improve the society.

### **Statement of Philosophy**

Caribbean University visualizes the individual within a humanistic and holistic level, developed in an environment of responsible freedom. Under this philosophy, the institution operates with an open door policy for anyone wishing to continue their educational development at the university level without prejudice of any kind.

Caribbean University's fundamental belief is that education is a right of every individual, because through this they can develop intellectually acquiring the highest levels of human dignity, freedom, critical thinking, creativity and responsibility. On this basis, the institution provides technical academic programs, Associate, Bachelor and Master Degrees to their students, providing the opportunity for them to develop their talents and skills according to their ability.

### **Institutional Culture and Values:**

Caribbean University, faculty and administration values the following:

- We value an open and honest communication that facilitates accessibility, comprehensibility, adaptability and responsible social leadership.
- We value the protection and promotion of social and individual values, such as freedom, fraternity, equality, peace, social justice, pluralism, respect for ideas, as well as the search for truth, peaceful coexistence and the defense of human rights.

- We value the pursuit of excellence in education, in teaching, in the formation process, in competitive research, in the agile delivery of service and the institutional administrative managerial action.
- We value creative and reflexive thinking, innovation and decision making sustained in evidence.
- We value interdisciplinary collaboration and research as means to responsibly manage and balance our resources, solving problems and multiplying our comprehensions.
- We value academic freedom, education and learning, as a means for holistic development and the success of the human being.
- We value the active participation and sustained by the student in the teaching and learning process since their commencement in university life.
- We value the pursuit of self-sufficiency and the diversity of institutional sources of income in order to reduce dependency on tuition revenue.
- We value an open and universal character and the commitment of the Puerto Rican community with the human, cultural, social, economic and advanced global orientation.
- We value the anticipation and strategically respond to the needs and changing social, economic, educational, demographic and technological demands of the university, national and international community.
- We value the responsibility as a unit of various components of the university's community, as well as teamwork as a facilitator of the formative process, researcher, innovator and entrepreneurial management.
- We value the transfer and dissemination of knowledge to the intellectual, economic, technological and social advancement of our community.
- We value the integrity and the lucidity in all our actions.
- We value the sensitivity and commitment with the environment by promoting sustainable development.

## **Accreditation**

Caribbean University is licensed by the Puerto Rico Council of Education (CEPR) and accredited by Middle States Commission on Higher Education (MSCHE).

U.S. Department of Veterans Affairs, Puerto Rico Vocational Rehabilitation Administration, and Workforce Investment Act have approved our degrees programs offered by the Institution Act. 15.

Bachelor of Sciences in Civil Engineering Program is accredited by the Engineering Accreditation Commission of ABET.

Bachelor of Sciences in Electrical Engineering Program is accredited by the Engineering Accreditation Commission of ABET.



## **Membership**

Caribbean University is a member of the following organizations:

American Association for Higher Education  
American Council of Education  
Association of Caribbean Universities and Research Institute Libraries  
Association of Presidents of Universities of PR  
College Entrance Examination Board  
Inter-American Organization for Higher Education  
Middle States Commission on Higher Education  
Puerto Rican Association of External Resources Officers  
Puerto Rico Council of Education  
National Association Student Financial Aid Administrators  
American Association of Collegiate Registrar and Admissions Officer  
Interuniversity Athletics League  
Hispanic Educational Technology Services  
Puerto Rico Museum Association

## **Agreements**

Universidad Iberoamericana (UNIBE) de la República Dominicana  
Pontificia Universidad Católica Madre y Maestra de la República Dominicana  
University of Health Sciences Antigua  
Fundación Universitaria  
Iberoamericana Universidad de Alicante  
Consejo Iberoamericano en Honor a la Calidad Educativa – Uruguay

## ADMISSION

Candidate's students may apply for admission in any of the two academic semesters that start in August, and January; or for the summer session. Applications for full-time and part-time studies are processed throughout the year. Although applications may be filed at any time, candidates for admission to the freshman class should submit their applications early during their final high school year.

Any student who has submitted an admissions application to Caribbean University, and does not attend the academic term, must complete a new application form if the student is considering to study at a different academic term.

It is the student's responsibility to comply with the admissions requirement, process established by the Institution prior registration. The notification of admission is conditioned upon completion of the admission process and requirements.

In considering an application, the Admissions Office personnel will evaluate all the requirements in order to determine qualification for admission. The University reserves the right to require further testing of any applicant with placement, psychological, achievement, and aptitude tests.

Any person with disabilities may voluntarily take advantage of the benefits of the "Postsecondary Passport of Reasonable Accommodation" as defined by Law No. 250 of 2012 and an extension to the admission process. This process identifies potential academic postsecondary students with disabilities for their admission. For more information, please refer to the Procedure to Attend Students with Disabilities.

Caribbean University offers an open-door admission policy. This policy provides an opportunity to any high school graduate or individual who has approved the State High School Equivalency Examination and has a grade point average of less than 2.00 to enroll in an associate or non-degree programs.

Prospective students which request admission at Caribbean University should comply with the specific requirements of the program in which are interested to be admitted. (See Department Section). The admission technician will consider the admission requirements in addition to a personal interview. These criteria are considered in relation to the ability of the student to meet the demands of Caribbean University programs.

Prospective students are invited to visit the University and discuss their educational plans with an academic advisor or counselor. Application form, catalog or other university information can be located at [www.caribbean.edu](http://www.caribbean.edu).

## ADMISSION DOCUMENTS AND REQUIREMENTS

The Institution reserves the right not to accept any of the required admission documents, if it understands that they are not valid or they were not obtained from a legitimate entity of secondary education. In addition, the Institution reserves the right to admit, readmit or enroll a student in each academic term.

The Good Standing Certificate is not an admission requirement to any of the undergraduate academic programs. However, it may be required in some practice centers for Bachelor degree programs in Criminal Justice, Nursing and others.

**Admission for New Students** - Students who initiate their post-secondary experience as a regular student in a program leading to a degree.

### New Students Requirements

#### Associate Degrees/Bachelor Degrees

- Complete an application for admission and pay a non-refundable admission fee.
- Applicants must have a high school diploma or its equivalent.
- High school academic transcript with degree awarded, graduation certificate that includes grade point average or copy of the original high school diploma.
  - **Homeschooling** - Must complete and notarize the document (Home schooled student Certification) which is Available at the Admissions Office and on the website ([www.caribbean.edu/admisiones/formularios](http://www.caribbean.edu/admisiones/formularios)).
  - **Schools from abroad** - Must present the validation of the degree from the Equivalence Unit of the Department of Education.
- Original Certificate of Immunization (Form P-VAC 3), for students under the age of 21.
- Present evidence of postal address (Energy or Water Bill).
- Comply with the grade point average required by the program of studies, which the student is requesting admission.
  - The Nursing associate program requires an average General admission (GPA) of 2.00. The student who has less of 2.00 can opt for the Practical Nursing Program.
- Present results of the University Admission Test (PAA), which its offers by the College Board or its equivalent, if under 22 years of age. (applies only to the Undergraduate level)\*.
  - If the candidate obtained a score of 400 or more in the subjects of mathematics, English and Spanish the student must be registered in the courses of the 101 level. Candidates to the Associate Degree in Engineering will be registered in MATH 103.
  - If the candidate obtained a score less than 400 points in the subjects of mathematics, English and Spanish must be registered in the remedial courses of the 100 level.

- The student admitted under the open door policy that does not present results of the university Admissions Test (PAA) must be registered in the remedial courses; 100 level in mathematics, English and Spanish subjects.

### **Expresso Caribbean**

This division is aimed at the professional adult who seeks to start or finish their professional career in a fast and fit style of life.

- Complete an application for admission and pay a non-refundable admission fee.
- To be 21 years at the moment of request admission.
- Comply with the grade point average required by the program of studies, which the student is requesting admission.
- Present evidence of postal address (Energy or Water Bill).
- Official transcript from the postsecondary university previously studied- If interested in transfer credit must submit the official transcript from the university previously studied. (See Transfer Credit Policy).

### **Placement Tests**

#### **Requirements**

- Every student that do not present the university Admissions Test (PAA) results must take the Placement tests in the subjects of Spanish, English and Mathematics. If the score obtained is less than 70%, the students will be enrolled in remedial courses of 100 level.
- Every transfer student from a Post-Secondary University that does not evidence an official transcript having been approved the basic courses of Spanish, English and Mathematics must take the Placement tests. (This applies only to the undergraduate level).

#### **Exceptions**

- Students who have approved and present evidence of taking the Advanced Level tests in English, Spanish or Mathematics, with a score of 3 or higher will not have to take the placement test. These students go through the Transfer Credit Policy.
- Students enrolled in the Expresso Caribbean are exempt to take the Placement Test.
- Students enrolled in Caribbean Tec are exempt to take the Placement Test.

All new students enrolled in the undergraduate programs will be required to take the UNIV 100 course except those enrolled in engineering, electronics or drafting programs.

**Admission of Transfer Students** - A student who has approved one or more courses in other postsecondary or university duly accredited or authorized by the State.

## **Admission Requirements for Transfer Students**

- Complete an application for admission and pay a non-refundable admission fee.
- Original Certificate of Immunization (Form P-VAC 3), for students under the age of 21.
- Official transcript from the postsecondary university previously studied. If the student comes from a Post-secondary Non University Institution, a high school transcript or its equivalent must be submitted.
- Comply with the Grade Point Average and requisites of the program to which the student is requesting admission. If there is no General Point Average accumulated, the overall high school average will be taken into consideration.

Note: For information regarding transfer credit, refer to Caribbean University's Credit Transfer Policy.

**Admission for Special Students** - All applicants interested in taking courses, but not in receiving a degree or certificate from Caribbean University may be admitted upon meeting admission requirements.

**Admission for Auditing Students** - The student requesting permission and is admitted to attend a specific course, and will not receive credits or a grade.

## **Admission Requirements for Special and Auditing Students**

- Complete the Application for Admission and pay the fee (non-refundable) admission. Declare on the application the reason for admission as a Special or Auditing student.
- Submit original Certificate of Immunization (Form P-VAC 3), for students under the age of 21.
- The student may request courses only of the same or lower academic level that possess. For this you must submit a copy of the diploma, degree certificate or transcript of credits with the degree awarded.
- Only up to a maximum of twenty one (21) credits will be allowed.
- Registration is subject to the availability of the courses.
- This type of admission does not guarantee eligibility for admission as a regular student.
- The student interested in being admitted as a regular student must comply with the admission requirements of the program.
- This admission is not eligible for Federal Title IV or State financial aid.

## **Academic and Student Support Services Orientation**

Students who have been admitted to the University are expected to attend the orientation about academic and student support services held prior to the beginning of the academic term. This orientation is conducted each semester and provides an introduction to college life program, University's policies and regulations, academic counseling, and the opportunity to meet college

officials, faculty advisors, and student orientation leaders. Academic orientation is also strongly recommended for readmitted, transfer, transient students.

### **Reactivation of an Admission Application**

Any student, who has submitted an admissions application to Caribbean University but has never attended, may do so by reactivating the original application for one full academic year. Deadline dates for reactivation are the same as for new applications (see Academic Calendar). Students should contact the Admissions Office for reactivation of their applications.

### **Validity of Documents**

The Office of Admissions could deny any applicant who presents a false or fraudulent statement or a deliberate omission on his/her application, immunization certificate, residency papers, or complementary document of statement. Should the student be enrolled when such fraud is discovered, he/she could be immediately withdrawn (non-refundable), further enrollment denied, and credit earned or degree bases upon such credit invalidated. Actions for this type of offense are handled administratively by the Students Affairs Grievances Committee after notifying to the alleged violator, and a hearing committee.

## **FINANCIAL AID OFFICE**

The Financial Aid Office provides the student the necessary information related to the financial aid available to afford the costs of education. It is also committed to helping students reach their academic and professional goals by providing financial aid, depending upon the availability of funds, to those students who apply and qualify. Funding for these types of aids may come from Federal, state, or private sources.

As established by the Federal Department of Education, it is assumed that the parents or legal guardians of dependent students, and independent students, have the primary responsibility to pay for their education. The Financial Aid will complement the family's contribution in assisting the student to achieve their academic goals.

### **Basic Eligibility Requirements**

1. To complete annually the Free Application for Federal Student Aid (FAFSA). The Institutional code is 01252500.
2. Been admitted or be enrolled at Caribbean University in an eligible degree or certificate program.
3. Be an American citizen or permanent resident.
4. Be registered with the Selective Service of the Armed Forces of the United States, if you are male, between 18 and 25 years of age.
5. Demonstrate financial need, as established in the United States Department of Education and the Council of Education of Puerto Rico regulations.
6. Meet the requirements of the financial aid requested.
7. Comply with the Satisfactory Academic Progress established by Caribbean University.
8. Must not be in default on any federal student loan (Federal Perkins, Federal Family Educational, Ford Direct Student Loan, Plus) received for study in any post-secondary institution.
9. Should not owe some refund, to any financial aid program (Federal Pell Grant, SEOG, or another program).
10. Submit all required documents at deadlines.

### **Process to request financial aid**

Student must complete annually the following documents in order to be evaluated for financial aid:

1. Complete the Free Application for Federal Student Aid (FAFSA) and submit the answer to Financial Aid Office.
2. Submit all the required documents by Financial Aid Office in the established deadlines.
3. To apply for Student Loans the student must answer 'Yes' in the question related to loans in the FAFSA by entering [www.fafsa.ed.gov](http://www.fafsa.ed.gov) or visiting the Financial Aid Office. In addition, the student must submit and complete all required documents.

4. Transfer student must submit evidence of the approval of the FAFSA from the institution previously attended.

The granting and distribution of Financial Aid are made in a consistent manner considering the financial need of the students and the specific requirements of the different financial aids. The economic need of the students is the basis for the possible granting of financial aid. The allocation of financial aid is subject to the availability of funds that have Caribbean University in the current academic year.

Early applicants have the best opportunity to be considered for all funds. The Free Application for Federal Student Aid (FAFSA) results are used to determine the eligibility for additional financial aid. It is recommended that all students apply for financial aid early each year. It must be noted that an application for financial aid does not guarantee the payment of University bills. It is the student's responsibility to ensure that debts are paid by the deadlines established by the university. The economic aids to those students who meet all eligibility requirements the funds will be credited directly to the account to their respective accounts.

### **Cost of Attendance and Financial Need**

The Office of Financial Aid uses the following information to calculate the cost of attendance. When calculating the cost of education, the Office of Financial Aid includes more than just the cost of tuition, fees, room and board. They include an estimate for books, travel and personal expenses as well.

The Federal Department of Education requires that all educational institutions receiving federal Title IV funds use the federal formula to determine which financial aid to offer the students, according to their financial need. The student's family to subsidize educational expenses defines this as the difference between the estimated costs of studies (Cost of Education) and the total of the expected family contribution (EFC).

If the cost of education is greater than the expected family contribution, this means that the student is eligible because of financial need and can participate in the financial aid programs. On the contrary, if the cost of education is less than the expected family contribution, this means the student is not eligible because of financial need to participate in the financial aid programs. There will be circumstances that the estimated educational budget that was assigned originally could be modified according to certain elements such as for example: the student is enrolled in a semester or that the budget will have to include the summer session.

### **Description of the Financial Aid**

#### **Federal Funds**

1. **Federal Pell Grant** - the United States Government as the basis for student financial aid programs instituted this program. Such financial aid is intended to subsidize educational expenses of the student to complete their degree at the undergraduate level. The amount of financial assistance and the determination of eligibility are processed by the Federal Department of Education Processing



Center. The determination is based on the information submitted by the student's financial aid application in terms of income, assets, and family, among others.

2. **Federal SEOG Grant** - This program is constituted for students enrolled at the undergraduate level (that have not yet completed the requirements of a bachelor degree). To be eligible for this grant the student must demonstrate financial need. Educational institutions, in compliance with federal regulations, must give priority to eligible Federal Pell Grant students and with an expected family contribution of zero.
3. **The Teacher Education Assistance for College and Higher Education Grant (TEACH)** - This grant program offers up to a maximum of up to \$8,000 per year to students who intend to teach in private or public schools, whether primary or secondary, serving students from low-income families. These payments can be distributed according to the academic load in the phases of the current year. Students must maintain a minimum overall cumulative average of 3.25. The academic programs that qualify are Mathematics, Science, International Languages (not Spanish), Special Education and Reading Specialist. Those students interested in participating in this financial assistance, will be required to sign a contract, which must be fulfilled within a period of eight years from the date of graduation. Any student not fulfilling this commitment during the established time, the amount paid will be converted to a Federal Direct Loan not sub-subsidi, with interest accrued from the date on which the first payment of the Grant was disbursed.
4. **Federal Work Study Program (FWSP)** - The Federal Work Study Program provides the opportunity to participating students to perform tasks for which they receive a salary to help pay education expenses. The student has the opportunity to work in various departments of the university and public agencies. The salary is made monthly at the beginning of the following month, according to the hours worked. Wages under this program is the federal minimum wage that is in effect. The student must comply with the requirements and responsibilities stipulated in the contract signed to become a participant of the program.
5. **Federal Direct Loans** – The Federal Direct Loan Program offers subsidized and unsubsidized loans. The subsidized loan is awarded considering the students financial need. In this loan, the Federal Government pays the interest accrued while the student is officially enrolled with a course load not less than six (6) credits. The unsubsidized loan is not awarded based on the student's financial need and the interest will accrue from the time the loan is disbursed until it is paid in full. For both loans, the student must be enrolled in an academic course load not less than six (6) credits. Student loans are payable six (6) months after the students fulfilled all the graduation requirements, lower their academic course load to less than six (6) credits or abandon their studies.

## State Funds

1. **Scholarship Program for Academic Talented Students:** This program has the purpose of granting supplementary economic aid to eligible students, with cumulative academic average of 3:00 or more, with economic needs and are enrolled full time.

## Institutional Funds

1. **Athletic Scholarships:** Each year the institution offers athletic scholarships to eligible students based on the following criteria:
  - Be a full-time student
  - Excel in any sport, as determined by the Athletic Department
  - Demonstrate financial need, as established by the Office of Financial Aid
  - Maintain a satisfactory academic progress
2. **Dr. Angel E. Juan Scholarship:** The Dr. Angel E. Juan Foundation aims to create a scholarship fund that provides individuals an accessible education of the highest possible level of dignity, freedom, creativity, critical thinking and responsibility, within an optimum environment. The priority of the Foundation is to develop the scholarship fund for undergraduate students continue graduate studies.

## Federal Refund Policy (Return of Title IV Funds)

The Higher Education Amendments' of 1998, Public Law 105-244 federal regulation advises educational institutions participating in Title IV funds, the process of calculating financial aid, when a student totally withdraws or abandons their studies. The University must process the recalculation of funds to determine the amount to which the student is entitled and the amount that must be returned to the Federal Department of Education. The student is entitled to receive a percentage of the eligible financial aid, based on the days the student attended classes (days assisted-7 - days in the academic term). If, when processing the recalculation of financial aid and the percentage in class attendance are greater than 60%, the student is eligible to receive the total amount of financial aid. The university and the student are responsible to return funds not theirs to the Federal Department of Education. The student should visit the Office of Financial Aid for orientation regarding the amount of financial aid he/she is entitled to and the amount that will be needed to return or repay to the Federal Department of Education. The programs administered by the Puerto Rico Council of Education, among others, are governed by this policy.

Once the process of calculating the reimbursement is complete, due to the students total withdrawal from the university, the Office of Financial Aid sends an official communication to the student, informing them of the adjustments made and the effect their withdrawal has on their financial aid.

The sequence for returning the funds is the following:

1. Unsubsidized Federal Direct Loan
2. Subsidized Federal Direct Loan
3. Perkins Loan
4. Direct Plus Loan
5. Federal Pell
6. Federal Supplemental Educational Opportunity Grant (FSEOG)
7. TEACH Grants
8. Iraq and Afghanistan Service Grant

## **SATISFACTORY ACADEMIC PROGRESS**

Caribbean University has established the Satisfactory Academic Progress Standard as evaluation criteria to determine the student's academic achievement. This standard is part of the eligibility requirements to participate in federal, state and institutional financial aid.

### **EVALUATION CRITERIA**

**Criteria A - Qualitative Criteria** - The student must achieve the required Grade Point Average (GPA) according to the total cumulative credits completed.

#### **Grade System**

The University uses the following system of letter grades, grade honor and standard curve for evaluating course:

<i>Letter Grade</i>	<i>Quality of Work</i>	<i>Honor Points</i>	<i>Percentage Equivalent</i>	<i>Standard Curve</i>
<b>A</b>	Outstanding	4	100 – 90	4.00 – 3.50
<b>B</b>	Above the Average	3	89 - 80	3.49 – 2.50
<b>C</b>	Average	2	79 - 70	2.49 – 1.50
<b>D</b>	Deficient	1	69 - 60	1.49 - .80
<b>F</b>	Failed	0	59 - 00	.79 - 0

**Criteria B - Quantitative Criteria (PACE)** – This criterion measures the amount of attempted credits (see definition of term) versus the amount of approved credits (see definition of term). The student must pass the percentage of required approvals. (See examples for the Criteria application)

\*The preparatory courses, credit by examination and transfer credits are considered for calculating the qualitative and quantitative criteria.

**Vocational Technical**

	<b>Criteria A</b>	<b>Criteria B</b>
<b>Accumulated Complete Credits</b>	<b>Required GPA</b>	<b>% of required approved credits</b>
1-20	1.50	60%
21-33	1.80	66.67%
34-48	2.00	66.67%

**Example - Criteria A**

**Student does not comply with SAP**

Cosmetology Program Student  
Has 18 accumulated credits  
Obtained a GPA of 1.40

**Standard Application**

Credits to enroll in next term: 12  
Accumulated complete credits: 18 +12 = 30  
Required percent: 1.80 (According to table)  
% of approved credits: 21/30 = 70%  
Required percent: 66.67% (According to table)

**Example – Criteria B**

**Student does not comply with SAP**

Cosmetology Program Student  
Has 18 attempted credits  
Has 9 approved credits  
% of approved credits: 9/18 =50%

**Standard Application**

Credits to enroll: 12  
Attempted credits: 18+12=30  
Approved credits at the end: 9+12= 21

**Associate Degree**

**Example Criteria A:**

	<b>Criteria A</b>	<b>Criteria B</b>
<b>Accumulated Credits</b>	<b>Required GPA</b>	<b>% of required approved credits</b>
3-24	1.50	60%
25-48	1.65	66.67%
49-60	1.85	66.67%
61+	2.00	66.67%

**Student does not comply with SAP**

Student belongs to the Associate Degree  
Has accumulated 24 credits  
Earned a GPA of 1.40

**Standard Application**

Credits to enroll in the next term: 12  
Accumulated complete credits: 24 +12 = 36  
Required percent: 1.65(According to table)

## Bachelor's Degree

### Example – Criteria B

	Criteria A	Criteria B
Accumulated Credits	Required GPA	% of required approved credits
3-30	1.50	60%
31-60	1.65	66.67%
61-99	1.80	66.67%
100+	2.00	66.67%

#### Student does not comply with SAP

Student belongs to Bachelor's Degree  
 Has 24 attempted credits  
 Has 12 approved credits  
 % of approved credits:  $12/24 = 50\%$

#### Standard Application

Credits to enroll: 12  
 Attempted credits:  $24+12=36$   
 Approved credits at the end:  $12+12=24$   
 % of approved credits:  $24/36 = 66.67$   
 Required percent: 66.67% (According to table)

The above charts established for students enrolled at short-term programs to comply with the minimum require GPA at the end of each academic term; and for students enrolled at associate and bachelor degrees to comply with the minimum required GPA at the end of each academic year.

## Master's Degree

### Example – Criteria A

Accumulated Credits	Required GPA	% of required approved credits
3-18	2.70	60%
19-31	2.90	66.67%
32-42	3.00	66.67%

#### Student does not comply with SAP

Student belongs to Master's Degree  
 Has 18 approved credits  
 Earned a GPA of 2.50

#### Standard Application

Credits to enroll in the next term: 3  
 Accumulated complete credits:  $18+3 = 21$   
 Required percent: 2.90

## Criteria C - Maximum Timeframe

The student must complete the requirements of their study program within a maximum equivalent to 1.5 times (150%) credit hours to be eligible for Title IV funds.

Any course attempted by the student, regardless of whether or not part of the credits required for their degree, count against the maximum of 150%. Preparatory courses, although they are considered in calculating the grade point average, will not be considered in assessing the maximum timeframe. For this criterion all validated courses will be considered by other institutions. As the annual assessment is done and the student exceeds 150%, will not be able to continue participating in Title IV funds.

### **Example - Criteria C:**

Criminal Justice Student

The Criminal Justice Program requires 123 credits to complete the degree.

Maximum timeframe:  $(123 \times 150\%) = 184.5$  credit hours

### **DEFINITION OF TERMS**

- Incomplete courses - Courses with a grade of incomplete (I) are counted as attempted credits, but not approved.
- Repeated courses – A student may receive financial aid for which they are eligible to repeat courses not approved as long as they do not have exceeded 150% of credit hours. Repeated courses are considered attempted courses and not approved.
- Attempted credits - Attempted credits are those in which the student is enrolled in a regular program. Courses with a grade of F, W, I, AD, R and NP, are considered courses attempted but not approved.
- Approved credits – Are all the attempted credits in which grades of A, B, C, D, K, P, T are obtained.
- Probation – Student status after the Academic Progress Committee evaluates the case and recommends it favorable. The probation is one semester.
- Withdrawal – Courses withdraw within the period stipulated for changes in the academic calendar will not count towards the determination of quantitative criteria. Courses withdraw after the exchange period will be counted as attempted and not approved.

### **APPEAL PROCEDURE**

1. The Satisfactory Academic Progress Standard evaluation is performed at the end of each academic year in May for Undergraduate, June for Graduate, and at the end of each quarter for Vocational Technical School. Students that fulfill the assessment and do not meet with one or more of the academic eligibility criteria will receive a letter from the Financial Aid Director notifying the status of "Non Satisfactory Academic Progress" and the subsequent suspension of economic aids.
2. The student receiving the letter from "Non Satisfactory Academic Progress" is entitled to file an appeal to the Committee of Academic Progress.
3. The form for the appeal process is available in the webpage [www.caribbean.edu](http://www.caribbean.edu) in the Financial Aid Office area, in the area of Consumer Information and/or the “Centro Integral de Orientación y Servicios al Estudiante” (CIOSE) of the Main Campus or Center.

- a. In this form, the student should explain briefly why the reason of why it was difficult to maintain a satisfactory academic progress and if there was any change in their situation now that they can achieve a satisfactory academic progress at the next evaluation period. Extraordinary circumstances under which the student may appeal are:
  - i. His injury or illness
  - ii. The death of a relatives (mother, father, child, brothers or spouse)
  - iii. Special circumstances
- 4. To ensure that your case is evaluated before the beginning of classes, the student must have completed and submitted the appeal form with the relevant evidence to the “Centro Integral de Orientación y Servicios al Estudiante” (CIOSE) from your Campus or Center before the date specified in the Academic Calendar.
- 5. The appeal process has a trial period of two weeks, so if you do not meet the deadline established in the Academic Calendar, the student is exposed to not being able to accomplish their enrollment on time.
- 6. If your appeal is approved favorably, the student will be on "Probation" for the next academic term, and may receive financial aid for that term. During the period of "Probation" the student must meet with the Academic Plan agreed to continue to benefit from the financial support of the term.
- 7. If on completion of the academic term under Probation the student meets the established Academic Plan, can maintain eligibility for financial aid under Title IV until the next evaluation period of the Satisfactory Academic Progress Standard. Failure to comply with the Academic Plan established, the Office of Financial Aid will notify the student that their financial aid will be suspended the next time they enroll. The student may appeal their status again following the process described here.
- 8. If not favorable, the student may enroll, however, will not be eligible for federal, state and institutional financial aid until it exceeds the standard.
- 9. A student who does not meet the SAP under Criteria C may be eligible to receive federal aid for up to one year if the appeals process is favorable for it.

**REIMBURSEMENT OF THE COST OF TUITION, FEES AND PAYMENT PLAN**

**Reimbursement of Tuition Charges**

Students who canceling a registration or withdraws totally from an academic term, may be entitled to a full or partial fund, depending on the date.

The reimbursements of tuition fees are as follows:

- 1. Cancellation of courses before the start of classes .....100% refund

2. Official withdrawal from the University during the high and low period (first two weeks of classes) .....80% refund of the total credits
3. Official withdrawal from the University after the high and low period before mid-term. ....50% refund of the total credits
4. Official withdrawal from the University after mid-term.....0% refund
5. Official withdrawal from the University due to call of active Military Service.....100% refund
6. Cancellation of the course by the University ..... 100% refund

No reimbursements will be given to students that:

1. Submit a false or fraudulent statement or deliberately commit omissions in their admission documents or in the documents and declarations that accompany admission documents.
2. Have been admitted as temporary students with incomplete records and have not completed them during the first trimester
3. Have not officially withdrawn from the University
4. Suspended for disciplinary reasons
5. Leaves the University pending a disciplinary action
6. Expelled for any other reason
7. Fail to attend classes without notice
8. Have been found guilty of possession, use or sale of prohibited drugs or accused of aggravated assault.

A student who totally withdraws from an authorized program must return their identification cards and permits to the University.

Any student that fails to pay their account on the expiration date may be excluded from all classes, lectures, laboratories, exams, curricular activities and graduation until payment is made or has a satisfactory arrangement. The University may withhold grades, transcripts, degrees and Certificate of Good Standing to any student owing a debt.

### **Tuition, Fees and Other Charges**

<b>TUITION AND FEES</b>	
Undergraduate Admissions Application	\$ 30.00 (with application)non-refundable
Undergraduate Readmissions Application	\$ 15.00 (with application) non-refundable
Undergraduate Tuition Fees	\$191.00 per credit
Tuition Fees Engineering Program	\$200.00 per credit
Tuition Fees Nursing Program	\$195.00 per credit
Construction Fee	\$ 70.00 per semester
	\$ 43.00 per trimester
	\$ 43.00 per quarter
	\$ 0.00 summer
General fees full-time (12 credits or more)	\$350.00
General fees, third quarter (9,10 and 11 credits)	\$262.00



General fees, part-time (under 9 credits)	\$175.00
Change of Class during late registration	\$ 6.00
Change in concentration for the first time	\$ 10.00
Change in concentration for the second time	\$ 15.00
Health Services	\$ 23.00 per semester
	\$ 12.00 per term
	\$ 0.00 summer
Student Council	Included in the general fees
Technology and Communications Services	Included in the general fees
Parking	Included in the general fees
Sports	Included in the general fees

### OTHER CHARGES

Graduation fees, undergraduate*	\$125.00
Academic Transcript	\$ 6.00 each
Academic Transcript (Electronic)	\$ 7.75 each
Removal of an Incomplete (per course)	\$ 20.00
Graduation Certificate	\$ 6.00
Certificate of Cost of Studies	\$ 3.00
Identification card	\$ 5.00
Duplicate of Identification Card	\$ 7.00
Duplicate of Class Program	\$ 2.00
Integral Seminars Professional Competition – BA in Education	\$ 75.00
Integral Seminars Basic Competition – BA in Education	\$ 75.00
Cost of audit students will be 50% of the tuition fee	
Late Enrollment	\$ 25.00
Credit by Examination	50% the cost of the course
Charge of account referred to debt-collecting agency	\$ 25.00
Returned check fee	\$ 25.00
Duplicate Diploma	\$ 50.00
*The graduation fee includes the cost of the gowns, diploma holder, graduation ceremony and others. The fee is non-refundable and must be used in the academic year requesting graduation.	

The University reserves the right to charge a fee for the institutional property used in the course and impose fines for improper use.

### **Payment of Fees**

All fees of the academic semester are paid in full. In some cases, with authorization, fees are deferred at the time of registration prior to the first day of classes. The registration is not complete until the student pays all overdue fees.

The payment of fees may be paid in cash, money orders, manager's check or certified checks, ATM or credit cards at the Bursar's Office or by Internet. Failure to pay past due fees, will result in an

administrative drop and/or retention of academic records.

Any student that fails to pay their account on the expiration date may be excluded from all classes, lectures, laboratories, exams, curricular activities and graduation until payment is made or has a satisfactory arrangement. The University may withhold grades, transcripts, degrees and Certificate of Good Standing to any student owing a debt.

All accounts referred by Caribbean University to a collection agency, will have \$20.00 fee. If the account is referred for legal action, an extra charge of 30% of the debt. If the case is taken to court, the additional charge is 33%.

Personal checks returned to Caribbean University by the bank, will be charged \$25.00.

### **Payment Plan**

The University gives students the privilege to defer payments up to seventy-five percent (75%) of the total tuition and fees if they are not entitled to financial aid, by signing a Payment Plan. If the student is less than 21 years of age, the parent or legal guardian will have to sign the payment plan in conjunction with the student. This means that the student is responsible for paying twenty-five percent (25%) of the total costs the moment the registration process is completed at the Bursar's Office.

1. The student will be granted four (4) installments during the academic term to allow students to comply and finish the payment plan.
2. During summer sessions, the students will have the opportunity of two (2) installments to comply with their payment plan.
3. The active students, the amount due (balance) will be subject to a monthly interest of 1%.
4. The inactive students in academic term (semester, trimester or quarter) the amount due (balance) will be subject to a monthly interest of 2%.
5. Students who do not fulfill their financial commitments established in their registration or payment plan within the specified dates, may be withdrawn from classes and do not have the right to receive services or official university documents until they settle their debt in accordance with Federal Regulations and under the laws of the Commonwealth of Puerto Rico.

## REGISTRAR'S OFFICE

The Registrar's Office is responsible for guarding and protecting the academic records of students. In addition, it monitors to ensure compliance with policies and academic standards established by the Institution. The Registrar's Office is located in the Central Administration building and one in each academic unit (Bayamon, Carolina, Vega Baja and Ponce). The Office is aligned under the Vice-presidency of Academic and Student Affairs.

### Academic Sessions

The Institution provides the following academic sessions:

Regular sessions: Classes meet from Monday through Friday from 7:30 a.m. to 10:30 p.m.

Saturday sessions: Classes meet Saturdays from 8:00 a.m. to 5:00 p.m.

Summer Sessions: The summer sessions are in June. Classes meet from Monday through Friday from 8:00 a.m. to 5:00 p.m.

### Academic Calendar

The Academic Calendar published by the Registrar's Office indicates the enrollment dates, beginning of classes, deadlines of Never Attendance, deadlines of withdrawals with "W" and "AD" (Administrative Drop), deadlines of removal incomplete, commencement date, end of classes, and final exam schedule.

### Class Standing

Students are classified on the basis of earned academic credit hours as follows:

**Freshman:** a student who has earned 32 or less credit hours.

**Sophomore:** a student who has earned 33 to 64 or less credit hours.

**Junior:** a student who has earned 65 to 96 or less credit hours.

**Senior:** a student who has earned 97 or more credit hours.

### Academic Load

According to their academic load, students are classified as follows:

Full time student – A student enrolled for 12 or more semester credits

Part time student – A student enrolled for either less than 12 semester credits

Part-time students are subdivided as follows:

- Three quarter students enrolled on 9 to 11 credit hour program.
- Half time part-time students enrolled on a 6 to 8 credit hour program.
- Less than half part-time students enrolled for five or less credit hour program.

## **Academic Credit Hour**

The credit hour is often referred to higher education as the unit by which academic work is measured. A credit hour represents a minimum of fifty minutes of supervised or directed instruction in a sixty minute period. One unit of credit hour is usually equivalent to one hour of classroom studies and outside preparation.

## **Registration**

Registration for all students is held at the beginning of each semester as stated in the academic calendar. A student is considered officially enrolled when the completion of the selection of courses and sections are made in the Web Advisor module.

## **Registration process**

The enrollment process begins with academic advising. The Academic Adviser will authorize the course in the E-advising module. Students will register sections for their courses through the web advisor. A student is considered officially enrolled when the completion of the selection of courses and sections are made in the Web Advisor tool.

## **Late Registration**

The student, who has not completed their registration process during the regular registration period, may register in the late registration period that begins on the first day of class by the date specified in the Academic Calendar. The student must pay a late enrollment fee.

## **Class Schedule**

A Class Schedule is published each semester. It presents all courses, offerings, and time tables. Class schedules are posted on bulletins at each campus and Web Advisor module prior to registration periods. The Institution reserves the right to change or eliminate courses, course sections, appointed classrooms, and professors when it is considered necessary due to insufficient student enrollment or other reasons.

## **Readmission**

It is the process in which a student interrupted studies for one or more semesters and wishes to enroll again to continue studying. Applications for readmission must be filed at the Registrar's Office before the beginning of the term for which readmission is desired. Students in leave of absence who exceeded the time granted and failed to request an extension will be processed as a readmission student. The readmission form shall be evaluated by the Academics in order to determine if the student complies with the established requirements. The Registrar's Office will notify the student about the outcome of the application.

Student previously registered at Caribbean University who are presently under disciplinary dismissal must be removed from the status by the Students Affairs Grievances Committee, in order

to be considered by the Registrar's Office for readmission. Students who have been suspended from Caribbean University for academic reasons, at least one academic term must elapse before they can be considered for readmission, (after the approval of the Academic Standing Committee).

An applicant who is denied readmission may appeal to the Grievances Appeals Committee for a hearing. All elements of procedural due process, as required by the University regulations, will be available.

An applicant whose record or account is in delinquency with the University may be readmitted with the condition that all debts with the institution will be paid in full.

### **Readmission requirements:**

- Complete the Readmission form and pay a non-refundable readmission fee. Declare on the application the reason for readmission.
- Comply with the required average and current requirements of the curriculum to which the student is requesting readmission.
- At the moment of readmission, the applicant's record must be complete, according to the current requirements by the Institution.
- Readmitted students will maintain the last academic status applied during the last attended academic term under the Satisfactory Academic Progress (SAP).
- All readmitted students will be governed by the curricular sequence and the current catalog at the time of readmission.

### **Change in Class Schedule (Add-Drop)**

Students can make changes to their class schedule during the drop period that is listed (established/mentioned) in the academic calendar. The student must be officially enrolled in order for the student to make changes in schedule during the drop period. During the drop period, students can add or remove courses and change class sections completing the Add/Drop form, which must be signed and authorized by the Academic Director or Program Coordinator. The form is received and processed at the Registrar's Office. Students can request a new copy of the modified class schedule at the Bursar's Office.

### **Change of Address**

All students must report postal address changes at the Registrar's Office. All Institutional notifications are sent to the address provided by the student on their application form; therefore, all changes should be reported as soon as possible. The Institution will not be responsible for undelivered correspondence if the student has not notified the change of address.

### **Identification Cards**

Identification cards are issued to students during the registration period in the first semester of residence, and validated thereafter at every registration period of the academic year. ID cards

permit students to use the University facilities and services, and attend all activities open to the student body at no cost or at special rates. The name and student number is printed on the ID card.

### **Attendance**

Attendance is compulsory at Caribbean University. Students must not be absent from classes, announced examinations, quizzes, laboratory periods, final examinations or other class activities, unless the reason for the absence is valid and acceptable by the instructor. If for some reason the student has to be absent from scheduled classes or laboratories, it is his/her responsibility to make up the material covered. All matters related to the student's absences, including making up for work missed, are to be arranged with the instructor's authorization.

The instructor is responsible for the guidance and referral of students for counseling regarding possible academic loss due to absences.

### **Withdrawal Policy**

The University encourages student's retention on courses and in the Institution. Advisors should be notified by the student to discuss possible alternatives before the withdrawal of a course. Students desiring to withdraw from a course must submit the "Withdrawal Form" at the Registrar's Office within the academic calendar period established. Withdrawal forms must be filled out completely, approved by the deadline for withdrawal is the last day of classes for the session. After this date, no withdrawals will be processed.

Withdrawal forms must be completed by the student, and processed by the Registrar Office.

#### **NA (Never attended)**

A student incurs in "never assisted" status or NA once the courses are officially enrolled and he or she does not assist virtually or presently to class during the established Institutional period.

#### **AD (Administrative Drop)**

An Administrative Drop is certified by the professor once the student fails to attend a course six (6) times consecutively in courses that meet twice a week; or absent three (3) consecutive times in courses that meets one (1) once a week.

### **Leave of Absence**

Student currently attending Caribbean University who needs a leave of absence must complete a "Leave of Absence" form one month prior to the effective date. This form is available at the Registrar's Office.

A student granted a leave of absence is not required to comply with the readmission procedures provided when he/she returns to the University on the date agreed. Failure to return as agreed cancels the leave of absence unless an extension is requested and granted by the Registrar's Office.

The request for an extension of leave should be submitted to the Registrar's Office at least one month prior to the ending of the semester agreed upon when the leave was approved.

Special students do not qualify for this permission. All students who apply for the permission within one period less than the stipulated time due to a medical condition, the student must bring evidence to process the application. A student who registers at another institution while on a leave of absence from Caribbean University will not be granted credit for any course taken unless previously approved by the Registrar.

### **Declaration of Concentration**

The student declares concentration to one of the programs offered by the Institution when filling the admission form.

### **Change of Concentration**

Any student that wishes to change his or her current concentration will have to complete the Change of Concentration form, which has a fee. The deadline for the concentration change is specified on the Academic Calendar. The student must comply with the requirements established for each academic program. (*See to the Change of Program, Concentration, or Specialty policy located at [www.caribbean.edu](http://www.caribbean.edu)*)

### **Transfer from Academic Unit**

Any student, that wishes to transfer from one academic unit to another within Caribbean University's Centers, must request and complete the Transfer Form at the Registrar's Office. The student must go to their Program Coordinator/Director to receive an academic orientation. Then the student will submit the document to the Registrar's Office.

### **Final Exams**

The Final exams period will be programmed at the Registrar's Office and published on the academic calendar. The established time for final exams will be 2 hours.

### **Grading System**

The University uses the following system of letter grades and grade honor point for evaluating course:

<b>Letter Grade</b>	<b>Percent</b>	<b>Honor points</b>	<b>Standard Curve</b>
A	100-90	4	4.00-3.50
B	89-80	3	3.49-2.50
C	79-70	2	2.49-1.50
D	69-60	1	1.49-.80
F	59-0	0	.79-0

## Annotation System

The following grade symbols are not given grade honor points:

Annotation	Definition
P	Passed
NP	No pass
W	Withdrawal
WM	Military Service Withdrawal
AD	Administrative Drop
I	Incomplete
AU	Auditing
K	Credit by Examination

The following symbols are used as indicated, but will not be included in the determination of the cumulative grade point average (CGPA).

**P - *Pass*:** This symbol indicates that credit has been given for satisfactory completion of a course required for the degree.

**NP - *No Pass*:** This symbol indicates unsatisfactory performance in academic course work necessary for completion of degree requirements. No credit will be given.

**W - *Withdrawal*:** This symbol indicates that a student was permitted to withdraw from a course without penalty.

**WM – *Military Withdrawal*:** This symbol indicates that a student is active in the U.S. Armed Forces or the Puerto Rico National Guard.

**AD - *Administrative Drop*:** This symbol indicates that a student stopped attending to one of his/her courses and did not officially withdraw from the course.

**I - *Incomplete-Grade*:** This symbol may represent an "**I-B**", "**I-C**", "**I-D**", "**I-F**", indicating that a student was unable to meet the full requirements of the course for non-academic reasons. Non-academic reasons cover situations such as: serious illness, or an event which makes it impossible for a student to complete the required work. An incomplete will be given to the student only in those cases that owns the final assignment or the final exam of the course. The student must request in writing the desire to be given an incomplete.

In these cases the instructor will grade the student's achievement with an "F" in the final examination for which he/she has been absent and averages the total number of grades earned by the student in the course. The final grade will be reported to the Registrar as an incomplete followed by a grade (e.g., "**I-B**", "**I-C**", "**I-D**", and "**I-F**"). The student will have until the eighth week of the next semester term to remove the "I" (see Academic Calendar). If the "I" is not removed during the above indicated period, the grade indicated in the incomplete will automatically be recorded by the Registrar on the student's transcript.



**AU - Auditing:** The auditing category is available for freshman students, regularly enrolled students, and for individuals from the community. Students may not transfer from auditing to credit status or vice versa.

**K - Credit by Examination:** This symbol indicates that a student is given credit for the course based on successful performance on an examination for this purpose. Credit earned by examination is recorded as "K" if successfully passed (70% or over).

### **Course Coding System**

The Course Coding System is composed by a four alphabetic code that identifies the course material and also has a numeric component of three digits that identifies course level.

100-299 Lower division courses (Freshman/Sophomore Level)

300-499 Upper division courses (Junior/Senior Level)

### **Grade Report**

At the end of each semester or academic session, the Registrar's Office will send an email to the students to notify the grades posted in the academic record. The student must access the Web advisor in order to see their grade report that includes the student's semester index and general cumulative index. The University will consider as official all information sent to the student's address as it appears on his/her record.

### **Credit by Examination**

Caribbean University offers students the opportunity to obtain credits for General Education Courses by credit examination. The list of courses are available in the Deanship. Interested students must seek an interview with the Department Head or Coordinator in order to request the test. Students must score over 70% for validation. No point average is given for validated credit.

### **Repeated Courses**

Students will be allowed to repeat any courses if any of these conditions occurs: a failed course, withdrawal, administrative drop, dissatisfied or if the student does not accomplish the grade point average of the academic program required in which he/she is enrolled. Repeat course does not guarantee the eligibility of Title IV financial aid. Although both grades will be recorded on the student's official transcript, only the higher grade will be used in the Grade Point Average (GPA) computation.

### **Course reactivation**

In such cases in which the students have been given an administrative drop he/she could request a course reactivation after the submission of the evidence to the professor. The student must fill out the form given by the Registrar Office in the time establish by the Academic Calendar. The professor and the Academic Dean must evaluate the evidence and authorize the reactivation.

## **Grade Claim**

If a student is not satisfied with his/her grade, he or she will have the opportunity to file a claim objecting the grade. The student will fill the Grade Claim form at the Registrar's Office in the date established in the academic calendar. The professor will receive the claim, verify all the class requirements, and submit his/her decision to Registrar's Office. The student will receive the result of the claim.

## **Change in Grades**

A course grade which has been reported by the instructor and recorded by the Registrar's Office cannot be changed except under the following circumstances:

1. **Error in grade** - Any incorrect grade will be changed upon provision of statement written by the instructor indicating that the reported grade was an error. Evidence is required by the Registrar to justify a grade change.

If a student is not satisfied with his grade, he or she will have the opportunity to file a claim objecting the grade at the Registrar's Office. The professor will receive the claim, verify all the class requirements and certifies if there was an error on the final grade. In these cases, the professor will submit the form to the Registrar's Office. The change will be updated on the system once is confirmed and certified.

2. **Removal of an Incomplete** - Grade ("I"). A student receiving an "I" is expected to consult the instructor and complete all necessary work within the eighth week of the following semester. If the "I" is satisfactorily removed by the student during time limit, the instructor is required to file the grade change to the Registrar's Office. Grade change must be informed during the time limit, otherwise, the symbol "I" changed to the grade indicated in the incomplete (see Grading System).
3. **Grade Claim** – When the professor accepts the error in grade based on the claim of the student.

## **Authorization to study in another Institution of Higher Education**

Students at Caribbean University (CU) seeking an Undergraduate Degree may request the Academic Dean and Registrar authorization to take courses leading towards his/her degree at another institution of higher education. The Academic Dean will evaluate the description of the courses in order to guarantee the equivalency in Caribbean University. The authorization will be given only if:

- The course(s) to be taken have not been offered in the last two semesters prior to the request
- The student has a minimum GPA (Grade Point Average) of 2.00
- The student is considered a "senior", having 97+ credits earned

A student can take a maximum of 9 credits towards a Bachelor Degree or 6 credits towards an Associate Degree in such manner.

The course (s) must be approved with a grade of “C” or better in order to be threat as a transfer course (T). Students are responsible of requesting official transcripts to be sent to CU from the other institution.

Caribbean University will not be responsible for the courses taken without the prior authorization of the Academic Dean.

### **Transfer Credit Policy**

Transfer students must request an evaluation at the Admission Office. The Program Coordinator/ Director will evaluate and compare the prior credit to the Institution’s courses.

Only the courses that have equivalency in its contents, which have equal or higher credit hours and were approved with “C” or higher will be validated in accordance to the Academic Program in which the student were enrolled.

Only the maximum of 60% of prior credit will be approved and 50% of the maximum of credits to be approved could be concentration courses. Once evaluated, the student will receive a letter by the Registrar’s Office notifying which courses were approved.

- **Advanced Placement**

Course equivalency allows students to receive university credits based upon their scores in the Advanced Placement Exam submitted by the College Board. Through this option, Caribbean University recognizes the academic achievement of these students and is allowing them to take higher-level courses based on their academic abilities.

### **Course Substitution**

Caribbean University allows under certain conditions, the substitution of course. The course substitution will be subject to the table of equivalence provided by the Vice-presidency of Academic Affairs.

### **Credit Transcripts and Certificates**

Students can request a copy of their transcript copies. Official transcript copies are sent directly to the agency or institution as requested by the student.

In order to request a transcript, the student must complete and submit a form in the Registrar’s Office or through National Student Clearinghouse web portal located on the Institution’s official web page. The student has the opportunity to request and receive transcript electronically through E-transcript service. No transcripts will be issued without written authorization by the student.

Official transcripts are not given to student under any circumstance. Transcripts are not issued to students that have a financial debt with the institution.

The certificate of degree indicates that the student has successfully completed the graduation requirements.

### **Academic standing**

Caribbean University requires that all students demonstrate a good academic standing. The academic standing is use to determine the eligibility of a student to continue their study. At the end of each academic year, the registrar office will determine if the student satisfied the accumulated grade point average as described in the following tables:

<b>Associate degree</b>	
Completed Credits	GPA
3-24	1.65
25-48	1.85
49 +	2.00

<b>Bachelor degree</b>	
Completed Credits	GPA
3-30	1.65
31-60	1.80
61 +	2.00

### **Academic Warning**

Students are placed on academic warning if their cumulative grade point average drops below the standards of academic progress established for their class standing. Academic warning is a preventive measure intended to inform the student making unsatisfactory progress of the need to improve study habits and seek additional counseling. Early recognition of a problem warns the students about possible jeopardy to their academic goals. It also provides an opportunity for the students to demonstrate acceptable academic performance. The subsequent action is academic probation.

### **Probation**

The student is placed on academic probation by the recommendation of the Academic Standing Committee if at the end of the academic year after being in Academic Warning the students do not satisfied the GPA required. At the end of the first year on probation the Academic Standing Committee could recommend second year probation. Academic probation places the student in jeopardy of academic suspension if he/she doesn't satisfied the require GPA after the second year on probation

### **Academic Suspension**

A student is placed on academic suspension for one semester if he/she fails to maintain the minimum GPA established after the second year in probation. A student who is suspended may petition the Academic Standing Committee, to review his/her record and consider the reason for poor achievement. If the Committee makes a favorable recommendation, the student is placed on academic probation for the next semester after receiving an academic suspension notice.

Conversely, if the Committee sustains the former decision or if no petition is made by the student after receiving the academic suspension notice, the student is not permitted to enroll at the university for one semester following academic suspension, nor participate in any other activity sponsored by the Institution. Readmission after the mandatory one semester suspension is not automatic.

### **Removal of Academic Suspension**

A student may apply for readmission to Caribbean University at the end of the academic suspension period. The student will be readmitted under academic probation during suspension. After a semester on probation if the student does not satisfy the GPA required the student will be placed on academic dismissal.

Being in Good Standing does not imply eligibility to receive Financial Aid.

### **Dean's List**

The Dean's List is compiled at the end of each academic year and posted on the campuses bulletin boards. This scholastic recognition includes those full-time degree-seeking students who achieve a cumulative GPA of a 3.50 or higher. Part-time degree-seeking students and non-degree students, regardless of academic load, and academic achievement are not entitled to nomination for the Dean's List.

### **Graduation Requirements**

1. Completion of the academic requirements of the enrolled program.
2. Transfer students must approve in residence work 40% of the required program credits and 50% of the required concentration credits.
3. Students will graduate under the program curriculum in which they were admitted. However, if the curriculum was modified after the student's admission, he /she could request to change his/her curriculum and be evaluated for the change. Curriculums may not be combined.
4. Students must complete and submit graduation form at Registrar's Office.
5. Graduation request have a non-refundable fee.

### **Graduation Grade Point Average**

The student must approve all required credits under the program enrolled with a general academic index of 2.00, with the exception of some programs, that require an index of 2.50 Engineering and Speech Therapy program and 3.00 for Education programs (From 2016 hereafter)

### **Concentration Grade Point Average**

The Concentration GPA required is 2.30, except for programs that require 2.50 Engineering, Social Work and Speech Therapy programs and 3.00 for Education programs (From 2016 hereafter).

## **Graduation with Honors**

The Institution grants honors to students under associate and bachelor academic programs with an excellent level of academic standing. In order for a student to achieve honorable mention, he or she must have obtained a general GPA of:

- 3.50 -3.70 – Cum Laude
- 3.71-3.89 - Magna Cum Laude
- 3.90 - 4.00 - Summa Cum Laude

## **Posthumous Degree**

In case the student has passed away, the Institution could grant a posthumous degree under the following circumstances:

- Was enrolled at the Institution in his/her last academic term.
- Must be recommended by the Registrar and approved by Vice-presidency of Academic Affairs and Accreditation.

## **Conferral of Degrees**

Degrees are issued in May and December. Formal ceremonies are conducted at the Annual Commencement Exercise in June. All students completing degree requirements are invited to participate in the commencement exercises.

## **Student Records**

Caribbean University in compliance with the Family Educational Rights and Privacy Act (FERPA), also known as the Buckley Act, protects student's privacy, academic record and acknowledges student's rights to verify their academic record. The Institution also enforces privacy thru its Policy of Confidentiality of Academic Records, which is provided at the web at [www.caribbean.edu](http://www.caribbean.edu) and at the Registrar's Office.

## **Student rights under the FERPA Act for Post-secondary Institutions**

The Family Educational Rights and Privacy Act (FERPA) also known as the Buckley Act was approved by the United States Congress in 1974. FERPA has certain rights with respect to their academic records.

### **Student Rights:**

1. The student has the right to inspect and review their academic record within 45 days of the day the University receives a request for access. The student should submit to Registrar's Office a written request that identify the record (s) they wish to inspect. The Registrar will make arrangements for access and notify students the time and place where the records may be inspected.

2. The right to request an amendment of the academic records that students believe is inaccurate or misleading. Such amendment or correction shall be filed in writing and must specify the issues that need to be changed including student understand the reasons. Failure to do such amendments or corrections, the student will be notified in writing with the right to a formal hearing.
3. The right to consent to disclosure of personally identifiable information contained in the academic record, except to the extent that FERPA authorizes disclosure without consent. One exception which permits disclosure without consent is disclosure to school officials with “legitimate educational interests”. A school official has a legitimate educational interest if the official needs to review an academic record in order to fulfill his or her official responsibilities. The Institution may provide student record information without consent to other educational institutions in which the student interested in enrolling
4. The right to file a complaint with the U.S. Department of Education concerning alleged the University noncompliance with the requirements of FERPA. This should be addressed to:

Family Policy Compliance Office  
U.S. Department of Education  
400 Maryland Avenue, SW  
Washington, D.C. 20202-4605

### **Directory of Information**

Caribbean University under the provisions of the “Family Educational Rights and Privacy Act of 1974” also known as FERPA, established the following data as Directory Information:

The student will choose between these three categories:

- Category I – name, address, telephone number, dates of attendance and class level
- Category II – name, Concentration, previous institution(s) attended, degree conferred, honor, date and place of birth, participation in sports and activities , height , weight of athletes
- Category III – Not authorize to disclose information

If this form is not received in the Registrar’s Office, Caribbean University will assume that the information mentioned in category 1 of this letter may be released. If the student desires changes, after submitting the form, the student should pass by the Registrar’s Office and complete another form.

### **The Solomon Amendment and FERPA**

The Solomon Amendment requires that institutions to provide directory-type information of students 17 years or older upon request from representative of the Department of Defense for military recruiting purposes. This information, referred to as “student recruiting information, includes : student name, home address, student telephone number, date and place of birth, level of education or degrees received, academic Concentration, and the most recent previous educational institution in which the student was enrolled.

The request for student recruiting information under Solomon must be honored unless there is an exception in the law which precludes the institution from providing the requested information. Any one of these exceptions must be applicable to schools seeking not to comply with Solomon:

- Certification that the institution has maintained a long -standing policy of pacifism based on historical religious traditions.
- Certification that such the information is not collected by the institution
- Certification that each student concerned has formally requested to withhold “directory information” under FERPA to third parties.

### **Student with Veteran’s Benefit**

Caribbean University is approved by the State Approving Agency for Veterans' Education and Training. This allows all veterans and eligible dependents to take advantage of the educational and training benefits under the VA. The Office of Veterans Affairs located at the Registrar’s Office, assists veterans in solving problems that might hinder them from pursuing or completing their educational objectives; while also delivering the most up to date information on the education assistance benefits (Including Post 9/11 GI Bill®, Montgomery GI Bill® Selected Service, Montgomery GI Bill® Active Duty, REAP, Dependent’s Educational Assistance (DEA), and Vocational Rehabilitation) \*\*\*. The office opens Monday through Friday, 8:00 a.m. to 5:00 p.m.  
*(Amended: September, 2020)*

In order to comply with those regulation it is expected of those students to achieve their degree by the time they approve the “minimum” number of credit hours required for graduation in his/her specific degree. After they achieve the mentioned “minimum” they can be certified no longer for the veteran’s affair benefits.

### **Reserve Officer Training Corps (ROTC)**

Caribbean University students who wish to participate in the Army Reserve Officer Training Corps program may do so in conjunction with the Department of Military Science at the nearby Bayamon campus of the University of Puerto Rico and Ponce campus. Specific objectives of the Army ROTC program are to attract, select, and identify qualified students to serve as commissioned officers in the active Army or the U.S. Army Reserve; to provide cadets with the understanding in the fundamental concepts and the principles of the National Security and Military Sciences; to develop leadership and managerial potential, and to install a strong sense of personal integrity, honor, and individual responsibility. Further information on career opportunities through the Army-ROTC may be obtained by writing or calling the Department of Military Science at the UPR-Bayamon and Ponce campuses.

### **Social Security Number Policy**

In accordance with Act No. 186 of 2006, Caribbean University establishes that it will not show or display the Social Security number of any student in a visible place or object, nor will be used as student identification.



The Institution will only use the social security number for internal purposes to verify the identity of the students in their admissions application, for financial aid purposes or other reports required by law, and the same will be for legitimate official use.

Caribbean University's administrative offices and the faculty will not publish the social security number in grade lists, list of students enrolled in courses, student directory, or any list, or make it accessible to any person who does not have the need or authority of the data. In addition, the Institution will notify the student, father, mother or legal guardian; under what circumstances the information will be used.

## **STUDENT LIFE AND SERVICES**

### **General Information**

Caribbean University is committed to the ideal that total education involves more than an academic degree. The moral, social, and physical aspects of student life should develop in accordance with the academic achievement. The Students Affairs' Office or the Campus Director's Office is responsible for the coordination and direction of all services and activities that support the students' academic program. These services and activities are designed to maximize the moral, social, and physical development that will enhance the student's educational experience and personal growth.

### **Student Orientation and Guidance Center**

Guidance and counseling services are available to all students having academic, vocational, occupational, educational, and personal concerns. The role of the advisor is to help the student clarify values, attitudes, interest and aptitudes; explore career opportunities, formulate educational and vocational plans, and assist students who need academic information. The student is guided to identify academic study difficulties, personal problems, and to find possible alternatives in coping with them. For students who require special services, the Guidance and Counseling Office arranges appropriate referrals to the University's Student Support Services or other off-campus professional agency. Student counseling records are confidential; no information is released to anyone (including family or members of University faculty) without the student's written consent or approval. Caribbean University students may use all guidance and counseling services at any time during their college years.

### **Students Council**

The Students Council exists as the representative body of the students of Caribbean University. The purpose of the Students Council is to voice students' opinion; advance the students causes, both socially and academically; promote communication, cooperation, and understanding among students, faculty, and administration; and suggest the necessary improvement for the welfare of the students, and the improvement of the University in general.

The Students Council of Caribbean University represents the interest of students through its standing committees. It is formed by representatives of every academic department. By active participation in the Students Council, or by voicing opinions and ideas through representative students, a student may gain valuable experience in democratic processes, including rights, and duties. Students interested in working with the Council may obtain information from any of its members or from the Students Affairs Office.

### **Food Services**

The University Cafeteria, operated by a concessionaire, provides food services for the University community in its Main Campus and Centers.

## **Museum of Art Caribbean University (MACU)**

The Museum of Art Caribbean University (MACU) began as a center of university education and the appreciation of art and cultural heritage. Its mission is to investigate, expose and educate through the exhibition of works of art, promoting a direct encounter between the artist, the work exhibited and the audience. MACU is also a practice center of interdisciplinary studies where students integrate their knowledge of art, humanities, science, technology and pedagogy. MACU's goal is to transform the university's education and promote multidisciplinary and critical thinking.

### **Students Organizations**

Caribbean University students will have full freedom to associate and form a bona fide student organization, within the framework of respect and tolerance to help maintain a climate of solidarity and suitable relationships between all the University community members, in accordance with institutional regulations.

### **Code of Behavior**

Caribbean University is firmly committed to the concept of a university as a setting for educational processes, designed to empower students to develop their potential. To assure the availability and continuance of these educational processes, all members of the University community are engaged in avoiding any attempt to impede or interfere with the normal function of the University's programs and services. Students are admitted to the University with the understanding that they accept the University's basic principles and codes of behavior. Violators of University regulations, which are contained in the student general handbook are exposed to penalties, including suspension or dismissal. Student general handbook is available at [www.caribbean.edu](http://www.caribbean.edu).

### **Academic Dishonesty**

Intellectual honesty is the basis of all academic and scholarship work. The University views any form of academic dishonesty as a serious offense. The Students Affairs Grievances Committee is in charge of establishing policy on how to deal with academic dishonesty; and sets guidelines for proceeding with each particular case.

### **Complaints and Academic Grievances Committee**

The Complaints and Academic Grievances Committee considers complaints of arbitrary, capricious, malicious, or otherwise improper actions related to grading, evaluations, and other requirements for credits, or any other academic matter. The Committee cannot intervene in matters covered by the procedures set forth in the Policies of the Board of Trustees and the rules for the maintenance of public order.

The Committee considers only charges of clearly improper academic practices. It will not intervene in disagreements about an instructor's intellectual judgment. Grievances should be brought to the Committee only after previous discussion with the Instructor, Department's Chairperson and Office for Academic Affairs have proven unsuccessful. Grievances must be in writing, including names, dates and other pertinent details, and submitted to the Committee at the

Dean of Student Affairs office. Further information about committee procedures may be obtained from that office.

### **Safety on Campus**

Caribbean University has as a policy to protect the rights of all individuals and ensuring a safe environment for all students, student prospects, employees, employee's prospects and visitors to the University. The institutional policy concerning campus security responds to the specifications included in the "Code of Federal Regulations" 34 CFR 668.46 (Institutional Security Policies and Crime Statistics) of the U.S. Department of Education and the parameters that have the Jeanne Clery Act (known as the Clery Act).

Each member of the University community and its visitors has the right to be protected from acts of violence and threats. It also has the responsibility to comply with all local, state and federal laws and all rules and regulations of the University aimed at protecting its integrity and safety and that of others. Every individual who has been victim of any criminal violation or other emergency should report such violation immediately to the University authorities in charge of Campus Security and the University guards. Furthermore, they can visit the Chancellor's Office or the corresponding Campus/Center Director. Also, they can communicate immediately call 911, Municipal or State police, or to the University's direct toll free number 1-888-780-0070.

### **Crime Statistics Institutional Security and Prevention Policy**

The Student Right to Know and Campus Security Act Law 101-542 or the Jeanne Clery Act requires that the University collect and disclose the crime statistics and in addition, be kept informed throughout the University community, students and employees prospects and visitors about the criminal incidents that occurred in the institution during the past three calendar years. These statistics include events, if any, of a criminal nature that occur within or outside of the university campus and public property, as defined by the Clery Act. Such information is disclosed annually through a statistical report known as the Campus Crime and Security Survey, required by the Federal Department of Education and is available at [www.caribbean.edu](http://www.caribbean.edu)

Together to that report, Caribbean University promotes and disseminates its Institutional Prevention and Security Policy which include important aspects such as:

- Prevention of Crimes and assaults
- Domestic Violence Prevention
- Suicide Prevention
- Prevention of the use and abuse of alcoholic beverages and controlled substances.

This information is also available in writing at the Office of Guidance and Counseling in each academic unit.

### **Convicted Sexual and/or Child Abuse Offenders Registry**

Information related to the Sex Offenders Registry in Puerto Rico, is available in the register of the Criminal Justice Information Systems (SIJC) Law No. 266 (2004) Registration of Persons convicted of sexual offenses and child abuse. Its virtual page

<http://prcjisweb.gobierno.pr/CjisServices/Forms/Registries/Registry266TermsConditions.aspx> contains information of the Public Register of persons convicted of sex crimes or abuse of minors to help citizens understand the possible presence of such offenders in their community. In the Puerto Rico Police Unit there are Coordinators of Unit Offenders and Domestic Violence. Federal law requires that individuals registered as sex offenders, notify the authorities of the State if they are employed by are students of an institution of higher education.

Caribbean University is committed in promoting and maintaining a secure environment and free from any form of sexual harassment or intimation. Each member of the university community must be alert and know that this conduct is prohibited by law and by the University's institutional policies. Caribbean University does not tolerate any conduct of sexual assault or rape of known or unknown individuals, and will take the necessary measures to prevent and correct such acts.

### **Alert or Emergency Releases**

As a preventive measure or notification of emergency, the staff in charge of security on campus, shall deliver to the university community the necessary alert and emergency releases (Timely warnings notifications or timely emergency notifications), in cases that warranted in a reasonable time and according to the geographic area defined by the Clery Act.

### **Health Services**

The Office of Health Services is in charge of a nursing professional licensed by the State to exercise their profession. The nursing professional contributes health services to the entire university community in the institution through the services of primary emergency medical aid and guidance of individual and collective health. In the Office of Health Services external services are coordinated, during emergency events such as calls to 911, ambulances, firefighters and police. On the other hand, the staff of this office is responsible for coordinating educational campaigns and coordinate blood donations with the pertinent organizations.

### **Campus Parking**

Students may park on the campus parking lot available at the University on a first come, first served basis. In order to use the parking facilities on campus, students must furnish the vehicle registration, and the validated student's academic program. One permit per student is allowed. Decals must be displayed on all vehicles parked on campus.

### **Library Services**

The System of Libraries, Educational Resources and Learning at Caribbean University, consist of five units. These are: the main administration offices and four libraries (Bayamon, Carolina, Vega Baja and Ponce) engaged in direct service to the public. All of them are committed to achieving the institutional vision, mission, goals and objectives as leaders in the management of study, teaching, research and services.

In keeping with the institutional mission, the Libraries will contribute to the education of their students, fostering in them the social and cultural values of our people. Furthermore, they will facilitate quality information through the immediate availability of library resources inherent to the academic development of our community.

The libraries hours' service are: Monday to Friday from 7:30 a.m. to 10:30 p.m., Saturday from 8:00 a.m. to 5:00 p.m. Access to the databases is always available through the online library located at the website <http://www.caribbean.edu/index.html>.

The libraries provide many services for its users at all four campuses. These are:

- **Reference Consultation** – Libraries offer orientations, by telephone and e-mail about the services that the libraries provide to students, professors, administrative personnel and the community.
- **Reserve** – This section of the libraries provides the bibliographical resources that are identified in the course syllabus and any other material that the faculty identifies as necessary for either additional consultation or that support the courses taught in the different academic programs. Loans for these resources are controlled as they are in high demand.
- **Access to data bases** – The University community can have access to the databases at the libraries, laboratories and offices at all four campuses. This service is also available 24/7 through the webpage of the university\_ [http://www.caribbean.edu/E2\\_Multidisciplinarias.html](http://www.caribbean.edu/E2_Multidisciplinarias.html).
- **Virtual Reference** – This service can be accessed from the Online Library section of [http://www.caribbean.edu/Referencia\\_virtua3.html](http://www.caribbean.edu/Referencia_virtua3.html). Users can ask questions by filling out the provided form in Internet. Questions should be answered within a period not exceeding three days.
- **Research** – Library personnel provides orientation and/or support to the community in different topics of interest or specific academic research. Users will be able to access or recover information through electronic, printed and/or audiovisual material.
- **Faculty Support** – Library personnel provides orientation, workshop and/or support to the faculty in the different topics of interest or in specific academic research using electronic, printed and/or audiovisual material and equipment. In addition, the librarians evaluate and accept the recommendations made by the professors when they identify educational resources for the development or the actualization of the library collections.
- **SDI (Selective Dissemination of Information)** – The libraries continuously disseminate booklets and leaflets about the services offered. Also, the link to the website of Caribbean University provides access to online library information services, databases, catalog, and links to the lists of the new acquisitions and the staff directory.
- **Formation of Users** – The libraries provide information literacy on different topics of identified by professors and students. These subjects are: the use of Databases, use of the Online Catalogue, and the development of writing skills: term papers, essays, monographic, bibliographies, among other.
- **Inter Library Loan** – Caribbean University maintains an ongoing collaboration with the loan service of resources as part of the Library System. The request will be processed and the user can have the resource, subject to availability.

- **Wireless Network for Internet Access** – The institution provides free wireless internet access in its facilities in Bayamon, Carolina, Vega Baja and Ponce for students, professors and community groups who own laptops, tablets or cellphones.
- **Audiovisual Unit** – This area specializes in the loan and control of equipment and audiovisual resources like cameras, videos, video cameras, DVDs, CD-ROMs, digital projectors, laptop computers and similar items, providing equipment that the academic community requires to enhance instruction. The loans are for professors and students. Due to high demand is recommended to request the equipment in advance.
- **Prints Area** – All the libraries of the Caribbean University have self-service photocopy and printing services for use of the community. This service requires the creation of an account.
- **Collections** – The Collection of printed, audiovisual and electronic media consists of an inventory of nearly 200,000 volumes. Among these, are printed and digital resources like books, journals, magazines, documents, and local and international newspapers. The audiovisual collection is composed of films, videos, CD-ROMs, DVDs, among others. Electronic journals contained in the databases are not included in the inventory of collections.

These library resources are classified according to the rules of the Dewey Decimal Classification (DDC) System and are incorporated to the online catalog for libraries (Mandarin M3). This tool allows students, faculty and administration to browse, search and identify resources that are available in the library. Searches can be performed by author, title of the resource, and subject or keyword. To use the printed and audiovisual materials, academic community should visit one of the Libraries.

Subscriptions to databases and electronic books keep collections up-dated and dynamic. The availability of remote access through the Online Library allows our academic community to evaluate and use library resources 24/7 from home, office or university campus. This alternative has been a great support for courses offered online, orientations, workshops and sharing resources through collaborative arrangements. To benefit from this service, authentication (username & password) is required.

### **Athletic Activities**

Caribbean University is a member of the Inter-University League of Puerto Rico (LAI), participating in the following disciplines: athleticism, dance, basketball, baseball, football, weightlifting, judo, wrestling, cheerleading, table tennis and volleyball.

### **Students Activities**

Caribbean University regards students' activities as part of the total academic program, supplemental to the individual students' programs. The University desires to contribute to the students' personal growth by encouraging participation in campus-wide activities. The University, with the students' cooperation and the assistance of student organizations, sponsors a variety of cultural, educational, social, and recreational activities that contribute in broadening the educational experience.

## **Services for Disabled Students**

Caribbean University provides services, including federal and state services accommodations for eligible student with verified disabilities. Services for student are individually deigned, and are based on students' individual needs as identified by a specialist. The Students Affairs Office is responsible for providing assistance and for coordinating services for students with disabilities. It also collaborates with and empowers students who have disabilities in order to coordinate support services and programs that enable equal access to an education and university life. **For additional information regarding services and how to apply for reasonable accommodation, refer to Procedure for Addressing Students with Disabilities located [www.caribbean.edu](http://www.caribbean.edu).**

## **Students Housing**

Housing facilities are not available at the University. The Guidance and Counseling Office maintains a list of housing accommodations at available nearby areas to students upon request. Students in need of these services must make arrangements for housing.

## **Students Rights and Responsibilities**

### **Rights**

- Educate themselves and the duty to behave in a way that their behavior does not hinder the other members of the university community in exercising their rights or the performance of their duties.
- Request and receive information regarding the Vision, Mission, Goals, Objectives and accreditation of the University, the academic programs and the professor's credentials.
- Actively participate in the course of study and related activities, exchange concepts and ideas with their professors, express opinions and beliefs, doubts and differences in criteria and be informed of their failures and achievements in academic work. In addition, the student has the right to participate in the activities that are developed in the Institution that promote their personal and professional development.
- Meet with the professor at times specifically agreed, in order to request orientation and clarify aspects of his/her academic work or academic program and receive academic counseling.
- Know the exam results, tests and special work required within a reasonable period of time, preferably not more than two (2) weeks after taken or assigned.
- In the imposition of sanctions for violations of the disciplinary rules identified in Part VIII, Article I on disciplinary rules and procedures, the student will be notified of the nature of the charges, of the evidence based on the same and that they will be given the opportunity to present his/her version of the facts.
- Express in an orderly manner their opinions, beliefs, doubts and differences of criteria, as well as make recommendations through the established mechanisms.
- That their academic records be maintained in compliance with the applicable regulations under the Family Educational Rights and Privacy Acts of 1974, as amended (FERPA). With regard to the academic and disciplinary records, these will be confidential and shall be maintained separately. It may only be made available to persons outside the institution,



provided that the request is in writing, the consent of the student, or in accordance with the law.

- Request information relating to the provisions of the Federal Department of Education about the Student Right to Know and Campus Security Act.
- Receive from their professors, at the beginning of each course, an adequate orientation, in oral or written form. This includes: an explanation of the purposes and objectives of the course, study themes, readings and other work requirements; information on textbooks and other didactic means; the evaluation methods and other relevant aspects.
- Access and enjoyment of all the physical facilities, according to the rules of use.
- Request and receive information regarding available financial aid, the costs and the reimbursement policy that applies when withdrawing from class, payment plans, as well as the information regarding their duties and rights in the financial aspect.
- Participate in the Student Council election under the criteria established in this regulation and to be members of duly certified professional and student associations.

### **Responsibilities**

- It is the responsibility of each student to familiarize themselves, to know and comply with all provisions of this regulation and all the academic and administrative policies of the University. Students are required to read the official announcements and newsletters that are published. In addition, they must observe all regulations or standard to be issued or published through circular letters, formal memoranda or other available to the institution.
- The student must show at all times the due respect and consideration for the members of the university community, so that they can fulfill their functions in an effective manner and in an atmosphere of understanding and harmony.
- The student commits to comply with the academic standards and regulations to conserve and make use of their rights.
- The student will be responsible to comply with the requirements of the course of studies and of the material explained and assigned in his absence.
- The student will be responsible for compliance with all the financial commitments that he/she has contracted with the institution.
- It is the responsibility of all students to cooperate to maintain the cleanliness in the premises of the institution.

### **Notification of Changes in Catalog**

Caribbean University will publish addenda to the catalog each year, as needed. These addenda updates any change in the catalog such as: admission requirements, tuition and fees, programs of study, fields of study, courses, graduation requirements, rules of students conduct, and University policy. Changes will be posted on bulletin boards in all Campuses.

## **ACADEMIC PROGRAMS**

The academic program, together with the philosophy of Caribbean University, agrees that every individual has the right to develop to his/her fullest potential, to respect human dignity and foster the desire for intellectual commitment. It is the Institution's main goal to assist and encourage students in their quest for self-realization through auto-discipline, to develop their ability to think critically, and to exercise their creative potentials.

The curriculum of each academic program is designed to provide students with the knowledge and the skills related to each specific academic discipline. The curriculum is divided into five concentration areas: general courses, core courses, concentration courses, electives, and practice for the academic program that requires it. The credit hours required for graduation vary among degrees and concentrations.

## **ACADEMIC DEPARTMENTS AND PROGRAM**

### **DEPARTMENT OF LIBERAL ARTS**

The Department of Liberal Arts is committed to the intellectual, academic, and social development of the student. The courses are designed to provide the student skills of scientific reasoning, logical mathematician as well as the powers to formulate, analyze, integrate, and apply knowledge. The Department offers preparatory courses in the areas of Spanish, Mathematics and English (100). Students are required to approve the preparatory courses with at least a C grade.

In addition, as part of the benefits for students newly enrolled the Department offers the course, Introduction and Adjustment to university life, which is designed to assist the student in the process of acquiring the skills necessary to succeed in your role as a student. The course also seeks to develop a sense of belonging through various strategies of teaching learning and activities of University work.

## DEPARTMENT OF BUSINESS ADMINISTRATION

The development and administration of business have transcended to a global level. All types of business have to create and cultivate a competitive advantage and ensure that puts in effect the basic functions of administration: plan, organize, direct and control. Our Business Administration curriculum is designed to provide the student with the intellectual, social and ethical skills and abilities needed to effectively perform any managerial and leadership position. The student is prepared to face and successfully dominate the basic and advance functional knowledge of the fundamental elements of administration as well the academic and practical expertise required of specific business careers. Our business work experience program offer the opportunity to our students to put in practice the knowledge, skills and proficiencies to manage increasingly intricate and diverse situations in both domestic and international setting. They are prepared to successfully perform in profit-oriented enterprises and not for profit organizations, both public and private.

The Department of Business Administration offers the following academic programs:

- Associate of Sciences Degree in Accounting Administration
- Associate of Sciences Degree in Management Administration
- Bachelor Degree in Business Administration  
     Concentration: Accounting  
                     Management  
                     Marketing
- Bachelor Degree in Office Systems

Caribbean University has the following Admission Grade Point Average, Graduation and Concentration Grade Point Average of all the programs under this Department.

<b>Academic Programs</b>	<b>Admission GPA</b>	<b>Graduation GPA</b>	<b>Concentration GPA</b>
Associate of Sciences Degree in Accounting Administration Associate of Sciences Degree in Management Administration	Open Doors Policy (less than 2.00 GPA)	2.00	n/a
Bachelor Degree in Business Administration Concentration: Accounting Management Marketing Bachelor Degree in Office Systems	2.00	2.00	2.30

## ASSOCIATE OF SCIENCES DEGREE IN ACCOUNTING ADMINISTRATION

### Minimum Requirements:

33 credit hours in General Courses  
29 credit hours in Core Courses  
12 credit hours Concentration Courses  
74

<b>General Studies</b>		<b>Credit Hours</b>
SPAN 101-102	Basic Course in Spanish I-II	3-3
ENGL 101-102	Basic Course in English I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
SOSC 101-102	Introduction to Social Sciences I-II	3-3
MATH 101-102	Introduction to College Mathematics I-II	3-3
COSC 101	Introduction to Computer Sciences	3
<b>Core Courses</b>		
ACCO 101	Mathematics of Accounting	3
ACCO 111-112	Elementary Accounting I-II	4-4
STAT 115	Elements of Statistics I	3
MANA 181	Principles of Management	3
ECON 121	Principles and Problems in Economics	3
MARK 133	Fundamentals of Marketing	3
SPAN 201	Business Communication in Spanish I	3
ENGL 201	Business Communication in English I	3
<b>Concentration Courses</b>		
ACCO 201	Intermediate Accounting I	4
ACCO 202	Intermediate Accounting II	4
ACCO 203	Cost Accounting I	4

\*All new students will be required to take the UNIV 100 course.

## ASSOCIATE OF SCIENCES DEGREE IN MANAGEMENT ADMINISTRATION

### Minimum Requirements:

33 credit hours in General Courses  
29 credit hours in Core Courses  
12 credit hours in Concentration Courses  
74

<b>General Courses</b>		<b>Credit Hours</b>
SPAN 101-102	Basic Course in Spanish I-II	3-3
ENGL 101-102	Basic Course in English I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
SOSC 101-102	Introduction to Social Sciences I-II	3-3
MATH 101-102	Introduction to College Mathematics I-II	3-3
COSC 101	Introduction to Computer Sciences	3
<b>Core Courses</b>		
ACCO 101	Mathematics of Accounting	3
ACCO 111-112	Elementary Accounting I-II	4-4
STAT 115	Elements of Statistics I	3
MANA 181	Principles of Management	3
ECON 121	Principles and Problems in Economics	3
MARK 133	Fundamentals of Marketing	3
SPAN 201	Business Communication in Spanish I	3
ENGL 201	Business Communication in English I	3
<b>Concentration Courses</b>		
MANA 131	Human Relations in Business	3
MANA 266	Small Business Management	3
MANA 303	Fundamentals of Production Management	3
MANA 306	Personnel Administration	3

\*All new students will be required to take the UNIV 100 course.

**BACHELOR DEGREE IN BUSINESS ADMINISTRATION (BBA)  
CONCENTRATION: ACCOUNTING**

**Minimum Requirements:**

43 credit hours in General Courses  
 50 credit hours in Core Courses  
 28 credit hours in Concentration Courses  
 6 credit hours in Electives  
6 credit hours in Practice  
 133

<b>General Courses</b>		<b>Credit Hours</b>
SPAN 101-102	Basic Course in Spanish I-II	3-3
ENGL 101-102	Basic Course in English I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
SOSC 101-102	Introduction to Social Sciences I-II	3-3
GESC 101	Fundamentals of General Sciences	4
MATH 101-102	Introduction to College Mathematics I -II	3-3
HUMA 209-210	History of Puerto Rico I-II	3-3
COSC 101	Introduction to Computer Sciences	3
<b>Core Courses</b>		
ACCO 101	Mathematics of Accounting	3
ACCO 111-112	Elementary Accounting I-II	4-4
STAT 115-116	Elements of Statistics I-II	3-3
MANA 181	Principles of Management	3
ECON 121-122	Principles and Problems of Economics	3-3
SPAN 201-202	Business Communication in Spanish I-II	3-3
ENGL 201-202	Business Communication in English I-II	3-3
MARK 133	Fundamentals of Marketing	3
BANK 231	Money and Banking	3
MANA 131	Human Relations in Business	3
BULA 204	Business Law	3
<b>Concentration Courses</b>		
ACCO 201-202	Intermediate Accounting I-II	4-4
ACCO 203	Cost Accounting I	4
ACCO 205	Income Tax Procedures (Puerto Rico Taxes)	3
ACCO 304	Principles of Auditing	3
ACCO 305	Federal Taxes I (U.S. Taxes)	3
ACCO 310	Advanced Accounting I	3
ACCO 381	Computer Applications in Accounting	4

**Elective Courses**

6

Elective courses may be taken from the other Concentrations of the Business Administration Department, if the student has already approved the prerequisites. Courses from other Departments may qualify as electives if requirements are met: (1) the course is related to the Business Administration field, (2) the prerequisites of the course has been approved, and (3) an authorization from the Business Department Head is furnished.

**Practice**

MANA 383                                      Business Work Experience                                      6

**Total Credit Hours Required for Graduation                                      134**

Those students interested in obtaining the certified public accountant license must have 16 additional credits for a total of 150 credits. The students must approve the following courses.

- ACCO 306 Federal Income Tax II                                      3
- ACCO 309 Managerial Accounting                                      3
- ACCO 412 Business, Ethics and Professional Responsibility  
for candidate to CPA                                      3
- ACCO 413 Audited Financial Statements Reports                                      3
- ACCO 414 Accounting for non Profit Institutions                                      4

\*All new students will be required to take the UNIV 100 course.



**BACHELOR DEGREE IN BUSINESS ADMINISTRATION (BBA)  
CONCENTRATION: MANAGEMENT**

**Minimum Requirements:**

43 credit hours in General Courses  
 50 credit hours in Core Courses  
 28 credit hours in Concentration Courses  
 6 credit hours in Electives  
6 credit hours in Practice  
 133

<b>General Courses</b>		<b>Credit Hours</b>
SPAN 101-102	Basic Course in Spanish I-II	3-3
ENGL 101-102	Basic Course in English I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
SOSC 101-102	Introduction to Social Sciences I-II	3-3
GESC 101	Fundamentals of General Sciences	4
MATH 101-102	Introduction to College Mathematics I-II	3-3
HUMA 209-210	History of Puerto Rico I-II	3-3
COSC 101	Introduction to Computer Sciences	3
<b>Core Courses</b>		
ACCO 101	Mathematics of Accounting	3
ACCO 111-112	Elementary Accounting I-II	4-4
STAT 115-116	Elements of Statistics I-II	3-3
MANA 181	Principles of Management	3
MARK 133	Fundamentals of Marketing	3
ECON 121-122	Principles and Problems in Economics	3-3
SPAN 201-202	Business Communication in Spanish I-II	3-3
ENGL 201-202	Business Communication in English I-II	3-3
MANA 131	Human Relations in Business	3
BULA 204	Business Law	3
BANK 231	Money and Banking	3
<b>Concentration Courses</b>		
MANA 266	Small Business Management	3
MANA 303	Production Management	3
MANA 306	Personnel Administration	3
MANA 308	Wages and Salary Administration	3
MANA 310	Administration in Business and Society	3
MANA 312	Labor Law and Legislation	3
MANA 324	Managerial Decision Making	3
MANA 381	Computer Application in Management	4

ACCO 309	Managerial Accounting	3
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<b>Elective Courses</b>		6
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Elective courses may be taken from the other Concentrations of the Business Administration Department, if the student has already approved the prerequisites. Courses from other Departments may qualify as electives if requirements are met: (1) the course is related to the Business Administration field, (2) the prerequisites of the course have been approved, and (3) an authorization from the Business Department Head is furnished.

**Practice**

MANA 383	Business Work Experience	6
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\*All new students will be required to take the UNIV 100 course.

**BACHELOR DEGREE IN BUSINESS ADMINISTRATION (BBA)  
CONCENTRATION: MARKETING**

**Minimum Requirements:**

43 credit hours in General Courses  
 50 credit hours in Core Courses  
 27 credit hours in Concentration Courses  
 6 credit hours in Practice  
 6 credit hours in Elective Courses  
 132

<b>General Courses</b>		<b>Credit Hours</b>
SPAN 101-102	Basic Course in Spanish I - II	3-3
ENGL 101-102	Basic Course in English I - II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
SOSC 101-102	Introduction to Social Sciences I-II	3-3
GESC 101	Fundamentals of General Sciences	4
MATH 101-102	Introduction to College Mathematics I-II	3-3
HUMA 209-210	History of Puerto Rico I-II	3-3
COSC 101	Introduction to Computer Sciences	3
<b>Core Courses</b>		
ACCO 101	Mathematics of Accounting	3
ACCO 111-112	Elementary Accounting I-II	4-4
STAT 115-116	Elements of Statistics I-II	3-3
MANA 181	Principles of Management	3
MARK 133	Fundamentals of Marketing	3
ECON 121-122	Principles and Problems in Economics I - II	3-3
BANK 231	Money and Banking	3
SPAN 201-202	Business Communication in Spanish I-II	3-3
ENGL 201-202	Business Communication in English I-II	3-3
MANA 131	Human Relations in Business	3
BULA 204	Business Law	3
<b>Concentration Courses</b>		
MARK 135	Fundamentals of Retailing	3
MARK 201	Fundamentals of Communication	3
MARK 233	Consumer Behavior	3
MARK 235	Fundamentals of Advertising	3
MARK 303	Salesmanship	3
MARK 306	Marketing Management	3

MARK 308	International Marketing	3
MARK 309	Sales Management	3
MARK 310	Marketing Research	3

**Practice**

MANA 383	Business Work Experience	6
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**Elective Courses** 6

Elective courses may be taken from the other Concentrations of the Business Administration Department, if the student has already approved the prerequisites. Courses from other Departments may qualify as electives if requirements are met: (1) the course is related to the Business Administration field, (2) the prerequisites of the course have been approved, and (3) an authorization from the Business Department Head is furnished.

\*All new students will be required to take the UNIV 100 course.

## BACHELOR DEGREE IN OFFICE SYSTEMS (BOS)

### Minimum Requirements:

3 credit hours in Introduction and Adjustment to University Life  
 40 credit hours in General Courses  
 33 credit hours in Core Courses  
 36 credit hours in Concentration Courses  
 6 credit hours in Internship  
12 credit hours in Suggested Elective Courses  
 130

### General Courses

### Credit Hours

SPAN 101-102	Basic Course in Spanish I-II	3-3
ENGL 101-102	Basic Course in English I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
SOSC 101	Introduction to Social Sciences I	3
GESC 101	Fundamentals of General Sciences	4
MATH 101-102	Introduction to College Mathematics I-II	3-3
HUMA 215	History of Puerto Rico	3
ENGL 217	Oral and Written Communication in English	3
COSC 101	Introduction to Computer Sciences	3

### Core Courses

ENGL 201-202	Business Communication in English I-II	3-3
SPAN 201-202	Business Communication in Spanish I-II	3-3
OSAD 125	Elementary Keyboarding	3
ACCO 111	Elementary Accounting I	4
ACCO 101	Mathematics of Accounting	3
ECON 121	Principles and Problems in Economics	3
OSAD 113	Spanish Speedwriting Systems	4
OSAD 104	English Speedwriting-Transcription	4

### Concentration Courses

OSAD 126	Documents Production I	3
OSAD 214	Spanish Transcription	3
OSAD 225	Documents Production II	3
OSAD 280	Records Management	3
OSAD 325	Office Information Systems	3
OSAD 326	Spreadsheets & Electronic Presentations	3
OSAD 380	Office Procedures and Administration	3
OSAD 424	Database & Office Publishing	3
OSAD 425	High Technology Office	3

MANA 131	Human Relations in Business	3
MANA 181	Principles of Management	3
MANA 306	Personnel Administration	3

**Internship**

OSAD 383	Internship in Office Administration	6
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**Suggested Elective Courses**

OSAD 287	Law Office Management	3
OSAD 289	Medical Office Management	3
OSAD 290	Ethics and Etiquette for Professional	3
COSC 130	Web Page Design and Implementation	3

## **DEPARTMENT OF ALLIED HEALTH SCIENCES**

The Department of Allied Health Sciences provides the opportunity to graduate professionals in health related areas, in order to meet local needs and overall needs of the society. The Department of Allied Health Sciences has with a faculty highly qualified and selected to ensure academic excellence and the development of ethical values in their undergraduate students in General Sciences, Speech-Language Therapy and Nursing.

Students who graduate from a Bachelor's degree in General Sciences, can work in any area that involves knowledge of Sciences and also allows them to pursue doctoral studies in areas related to health, such as medicine, dentistry, optometry, pharmacy, public health, among others.

The students of Bachelor's degree in Speech - Language Therapy can work as a therapist in special populations especially with communication problems, under the coordination of a speech pathologist.

Students associated with a concentration in Nursing may complete their studies in 2 and a half years, and can work in health institutions or continue their studies leading to bachelor degree, who in turn after completing their studies are holistically trained to serve the society.

The Department of Sciences to the Allied Health offers the following academic programs:

- Associate Degree of Science in Nursing
- Bachelor Degree of Science in Nursing
- Bachelor Degree in Sciences  
    Concentration: General Sciences
- Bachelor Degree in Sciences  
    Concentration: Speech-Language Therapy

Caribbean University has the following Admission Grade Point Average, Graduation and Concentration Grade Point Average of all the programs under this Department.

<b>Academic Programs</b>	<b>Admission GPA</b>	<b>Graduation GPA</b>	<b>Concentration GPA</b>
Associate Degree of Science in Nursing	Open Doors Policy (less than 2.00 GPA)	2.00	n/a
Bachelor Degree of Science in Nursing	2.50	2.00	2.30
Bachelor Degree in Sciences Concentration: General Sciences	2.00	2.00	2.30
Bachelor Degree in Sciences Concentration: Speech-Language Therapy	2.50	2.50	2.50

## ASSOCIATE DEGREE OF SCIENCE IN NURSING (ASN)

### Minimum Requirements:

3 credit in Introduction and Adjustment to University Life  
21 credit hours in General Courses  
16 credit hours in Core Courses  
36 credit hours in Concentration Courses  
76

General Courses		Credit Hours
SPAN 101-102	Basic Courses in Spanish I-II	3-3
ENGL 101-102	Basic Course in English I-II	3-3
MATH 101	Introduction to College Mathematics I	3
PSYC 101	Introduction to Psychology I	3
COSC 101	Introduction to Computer Sciences	3
<b>Core Courses</b>		
BISC 101	Introduction to the Study of Biological Sciences I	4
BIOL 301	General Microbiology	4
CHEM 101	General Chemistry	4
BIOL 304	Human Anatomy	4
<b>Concentration Courses</b>		
NURS 101	Introduction to Nursing	3
NURS 102	Basic Skills in Nursing	5
NURS 103	Pharmacology in Nursing	3
NURS 205	Nursing Process within the Conception Birth and Neonatal Care	5
NURS 207	Process with Children and Adolescent	5
NURS 309	Process with Adults and the Elderly I	5
NURS 310	Mental Health and Psychiatry Nursing	5
NURS 311	Process with Adults and the Elderly II	5

Student must approve courses in Mathematics, Sciences and Concentration Courses  
with a minimum grade of "C".



## BACHELOR DEGREE OF SCIENCE IN NURSING (BSN)

### Minimum Requirements:

3 credit in Introduction and Adjustment to University Life

36 credit hours in General Courses

27 credit hours in Core Courses

52 credit hours in Concentration Courses

9 credit hours in Practice

6 credit hours in Suggested Elective Courses

133

### General Courses

### Credit Hours

SPAN 101-102	Basic Course in Spanish I-II	3-3
ENGL 101-102	Basic Course in English I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-11	3-3
PSYC 101	Introduction to Psychology I	3
COSC 101	Introduction to Computer Sciences	3
SOSC 103	Introduction to Sociology	3
SPAN 213	Oral and Written Communication in Spanish	3
MATH 101-102	Introduction to College Mathematics I-II	3-3

### Core Courses

BISC 101	Introduction to Biological Sciences I	4
BIOL 301	General Microbiology	4
CHEM 101-102	General Chemistry I-II	4-4
BIOL 304	Human Anatomy	4
BIOL 305	Human Physiology	4
STAT 117	Basic Elements of Bio-Statistics	3

### Concentration Courses

NURS 101	Introduction to Nursing	3
NURS 102	Basic Skills in Nursing	5
NURS 103	Pharmacology in Nursing	3
NURS 205	Nursing Process with Conception, Birth and Neonatal Care	5
NURS 206	Health Physical Assessment in Nursing	3
NURS 207	Process with Children and Adolescent	5
NURS 208	Principles in Research and Evaluation	3
NURS 309	Process with Adults and the Elderly I	5
NURS 310	Mental Health and Psychiatry Nursing	5
NURS 311	Process with Adults and the Elderly II	5
NURS 412	Family and Community Health	5

NURS 413	Process with Patient of Critical, Chronic and Terminal Diseases	5
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**Practice**

NURS 414	Practicum	9
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**Suggested Elective Courses**

NURS 235	Principles of Moral and Ethics in Nursing	3
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NURS 111	Communications and Leadership in Nursing	3
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Student must approve courses in Mathematics, Sciences and Concentration Courses with a minimum grade of "C".

**BACHELOR DEGREE IN SCIENCE (BS)  
CONCENTRATION: GENERAL SCIENCES**

**Minimum Requirements:**

3 credits in Introduction and Adjustment to University Life  
 36 credits hours in General Courses  
 54 credits hours in Core Courses  
 26 credits hours in Concentration Courses  
 8 credits hours in Suggested Elective Courses  
 6 credits hours in Free Elective Courses  
 133

<b>General Courses</b>		<b>Credit Hours</b>
ENGL 101-102	Basic Course in English I-II	3-3
SPAN 101-102	Basic Course in Spanish I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
HUMA 215	History of Puerto Rico	3
SOSC 101-102	Introduction to the Social Sciences I-II	3-3
MATH 101-102	Introduction to College Mathematics I-II	3-3
COSC 101	Introduction to Computer Sciences	3
<b>Core Courses</b>		
ENGL 215-216	Introduction to Literature I-II	3-3
SPAN 215-216	Introduction to the Literary Genres I-II	3-3
BISC 101-102	Introduction to the Study of Biological Sciences I-II	4-4
MATH 133-134	Pre-Calculus I-II	3-3
MATH 230	Calculus I	4
CHEM 101-102	General Chemistry I-II	4-4
CHEM 201-202	Organic Chemistry I-II	4-4
PHYS 201-202	General College Physics	4-4
<b>Concentration Course</b>		
BIOL 201	General Zoology	4
BIOL 203	Ecology	4
BIOL 301	General Microbiology	4
BIOL 304	Human Anatomy	4
BIOL 305	Human Physiology	4
BIOL 403	Genetics	4
BIOL 407	Seminar	2

### **Suggested Elective Courses**

CHEM 301	Biochemistry	4
CHEM 317	Quantitative Chemical Analysis	4
BIOL 202	General Botany	4
BIOL 212	Cytology	4
BIOL 302	Bacteriology	4
BIOL 306	Evolution	3
BIOL 401	Embryology	4
BIOL 405	Parasitology	4
BIOL 318	Immunology	4
PHYS 301	Modern Physics	3
<b>Free Electives</b>		<b>6</b>

**BACHELOR DEGREE IN SCIENCE (BS)  
CONCENTRATION: SPEECH – LANGUAGE THERAPY**

**Minimum Requirements:**

3 credits in Introduction and Adjustment to University Life  
 45 credits hours in General Courses  
 28 credits hours in Core Courses  
 34 credits hours in Concentration Courses  
 9 credits hours in pre practice and clinical practicum  
 6 credits hours in Suggested Elective Courses  
 3 credits hours in free elective courses  
 128

<b>General Courses</b>		<b>Credit Hours</b>
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ENGL 101-102	Basic Course in English I-II	3-3
SPAN 101-102	Basic Course in Spanish I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
SOSC 101-102	Introduction to the Social Sciences I-II	3-3
MATH 101-102	Introduction to College Mathematics I-II	3-3
COSC 101	Introduction to Computer Sciences	3
ENGL 217	Oral and written Communication in English	3
SPAN 213	Oral and Written Communication in Spanish	3
PSYC 101-102	Introduction to Psychology I-II	3-3

**Core Courses**

BISC 101-102	Introduction to the Study of Biological Sciences I-II	4-4
SPAN 215	Introduction to Literary Genres I	3
STAT 117	Basic Elements of Bio-statistics	3
EDUC 200	Human Growths, Development and Learning	3
EDUC 462	Nature and Needs of the Exceptional Child	4
SPLAT 305	Correction of Reading and writing deficiencies	3
SOWO 310	Methods and Techniques of Scientific Social Research	4

**Concentration Course**

SPLAT 202	Speech and Language Development	3
SPLAT 204	Anatomy and Physiology of the Speech and Hearing Mechanics	3
SPLAT 206	Speech and Language Disorders	3
SPLAT 300	Applications of Computers to Speech and Language Therapy	3
SPLAT 302	Articulation Disorders	3
SPLAT 304	Fluency Disorders	2
SPLAT 306	Hearing Disorders	3

SPLAT 308	Voice Disorders	2
SPLAT 310	Sing Language	3
SPLAT 312	Aural Rehabilitation	3
SPLAT 315	Oral Anomalies, Cranium-Facial & Neuromotor Difficulties	3
SPLAT 316	Professional Issues in Speech- Language Therapist	3

**Pre Practice and Clinical Practice**

SPLAT 390	Clinical Observation in Speech and Language Disorders (Pre-Practice)	3
SPLAT 489-490	Clinical Practicum in Speech and Language Disorders I-II	3-3

**Suggested Electives**

SPLAT 350	Early Interventions in Children & Family	3
SPLAT 351	Technological Assistance and the Speech & Language Therapist	3
SPLAT 352	Autism Spectrum Disorders	3
SPLAT 301	General Linguistic	3

<b>Free Electives</b>		3
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## DEPARTMENT OF SOCIAL AND HUMAN SCIENCES

The Department of Social and Human Sciences offers various branches of knowledge of human behavior and social research. We have as commitment to train professionals with skills, attitudes, and values which enables them to exercise as agents of change to contribute and strengthen the development of the society.

Our mission; that the student take the responsibility of promoting respect for human dignity, ethical, intellectual development and commitment to facilitate social change.

The Department of Social and Human Sciences offers the following academic programs:

- Associate Degree of Arts in Human Services
- Associate Degree of Arts in Police Sciences
- Bachelor Degree of Arts in Social Work
- Bachelor Degree of Arts in Criminal Justice

The students will have the ability to complete studies in four components related to human behavior. The first is the Associate Degree in Human Services which aims to prepare student for two years in order to continue their studies in the Bachelor level in the area of human behavior. The Associate Degree in Police Science is aimed to train professionals who can exercise in agencies of social control.

The Bachelor of Social Work offers the theoretical frameworks, knowledge and strategies for intervention with individuals, groups, and community in the social welfare system, and human behavior. A Bachelor Degree in Criminal Justice plans to develop a specialist in the areas of prevention, rehabilitation, projection of the crime and juvenile delinquency. The latter, promotes that the student continue graduate studies through our Master's Degree in Criminal Justice.

Caribbean University has the following Admission Grade Point Average, Graduation and Concentration Grade Point Average of all the programs under this Department.

<b>Academic Programs</b>	<b>Admission GPA</b>	<b>Graduation GPA</b>	<b>Concentration GPA</b>
Associate Degree of Arts in Human Services	Open Doors Policy (less than 2.00 GPA)	2.00	n/a
Associate Degree of Arts in Police Sciences	Open Doors Policy (less than 2.00 GPA)	2.00	n/a
Bachelor Degree of Arts in Social Work	2.00	2.00	2.50
Bachelor Degree of Arts in Criminal Justice	2.00	2.00	2.30

## ASSOCIATE DEGREE OF ARTS IN HUMAN SERVICES (AA)

### Minimum Requirement:

3 credit in Introduction and Adjustment to University Life  
 39 credit hours in General Courses  
 12 credit hours in Core Courses  
18 credit hours in Concentration Courses  
 72

<b>General Courses</b>	<b>Credit Hours</b>
ENGL 101-102                      Basic Course in English I-II	3-3
SPAN 101-102                      Basic Course in Spanish I-II	3-3
HUMA 101-102                      Study of Western Culture and Civilization I-II	3-3
SOSC 101-102                      Introduction to Social Sciences I-II	3-3
MATH 101                              Introduction to College Mathematics I	3
COSC 101                              Introduction to Computer Sciences	3
SPAN 213                              Oral and Written Communication in Spanish	3
PSYC 101-102                      Introduction to Psychology I -II	3-3
 <b>Core Courses</b>	
SOSC 103                              Introduction to Sociology	3
SOSC 215                              Statistical Methods in Social Sciences	3
PSYC 204                              Social Psychology	3
SOWO 268                              Introduction to Social Work	3
 <b>Concentration Courses</b>	
SOWO 212                              Introduction to the Study of Child Abuse	3
SOWO 217                              Introduction to the Study of Gerontology	3
SOWO 274                              Social and Economic Problems of PR	3
SOWO 306                              Social Policy and Social Welfare System	3
SOWO 350                              Human Behavior in the Social Environment	3
SOWO 382                              Ethics, Professional Relation and Intervention in Social Work	3

Student must approve Concentration Courses with a minimum grade of “C”.



## ASSOCIATE DEGREE OF ARTS IN POLICE SCIENCES (AA)

### Minimum Requirements:

3 credit in Introduction and Adjustment to University Life  
39 credit hours in General Courses  
27 credit hours in Concentration Courses  
69

General Courses		Credit Hours
ENGL 101-102	Basic Course in English I-II	3-3
SPAN 101-102	Basic Course in Spanish I-II	3-3
SOSC 101-102	Introduction to Social Sciences I-II	3-3
MATH 101	Introduction to College Mathematics I	3
COSC 101	Introduction to Computer Sciences	3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
PSYC 101-102	Introduction to Psychology I-II	3-3
HUMA 215	History of Puerto Rico	3
<b>Concentration Courses</b>		
POSC 102	Introduction to the Criminal Justice System	3
POSC 109	Introduction to Criminal Investigation	3
POSC 204	Penal Law and Systems	3
POSC 207	Law of Evidence and Court Procedures	3
CRJU 216	Dealing with Alcohol and Drug Abuse	3
CRJU 301	Juvenile Delinquency and Law	3
CRJU 322	History and Interpretation of Dactiloscropy	3
CRJU 323	Classification and File of Fingerprints	3
CRJU 350	Criminal Procedure	3

## BACHELOR DEGREE OF ARTS IN SOCIAL WORK (BA)

### Minimum Requirements:

3 credit in Introduction and Adjustment to University Life  
 52 credit hours in General Courses  
 15 credit hours in Core Courses  
 31 credit hours in Concentration Courses  
 12 credit hours in Practice  
9 credit hours in Suggested Elective Courses  
 122

<b>General Courses</b>		<b>Credit Hours</b>
ENGL 101-102	Basic Course in English I-II	3-3
SPAN 101-102	Basic Course in Spanish I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
SOSC 101-102	Introduction to Social Sciences I-II	3-3
GESC 101	Fundamentals General Sciences I	4
MATH 101	Introduction to College Mathematics I	3
HUMA 206	History of United States	3
HUMA 215	History of Puerto Rico	3
COSC 101	Introduction to Computer Sciences	3
ENGL 217	Oral and Written Communication in English	3
SPAN 213	Oral and Written Communication in Spanish	3
PSYC 101-102	Introduction to Psychology I-II	3-3
<b>Core Courses</b>		
SPAN 215	Introduction to Literary Genres I	3
SOSC 103	Introduction to Sociology	3
SOSC 215	Statistical Methods in Social Sciences	3
PSYC 204	Social Psychology	3
SOWO 268	Introduction to Social Work	3
<b>Concentration Courses</b>		
SOWO 274	Social and Economic Problems of Puerto Rico	3
SOWO 306	Social Policy and Social Welfare System	3
SOWO 310	Methods and Techniques of Scientific Social Research	4
SOWO 350	Human Behavior in the Social Environment	3
SOWO 352	Family as the Social System	3
SOWO 382	Ethics, Professional Relation and Intervention in Social Work	3
SOWO 490	Social Work and the Law	3

SOWO 492	Methodology in Social Work I	3
SOWO 494	Methodology in Social Work II	3
SOWO 495	Social Work with Communities and Small Groups	3

**Practice**

SOWO 496	Seminar and Social Work Practice I	6
SOWO 497	Social Work Practice II	6

**Suggested Elective Courses**

SOWO 210	Health and Human Ecology	3
SOWO 211	Introduction to the Study of Sexually Transmitted Diseases	3
SOWO 212	Introduction to the Study of Child Abuse	3
SOWO 213	Violence in the Contemporary Puerto Rican Society	3
SOWO 217	Introduction to the Study of Gerontology	3
SOWO 218	Supervision and Administration in Social Work	3
SOWO 219	Human Sexuality	3
SOWO 304	Comm. & Interv. in the Social Work	3
CRJU 301	Juvenile Delinquency and Law	3
EDUC 208	Psychological Foundations of Education	3
EDUC 200	Human Growth, Development and Learning	3
EDUC 324	Sociological Foundations of Education	3
EDUC 328	Philosophical Foundations of Education	3
POSC 102	Introduction to the Criminal Justice	3
PSYC 335	Child Psychology	3

Student must approve Concentration Courses with a minimum grade of “C”.

## BACHELOR DEGREE OF ARTS IN CRIMINAL JUSTICE (BA)

### Minimum Requirements:

3 credit in Introduction and Adjustment to University Life  
 52 credit hours in General Courses  
 9 credit hours in Core Courses  
 41 credit hours in Concentration Course  
 6 credit hours in Practice  
12 credit hours in Suggested Elective Courses  
 123

<b>General Courses</b>		<b>Credit Hours</b>
ENGL 101-102	Basic Course in English I-II	3-3
SPAN 101-102	Basic Course in Spanish I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
SOSC 101-102	Introduction to Social Sciences I-II	3-3
GESC 101	Fundamentals General Sciences I	4
MATH 101	Introduction to College Mathematics I	3
HUMA 206	History of United States	3
HUMA 215	History of Puerto Rico	3
COSC 101	Introduction to Computer Sciences	3
PSYC 101-102	Introduction to Psychology I-II	3-3
ENGL 217	Oral and Written Communication in English	3
SPAN 213	Oral and Written Communication in Spanish	3
 <b>Core Courses</b>		
SPAN 215	Introduction to Literary Genres I	3
SOSC 103	Introduction to Sociology	3
SOSC 215	Statistical Methods in Social Sciences	3
 <b>Concentration Courses</b>		
POSC 102	Introduction to Criminal Justice System	3
POSC 109	Introduction to Criminal Investigation	3
POSC 204	Penal Law and System	3
POSC 207	Law of Evidence and Court Procedures	3
CRJU 216	Dealing with Alcohol and Drug Abuse	3
CRJU 301	Juvenile Delinquency and Law	3
CRJU 350	Criminal Procedure	3
CRJU 400	Civil Rights & Constitutional Law	3
CRJU 404	Criminology and the Rehabilitation Process	3
CRJU 407	Special Laws	3
CRJU 410	International Criminal Justice System	4

SOWO 310	Methods and Techniques of Scientific Social Research	4
PSYC 204	Social Psychology	3
<b>Practice</b>		
CRJU 416	Criminal Justice Practice	6
<b>Suggested Elective Courses</b>		
CRJU 321	Logical and Legal Analysis	3
CRJU 322	History and Interpretation of Dactiloscropy	3
CRJU 323	Classification and File of Fingerprints	3
CRJU 327	Latent fingerprint development, classification and fingerprint file	3
CRJU 326	Forensic Photography	3
CRJU 335	Law and Society	3
CRJU 412	Controversial Issues in the Criminal Justice Systems	3
CRJU 414	The Criminal Justice System in the United States	3

## **DEPARTMENT OF EDUCATION**

The study programs leading to a Bachelor of Arts Degree in Education have been designed to provide the students with a broad background in general education, including its philosophical, psychological, and sociological foundations and understanding of children, youngsters, and adults. It also emphasizes the necessary skills and methods, which govern the teaching-learning process.

The offerings are in charge of a faculty specializing in the disciplines mentioned above. Academic programs are directed to the formation of a quality professor that is able to effectively contribute to produce the changes that are deemed desirable in the students aware of the challenges facing education in Puerto Rico and able to cooperate in the process of change to improve the quality of life.

Practice Centers in public schools are provided for the students of the Department of Education. In these centers students develop awareness of the real experiences of the teacher in the classroom. They also have the opportunity to observe and work with the incorporation of the teaching technology.

The Department of Education offers the following academic programs:

- Bachelor of Arts in Education with concentration in Elementary Education
- Bachelor of Arts in Education with concentration in Teaching Physical Education
- Bachelor of Arts in Education with concentration in Special Education

Under the specification of the Department of Education of Puerto Rico, Caribbean University has the following Admission Grade Point Average, Graduation and Concentration Grade Point Average of all the undergraduate education programs.

<b>Academic Year</b>	<b>Admission GPA</b>	<b>Graduation GPA</b>	<b>Concentration GPA</b>
2013-2014			
2014-2015	2.50	2.80	2.80
2015-2016			
2016-2017 hereafter	2.50	3.00	3.00

Student must approve the following Courses with a minimum grade of “B”.

- EDUC 208 - Psychological Foundations of Education
- EDUC 200 or EDUC 210 – Human Growth, Development and Learning
- EDUC 324 - Sociological Foundations of Education
- EDUC 328 - Philosophical Foundations of Education
- EDUC 336 - Evaluation and Measurement

**BACHELOR OF ARTS DEGREE IN EDUCATION (BAE)  
CONCENTRATION: ELEMENTARY EDUCATION**

**Minimum Requirements:**

3 credits in Introduction and Adjustment to University Life  
 46 credit hours in General Courses  
 21 credit hours in Core Courses  
 52 credit hours in Concentration Courses  
6 credit hours in Free Elective Courses  
 128

**General Courses**

**Credit Hours**

ENGL 101-102	Basic Course in English I-II	3-3
SPAN 101-102	Basic Course in Spanish I-II	3-3
HUMA 101-102	Western Culture and Civilization I	3-3
SOSC 101	Introduction to Social Sciences I	3
GESC 101	Fundamentals for General Sciences	4
MATH 101-102	Introduction to Colleges Mathematics I-II	3-3
HUMA 215	History of Puerto Rico	3
HUMA 206	History of United States	3
COSC 101	Introduction to Computer Sciences	3
ENGL 217	Oral and Written Communication in English	3
SPAN 213	Oral and Written Communication in Spanish	3

**Core Courses**

ENGL 215	Introduction to Literature I	3
SPAN 215	Introduction to Literary Genres I	3
EDUC 208	Psychological Foundations of Education	3
EDUC 200	Human Growth, Development and Learning	3
EDUC 324	Sociological Foundations of Education	3
EDUC 328	Philosophical Foundations of Education	3
COSC 221	Application of Computers in Education	3

**Concentration Courses**

EDUC 205	Teaching the Fine Arts	3
EDUC 225	Development of Critical Thinking Skills	3
EDUC 241	Health and Physical Education in Elementary School	3
EDUC 401	Methods and Techniques in the Teaching of English in Elementary School	3
EDUC 405	Methods in reading and Writing in the Elementary School	3

EDUC 402	Methods and Techniques in the Teaching of Social Studies in Elementary School	3
EDUC 306	Children Literature	3
EDUC 336	Evaluation and Measurement	3
EDUC 354	Diagnosis and Correction of Reading Deficiencies	3
EDUC 349	Grammar and Composition in Elementary School	3
EDUC 462	Nature and Needs of the Exceptional Children	4
EDUC 371	Workshop in Educational Technology	3
EDUC 403	Methods and Techniques in the Teaching Mathematics in the Elementary School	3
EDUC 404	Methods and Techniques in the Teaching of Sciences in Elementary School	3
EDUC 413	Pre-Teaching Practice Methods, Strategies and School Laws	3
EDUC 429	Teaching Practice in Elementary Education	6
<b>Free Elective Courses</b>		<b>6</b>



**BACHELOR OF ARTS IN EDUCATION  
CONCENTRATION: TEACHING PHYSICAL EDUCATION  
(LEVEL K-6)**

**Minimum Requirements:**

3 credits in Introduction and Adjustment to University Life  
 37 credit hours in General Courses  
 26 credit hours in Core Courses  
 63 credit hours in Concentration Courses  
9 credit hours in Elective  
 138

**General Courses**

**Credit Hours**

BISC 101	Introduction to the Study of Biological Sciences	4
COSC 101	Introduction to Computer Sciences	3
SPAN 101-102	Basic Course in Spanish I-II	3
ENGL 101-102	Basic Course in English I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
SOSC 101-102	Introduction to Social Sciences I-II	3-3
MATH 101	Introduction to College Mathematics I	3
HUMA 206	History of United States	3
HUMA 209	History of Puerto Rico	3

**Core Courses**

BIOL 103	Principles of Human Anatomy and Physiology	4
COSC 221	Application of Computers in Education	3
EDUC 208	Psychological Foundations of Education	3
EDUC 210	Human Growth, Development and Learning	3
EDUC 324	Sociological Foundations of Education	3
EDUC 328	Philosophical Foundations of Education	3
EDUC 336	Evaluation and Measurement	3
EDUC 462	Nature and Need for Exceptional Child with Technology Assistance	4

## Concentration Courses

ERDEF 201	Vigorous Human Movement I – Fundamental Movements	3
ERDEF 202	Vigorous Human Movement II- Precision	3
ERDEF 203	Vigorous Human Movement II- Strike and Field	3
ERDEF 204	Vigorous Human Movement IV- Net or Wall	3
ERDEF 205	Vigorous Human Movement V – Invasion Groups	3
ERDEF 206	Vigorous Human Movement VI – Measurement & Marks	3
ERDEF 207	Vigorous Human Movement VII – Risk and Ecological Adventure	3
ERDEF 209	Physical Activity for the well-being and the physical benefit	3
ERDEF 211	Physical Developments and Motor Learning	3
ERDEF 216	Physical Education for Youths with Special Needs	3
ERDEF 312	Anatomy and Kinesiology Related to Vigorous Movement	3
ERDEF 313	Physiology of Human Movement	3
ERDEF 315	Socialization and Development of the Character In Experience of Movement	3
ERDEF 317	Evaluation, Investigation and Physical Education	3
ERDEF 318	Legal Management and Aspects in the Physical Education Recreation and Sports	3
ERDEF 320	Rate, Corporal Expression and Formative Gymnastics	3
ERDEF 329	Pre-Intern in Physical Education	3
ERDEF 410	Program Design of Physical Education K-6 Level	3
ERDEF 412	Methodology of K-6 Education	3
ERDEF 490	Educational Practice in the Education of the Physical Education K-6 Level	6

## Elective Courses

9

Elective courses may be taken from the other Concentrations of the Physical Educational Department, if the student has already approved the prerequisites. Courses from other Departments may qualify as electives if requirements are met: (1) the course is related to the Educational field, (2) the prerequisites of the course have been approved, and (3) an authorization from the Educational Department Head.

**BACHELOR OF ARTS IN EDUCATION  
CONCENTRATION: TEACHING PHYSICAL EDUCATION  
(LEVEL 7-12)**

**Minimum Requirements:**

3 credits in Introduction and Adjustment to University Life  
 37 credit hours in General Courses  
 26 credit hours in Core Courses  
 69 credit hours in Concentration Courses  
3 credit hours in Elective  
 138

<b>General Courses</b>	<b>Credit Hours</b>
BISC 101	Introduction to the Study of Biological Sciences 4
SPAN 101-102	Basic Course in Spanish I-II 3-3
ENGL 101-102	Basic Course in English I-II 3-3
HUMA 101-102	Study of Western Culture and Civilization I-II 3-3
SOSC 101-102	Introduction to Social Sciences I-II 3-3
HUMA 206	History of United States 3
HUMA 209	History of Puerto Rico I 3
COSC 101	Introduction to Computer Sciences 3
MATH 101	Introduction to College Mathematics I 3
 <b>Core Courses</b>	
BIOL 103	Principles of Human Anatomy and Physiology 4
COSC 221	Application of Computers in Education 3
EDUC 208	Psychological Foundations of Education 3
EDUC 210	Human Growth, Development and Learning 3
EDUC 324	Social Foundations of Education 3
EDUC 328	Philosophical Foundations of Education 3
EDUC 336	Evaluation and Measurement 3
EDUC 462	Nature and Need for Exceptional Child with Technology Assistance 4
 <b>Concentration Courses</b>	
ERDEF 201	Vigorous Human Movement I – Fundamental Movements 3
ERDEF 202	Vigorous Human Movement II- Precision 3
ERDEF 204	Vigorous Human Movement IV- Net or Wall 3
ERDEF 205	Vigorous Human Movement V – Invasion Groups 3
ERDEF 206	Vigorous Human Movement VI – Measurement 3

	& Marks	
ERDEF 207	Vigorous Human Movement VII – Risk and Ecological Adventure	3
ERDEF 209	Physical Activity for the well-being and the physical Benefit	3
ERDEF 210	Development of Programs Vigorous Movement	3
ERDEF 211	Physical Development and Motor Learning	3
ERDEF 216	Physical Education for Youths with Special Needs	3
ERDEF 312	Anatomy and Kinesiology Related to Vigorous Movement	3
ERDEF 313	Physiology of Human Movement	3
ERDEF 315	Socialization and Development of the Character in Experience of Movement	3
ERDEF 317	Evaluation, Investigation and Physical Education	3
ERDEF 318	Legal Management and Aspects in the Physical Education Recreation and Sports	3
ERDEF 319	Ludic Experience in the Child’s Educational Process	3
ERDEF 321	Principles of Arbitration	3
ERDEF 322	Sport Development Process	3
ERDEF 329	Pre-Intern in Physical Education	3
ERDEF 411	Design of Programs of Physical Education	3
ERDEF 413	Methodology of Education 7-12	3
ERDEF 491	Educational Practice in Physical Education Level 7-12	6

**Elective Courses 3**

Elective courses may be taken from the other Concentrations of the Physical Educational Department, if the student has already approved the prerequisites. Courses from other Departments may qualify as electives if requirements are met: (1) the course is related to the Educational field, (2) the prerequisites of the course have been approved, and (3) an authorization from the Educational Department Head.

**BACHELOR OF ARTS IN EDUCATION  
CONCENTRATION: SPECIAL EDUCATION**

**Minimum Requirements:**

46 credit hours in General Courses  
 27 credit hours in Core Courses  
 52 credit hours in Concentration Courses  
6 credit hours in Elective Courses  
 131

<b>General Courses</b>		<b>Credit Hours</b>
ENGL 101-102	Basic Course in English I-II	3-3
SPAN 101-102	Basic Course in Spanish I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I-II	3-3
SOSC 101-102	Introduction to Social Sciences I-II	3-3
GESC 101	Fundamentals of General Sciences	4
MATH 101-102	Introduction to College Mathematics I-II	3-3
HUMA 209-210	History of Puerto Rico I-II	3-3
HUMA 206	History of United States	3
COSC 101	Introduction to Computer Sciences	3
<b>Core Courses</b>		
ENGL 215-216	Introduction to Literature I-II	3-3
SPAN 215-216	Introduction to Literary Genres I-II	3-3
EDUC 208	Psychological Foundation of Education	3
EDUC 210	Human Growth, Development and Learning	3
EDUC 324	Sociological Foundation of Education	3
EDUC 328	Philosophical Foundation of Education	3
COSC 221	Application of Computers in Education	3
<b>Concentration Courses</b>		
EDUC 205	Teaching the Fine Arts	3
EDUC 241	Teaching Health Physical Education in Elementary School	3
EDUC 400	Methods in reading and Writing in the Elementary School	3
EDUC 410	Methodology and in the Curriculum Teaching of Mildly Handicapped	3
EDUC 309	Special Education for Pre-School Children	3
EDUC 336	Evaluation and Measurement	3
EDUC 353	Nature and Needs of the Mildly -Handicapped Child	3

EDUC 359	Neurological and Sensorial Functions and its Implications in Education	3
EDUC 367	Physical Education and Recreation for Children with Impediments	3
EDUC 371	Workshop in Educational Technology	3
EDUC 375	Remedial Procedures for the Correction of Children with Specific Learning Disabilities	3
EDUC 376	Evaluation and Measurement Techniques in the Teaching of the Middy Handicapped Child	3
EDUC 390	Parents Involvement and Legal Aspect in Special Education	3
EDUC 415	Pre-internship in Methods and Techniques in Special Education	3
EDUC 431	Internship in Special Education	6
EDUC 462	Nature and Needs of Exceptional Children	4
<b>Elective Courses</b>		<b>6</b>
EDUC 225	Development of Critical Thinking Skills	3
EDUC 402	Social Studies in Elementary School	3
EDUC 403	Seminar on Mathematics in Elementary School	3
EDUC 404	Seminar on Curriculum and Methods in Teaching of Sciences in Elementary Schools	3

## **DEPARTMENT OF ENGINEERING AND INFORMATICS TECHNOLOGY**

### **Philosophy and Objectives**

The philosophy and goals of the Department of Engineering and Informatics Technology follows the philosophy of Caribbean University included in the General Information Chapter of this Catalog.

### **Goals**

The Institution will develop new academic programs to serve traditional university expectations as well as comprehensively addressing new emerging demands of the community and society at large. The programs in the department contribute to the academic and scholastic excellence at all levels.

The department of engineering and informatics technology offers a two years associate of Science Degree in Drafting and Engineering Technology; two years associate of Science Degree in Electronics Engineering Technology; a two and a half years associate of science degree in computer programming; a four years bachelor of sciences in Civil Engineering; a four years bachelor of sciences in Electrical Engineering; a four years bachelor of sciences in Industrial Engineering; a four and half years bachelor of science degree in computer science, Concentration on Computer Programming. The programs are offered in both, Bayamon Campus and Ponce Center, with exception of the Associate of Science degree in Computer Programming, which is also offered at Carolina and Vega centers.

The department primary goal is to improved student learning and growth by providing all students with cost effective, high quality education and a meaningful growth experience while attending Caribbean University.

The Department of Engineering and Informatics Technology have the following primary objectives:

- To provide students with state-of-the-art of engineering and computer study programs.
- To develop and maintain a highly qualified and motivated instructional staff.
- To deliver to the job market and society in general, a well-rounded and highly motivated professional, with the ability to function and assume leadership positions in an ever-changing society and workplace.
- To prepare highly competent professional personnel.

The Department of Engineering offers the following academic programs:

- Associate of Science Degree in Drafting and Engineering Technology
- Associate of Sciences Degree in Computer Programming
- Associate of Sciences Degree in Electronics Engineering Technology
- Bachelor of Sciences in Civil Engineering
- Bachelor of Sciences in Electrical Engineering
- Bachelor of Sciences in Industrial Engineering
- Bachelor of Science Degree in Computer  
Concentration: Computer Programming

Caribbean University has the following Admission Grade Point Average, Graduation and Concentration Grade Point Average of all the programs under this Department.

<b>Academic Programs</b>	<b>Admission GPA</b>	<b>Graduation GPA</b>	<b>Concentration GPA</b>
Associate of Science Degree in Drafting and Engineering Technology	Open Doors Policy (less than 2.00 GPA)	2.00	n/a
Associate of Sciences Degree in Computer Programming	Open Doors Policy (less than 2.00 GPA)	2.00	n/a
Associate of Sciences Degree in Electronics Engineering Technology	Open Doors Policy (less than 2.00 GPA)	2.00	2.30
Bachelor of Sciences in Civil Engineering	2.50	2.50	2.50
Bachelor of Sciences in Electrical Engineering	2.50	2.50	2.50
Bachelor of Sciences in Industrial Engineering	2.50	2.50	2.50
Bachelor of Science Degree in Computer Concentration: Computer Programming	2.00	2.00	2.30



## **ASSOCIATE DEGREE PROGRAMS**

### **Associate of Science Degree in Drafting and Engineering Technology**

The Associate of Science Degree in Drafting and Engineering Technology has been designed to provide the students with the basic concepts and skills in the field of drafting and other Engineering Technology related areas. The courses include mathematics, technical and construction drawing, surveying and construction.

The Associate of Science in Engineering Technology has three areas of emphasis:

- Drafting
- Surveying
- Building Constructions

### **Objectives**

A few years after graduation, graduates of the Associate of sciences in Engineering Technology - Drafting from Caribbean University will:

1. Acquire the necessary mathematical concepts and skills in drafting and knowledge in basic surveying.
2. Acquaint the students with the various mathematical problems in technical drawing.
3. Develop the ability to work as a technician in engineering related fields.
4. Develop responsibility and awareness of the importance of their assistance to architects, engineers and surveyors.

### **Student Outcomes**

It is expected that by the time of graduation, our students will have:

1. an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline
2. an ability to design solutions for well-defined technical problems and assist with engineering design of systems, components, or processes appropriate to the discipline
3. an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results
4. an ability to function effectively as a member of a technical team
5. an ability to apply written, oral, and graphical communication in both technical and nontechnical environments; and an ability to identify and use appropriate technical literature

**ASSOCIATE OF SCIENCES DEGREE  
IN DRAFTING AND ENGINEERING TECHNOLOGY**

**Minimum Requirements:**

15 credit hours in General Courses	
11 credit hours in Core Courses	
<u>37 credit hours in Concentration Courses</u>	
63	

<b>General Courses</b>		<b>Credit Hours</b>
ENGL 101-102	Basic Course in English I-II	3-3
SPAN 101	Basic Course in Spanish I	3
MATH 103	Introduction to College Mathematics	3
ELECT SH	Socio Humanistic Electives	3
<b>Core Courses</b>		
MATH 136	Pre-Calculus	4
CHEM 101	General Chemistry I	4
GEEN 111	Introduction to Engineering & Technology	3
<b>Concentration Courses</b>		
GEEN 105	Engineering Graphics and Design	3
GEEN 107	Engineering Drawing & Computer Design	3
GEEN 108	Computer Graphics and Design II	3
CIEN 314	Principles of Surveying	3
ENTE 102	Construction Materials	3
ENTE 323	Building Construction Drawing I	4
ENTE 325	Building Construction Practice I	3
ENTE 330	Drawing Presentation Techniques	4
ENTE 334	Building Construction Drawing II	4
ENTE 336	Building Construction & Inspection Practice II	4
ENTE 346	Building Construction and Specifications	3

## **Associate of Sciences Degree in Computer Programming**

The Associate of Sciences Degree in Computer Programming has been designed to provide the students with the basic concepts and skills in the field of computer programming and other computer Technology related areas. The courses include mathematics, programming languages, data structures, database, program web applications, repairmen principles, and business, commercial and educational applications. The Associate of Science in Computer Technology has two areas of emphasis:

- Programming Language
- Data Base

### **Objectives:**

The program intends to achieve five basic objectives:

1. To prepare students who Concentration in computer sciences for an entry level position in industry and science careers.
2. To appraise students career opportunities and options available as a result of their training.
3. Develop the ability to work as a technician in computer related fields.
4. Develop in the student a practice where he or she accepts challenges in acquiring mastery of innovative methods in the computational field of study.
5. Provide the student with the latest versions of computer applications in order to be vanguard with the requirements of today's competitive job market and integrate telecommunications as a vital means for professional development.

## ASSOCIATE OF SCIENCE DEGREE IN COMPUTER PROGRAMMING

### Minimum Requirements:

3 credit hours in Introduction and Adjustment to University Life  
 30 credit hours in General Courses  
 10 credit hours in Core Courses  
 27 credit hours in Concentration Courses  
70

<b>General Courses</b>	<b>Credit Hours</b>
ENGL 101-102                      Basic Course in English I-II	3-3
MATH 101-102                    Introduction to College Mathematics I-II	3-3
SPAN 101-102                    Basic Courses in Spanish I-II	3-3
HUMA 101-102                    Study of Western Culture and Civilization I-II	3-3
SOSC 101                            Introduction to Social Science I	3
COSC 101                            Introduction to Computer Sciences	3
<b>Core Courses</b>	
ACCO 111                            Elementary Accounting I	4
COSC 112                            Microcomputer Application in Business	3
COSC 115                            Fundamentals of Programming Logic	3
<b>Concentration Courses</b>	
COSC 204                            C Language and Programming	3
COSC 207                            Visual Basic I	3
COSC 206                            Data Base of Management	3
COSC 210                            Operating System	3
COSC 231                            Basic Principles of Repairment and Maintenance of Computer	3
COSC 272                            JAVA Programming	3
COSC 215                            Web Page Design and Implementation	3
COSC 307                            Systems Analysis and Design I	3
COSC 315                            Networks and Computing Center	3

## **Associate of Science Degree in Electronics Engineering Technology**

The Associate Degree in Science in Electronics Engineering Technology is designed to provide technical depth on traditional areas of electronics incorporating (Analog, Digital Instrumentation, PLCs amount others) and allow options in trending areas like Embedded Systems, Renewable Energy and Electronic Aerospace Systems. Basic courses in languages, mathematics, sciences and a socio humanistic component reinforce the fundamentals required to integrate in such a promising professional career.

### **Objectives**

A few years after graduation, graduates of the Associate of sciences in Engineering Technology - Drafting from Caribbean University will:

1. Demonstrate their knowledge in the analysis and design principles of electrical and electronic systems.
2. Analyze, build, testing, operation, and maintenance of electronics systems by considering, safety standards, codes, regulations, and available modern technology.
3. Communicate effectively both oral and written.
4. Be able to adapt to technological and social changes to remain relevant to their electronics technician profession.

### **Student Outcomes**

It is expected that by the time of graduation, our students will have:

1. an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline
2. an ability to design solutions for well-defined technical problems and assist with engineering design of systems, components, or processes appropriate to the discipline
3. an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results
4. an ability to function effectively as a member of a technical team
5. an ability to apply written, oral, and graphical communication in both technical and nontechnical environments; and an ability to identify and use appropriate technical literature

**ASSOCIATE OF SCIENCES DEGREE  
IN ELECTRONICS ENGINEERING TECHNOLOGY**

**Minimum Requirements:**

15 credit hours in General Courses	
17 credit hours in Core Courses	
24 credit hours in Concentration Courses	
<u>6 credit hours in Technical Electives</u>	
62	

<b>General Courses</b>		<b>Credit Hours</b>
ENGL 101-102	Basic Course in English I-II	3-3
SPAN 101	Basic Course in Spanish I	3
MATH 103	Introduction to College Mathematics	3
ELECT SH	Socio Humanistic Electives	3
 <b>Core Courses</b>		
MATH 136	Pre-Calculus	4
CHEM 101	General Chemistry I	4
GEEN 111	Introduction to Engineering & Technology	3
GEEN 107	Engineering Drawing & Computer Design	3
COSC 115	Fundamentals of programming logic	3
 <b>Concentration Courses</b>		
ENTE 103	Electrical Circuits	4
ENTE 200	Electronics	3
ELEN 350	350 Logic Circuits I	4
ELEN 300	Programmable Logic Controllers (PLCs)	3
ELEN 301	Instrumentation	3
ENTE 341	Applied Electronics	3
ELEN 363	Embedded Systems	4
 <b>Suggested Elective Courses</b>		
ENTE 215	Electrical Installations and Illumination	3
ENTE 216	Electromechanics	3
ENTE 218	Electronic Aerospace Systems	3
ENTE 342	Electronics Engineering Technology Practice	3
ELEN 218	Special Topics in Electrical Engineering	3
ELEN 343	Renewable Energy	3
INEN 432	Robotics & Automated System	3

## **BACHELOR DEGREE PROGRAMS**

### **Bachelor of Sciences in Civil Engineering**

The civil engineer transforms our environment through design, construction, maintenance and inspection of infrastructure to provide the community with civil works that meet its needs in an ethical, sustainable and cost-effective manner. The courses include an educational program of technical depth and breadth as well as a broad liberal education.

The Bachelor of Sciences in Civil Engineering has four areas of emphasis:

- Design and analysis of structures
- Systems and transport ways
- Water treatment and resources
- Soil mechanics

#### **Mission**

The Bachelor of Sciences in Civil Engineering joins the mission of the university, which is committed to the principle of accessibility with the most disadvantaged, comprehensiveness in its offerings, and adaptability to satisfy the needs of the community served. The Institution is also committed to the development of intellect and social ethics. In addition, it accepts the responsibility of fostering among its students respect for human dignity and their personal commitment towards improving society.

#### **Program Educational Objectives:**

A few years after graduation, graduates of the Bachelor of Sciences in Civil Engineering from Caribbean University will:

1. Evaluate, analyze, design, develop or make decisions over CE projects by considering safety standards, codes, regulations, ethics, resource optimization, costs and available technology within environmental, economic, social and political contexts.
2. Communicate effectively in both English and Spanish, and work in diverse, global and multidisciplinary teams.
3. Extend their learning process through lifelong professional development or other graduate education.
4. Become leaders in their profession and be involved in professional state board and associations.

#### **Student Outcomes**

It is expected that by the time of graduation, our students will have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies



## BACHELOR OF SCIENCES IN CIVIL ENGINEERING

### Minimum Requirements:

21 credit hours in General Courses  
 40 credit hours in Core Courses  
 15 credit hours in General Engineering  
 52 credit hours in Concentration Courses  
9 credit hours in Suggested Elective Courses  
 137

<b>General Courses</b>		<b>Credit Hours</b>
ENGL 101-102	Basic Course in English I-II	3-3
ENGL 217	Oral and Written Communication in English	3
SPAN 101-102	Basic Course in Spanish I-II	3-3
ELECT SH	Socio Humanistic Electives	6
<b>Core Courses</b>		
CHEM 101	General Chemistry I	4
MATH 136	Pre-Calculus	4
MATH 230-232	Calculus I-II	4-4
MATH 302	Calculus III	4
MATH 304	Differential Equations	3
PHYS 201-202	General College Physics I-II	4-4
MATH 319	Introduction to Probability and Statistics	3
GEEN 245	Ethics in Engineering	3
COSC 115	Fundamentals of Programming Logic	3
<b>General Engineering Courses</b>		
GEEN 111	Introduction to Engineering & Technology	3
GEEN 107	Engineering Drawing & Computer Design	3
GEEN 214	Engineering Mechanics	3
GEEN 221	Mathematical Methods for Engineering	3
INEN 323	Engineering Economy	3
<b>Concentration Courses</b>		
CIEN 304	Strength of Materials	3
CIEN 303	Structural Analysis I	4
CIEN 314	Principles of Surveying	3
CIEN 313	Materials for Engineering	4
CIEN 322	Fluid Mechanics	4
CIEN 401	Design of Steel Structures	4
CIEN 402	Reinforced Concrete Design	4
CIEN 405	Introduction to Hydrology	3
CIEN 411	Curve Design and Highway Location	3
CIEN 412	Highway Engineering	3
CIEN 428	Environmental Engineering	4
CIEN 434	Geotechnical Engineering	4
CIEN 436	Construction Management	3
CIEN 481	Civil Engineering Capstone I	3

CIEN 482	Civil Engineering Capstone II	3
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**Suggested Elective Courses**

CIEN 400	City Planning Principles	3
CIEN 410	Air Pollution Control	3
CIEN 430	Matrix Methods of Structural Analysis	3
CIEN 420	Pre-Stressed Concrete Design	3
CIEN 425	Fundamentals of Bridge Design	3
CIEN 403	Design of Masonry and Wood Structures	3
CIEN 435	Foundation Engineering	3
CIEN 438	Soil Improvement	3
CIEN 437	Deep Foundation	3
CIEN 415	Principles of Hydraulics	3
CIEN 416	Solid Waste Engineering and Management	3
CIEN 417	Water Resources Management	3
CIEN 413	Advanced Geometric Design & Highways	3
CIEN 414	Transportation Engineering	3
CIEN 418	Site Planning Practice	3
INEN 450	Project Management	3
CIEN 445	Legal Aspects of Engineering	3
ENTE 346	Building Construction and Specifications	3
GEEN 108	Computer Graphics and Design II	3
GEEN 310	Engineering Undergraduate Research	3
GEEN 356	Lecture of Construction Documents	3
CIEN 495	Civil Engineering Practice	3
CIEN 490	Special Topics in Civil Engineering	3
MEEN 302	Thermodynamics for Engineers	3

OR INEN OR ELEN COURSES WITH THE COORDINATOR OR DIRECTOR'S APPROVAL

All engineering, mathematics and science courses must be approved with a grade of C or better.

## **Bachelor of Sciences in Electrical Engineering**

The electrical engineer studies, designs and monitors systems and / or equipment in the areas of power, communications, controls and computers to provide the community engineering works to meet its needs in an ethical, sustainable and cost-effective manner

The Bachelor of Science in Electrical Engineering has four areas of emphasis:

- Power systems
- Communications
- Control systems
- Computers

### **Mission**

The Bachelor of Sciences in Electrical Engineering joins the mission of the university, which is committed to the principle of accessibility with the most disadvantaged, comprehensiveness in its offerings, and adaptability to satisfy the needs of the community served. The Institution is also committed to the development of intellect and social ethics. In addition, it accepts the responsibility of fostering among its students respect for human dignity and their personal commitment towards improving society. The courses include an educational program of technical depth and breadth as well as a broad liberal education.

### **Program Educational Objectives:**

A few years after graduation, graduates of the bachelor of sciences in Electrical Engineering from Caribbean University will:

1. Demonstrate their knowledge and depth of understanding for the analysis and design principles of electrical and electronic systems.
2. Analyze, design and manage EE projects by considering, safety standards, codes, regulations, resource optimization, costs, available modern technology within environmental, economic, social and political constraints.
3. Communicate effectively, oral and written, in both English and Spanish, and work in diverse, global and multidisciplinary environments.
4. Able to adapt to technological and social changes to remain relevant to their EE profession.

### **Student Outcomes**

It is expected that by the time of graduation, our students will have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

## BACHELOR OF SCIENCES IN ELECTRICAL ENGINEERING

### Minimum Requirements:

21 credit hours in General Studies  
 40 credit hours in Core Courses  
 19 credit hours in General Engineering  
 48 credit hours in Concentration Courses  
9 credit hours in Elective Courses in Engineering  
 137

<b>General Courses</b>		<b>Credit Hours</b>
ENGL 101-102	Basic Course in English I-II	3-3
ENGL 217	Oral and Written Communication in English	3
SPAN 101-102	Basic Course in Spanish I-II	3-3
ELECT SH	Socio Humanistic Electives	6
<b>Core Courses</b>		
CHEM 101	General Chemistry I	4
MATH 136	Pre-Calculus	4
MATH 230-232	Calculus I-II	4-4
MATH 302	Calculus III	4
MATH 304	Differential Equations	3
MATH 319	Introduction to Probability and Statistics	3
PHYS 201-202	General College Physics I-II	4-4
GEEN 245	Ethics in Engineering	3
COSC 115	Fundamentals of Programming Logic	3
<b>General Engineering Courses</b>		
GEEN 111	Introduction to Engineering & Technology	3
GEEN 107	Engineering Drawing & Computer Design	3
GEEN 214	Engineering Mechanics	3
GEEN 221	Mathematical Methods for Engineering	3
CIEN 313	Materials for Engineering	4
INEN 323	Engineering Economy	3
<b>General Engineering Courses</b>		
ELEN 310	Electrical Circuit Analysis I	4
ELEN 311	Electrical Circuit Analysis II	4
ELEN 340	Electronics Engineering I	4
ELEN 350	Logic Circuits I	4
ELEN 363	Embedded Systems	4
ELEN 401	Electronics Engineering II	4
ELEN 405	Electromagnetics I	3
ELEN 410	Electrical Machines	4
ELEN 412	Communications Engineering	4
ELEN 420	Control Engineering	4
ELEN 430	Electrical Installations Design	3
ELEN 481	Electrical Engineering Capstone I	3
ELEN 482	Electrical Engineering Capstone II	3

### **Suggested Elective Courses**

ELEN 403	Logic Circuits II	3
ELEN 425	Digital Control Systems	3
INEN 432	Robotics and Automated Systems	3
ELEN 300	Programmable Logic Controllers (PLCs)	3
ELEN 301	Instrumentation	3
ELEN 417	Industrial Electronics Design	3
ELEN 434	Power Plant	3
ELEN 435	Power Electronics Applications and Design	3
ELEN 416	Electric Power Systems Protection Design	3
ELEN 432	Electrical Power Distribution Systems	3
ELEN 343	Renewable Energy	3
ELEN 415	Electrical Power Transmission System Eng.	3
ELEN 422	Digital Signal Processing	3
ELEN 426	Fiber Optics Communications	3
ELEN 406	Electromagnetics II	3
ELEN 442	Discrete Mathematics for Computer Engineering	3
ELEN 446	Data Structure	3
ELEN 456	Software Engineering	3
GEEN 108	Computer Graphics and Design II	3
GEEN 310	Engineering Undergraduate Research	3
ELEN 495	Electrical Engineering Practice	3
ELEN 218	Special Topics in Electrical Engineering	3
MEEN 302	Thermodynamics for Engineers	3

OR CIEN OR INEN COURSES WITH THE COORDINATOR OR DIRECTOR'S APPROVAL

All engineering, mathematics and science courses must be approved with a grade of C or better.

## **Bachelor of Sciences in Industrial Engineering**

The industrial engineer integrates personnel, machinery and materials for increased efficiency in manufacturing and service industries to provide the community with goods or services that meet its needs in an ethical and sustainable manner. The courses include an educational program of technical depth and breadth as well as a broad liberal education.

In Caribbean University, the Bachelor of Science in Industrial Engineering has four areas of emphasis:

- Facilities planning and design
- Production systems
- Quality control
- Work measurement and design

### **Mission**

The Bachelor of Sciences in Industrial Engineering joins the mission of the university, which is committed to the principle of accessibility with the most disadvantaged, comprehensiveness in its offerings, and adaptability to satisfy the needs of the community served. The Institution is also committed to the development of intellect and social ethics. In addition, it accepts the responsibility of fostering among its students respect for human dignity and their personal commitment towards improving society.

### **Program Educational Objectives:**

A few years after graduation, graduates of the bachelor of sciences in Industrial Engineering from Caribbean University will:

1. Demonstrate their knowledge and depth of understanding of Industrial Engineering analysis and system design principles in engineering practice.
2. Able to design, develop, implement and improve integrated systems, processes or components that may include people, materials, information, and equipment with the highest social and environmental ethical standards.
3. Communicate effectively, oral and written, in both English and Spanish, and work in diverse, global and multidisciplinary teams.
4. Extend their learning process through lifelong professional development or other graduate education.

### **Student Outcomes**

It is expected that by the time of graduation, our students will have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences

4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies



## BACHELOR OF SCIENCES IN INDUSTRIAL ENGINEERING

### Minimum Requirements:

21 credit hours in General Studies  
 40 credit hours in Core Courses  
 19 credit hours in General Engineering  
 43 credit hours in Concentration Courses  
9 credit hours in Suggested Elective Courses  
 132

<b>General Courses</b>		<b>Credit Hours</b>
ENGL 101-102	Basic Course in English I-II	3-3
ENGL 217	Oral and Written Communication in English	3
SPAN 101-102	Basic Course in Spanish I-II	3-3
ELECT SH	Socio Humanistic Electives	6
<b>Core Courses</b>		
CHEM 101	General Chemistry I	4
MATH 136	Pre-Calculus	4
MATH 230-232	Calculus I-II	4-4
MATH 302	Calculus III	4
MATH 304	Differential Equations	3
MATH 319	Introduction to Probability and Statistics	3
PHYS 201-202	General College Physics I-II	4-4
GEEN 245	Ethics in Engineering	3
COSC 115	Fundamentals of Programming Logic	3
<b>General Engineering Courses</b>		
GEEN 111	Introduction to Engineering & Technology	3
GEEN 107	Engineering Drawing & Computer Design	3
GEEN 214	Engineering Mechanics	3
GEEN 221	Mathematical Methods for Engineering	3
CIEN 304	Strength of Materials	3
CIEN 313	Materials for Engineering	4
<b>Concentration Courses</b>		
INEN 301	Industrial Organization & Managing	3
INEN 314	Work Measurement & System Design	4
INEN 320	Probability and Statistics II	3
INEN 323	Engineering Economy	3
INEN 401	Operation Research I	3
INEN 403	Systems Simulations	3
INEN 411	Quality Control	3
INEN 412	Production Planning	3
INEN 420	Lean and Six Sigma	3
INEN 423	Cost Analysis	3
INEN 432	Robotics and Automation System	3
INEN 433	Facilities Planning and Design	3
INEN 481	Industrial Engineering Capstone I	3

INEN 482	Industrial Engineering Capstone II	3
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**Suggested Elective Courses**

INEN 415	Industrial Safety	3
MEEN 333	Manufacturing Processes	3
INEN 501	Supply Chain Management and Logistics	3
INEN 405	Computer-Based Information Systems	3
INEN 413	Production Planning II	3
INEN 502	Smart Automated Systems	3
INEN 414	Design of Experiments	3
INEN 514	Reliability	3
INEN 503	Quality Assurance Tools	3
INEN 410	Human Resources Management	3
INEN 450	Project Management	3
CIEN 436	Construction Management	3
GEEN 108	Computer Graphics and Design II	3
GEEN 310	Engineering Undergraduate Research	3
INEN 483	Pharmaceutical Process Validation	3
INEN 495	Industrial Engineering Practice	3
INEN 490	Special Topics in Industrial Engineering	3
MEEN 302	Thermodynamics for Engineers	3

OR CIEN OR ELEN COURSES WITH THE COORDINATOR OR DIRECTOR'S APPROVAL

All engineering, mathematics and science courses must be approved with a grade of C or better.

## **Bachelor of Science Degree in Computer with a major in Computer Programming**

The Bachelor of Science Degree in Computer with a major in Computer Programming has been designed to provide the students with the basic concepts and skills in the field of computer programming and other computer Technology related areas. The courses include mathematics, programming languages, data structures, database, program web applications, repairmen principles, networks, and business, commercial and educational applications.

The Bachelor of Science in Computer Science has four areas of emphasis:

- Data Base
- Programming Language
- Computer Applications
- Network and Computing Center

### **Objectives:**

The program intends to achieve six basic objectives:

1. To prepare students who Concentration in computer sciences for an entry level position in industry and science careers.
2. To appraise students career opportunities and options available as a result of their training.
3. To develop the ability to work as a technician in computing related fields.
4. To develop in the student a practice where he or she accepts challenges in acquiring mastery of innovative methods in the computational field of study.
5. To provide the student with the latest versions of computer applications in orderto be vanguard with the requirements of today's competitive job market and integrate telecommunications as a vital means for professional development.
6. To prepare professionals with a social-humanistic base with scientific, technological, cultural, ethics and social attributes that can be developed in the technological field of programming and computing systems

## BACHELOR OF SCIENCE DEGREE IN COMPUTER WITH A MAJOR IN COMPUTER PROGRAMMING

### Minimum Requirements:

3 credit hours in Introduction and Adjustment to University Life  
 40 credit hours in General Courses  
 39 credit hours in Core Courses  
 45 credit hours in Concentration Courses  
9 credit hours in Suggested Elective Courses  
 136

<b>General Courses</b>		<b>Credit Hours</b>
ENGL 101-102	Basic Course in English I-II	3-3
SPAN 101-102	Basic Course in Spanish I-II	3-3
HUMA 101-102	Study of Western Culture and Civilization I – II	3-3
SOSC 101-102	Introduction to Social Sciences I-II	3-3
MATH 101-102	Introduction to College Mathematics I-II	3-3
ENGL 217	Oral and Writing Communication in English	3
COSC 101	Introduction to Computer Sciences	3
GESC 101	Fundamentals of General Sciences	4
<b>Core Courses</b>		
COSC 112	Microcomputer Application in Business	3
COSC 115	Fundamentals of Programming Logic	3
ACCO 111-112	Elementary Accounting I-II	4-4
ECON 121-122	Principles and Problems in Economics I-II	3-3
MATH 133-134	Pre-Calculus I-II	3-3
MATH 230	Calculus I	4
SPAN 201-202	Business Communication in Spanish I-II	3-3
STAT 330	Statistical Analysis and Design	3
<b>Concentration Courses</b>		
COSC 204	C Language and Programming	3
COSC 206	Data Base of Management	3
COSC 207	Visual Basic I	3
COSC 208	Visual Basic II	3
COSC 210	Operating Systems	3
COSC 231	Basic Principles of Repairment and Maintenance of Computer	3
COSC 272	JAVA Programming	3
COSC 307	Systems Analysis and Design I	3

COSC 309	Data Structures	3
COSC 315	Network and Computing Center	3
COSC 215	Web Page Design and Implementation	3
COSC 410	Artificial Intelligence	3
COSC 413	Computer Architecture	3
COSC 419	Project Design	3

### **Practice**

COSC 420	Practice	3
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### **Suggested Elective Courses**

COSC 308	System Analysis Design II	3
COSC 320	Computer Business Commercial Application	3
COSC 321	Computer Control and Audit	3
COSC 417	Decision Support and Expert System	3
COSC 221	Application of Computers in Education	3









**ACCO 414**                                      **ACCOUNTING FOR NONPROFIT INSTITUTION**                                      **4**

**Pre-requisite: ACCO 310**

Covers advanced accounting principles and practices for profit institutions, including government, hospitals, colleges and universities, and voluntary health and welfare organizations.

**Four (4) hours of lecture per week.**

**ARTS 101**                                      **APPRECIATION OF ART**                                      **3**

This course is designed to integrate creative concepts with other disciplines or areas of study. It will provide the student with a basic contextualization of the appreciation of art. It includes artistic techniques like drawing, painting, and engraving used in the creation of two-dimensional art; and creative concepts such as composition, proportion, perspective, and color theory. It will provide a dynamic space for individual expression.

**Three (3) hours of lecture per week**

**AUTI 101**                                      **AUTISM SPECTRUM DISORDER**                                      **2**

The Autism Spectrum Disorder course provides instruction on the developmental stages of the autistic child. It highlights the importance of early intervention, inclusion of the child with Autism and management of situations with it. It also includes the study of theories and laws that impact this population.

**Two (2) hours of lecture per week**

**BANK 231**                                      **MONEY AND BANKING**                                      **3**

The principles underlying the organization, operation, and management of money; credit, banking institutions, the Federal Reserve System and Federal Deposit Insurance Corporation and their application to the Puerto Rico banking system.

**Three (3) hours of lecture per week.**

**BISC 101**                                      **INTRODUCTION TO THE STUDY OF BIOLOGICAL SCIENCES I**                                      **4**

The course includes an introduction to the general principles of biology with emphasis on structure, function, and heredity from animals and plants. The following general concepts are discussed in detail: the history of biology, living matter, the chemical basis of life, the cell, energy and cell metabolism and protein synthesis.

**Three (3) hours of lecture per week and a two (2) hour laboratory per week.**

**Lab Fee \$70.00**

**BISC 102**                            **INTRODUCTION TO THE STUDY OF**                            **4**  
**BIOLOGICAL SCIENCES II**

**Pre-requisite: BISC 101**

The course includes an introduction to the general principles of biology with emphasis on structure, function, and heredity of both animals and plants. The following general concepts are discussed in detail: sexual reproduction, heredity, evolution, ecology, classification of living organisms and the body of vertebrates.

**Three (3) hours of lecture per week and a two (2) hour laboratory per week.**

**Lab Fee: \$70.00**

**BIOL 103**                            **PRINCIPLES OF HUMAN ANATOMY AND**                            **4**  
**PHYSIOLOGY**

**Pre-requisite: BISC 102 (Except for Physical Education Program Pre Requisite: BISC 101)**

Structure of the human body, and the physiology and interrelationship of the system of the human body.

**Three (3) hours of lecture and a two (2) hour laboratory per week.**

**Lab Fee: \$120.00**

**BIOL 201**                            **GENERAL ZOOLOGY**                            **4**

**Pre-requisite: BISC 102**

Biology of the Concentration groups of animals. It emphasize; structure and function, treating, aspects of diversity, reproduction, development, ecology, behavior, evolution and taxonomy.

**Three (3) hours of lecture and a three (3) hours laboratory per week.**

**Lab Fee: \$120.00**

**BIOL 202**                            **GENERAL BOTANY**                            **4**

**Pre-requisite: BISC 102**

Survey of the main groups of plants from the standpoint of their structure, development and reproduction. Emphasizes evolutionary relationships as revealed by comparisons in body organization and life history of living and extinct forms.

**Three (3) hours of lecture and a three (3) hours laboratory per week.**

**Lab Fee: \$120.00**

**BIOL 203**                            **ECOLOGY**                            **4**

**Pre-requisite: BISC 102**

Study of ecosystem factors and organizations in terrestrial, fresh water and marine environments.

**Three (3) hours of lecture and a three (3) hours laboratory of field trip per week.**

**Lab Fee: \$120.00**

**BIOL 212**                      **CYTOLOGY**                      **4**  
**Pre-requisite: BISC 102, CHEM 102**

Extensive study of comparative cellular morphology and physiology, and an introduction to recent advances in the field.

**Three (3) hours of lecture and a three (3) hours laboratory per week.**

**Lab Fee: \$120.00**

**BIOL 301**                      **GENERAL MICROBIOLOGY**                      **4**  
**Pre-requisite: BISC 102 (Except Nursing Program-Pre-requisite: BISC 101)**

The study of microorganisms with emphasis on morphology, physiology, genetics, taxonomy and control, and their relation to sanitation, food, water and health.

**Three (3) hours of lecture and a three (3) hours laboratory per week.**

**Lab Fee: \$120.00**

**BIOL 302**                      **BACTERIOLOGY**                      **4**  
**Pre-requisite: BIOL 301**

This course introduces the morphology, chemistry, physiology and genetics of bacteria. Emphasis is placed on the economic importance and relationship to human well-being.

**Three (3) hours of lecture and a three (3) hours laboratory per week.**

**Lab Fee: \$120.00**

**BIOL 304**                      **HUMAN ANATOMY**                      **4**  
**Pre-requisite: BISC 102 (Except Nursing Program-Pre-requisite: BISC 101)**

A study of the structure of cells, tissues, organs, and their interaction in the systems of the human body.

**Three (3) hours of lecture and a three (3) hours laboratory per week.**

**Lab Fee: \$120.00**

**BIOL 305**                      **HUMAN PHYSIOLOGY**                      **4**  
**Pre-requisite: BIOL 304**

The study of all the human systems and their interaction. Chemical principles related to physiology are included.

**Three (3) hours of lecture and a three (3) hours laboratory per week.**

**Lab Fee: \$120.00**

**BIOL 306**                      **EVOLUTION**                      **3**  
**Pre-requisite: BIOL 201 and BIOL 202**

The processes and patterns of organic evolution, emphasis in plants and animals phylogeny of selected groups and the evolutionary history of the Earth and Universe.

**Three (3) hours of lecture per week.**

**BIOL 318**    **IMMUNOLOGY**    **4**  
**Pre-requisite: BIOL 301, CHEM 102 and BIOL 305**

An introduction to recent advances in the field. Basic principles and mechanisms of immunology including cellular interactions, cellular immunity, genetics control, immunoglobulin structure and function.

**Three (3) hours of lecture and a three (3) hours laboratory per week.**  
**Lab Fee: \$120.00**

**BIOL 401**    **EMBRYOLOGY**    **4**  
**Pre-requisite: BIOL 201**

A descriptive course emphasizing maturation of germ cells, fertilization and organ genesis. Descriptive concepts of development are supplemented by the use of experimental methods.  
**Three (3) hours of lecture and a three (3) hours laboratory per week.**  
**Lab Fee: \$120.00**

**BIOL 403**    **GENETICS**    **4**  
**Pre-requisite: BIOL 201**

Seeks to account for the resemblances and differences of characteristics due to heredity, their source and their development. Basic principles of genetics and their application to plant and animal breeding. Also organic evolution, evidence, theories and its importance as related to genetics and genetics are studied.

**Three (3) hours of lecture and a three (3) hours laboratory per week.**  
**Lab Fee: \$120.00**

**BIOL 405**    **PARASITOLOGY**    **4**  
**Pre-requisite: BIOL 201, BIOL 301**

Morphology, taxonomy, ecology, lifecycles, and control of parasites. Special emphasis is given to the parasite host relationship.

**Three (3) hours of lecture and a three (3) hours laboratory per week.**  
**Lab Fee: \$120.00**

**BIOL 407**    **SEMINAR**    **2**  
**Pre-requisite: BIOL 403**

This course is designed to provide experience in carrying out library research in scientific topics using the latest journals and database systems available. The students must present an oral and written report, using guidelines provided by the professor. Classmates will evaluate works presented.

**Two (2) hours of lecture per week.**

**BULA 204**                                 **BUSINESS LAW**                                 **3**

Study of legal aspects of common business transactions with particular concern to legislation in Puerto Rico. Special attention is given to contracts, sales, agency and negotiable instruments.

**Three (3) hours of lecture per week.**

**CHEM 101**                                 **GENERAL CHEMISTRY I**                                 **4**

Study of principles and fundamental concepts of chemistry: the atomic structure, the chemical bonding, the periodic classification of elements, the chemical formulas and equations. The gases laws as well as the principles of chemical reactions are presented and thermochemical processes are analyzed. The electronic configuration and periodicity of elements are determined. The molecular and electronic geometry and the orbital molecular theory are described. Application exercises are performed in the laboratory according to the studied concepts.

**Four (4) hours of lecture and a three (3) hours laboratory per week.**

**Lab Fee: \$150.00**

**CHEM 102**                                 **GENERAL CHEMISTRY II**                                 **4**

**Pre-requisite: CHEM 101**

Study of principles and fundamental concepts in chemistry such as: the liquid and solid states, and different ways of expressing concentration. It emphasizes speed of reaction and chemical equilibrium, acid-base equilibrium, and solubility equilibrium. The thermodynamics processes are described. The concept of oxidation-reduction with the electrochemistry is related. Application exercises are performed in the laboratory according to the concepts studied.

**Four (4) hours of lecture and a three (3) hours laboratory per week.**

**Lab Fee: \$150.00**

**CHEM 201-202**                                 **ORGANIC CHEMISTRY I-II**                                 **4**

**Pre-requisite: CHEM 102 and MATH 134**

A systematic study of the compounds of carbon and hydrogen and their substitute nomenclature, stereochemistry. Theories of different compounds with emphasis on the mechanism of the reactions and the use of important compounds. The synthetic methods available for preparation of aliphatic, aromatic, and other compounds are discussed.

**Four (4) hours of lecture and a three (3) hours laboratory per week.**

**Lab Fee: \$150.00**

**CHEM 301**                                 **BIOCHEMISTRY**                                 **4**

**Pre-requisite: CHEM 202**

The chemistry of the constituents of living matter including carbohydrates, lipids, proteins, nucleic acids, enzymes, vitamins, minerals and the relationship of these to processes. Laboratory practices will emphasize the use of modern technological analysis.

**Four (4) hours of lecture and a three (3) hours laboratory per week.**

**Lab Fee: \$150.00**

**CHEM 317                                      QUANTITATIVE CHEMICAL ANALYSIS                                      4**  
**Pre-requisite: CHEM 102, MATH 134 and COSC 101**

A course designed to study the chemical methods applied in quantitative analysis; formulation and properties of precipitates. Theory of neutralization; redox titration with emphasis in industrial analysis.

**Four (4) hours of lecture and a six (6) hours laboratory per week.**

**Lab Fee: \$300.00**

**CIEN 301                                      STRENGTH OF MATERIALS I                                      3**  
**Pre-requisite: GEEN 212**

This course emphasizes the study of the stress and strain caused by axial, torsional and flexural loads. It focuses in the determination of maximum stress and strain on both statically determine and indeterminate elements by applying different analysis methods. Include the application of shear and moment diagrams as design principles, considering temperature effects and stress concentration. Introduce to engineering design concepts, like allowable stress and safety factor.

**Three (3) hours of lecture per week.**

**CIEN 302                                      STRENGTH OF MATERIALS II                                      3**  
**Pre-requisite: CIEN 301**

This course focuses on analysis methods for combining stresses and its applications to identify the maximum allowable stress and strain on structural elements. Includes the analysis of elements submitted to combined loads, column analysis and the study of statically determinate and indeterminate beams, as well as, different failure theories for design applications.

**Three (3) hours of lecture per week.**

**CIEN 303                                      STRUCTURAL ANALYSIS I                                      4**  
**Pre-requisite: CIEN 304**

This course emphasize on the analysis of statically determinate structures: reactions, shear, and moment; truss analysis; deflections; influence lines and moving loads. Analysis of gravity load distribution on structures, as well as, computation of earthquake and wind loads according to actual code provisions. Analytical and numerical solutions for statically indeterminate structures by slope-deflection method. The course emphasizes the use of structural analysis software.

**Three (3) hours of lecture and three (3) hours of computation per week.**

**Lab fee: \$150.00**

**CIEN 304                                      STRENGTH OF MATERIALS                                      3**  
**Pre-requisite: GEEN 214**

Introduction to the mechanics of deformable bodies. Study and analysis of stresses and strains on connections and bar elements subjected to axial, torsional, and transverse loads. Internal forces as stress resultants; shear force and bending moment diagrams. Analysis of structural elements

subjected to combined stresses. Transformation of stresses, Mohr's Circle. Column stability analysis and buckling.

**Three (3) hours of lecture per week.**

**CIEN 311** **ELEMENTARY SURVEYING** **3**  
**Pre-requisite: MATH 133**

Introduction to typical measurement performed in surveying and coordinate systems. The course focuses on the interpretation of field measurements to develop survey plans. It includes measurement units, the operation and use of basic surveying instruments and their applications.

**One (1) hour of lecture and five (5) hours laboratory, computation period of field work per week.**

**Lab Fee: \$150.00**

**CIEN 312** **ADVANCED SURVEYING** **3**  
**Pre-requisite: CIEN 311**

Application of advanced surveying techniques to perform a topographic survey, and mapping. Students apply errors theory in survey measurements and calculations. Introduction to basic concepts of coordinate systems: true meridian determinate and Global Position System (GPS).

**One (1) hour of lecture and five (5) hours laboratory, computation period of field work per week.**

**Lab Fee: \$150.00**

**CIEN 313** **MATERIALS FOR ENGINEERS** **4**  
**Pre-requisite: CHEM 101 and PHYS 201**

This course introduces the study and analysis of the behavior and properties of engineering materials. The relationship between microstructure, chemical composition and processing and its effect on the material properties are evaluated. Mechanical failure, degradation, testing, between others principles for metals, ceramics, polymers and composites are discussed with emphasis on materials selection for different applications.

**Three (3) hours of lecture and three (3) hours of computation per week.**

**Lab fee: \$150.00**

**CIEN 314** **PRINCIPLES OF SURVEYING** **3**  
**Pre-requisite: MATH 136**

The course covers practical experience in use of surveying equipment, methods of surveying and mapping technology with some exposure to GPS. The students will learn to use the interpretation of the field measurements to develop survey plans, topographic maps, profile drawings, and cross-section drawings using drafting procedures, techniques, and tools required for the survey office works. Students will learn basic mathematical concepts, measure distances, transverse calculations and computations, and computation of areas and volumes, also basic concepts of coordinate systems: true meridian determinate and Global Position System (GPS). Also, this course covers the basic concepts of geographic information systems (GIS).

**One (1) hour of lecture and a five (5) hours laboratory, computation period of field work per week.**

**Lab fee: \$150.00**

**CIEN 322 FLUID MECHANICS 4**  
**Pre-requisite: CIEN 304 and MATH 304**

This course emphasizes in the applications of the fundamental laws and theorems of fluid mechanics to solve engineering problems. The course will provide the student with a fundamental background in the statics and dynamics of fluids. It discusses definitions, properties, typical analysis methods of fluid mechanics and its applications in engineering, including dimensional analysis and its applicability in flow modeling.

**Three (3) hours of lecture and three (3) hours of computation per week.**

**Lab fee: \$150.00**

**CIEN 400 CITY PLANNING PRINCIPLES 3**  
**Pre-requisite: Approval of Department Director or Program Coordinator**

This course is an introduction to local and regional planning. It includes zoning and land use, considering social, economic, transportation and environmental factors. The course emphasizes on planning history, basic urban design principles, contemporary issues that affect cities and sustainable development.

**Three (3) hours of lecture per week.**

**CIEN 401 DESIGN OF STEEL STRUCTURES 4**  
**Prerequisite: CIEN 303**

This course discusses the fundamentals of stress analysis, both elastic and inelastic strains due to axial, bending and shear loads. The course focuses on the design of steel structural elements, including tension members, bolted connections, welding, compression members, beams and steel joists.

**Three (3) hours of lecture and three (3) hours of computation per week.**

**Lab fee: \$150.00**

**CIEN 402 REINFORCED CONCRETE DESIGN 4**  
**Pre-requisite: CIEN 303**

Fundamentals of stress analysis and design of reinforced concrete elements; bending, shear and combined loading effects. Design of reinforced concrete structures using the Ultimate Strength Design Method.

**Three (3) hours of lecture and three (3) hours of computation per week.**

**Lab fee: \$150.00**



**CIEN 403                                      DESIGN OF MASONRY AND                                      3**  
**WOOD STRUCTURES**

**Pre-requisite: CIEN 303**

Properties and characteristics of wood; beams, columns, trusses, connectors, and diaphragms. Properties of masonry, working stress and strength design, and seismic design requirements.  
**Three (3) hours of lecture per week.**

**CIEN 405                                      INTRODUCTION TO HYDROLOGY                                      3**

**Pre-requisite: CIEN 322**

This course introduces to the study and analysis of the hydrology cycle, probability theory, probability distributions, hydrologic and hydraulic flood routing, analysis and use of hydrologic concepts in design.  
**Three (3) hours of lecture per week.**

**CIEN 410                                      AIR POLLUTION CONTROL                                      3**

**Pre-requisite: CIEN 322**

The course introduce the concept of air pollution engineering, providing an in-depth treatment of combustion, the formation of particulate matter and other pollutants, the principles of aerosol behavior, and basic theories of the removal of particulate and gaseous pollutants from effluent streams. Also, this course is designed to introduce students in the critical analysis of the air pollution control field and the technical and regulatory aspects involved.  
**Three (3) hours of lecture per week.**

**CIEN 411                                      CURVE DESIGN AND HIGHWAY LOCATION                                      3**

**Pre-requisite: CIEN 314 and MATH 319**

The course is expected to give the student the ability to localize highways and compare between alternatives. Design parameters and strategies for safe and cost effective horizontal and vertical curves (and curve transitions) will be covered. An understanding of highway superelevation and cross-sections, along with its relationship with the mass diagram will be discussed. A special project combining all the courses topics is required.

**Three (3) hours of lecture and three (3) hours of laboratory, computation per week.**

**Lab fee: \$150.00**

**CIEN 412                                      HIGHWAY ENGINEERING                                      3**

**Pre-requisite: CIEN 411**

An understanding of highway systems, including classification, planning, administration, vehicle characteristics, pavement design, freeways and geometric design will be provided. The student will develop the ability to design flexible pavements, and apply queuing theory, traffic flow analysis and level of service analysis.

**Three (3) hours of lecture per week.**

**CIEN 413**     **ADVANCED GEOMETRIC DESIGN**     **3**  
**OF HIGHWAYS**

**Pre-requisite: CIEN 412**

Introduction to advance highway geometric design; functional classification, elements of design, design criteria; cross section elements; highway types and access controls; intersection design elements and procedures; at grade and interchanges; and construction work zone.

**Three (3) hours of lecture per week.**

**CIEN 414**     **TRANSPORTATION ENGINEERING**     **3**

**Pre-requisite: CIEN 411**

Introduction to highway transportation, highway system, classification, planning statistics, traffic flow a queuing theory, highway capacity and level of service analysis, traffic control and analysis at signalized intersections, and travel demand.

**Three (3) hours of lecture per week.**

**CIEN 415**     **PRINCIPLE OF HYDRAULICS**     **3**

**Pre-requisite: CIEN 322**

This course introduces the analysis and problem solving in hydraulic modeling, hydrostatics, pipe flow, pipelines pipe networks, pumps, open channel flow, hydraulic structures, water measurement devices, and hydraulic similitude.

**Three (3) hours of lecture per week.**

**CIEN 416**     **SOLID WASTE ENGINEERING**     **3**

**AND MANAGEMENT**

**Pre-requisite: CIEN 428**

This course covers engineering and scientific concepts and principles applied to the engineering and management aspects of municipal solid waste to protect human health, and the environment, and the conservation of limited resources through resource recovery and recycling of waste material.

**Three (3) hours of lecture per week.**

**CIEN 417**     **WATER RESOURCES ENGINEERING**     **3**

**Pre-requisite: CIEN 322 and MATH 319**

Water sustainability, water budgets, control volumes, pipe flows, hydrologic measurements, storm hydrographs, reservoir capacity, flood control, open channel flow, water resources management.

**Three (3) hours of lecture per week.**

**CIEN 418**                                      **SITE PLANNING PRACTICE**                                      **3**  
**Pre-requisite: CIEN 314**

Application of the design techniques of site design including the use of civil software design program to create models integrating sub disciplines of the profession. Development of construction plans, cost estimates, and specifications are required for the final project.  
**Three (3) hours of lecture per week.**

**CIEN 420**                                      **PRE-STRESSED CONCRETE DESIGN**                                      **3**  
**Pre-requisite: CIEN 402**

The course introduce to the design of prestressed concrete structural elements. It focuses in the flexural design of prestressed concrete elements. Include shear strength design, crack control, tension members, and compression members considering prestressed engineering codes and standards.  
**Three (3) hours of lecture per week.**

**CIEN 425**                                      **FUNDAMENTALS OF BRIDGE DESIGN**                                      **3**  
**Pre-requisite: CIEN 401 and CIEN 402**

Introduction to fundamental concepts of highway bridges design using the engineering codes and standards. Emphasize the implementation of American Association of State Highways and Transportation Officials (AASHTO) standards and specification as relevant procedures/parameter for bridges design. Also include designs procedures of both, the American Concrete Institute (ACI) and the load and resistant factor design (LRFD).  
**Three (3) hours of lecture per week.**

**CIEN 427**                                      **WATER TREATMENT AND POLLUTION CONTROL**                                      **4**  
**Pre-requisite: CIEN 426**

This course introduces the study of water quality management, water and wastewater treatment, air pollution effects and control, solid waste engineering, hazardous waste management, agriculture and environment and noise pollution.  
**Three (3) hours of lecture and three (3) hours of laboratory per week.**  
**Lab Fee: \$150.00**

**CIEN 428**                                      **ENVIRONMENTAL ENGINEERING**                                      **4**  
**Pre-requisite: CHEM 101 and CIEN 322**

This course introduces the study and analysis of water and waste water treatment, and its pollution effects, air pollution effects and control, and noise pollution. The course provides the basic concepts of water quality engineering and water resources, water and wastewater treatment, chemistry and biological processes in environmental engineering, ecological effects of water pollution, material and energy balances, and water quality management. In addition, this course is designed to develop in the student a thorough understanding of domestic and industrial uses of

water, water supply and water quality standards, applicable environmental laws and regulations, and environmental ethics.

**Three (3) hours of lecture and a three (3) hour laboratory per week.**

**Lab fee: \$150.00**

**CIEN 430                                  MATRIX METHODS OF STRUCTURAL                                  3**  
**ANALYSIS**

**Pre-requisite: CIEN 421 and GEEN 221**

Study of stiffness and flexibility methods employed for structural analysis. The course provides an introduction to nonlinear analysis, element stiffness matrices and fixed forces for various conditions. It discusses flexibility and stiffness matrices, energy concepts in structures and basic nonlinear analysis concepts for plane trusses.

**Three (3) hours of lecture per week.**

**CIEN 432                                  FUNDAMENTALS OF GEOLOGY AND SOIL                                  3**  
**MECHANICS I**

**Pre-requisite: CIEN 302**

The course introduce to the geological principles applied to engineering problems: structural geology, and geomorphology. It includes the study of soil's phase relationships and introduction to effective stresses in a soil mass.

**Three (3) hours of lecture per week.**

**CIEN 433                                  SOIL MECHANICS II                                  4**

**Pre-requisite: CIEN 432**

This course discusses the soils characteristics and its use in engineering. It focuses in the application of soil mechanics concepts, like consolidation theory, settlements and contact pressure, soil bearing capacity, slope stability, compaction and stabilization to determine soil usability. Soil tests include granulometry, Atterberg limits and compaction.

**Three (3) hours of lecture and three (3) hours laboratory per week.**

**Lab Fee: \$150.00**

**CIEN 434                                  GEOTECHNICAL ENGINEERING                                  4**

**Pre-requisite: CIEN 304**

This course is design to give civil engineering students a solid basic knowledge in geology and geotechnical engineering. Topics include description and identification of soils, index properties, mineralogical composition, weight-volume relationships and hydraulic properties. Stress and strain in soils. The theory of consolidation, settlements and contact pressure, earth retaining structures, bearing capacity and selection of foundation type, stability of slopes, soil compaction, stabilization and introduction to deep foundations.

**Three (3) hours of lecture and a three (3) hour laboratory per week.**

**Lab fee: \$150.00**

**CIEN 435                                  FOUNDATION ENGINEERING                                  3**  
**Pre-requisite: CIEN 434**

Applications of soil mechanics principles to the analysis and design of shallow foundations, retaining walls, pile foundations, and braced cuts. Design criteria: bearing capacity, working loads and tolerable settlements, structural integrity of the foundation element. Damage from construction operations.

**Three (3) hours of lecture per week.**

**CIEN 436                                  CONSTRUCTION MANAGEMENT                                  3**  
**Pre-requisite: Approval of Department Director or Program Coordinator**

This course is an introduction to construction management. The course presents basic concepts focusing on organizational and contractual approaches to project management. Also, discusses planning and control systems, pre-construction, site investigation, estimating, design, bidding, awards, finances, equipment, materials, labor and safety.

**Three (3) hours of lecture per week.**

**CIEN 437                                  Deep Foundations                                  3**  
**Pre-requisite: CIEN 434**

Analysis and design of deep foundations using static and dynamic methods. Analysis of single pile and pile group subjected to lateral loads. Group capacity and elastic settlement. Settlement of piles. Estimation of pile length. Load transfer mechanism. Estimation of pile capacity. Pullout resistance. Pile driving formulas. Negative skin friction. Drilled-Shaft foundations. Use computer programs.

**Three (3) hours of lecture per week.**

**CIEN 438                                  SOIL IMPROVEMENT                                  3**  
**Pre-requisite: CIEN 434**

The course presents the current ground modification techniques to improve soil stability, reduce deformation, control seepage, and increase erosion resistance. It cover loading, drainage and seepage.

**Three (3) hours of lecture per week.**

**CIEN 445                                  LEGAL ASPECTS OF ENGINEERING                                  3**  
**Pre-requisite: Approval of Department Director or Program Coordinator**

The course examines the legal system's role in the engineering process. It focuses on basic principles of contracts, tort law, application of legal principles to performance issues, the engineering responsibility in Puerto Rico and other legal principles impacting the design and construction process. The Law of the College of Engineers and Land Surveyors of Puerto Rico and the Board of Examiners, the Planning Board Law, P.R. as well as the Puerto Rico Building Code and regulations are covered.

**Three (3) hours of lecture per week.**

<b>CIEN 481</b>	<b>Civil Engineering Capstone I</b>	<b>3</b>
<b>Pre-requisite: Approval of Department Director or Program Coordinator. Must have 104 credits approved, including at least 28 concentration credits.</b>		

This course is the first part of the Civil Engineering Mayor Design Experience (Capstone Project). At the end of this course, the student is required to complete a feasibility study for a civil engineering problem proposed by the professor or students at the beginning of the course. A professor will be assigned to provide guidance and evaluate students. The project should be made in groups; the scope of the project must be adjusted depending on the group's size. The students will have several presentations and written reports. The course will end with a written report and the project's final presentation, open to the whole academic community. The evaluation depends on all the presentations, reports and evaluation of the group work.

**One (1) contact hour and eight (8) hours of laboratory, computation per week.**

**Lab fee: \$250.00**

<b>CIEN 482</b>	<b>CIVIL ENGINEERING CAPSTONE II</b>	<b>3</b>
<b>Pre-requisite: CIEN 481</b>		

This course is the second part of the Civil Engineering Mayor Design Experience (Capstone Project). At the end of the course, the student is required to implement the solution (i.e Feasibility Study) to the problem proposed on CIEN 481. A professor will be assigned to guide and evaluate the students. The project will be made in groups; the scope of the project will be adjusted depending on the group's size. The students will have several presentations and written reports. The course will end with a written report and the project's final presentation, open to the whole academic community. The evaluation depends on all the presentations, reports and self-evaluation of the group work.

**One (1) contact hour and eight (8) hours of laboratory, computation per week.**

**Lab fee: \$250.00**

<b>CIEN 490</b>	<b>SPECIAL TOPICS IN CIVIL ENGINEERING</b>	<b>3</b>
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Study special topics of interest to undergraduate students in the area of specialization of civil engineering (structural engineering, geotechnical engineering, environmental engineering, water resources engineering, transportation and highway engineering, construction management engineering), or related fields relevant to engineering practice.

**Three (3) hours of lecture per week.**

**Pre-requisite: Approval of Department Director or Program Coordinator**

<b>CIEN 495</b>	<b>CIVIL ENGINEERING PRACTICE</b>	<b>3</b>
<b>Pre-requisite: Approval of Department Director or Program Coordinator. Must have 102 credits approved, including at least 19 concentration credits</b>		

The student will provide a civil engineering solution to a practical or technical problem. The students are required to have a period of practice equivalent to three credit hours during a semester. A professor and tutor will be assigned to supervise, advise and guide the students. It is required to coordinate with the Director of the department or Coordinator, an agency in which the student can



programming and the design applications in a graphical environment (Graphics User Interface - GUI) are practiced.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**

**COSC 206                                      DATA BASE MANAGEMENT                                      3**  
**Pre-requisite: COSC 112**

The course teaches the student in the design and management of databases. Learning backup techniques, data recovery and creation of data dictionaries. To develop skills of normalization of database tables. Design logical models of tables and diagrams (Entity Relationship Diagram - ERD). Describes the importance of the use of structured query (Structured Query Language - SQL) language for the management of related databases. The student performs exercises using commands or most common SQL instructions.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**

**COSC 207                                      VISUAL BASIC I                                      3**  
**Pre-requisite: COSC 115**

This course addresses the Concentration techniques used to design applications, making use of the Visual Basic (VB) language. Provides the student the necessary tools of analysis, design, development and implementation of applications that provide productivity solutions to the company. It integrates, interface design, assigning properties to objects and object programming. The student develops techniques for input and output of data, distinction of the different types of data, instructions of control, cycle, managing files and subroutines.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**

**COSC 208                                      VISUAL BASIC II                                      3**  
**Pre-requisite: COSC 207**

This is a continuation of the introductory course to the computer Visual Basic programming language. Training for the creation of applications at the commercial or business level, which meet the standards and requirements of the market using databases, modular programming, procedures, functions, variables, global and local parameters, current and formal parameters by value, variables and creating reports and classes. Analysis of potential problems at the enterprise level and the decision-making process to recommend solutions to them, using the Visual Basic language connected to databases.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**



**COSC 210** **OPERATING SYSTEMS** **3**

**Pre-requisite: COSC 101**

This course describes the function of the operating systems and how they manage resources in computerized systems. Skills are developed in the installation and management of operating systems focused on the optimization of the performance of the same. It includes the analysis and management of resources, hardware and software required for computer systems. It integrates the study of the evolution of operating systems up to the present.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**

**COSC 215** **WEB PAGE DESIGN AND IMPLEMENTATION** **3**

**Pre-requisite: COSC 101**

An introductory course in which students will design, and publish a website. At the end of the course the student will have a basic knowledge of JavaScript and HTML, in order to make the webpage more attractive and efficient. This course includes all the aspects of language, including the tags of HTML and the most used platform to develop webpage.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**

**COSC 221** **APPLICATIONS OF COMPUTERS** **3**  
**IN EDUCATION**

**Pre-requisite: COSC 101**

Course aimed in integrating information technology to facilitate the teaching and learning process. It integrates practical exercises as a strategy to maximize the various programs of productivity, such as word processors, electronic spreadsheet, presentations and publication programs. The Internet is used to integrate tools of Web 2.0, commonly used in the educational setting and instructional modules are designed. The fundamentals are studied to manage online education platforms.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**

**COSC 231** **BASIC PRINCIPLES OF REPAIRMENT** **3**  
**AND MAINTENANCE OF COMPUTER**

**Pre-requisite: COSC 210**

The course provides basic knowledge of the function and compatibility between the components of the computer system. The student develops skills to identify components of computer failures and providing assertive diagnosis of such failures, offering solutions; either with replacements of physical components "hardware" programs or "software", thus achieving system efficiency. The course includes the execution of technical tasks of diagnosis and maintenance, in order to prevent system malfunction and perform repair processes when necessary.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**

**COSC 272**                                  **JAVA PROGRAMMING**                                  **3**  
**Pre-requisite: COSC 115 and COSC 207**

In this course the student develops object-oriented applications using the JAVA language programming platform. The course emphasizes the management of the General fundamentals of the JAVA language and its applicability in the current market. The student develops programming skills in JAVA, using the syntax and programming instructions in this language.

**Three (3) hours of lecture per week.**  
**Lab Fee: \$55.00**

**COSC 307**                                  **SYSTEMS ANALYSIS AND DESIGN I**                                  **3**  
**Pre-requisite: COSC 207**

The course studies the life cycle of a system (System Development Life Cycle - SDLC) and its components. The processes, procedures, and justifications for the request are analyzed for the project. Analysis tools and their use in the design phase are studied by developing skills of program evaluation and systems design. Practices are performed of form designs, source documents, files structures, structures of database tables, input and output displays, flow charts, among others. The phase of implementation and user training is also discussed.

**Three (3) hours of lecture per week.**  
**Lab Fee: \$55.00**

**COSC 308**                                  **SYSTEMS ANALYSIS AND DESIGN II**                                  **3**  
**Pre-requisite: COSC 307**

The phases of development, implementation, support and documentation of an information system, as a continuation of the previous stages of analysis and design are studied. Forms, documents and files structures are produced from data collection processes. Projects are developed according to the requirements established in the analysis and design stages. The implementation phase is met and subsequently passed to the operation and support phase of the system, which is the final phase in the development lifecycle (SDLC). Reporting procedure and documentation of the system is made.

**Three (3) hours of lecture per week.**  
**Lab Fee: \$55.00**

**COSC 309**                                  **DATA STRUCTURES**                                  **3**  
**Pre-requisite: COSC 204**

Study of the concepts, methods, and rules that define the forms of organizing and structuring data. Practice the concepts of algorithm with its complexity. It deals with the study and application of linear structures as tables (arrays), linked lists, batteries and glues and non-linear structures as trees and graphs. It also includes search and sorting algorithms.

**Three (3) hours of lecture per week.**  
**Lab Fee: \$55.00**

**COSC 315 NETWORK AND COMPUTING CENTER 3**

**Pre-requisite: COSC 210**

The course prepares professionals capable of managing a Computer Center performing the tasks in a network of computers. Devices and equipment necessary for the design of communication networks are recognized. Existing topologies and types of networks according to their functionality and features are identified. Operating systems designed for servers and personal computers are compared. Practical implementation of network infrastructure, installation, configuration and administration of a server are performed. The course encourages application of safety standards and ethics in the use of information systems.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**

**COSC 320 COMPUTER BUSINESS COMMERCIAL APPLICATION 3**

**Pre-requisite: COSC 112**

The development of programming systems for all commercial purposes. High level computer techniques to assist in management such as: billing, payroll, filing, inventory control, cost and other business activities.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**

**COSC 321 COMPUTER CONTROL AND AUDIT 3**

**Pre-requisite: COSC 307 and STAT 330**

The course emphasizes styles, tools and procedures required to establish internal controls in the Department of Information Systems. Concepts and techniques used in a systems audit are examined in general, specifically from the industries point of view and technology. The professional standards in the auditing field are examined with ethical and legal considerations.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**

**COSC 410 ARTIFICIAL INTELLIGENCE 3**

**Pre-requisite: COSC 307**

The history and characteristics of artificial intelligence are studied. The course introduces a descriptive and introductory way the relationship between humans and machines, in modern society and its moral and ethical implications. Robotics, the characteristics of intelligent agents and its importance in the world that surrounds us is studied. The student will schedule expert systems using computer languages, integrating traditional approaches used in decision-making.

**Three (3) hours of lecture per week.**

**Lab Fee: \$55.00**

**COSC 413                                  COMPUTER ARCHITECTURE                                  3**  
**Pre-requisite: COSC 231**

This course presents a functional overview of the systems equipment, analyzing the organization of components and devices in computer configurations. Study the configuration of computer systems, the principles of "software" of systems and combinations of "hardware" and "software" in the computer architecture. Analysis is performed on the process of data flow path through the "hardware" and "software".

**Three (3) hours of lecture per week.**  
**Lab Fee: \$55.00**

**COSC 417                                  DECISION SUPPORT AND EXPERT SYSTEM                                  3**  
**Pre-requisite: COSC 307**

This course is aimed at the design and development of support tools for management decision making using information systems. It emphasizes the importance of support systems in decision-making and expert systems in the process of reasoning and the use of logic in an organization. These systems are applied using simulators, existing and created in the course, thus contributing in making managerial decisions.

**Three (3) hours of lecture per week.**  
**Lab Fee: \$55.00**

**COSC 419                                  PROJECT DESIGN                                  3**  
**Pre-requisite: COSC 206, COSC 307 and Authorization by the Program Coordinator**

In this course students put into practice the knowledge and experiences acquired through the curriculum of the program. They develop a project of information systems by integrating analysis and design, programming languages and databases in an efficient way. The working environment and the evaluation of the project system simulate conditions similar to industry and field requirements and related with computing technology.

**Three (3) hours of lecture per week.**  
**Lab Fee: \$55.00**

**COSC 420                                  PRACTICE                                  3**  
**Pre-requisite: COSC 419 and Authorization by the Program Coordinator**

The course provides experiences working in a company in the area of information systems. The student has the opportunity to integrate the knowledge acquired in their courses and apply them in a real scenario, demonstrating high professional and ethical standards; at the same time contributing to the achievement of the objectives of the organization. The course includes seminars and practice in an authorized practice center.

**Three (3) hours of lecture per week.**  
**Lab Fee: \$50.00**

**CRJU 216** **DEALING WITH ALCOHOL AND DRUG ABUSE** **3**

The course is designed to study the legal, medical and social aspect of the use and abuse of substances and alcohol. The legal and social implications of the user's behavior in our society are analyzed.

**Three (3) hours lectures per week.**

**CRJU 301** **JUVENILE DELINQUENCY AND LAW** **3**

**Pre-requisite: POSC 102**

Study of the laws, regulations, public policy, and social services that deal with juvenile delinquency in Puerto Rico. It focuses causes of social problems.

**Three (3) hours of lecture per week.**

**CRJU 321** **LOGICAL AND LEGAL ANALYSIS** **3**

**Pre-requisites: POSC 204 and CRJU 350**

The course covers the history of judicial thinking, legal and logical analysis to make judgments and conclusions in accordance with the law. It also studies the decisions of the Puerto Rico Supreme Court and the organization and composition of the General Court of Justice, analyzing the importance of the Court of Last Resort. The procedures after judgment, as well as the judicial interpretation are studied. It evaluates the study and analysis of case laws, in matters related to the Civil-Penal Law, Criminal-Civil Procedure, and Children's Rights.

**Three (3) hours of lecture per week.**

**CRJU 322** **HISTORY AND INTERPRETATION OF DACTILOSCOPY** **3**

**Pre-requisite: POSC 109**

This course emphasizes the origin, study, and the interpretation of dactiloscopia as a means for identifying. It will allow the students identify, classify, and interpret the different existing patterns.

**Three (3) hours of lecture per week.**

**CRJU 323** **CLASSIFICATION AND FILE OF FINGERPRINTS** **3**

**Pre-requisite: CRJU 322**

This course emphasizes studying the proper techniques for classifying and filling fingerprints for further use. It covers analysis of legal aspects about the use of fingerprints in Court.

**Three (3) hours of lecture per week.**

**CRJU 326** **FORENSIC PHOTOGRAPHY** **3**

**Pre-requisite: POSC 109**

This course will provide the students experience in the use and handling of the 35 mm. camera. They will perform photographing initial stages of the investigation of a crime scene in which every object of possible evidence must be photographed before it is removed. Students will experience the three photographing stages of any crime scene.

**Three (3) hours of lecture per week.**

**CRJU 327**                                    **LATENT FINGERPRINT DEVELOPMENT,  
CLASSIFICATION AND FINGERPRINT FILE**                                    **3**

**Pre-requisite: CRJU 322**

The course will allow the student to know different techniques used for fingerprint lifting and discovering. The course also includes classification and fingerprint archive rules for human being identification.

**Three (3) hours of lecture per week.**

**CRJU 335**                                    **LAW AND SOCIETY**                                    **3**

**Pre-requisite: POSC 102**

The course examines issues related to the law and society. Analyzes and evaluates the importance of in the development of human societies. It compares the different manifestations of the law as an expression of Justice. It is an analysis of the origins of the law and describes the legal changes in accordance with the development of society.

**Three (3) hours of lecture per week.**

**CRJU 350**                                    **CRIMINAL PROCEDURE**                                    **3**

**Pre-requisite: POSC 102**

Study and analysis of the rules and procedures applied to the investigation process of the judicial system in Puerto Rico. Emphasis is given to techniques dealing with arrest, the search of houses with a warrant, the constitutional rights of the accused and others.

**Three (3) hours of lecture per week.**

**CRJU 400**                                    **CIVIL RIGHTS & CONSTITUTIONAL LAW**                                    **3**

**Pre-requisite: POSC 102**

Investigation and discussion of subjects related to civil rights in Puerto Rico. Sample cases are discussed for analysis.

**Three (3) hours of lecture per week.**

**CRJU 404**                                    **CRIMINOLOGY AND THE REHABILITATION  
PROCESS**                                    **3**

The course emphasizes the study of the causes of crime, the characteristics of the criminals as well as the methods, which are used to punish and rehabilitate the individual that violates the law. It describes the importance of modern Criminology in the search for possible solutions to the problem of crime. It analyzes the causes of the crime using as reference the main theories that attempt to explain the phenomenon of the crime. The correctional system, the therapeutic strategies and community institutional treatment in order to assess its effectiveness in the process of rehabilitation of the confined is studied.

**Three (3) hours of lecture per week.**

**CRJU 407** **SPECIAL LAWS** **3**  
**Pre-requisite: POSC 204**

Consist of the study, analysis, and interpretation of the regulations that constitute the special penal laws in our country. It analyses and evaluates the procedures and punishments established according to the infringe articles.

**Three (3) hours of lecture per week.**

**CRJU 410** **International Criminal Justice System** **4**  
**Pre-requisite: POSC 204 and CRJU 350**

A comparative analysis of the present Criminal Justice Systems of England, Japan, France, and Sweden. It evaluates how the Criminal Justice Systems of these Nations determine the way they will face problems related to crime, delinquency, and the administration of justice.

**Four (4) hours of lecture per week.**

**CRJU 412** **CONTROVERSIAL ISSUES IN THE CRIMINAL 3**  
**JUSTICE SYSTEMS**

**Pre-requisite: POSC 102**

Analysis and evaluation of several works related to the Criminal Justice System.

**Three (3) hours of lecture per week.**

**CRJU 414** **THE CRIMINAL JUSTICE SYSTEM** **3**  
**IN THE UNITED STATES**

**Pre-requisites: POSC 204 and CRJU 350**

Study of the Criminal Justice System in the United States.

**Three (3) hours of lecture per week.**

**CRJU 416** **CRIMINAL JUSTICE PRACTICE** **6**  
**Pre-requisite: Approval of 100 credits and approval of Program Coordinator**

The practice course is an educational-professional experience in Criminal Justice in that the student participates in the functions of the component of the Puerto Rico Criminal Justice System. Students are trained to occupy positions of responsibility in the agencies that make up the system. Students acquire knowledge, integrate and practice what they have learned, to interact directly with the professionals working in the agencies. Students will comply with the rules and procedures established by the Center of Practice, with the instructions and recommendations of their professional liaison and the course professor.

**Twenty (20) hours of practice per week.**

**Practice fee: \$125.00**

**ECON 121**                                      **PRINCIPLES AND PROBLEMS OF ECONOMICS**      **3**  
**(MICRO ECONOMICS)**

Principles of economics affecting production, income and consumption prices. There is emphasis on the interaction among producers and consumers in the free market.  
**Three (3) hours of lecture per week.**

**ECON 122**                                      **PRINCIPLES AND PROBLEMS OF ECONOMICS**      **3**  
**(MACRO ECONOMICS)**

Study of determination, fluctuation, consumption, and stability of national income; domestic and international problems and their effect on the business economy.  
**Three (3) hours of lecture per week.**

**EDUC 200**                                      **HUMAN GROWTH, DEVELOPMENT**                                      **3**  
**AND LEARNING**

A study of scientific facts, principles, and processes of human growth from childhood to adult stages and development which support the learning process.  
**Three (3) hours of lecture per week.**

**EDUC 205**                                      **TEACHING THE FINE ARTS**                                      **3**

It includes the curriculum of the elementary school, the methodology and techniques in the teaching of music, arts and crafts and the dramatic arts. It also deals with the creative expression of the fine arts and the materials necessary for its integration.  
**Three (3) hours of lecture per week.**

**EDUC 208**                                      **PSYCHOLOGICAL FOUNDATIONS OF**                                      **3**  
**EDUCATION**

A study of the principles of psychology involved in the growth and development of the individual. Theories of learning and teaching processes will be analyzed. It focuses early childhood.  
**Three (3) hours of lecture per week.**

**EDUC 225**                                      **DEVELOPING CRITICAL THINKING SKILLS**                                      **3**

A deep study of principles of critical and dimensional thinking skills and their use in the teaching process.  
**Three (3) hours of lecture per week.**



**EDUC 241** **TEACHING HEALTH AND PHYSICAL** **3**  
**EDUCATION IN ELEMENTARY SCHOOL**

**Pre-requisite: GESC 101**

Concepts and the methodology in the teaching of health and physical education in the elementary school. It emphasizes good health and the modern practice of physical exercises, games, sports, and gymnastics. It stresses the need of mental health too.

**Three (3) hours of lecture per week.**

**EDUC 306** **CHILDREN LITERATURE** **3**

Study of different genres and content of literature for children from ancient folklore to modern works. Analysis of representation pieces of literature for children stressing content, critical thinking, and development of values.

**Three (3) hours of lecture per week.**

**EDUC 309** **SPECIAL EDUCATION FOR PRE-SCHOOL** **3**  
**CHILDREN**

**Pre-requisite: EDUC 208**

This course examines the nature and needs of the mildly handicapped pre-school children. It also includes assessment, mainstreaming, curriculum and methods of instruction.

**Three (3) hours of lecture per week.**

**EDUC 324** **SOCIOLOGICAL FOUNDATIONS** **3**  
**OF EDUCATION**

The study of education as a social institution and the relationship of school and community. It focuses social changes and studies the role of the school in the process of changes in the society.

**Three (3) hours of lecture per week.**

**EDUC 328** **PHILOSOPHICAL FOUNDATIONS OF** **3**  
**EDUCATION**

This course delineates the historical background and trends of formal education and its philosophical development in Puerto Rico.

**Three (3) hours of lecture per week.**

**EDUC 336** **EVALUATION AND MEASUREMENT** **3**

**Pre-requisite: MATH 102**

The criteria of suitable measuring devices, achievement tests, intelligence scales, pupil classification, and diagnosis as the basis for programming remedial teaching are studied. The construction, administration, and interpretation of results and grades with different testing devices are studied. Assessment is included.

**Three (3) hours of lecture per week.**

**EDUC 349**                                      **GRAMMAR AND COMPOSITION IN**                                      **3**  
**ELEMENTARY SCHOOL**

**Pre-requisite: SPAN 102**

This course studies the basic principles in communication skills and writing. It emphasizes grammar, and composition. It analyzes curriculum, methods and strategies in teaching at the elementary levels. The teacher's role in assessment is included.

**Three (3) hours of lecture per week.**

**EDUC 353**                                      **NATURES AND NEEDS OF THE MILDLY**                                      **3**  
**HANDICAPPED**

**Pre-requisite: EDUC 208**

Basic course on psychological and educational principles of the Mildly Handicapped Children. It studies the nature and needs of this condition. It emphasizes weaknesses and strengths; educational goals and the techniques used in their teaching process.

**Three (3) hours of lecture per week.**

**EDUC 354**                                      **DIAGNOSIS AND CORRECTION OF READING**                                      **3**  
**DEFICIENCIES**

**Pre-requisite: SPAN 102**

Experience with modern techniques for the diagnosis and correction of reading deficiencies. Emphasis is placed on methodology, the preparation of teaching units, teaching aids, and the use of environmental resources and reading composition.

**Three (3) hours of lecture per week.**

**EDUC 359**                                      **NEUROLOGICAL AND SENSORIAL FUNCTIONS**                                      **3**  
**AND ITS IMPLICATIONS IN EDUCATION**

**Pre-requisite: EDUC 210**

This course will provide substantial information in the study of human neurological and sensorial function. Reviews the relationship between neurological development, sensorial functions and linguistic skills. Consider the abnormalities in the integral development of the child, including emotional side effects.

**Three (3) hours of lecture per week.**

**EDUC 367**                                      **PHYSICAL EDUCATION AND RECREATION FOR 3**  
**CHILDREN WITH IMPEDIMENTS**

**Pre-requisite: EDUC 462**

This course studies the educational principles of children with impediments giving emphasis to motor skills. It will focus theory, methods, and practice in teaching, exercises, games, songs, rhythms, dance, and other related motor skills.

**Three (3) hours of lecture per week.**

**EDUC 371                      WORKSHOP IN EDUCATIONAL TECHNOLOGY                      3**

This course focuses the development of skills for the use of effective educational technology in the teaching process. It includes modern audiovisual aids, and resources. Evaluation of educational resources, the preparation of teaching devices, and other technology will be practiced. Devices for teaching the handicapped child will be prepared.

**Three (3) hours of lecture per week.**

**EDUC 375                      REMEDIAL PROCEDURES FOR THE                      3  
CORRECTION OF CHILDREN WITH SPECIFIC LEARNING  
PROBLEMS**

The analysis of the various specific deficiencies special education students present in academic areas such as mathematics, reading and writing. It covers methods used for evaluating specific deficiencies and the possible strategies for correction.

**Three (3) hours lectures per week.**

**EDUC 376                      DIAGNOSTIC AND EVALUATION TECHNIQUES                      3  
IN TEACHING OF MILDLY HANDICAPPED CHILDREN**

**Pre-requisites: EDUC 336 and EDUC 309**

Examination of assessment and evaluation techniques in teaching handicapped children. It includes the study of administration and test results. And legal aspects of assessing these children.

**Three (3) hours of lecture per week.**

**EDUC 390                      PARENTS INVOLVEMENT AND LEGAL                      3  
ASPECTS IN SPECIAL EDUCATION**

It emphasizes parental counseling and their involvement in the development of the Individualized Educational Program (IEP). Student's development of IEP is required. It covers the legal aspects contained in the Special Education Procedure Manual of the Department of Education.

**Three (3) hours of lecture per week.**

**EDUC 401                      METHODS AND TECHNIQUES IN THE                      3  
TEACHING OF ENGLISH IN ELEMENTARY SCHOOL**

**Pre-requisite: ENGL 102**

A study of the principles governing the teaching of English as a second language in Puerto Rico. It covers background methods, planning, teaching techniques, language content practice and assessment. Demonstration classes are presented by students.

**Three (3) hours of lecture per week.**



specially geared towards the mentally retarded, but it covers adjustments necessary for others mildly handicapped. It compares and contrasts the role of the regular teacher with the special education teacher.

**Four (4) hours of lecture per week.**

**EDUC 413    PRE-TEACHING METHODS AND STRATEGIES                      3**  
**ELEMENTARY SCHOOL**

**Pre-requisite: Pre-PCMAS, EDUC 401, 402, 403, 404,405**

Experience that familiarizes the prospective student with the educational system, and the school community. Seminars, visits to schools, class observations, analysis of real learning situations, lesson plan, and school laws and regulations are studied.

**Three (3) hours of lecture per week.**

**Lab Fee: \$285.00**

**EDUC 415    PRE-INTERSHIP E IN METHODS AND    3**  
**TECHNIQUES IN SPECIAL EDUCATION**

**Pre-requisite: EDUC 375, EDUC 390**

Clinical and laboratory experiences concerning different environments for learning situations. Lectures, seminars, films and other instructional strategies are carried out.

**Three (3) hours of lecture per week.**

**EDUC 429    TEACHING PRACTICE IN ELEMENTARY    6**  
**EDUCATION**

**Pre-requisite: EDUC 413**

Teaching experiences supervised by professional personnel in real classroom situations in elementary schools. Application of learning theories and teaching methods.

**Twenty (20) hours of practice per week.**

**Practice fee: \$125.00**

**EDUC 431    INTERNSHIP IN SPECIAL EDUCATION    6**

**Pre-requisite: EDUC 415**

Teaching experiences supervised by professional personnel in classroom situations of special education. Application of learning theories and teaching methods for mildly handicapped children.

**Twenty (20) hours of practice per week.**

**Practice fee: \$125.00**

**EDUC 462                                  NATURE AND NEEDS OF THE EXCEPTIONAL CHILD                                  4**

**Pre-requisite: EDUC 200**  
**(EDUC 210 Only for Special Education and Physical Education)**

This course focuses the sociological and psychological needs of exceptional children: the handicapped, and the talented. Federal and local laws are studied.

**Four (4) hours of lecture per week.**

**ELEN 218                                  SPECIAL TOPICS IN ELECTRICAL ENGINEERING                                  3**  
**Requisite: Approval of Department Director or Program Coordinator**

Study topics of interest to undergraduate students in the area of electrical engineering.

**Three (3) hours of lecture per week.**

**ELEN 300                                  PROGRAMMABLE LOGIC CONTROLLERS                                  3**  
**Pre-requisite: COSC 115**

Introduction to Programmable Logic Controllers (PLC) systems, architecture, programming and its importance in industrial environments. Study of analog and digital inputs and outputs. Description of digital systems and input/output processing. Ladder, instruction list, sequential function charts and structured text programming. Implementation and applications.

**Three (3) hours of lecture per week.**

**ELEN 301                                  INSTRUMENTATION                                  3**  
**Pre-requisite: ENTE 103 or ELEN 310**  
**Co-requisite: ENTE 200 or ELEN 340**

Introduction to measurement systems and instrumentation system elements. Constituent elements, performance test, reliability, calibration and safety. Study of displacement, fluid flow, fluid pressure, fluid level, speed, proximity, navigation and temperature sensors. Analog-to-digital, digital-to-analog converters, signal compensation, data presentation element and introduction to signal processing. Study of hydraulic, pneumatic and electro-mechanical correction elements. Case studies in automotive, aircraft instrumentation and biomedical devices.

**Three (3) hours of lecture per week.**

**ELEN 310                                  ELECTRICAL CIRCUITS ANALYSIS I                                  4**  
**Pre-requisite: PHYS 202, MATH 302**

Study of the basic electric concepts of electrical quantities and electric elements. Kirchhoff laws and circuit analysis of resistive circuits. Study of circuit analysis techniques such as node-voltage, mesh-current, source transformation, Thevenin and Norton theorems, and superposition. Maximum Power Transfer. Study of capacitors, inductors and mutual inductance and the analysis of RC, RL and RLC circuits. Introduction to AC circuits. Analysis of circuits using the computer.

**Three (3) hours of lecture and a three (3) hours of laboratory per week.**

**Lab Fee: \$150.00**



a microprocessor or microcontroller. Design microprocessor or microcontroller based system. A design project is required.

**Three (3) hours of lecture and three (3) hours of laboratory per week.**

**Lab Fee: \$150.00**

**ELEN 401 ELECTRONICS ENGINEERING II 4**

**Pre-requisite: ELEN 340**

Study of No-ideal effects of Operational Amplifier. Study of low and high frequency responses in BJT and FETs. Analysis of power amplifiers and discussion of differential, multi-stage amplifiers and circuits with active load and its implementation in integrated circuits (IC). Study of feedback circuits and relationship between stability and feedback. A design project is required.

**Three (3) hours of lecture and three (3) hours of laboratory per week.**

**Lab Fee: \$150.00**

**ELEN 403 LOGIC CIRCUITS II 3**

**Pre-requisite: ELEN 350**

Study of the structural methods for digital systems design. Design of combinational and sequential systems. Use of programmable logic devices in digital systems design. Analysis and design of digital system controllers. Computer aided digital systems design and testing using HDL. A design project is required.

**Three (3) hours of lecture per week.**

**ELEN 405 ELECTROMAGNETIC I 3**

**Pre-requisite: MATH 302**

**Co-requisite: ELEN 310**

Study of electrostatics and magnetostatics fields. Description of the different types of electromagnetics materials. Resistance, conductance, capacitance, inductance and magnetics circuits. Maxwell's equations and its applications using computing software.

**Three (3) hours of lecture per week.**

**ELEN 406 ELECTROMAGNETIC II 3**

**Pre-requisite: ELEN 405**

Interpret the Maxwell's equations and wave equations. Describe the planes wave in dielectric, space and conducting media. Infer Power and Poynting vector. Recognize polarization, reflection and diffraction of waves. Describe transmission lines and apply Smith Chart and impedance matching. State and apply waveguides and antennas.

**Three (3) hours of lecture per week.**



**ELEN 410**                          **ELECTRICAL MACHINES**                          **4**  
**Pre-requisite: ELEN 311 and ELEN 405**

Study of machinery principles, transformers and machinery fundamentals. Describe, analyze and design different type of machinery such as AC, induction, synchronous and DC machinery. Theory and operation of single-phase and special-purpose motors. A design project is required.

**Three (3) hours of lecture and three (3) hours of laboratory per week.**

**Lab Fee: \$150.00**

**ELEN 412**                          **COMMUNICATIONS ENGINEERING**                          **4**  
**Pre-requisite: GEEN 221**

Study of the communication systems theory. Spectral analysis using Fourier transform. General considerations of system response in time-frequency domain. Study of linear and angle continuous-wave modulation systems. Sampling theory. A design project is required.

**Three (3) hours of lecture and three (3) hours of laboratory per week.**

**Lab Fee: \$150.00**

**ELEN 415**                          **ELECTRIC POWER TRANSMISSION SYSTEMS**                          **3**  
**ENGINEERING**  
**Pre-requisite: ELEN 405 and ELEN 410**

Introduction to the basic concepts of power systems. Study of theory of power transmission, power generator, and components of power transmission systems. Analyze of concepts power systems such as load, protection, distribution, transformers and three-phase power. Considerations of modern power theory and computer-assisted power transmission systems. A design project is required.

**Three (3) hours of lecture per week.**

**ELEN 416**                          **ELECTRIC POWER SYSTEMS PROTECTION DESIGN**                          **3**  
**Pre-requisite: ELEN 415**

Introduction and general components of protection systems. Analysis of power systems during faults and abnormal disturbances. Systems protection fundamentals. Application of protective relays in power systems. Grounding principles. Line, generator and transformer protection. Design of systems.

**Three (3) hours of lecture per week.**

**ELEN 417**                          **INDUSTRIAL ELECTRONICS DESIGN**                          **3**  
**Pre-requisite: ELEN 401 and ELEN 410**

Study of basic criteria for the design of electronic measuring instruments. The course focuses on signal conditioning, terminal equipment interface, noise, random errors and the use of transducer are included. A design project is required.

**Three (3) hours of lecture per week.**

**ELEN 418                                  MICROPROCESSORS                                  4**  
**Pre-requisite: ELEN 401**

Study of the architecture and hardware distribution of the microprocessors. Description of the microprocessor operation and their supporting devices. Introduction to low-level programming languages. Design of microprocessor/microcontroller-based systems. A design project is required.  
**Three (3) hours of lecture and three (3) hours of laboratory, computation per week.**  
**Lab Fee: \$150.00**

**ELEN 419                                  ADVANCED MICROPROCESSORS                                  4**  
**Pre-requisite: ELEN 418**

Study of the structural methods for digital systems design. Design of combinational and sequential systems. Use of programmable logic devices in digital systems design. Analysis and design of system controllers. Computer aided digital systems design and testing. A design project is required.  
**Three (3) hours of lecture and three (3) hours of laboratory per week.**  
**Lab Fee: \$150.00**

**ELEN 420                                  CONTROL ENGINEERING                                  4**  
**Pre-requisite: ELEN 311 and MATH 304**

Study the type and representation of control systems. Analysis of control systems and their mathematical models. Study of the control systems characteristics. Analysis of control systems using the computer. A design project is required.  
**Three (3) hours of lecture and three (3) hours of laboratory per week.**  
**Lab Fee: \$150.00**

**ELEN 422                                  DIGITAL SIGNAL PROCESSING                                  3**  
**Pre-requisite: ELEN 412**

This course introduces Digital Signal Processing (DSP) principles, algorithms and applications. It includes the study and application of signal processing techniques and its representation. The course focuses on the application of the Fourier transforms of discrete signals and systems to solve engineering problems and the design of IIR and FIR filters. A design project is required.  
**Three (3) hours of lecture per week.**

**ELEN 425                                  DIGITAL CONTROL SYSTEMS                                  3**  
**Pre-requisite: ELEN 420**

Introduction to digital control systems, fundamentals and structures. Definition of discrete-time systems and the Z-transform. Discussion of sampling and reconstruction. Analysis of discrete-time system configurations, characteristics and stability. Design of digital controllers. A design project is required.  
**Three (3) hours of lecture per week.**

**ELEN 426 FIBER OPTICS COMMUNICATIONS 3**  
**Pre-requisite: ELEN 412**

Study of the three primary components of a fiber optic communication system: optical fibers, optical transmitters and optical receivers. Light wave architecture and design guideline. Design of advanced light wave systems. A design project is required.

**Three (3) hours of lecture per week.**

**ELEN 430 ELECTRICAL INSTALLATION DESIGN 3**  
**Pre-requisite: ELEN 410**

Definition of materials, design, wiring methods and protection schemes used in electrical installations. Description of use and installation of transformers. Planning and design of grounding and bonding systems. Design of electrical services for industrial, commercial and residential building.

**Three (3) hours of lecture per week.**

**ELEN 432 ELECTRICAL POWER DISTRIBUTION SYSTEMS 3**  
**Pre-requisite: ELEN 410**

Study of modern power distribution systems. Distribution system planning and load characteristics. Application of distribution transformers. Study of primary and secondary distribution systems. A design project is required.

**Three (3) hours of lecture per week.**

**ELEN 433 COMPUTER AIDED CONTROL SYSTEM DESIGN 4**

**Pre-requisite: ELEN 420**

Introduction to computer-aided control systems design. Use of software tools to model, simulate and design control systems. Use modeling and simulation of real industry systems to improve efficiency and reliability. Design of controllers using computer-aided software. A design project is required.

**Three (3) hours of lecture per week and three (3) hours of laboratory, computation per week.**

**Lab Fee: \$150.00**

**ELEN 434 POWER PLANT 3**  
**Pre-requisite: ELEN 410**

Study of fundamental concepts in power plant. Description of non-conventional energy resources. Discussion of power plant economics and the relationship with load demands. Analysis and design of conventional power plants. A design project is required.

**Three (3) hours of lecture per week.**

**ELEN 435 POWER ELECTRONICS APPLICATIONS AND DESIGN 3**  
**Pre-requisite: ELEN 401 and ELEN 410**

Introduction to power electronics and power computations. Study of power electronics system, such as, rectifiers, DC to DC converters, AC converters and inverters. Analysis and design of power electronics systems such as power supplies, motor drives and others. Apply power electronics in the integration of modern power generators to the grid. A design project is required.  
**Three (3) hours of lecture per week.**

**ELEN 442 DISCRETE MATHEMATICS FOR COMPUTER ENGINEERING 3**  
**Pre-requisite: COSC 115 and ELEN 350**

The course study logical and discrete structures in computer science and engineering with emphasis on problem solving skills and algorithms. It covers mathematical reasoning, combinatorial analysis, discrete structures, modeling, algorithmic thinking and applications.  
**Three (3) hours of lecture per week.**

**ELEN 444 COMPUTER ARCHITECTURE 4**  
**Pre-requisite: COSC 204**

Introduction to computer architecture including software, hardware and trends in technology, power, energy and cost. Definition of basic computer organization, data flow, instruction fetch and execution set design, microcode, memory systems and pipelining. Study of memory hierarchy design and parallelism to level of instruction, data and threads. A design project is required.  
**Three (3) hours of lecture and three (3) hours of laboratory, computation per week.**  
**Lab Fee: \$150.00**

**ELEN 446 DATA STRUCTURE 3**  
**Pre-requisite: COSC 115 and ELEN 350**

Study of basic concepts of programming and elementary data structures in a high level language to represent information. Design and analysis of efficient data structures such as stacks, queues, lists, trees and graphs. Analysis and implementation of algorithms such as sort and search. A design project is required.  
**Three (3) hours of lecture per week.**

**ELEN 448 DATABASE DESIGN 4**  
**Pre-requisite: ELEN 446**

Introduction to database systems and models such as: entity-relationship, relational, and others. The course covers the design and implementation of databases using data languages emphasizing SQL. Study of basic concepts about storage mechanism and file organization for data persistent and access. Typical database system architectures are defined. A design project is required.  
**Three (3) hours of lecture and three (3) hours of laboratory, computation per week.**  
**Lab Fee: \$150.00**

**ELEN 452                              PROGRAMMING LANGUAGE                              4**  
**Pre-requisite: ELEN 442**

Study of the evolution of programming languages. Description of syntax and semantic to define instructions into an algorithm. Definition of data types, statements, and control structures into an algorithm. Study of fundamentals and design of subprograms and functions to solve engineering problems into an algorithmic solution. A design project is required.

**Three (3) hours of lecture and three (3) hours of laboratory, computation per week.**  
**Lab Fee: \$150.00**

**ELEN 454                              OPERATING SYSTEMS                              4**  
**Pre-requisite: ELEN 446**

Definition of concepts, structures, mechanisms and design principles of Operating Systems (OS). Analysis of processes, multithreading, multiprocessing, microkernels, memory, and system performance. Study of embedded and distributed systems. A design project is required.

**Three (3) hours of lecture and three (3) hours of laboratory, computation per week.**  
**Lab Fee: \$150.00**

**ELEN 456                              SOFTWARE ENGINEERING                              3**  
**Pre-requisite: COSC 115 and ELEN 350**

Study of fundamental concepts of software engineering. Description of each state of the development cycle. Use of Unified Model Language (UML) to visualize the design of a system. A design project is required.

**Three (3) hours of lecture per week.**

**ELEN 457                              ARTIFICIAL INTELLIGENCE                              4**  
**Pre-requisite: ELEN 446**

Introduction to the concepts and history of Artificial Intelligence (AI). Study of techniques and algorithms to solve search problems including adversarial search (games). Knowledge representation through propositional and first-order logic. Analysis of inference in first-order logic. A design project is required.

**Three (3) hours of lecture and three (3) hours of laboratory, computation per week.**  
**Lab Fee: \$150.00**

**ELEN 462                              COMPUTER NETWORKS                              4**  
**Pre-requisite: ELEN 412**

Study of fundamental concepts of computer networks such as hardware, software, reference models and examples of networks. Description of each OSI model layer for understands the communication and connection between two or more computers. Analysis of security techniques in computer networks. A design project is required.

**Three (3) hours of lecture and three (3) hours of laboratory, computation per week.**  
**Lab Fee: \$150.00**

**ELEN 481**                                      **ELECTRICAL ENGINEERING CAPSTONE I**                                      **3**  
**Requisite: Approval of Department Director or Program Coordinator. Must have 102 credits approved, including at least 19 in concentration credits**

This course is the first part of the Electrical Engineering Mayor Design Experience (Capstone Project). At the end of this course, the student is required to complete a feasibility study for an Electrical engineering problem proposed by the professor or students at the beginning of the course. A professor will be assigned to provide guidance and evaluate students. The project should be made in groups; the scope of the project must be adjusted depending on the group's size. The students will have several presentations and written reports. The course will end with a written report and the project's final presentation, open to the whole academic community. The evaluation depends on all the presentations, reports and evaluation of the group work.

**One (1) contact hour and eight (8) hours of laboratory, computation weekly.**

**Lab Fee: \$250.00**

**ELEN 482**                                      **ELECTRICAL ENGINEERING CAPSTONE II**                                      **3**  
**Pre-requisite: ELEN 481**

This course is the second part of the Electrical Engineering Mayor Design Experience (Capstone Project). At the end of the course, the student is required to implement the solution (i.e Feasibility Study) to the problem proposed on ELEN 481. A professor will be assigned to guide and evaluate the students. The project will be made in groups; the scope of the project will be adjusted depending on the group's size. The students will have several presentations and written reports. The course will end with a written report and the project's final presentation, open to the whole academic community. The evaluation depends on all the presentations, reports and self-evaluation of the group work.

**One (1) contact hour and eight (8) hours of laboratory, computation weekly.**

**Lab Fee: \$250.00**

**ELEN 495**                                      **ELECTRICAL ENGINEERING PRACTICE**                                      **3**  
**Requisite: Approval of Department Director or Program Coordinator. Must have 102 credits approved, including at least 19 in concentration credits**

The student will provide an electrical engineering solution to a practical or technical problem. The students are required to have a period of practice equivalent to three credit hours during a semester. A professor and tutor will be assigned to supervise, advise and guide the students. It is required to coordinate with the Director of the department or Coordinator, an agency in which the student can obtain the required work experience. The students are required to prepare an oral presentation and a written report of their work experience.

**One (1) hour of seminar/conference and eight (8) hours of practice in industry per week.**

**Lab Fee: \$125.00**

**ENGL 100**                                      **PREPARATORY ENGLISH**                                      **3**

This course is developed to teach the students the basic skills in English as a Second language. It consists of the four Language Arts (Listening, Speaking, Reading and Writing) in grammar context. The course is reinforced with a computerized technology laboratory session. It adapts to

the individual needs of the students by integrating the basic laboratory skills needed to perform successfully at higher levels.

**Three (3) hours of lecture per week and two (2) hours of laboratory per week.**

**Lab Fee: \$20.00**

**ENGL 101                                      BASIC COURSE IN ENGLISH I                                      3**

This English course is intended to provide students with the fundamentals of the language and a foundation for advancing through the four required levels of English proficiency. It consists of the four Language Arts (Listening, Speaking, Reading and Writing) in grammar context. The course is reinforced with a computerized technology laboratory session. It adapts to the individual needs of the students by integrating the basic laboratory skills needed to perform successfully at higher levels.

**Three (3) hours of lecture per week and two (2) hours of laboratory per week.**

**Lab Fee: \$20.00**

**ENGL 102                                      BASIC COURSE IN ENGLISH II                                      3**

**Pre-requisite: ENGL 101**

This course provides opportunities to acquire higher proficiency in the use of English as a Second Language (ESL). Grammar skills are stressed through the study of the various parts of speech. It emphasizes on the four Language Arts (Listening, Speaking, Reading and Writing) through the integration of technological resources.

**Three (3) hours of lecture per week.**

**ENGL 201                                      BUSINESS COMMUNICATION IN ENGLISH I                                      3**

**Pre-requisite: ENGL 102**

This course is designed to provide the students with the necessary skills to ensure effective oral and written communication. All four-language skills will be emphasized in this course speaking, listening, writing and reading. Students are made aware of Spanish interferences in the use of the English language while working with diverse business documents. Emphasis is given to business terminology and idiomatic expressions. Computer technology is used to produce documents and search for information using the internet. It includes analysis of the psychological approach necessary in business and job related situations. It provides an overview of the modern office techniques of the modern business world.

**Three (3) hours of lecture per week.**

**ENGL 202                                      BUSINESS COMMUNICATION IN ENGLISH II                                      3**

**Pre-requisite: ENGL 201**

This course is designed to provide the students with the necessary skills to ensure effective oral and written communication. All four Language Skills are emphasized in this course: Listening, Speaking, Reading and Writing. Students are made aware of Spanish interferences in the use of the English language while working with diverse business documents. Emphasis is given to business terminology and idiomatic expressions. Computer technology is used to produce

documents and search for information using the Internet. It includes analysis of the psychological approach necessary in business and job related situations. It provides an overview of the modern office techniques of the modern business world. It also focuses on constructing written business reports, resumes, and business proposals.

**Three (3) hours of lecture per week.**

**ENGL 215                                    INTRODUCTION TO LITERATURE I                                    3**  
**Pre-requisite: ENGL 102**

This course is intended for developing the necessary skills and techniques for literary analysis. Basic principles in analyzing essays and fiction will be stressed. It focuses mainly on the structure and development of the essay and the literary analysis of short stories. Emphasis is given on critical reading and writing skills.

**Three (3) hours of lecture per week.**

**ENGL 216                                    INTRODUCTION TO LITERATURE II                                    3**  
**Pre-requisite: ENGL 215**

This course is designed to introduce students to the study of poetry and drama. It covers how to analyze and write about these genres. The use of multiple electronic sources will be integrated in the production of different oral and written activities.

**Three (3) hours of lecture per week.**

**ENGL 217                                    ORAL AND WRITTEN COMMUNICATION                                    3**  
**IN ENGLISH**

**Pre-requisite: ENGL 102**

This is an immersion course in oral communication with emphasis on specific requirements for appropriate oral production: stress, voice inflection, vocabulary building and pronunciation. Methods and techniques for public speaking are stressed. This course is also designed to provide advanced practice in writing skills in English. Emphasis will be placed on preparing the student toward developing and presenting written reports such as resumes, essays, and papers.

**Three (3) hours of lecture per week.**

**ENTE 102                                    CONSTRUCTION MATERIALS                                    3**

This course introduces the properties and behavior of the most common materials used in the construction industry. It emphasizes in the study of steel, cement, aggregates and concrete, including practical illustrations of processes and uses of construction materials.

**Three (3) hours of lecture per week.**

**ENTE 103                                    ELECTRICAL CIRCUITS                                    4**  
**Co-requisite: MATH 136**

Study of the basic electric concepts of electrical quantities and electric elements. Kirchhoff laws and circuit analysis of resistive circuits. Study of circuit analysis techniques. Study of capacitors,



inductors, mutual inductance, coupled inductance, and transformer. The analysis of RC, RL and RLC circuits. Sinusoidal steady state analysis, phasors, impedance and admittance. Power consumption, maximum power transfer and three phase circuits study. Analysis of circuits using the computer.

**Three (3) hours of lecture and three (3) hours of laboratory per week.**

**Lab Fee: \$150.00**

**ENTE 200                                    ELECTRONICS                                    3**

**Pre-requisite: ENTE 103**

**Co-requisite: MATH 136**

Study of the semiconductors theory and their characteristic properties. Operational amplifiers (OpAmp). Study of the difference between Bipolar Junction Transistor (BJT) and Field Effect Transistor (FET). DC Biasing of the BJTs and FETs. Analysis and design of electronic circuits and devices that contain diodes, voltage reference circuits, rectifiers, operational amplifiers, and transistors. A design project is required.

**Two (2) hours of lecture and a three (3) hours of laboratory per week.**

**Lab fee: \$150.00**

**ENTE 215                                    ELECTRICAL INSTALLATIONS                                    3  
AND ILLUMINATION**

**Pre-requisite: ENTE 103**

Understanding the national electrical code and the rules that apply to electrical installations of Puerto Rico and the United States. Study of the basic components involved aerial and underground facilities. Selection and installation of elements interior and exterior lighting for commercial, homes and industries.

**Two (2) hours of lecture and a three (3) hours of laboratory per week.**

**Lab fee: \$150.00**

**ENTE 216                                    ELECTROMECHANICS                                    3**

**Pre-requisite: ENTE 200**

Study of the direct current (dc) and alternating current (ac) and their applications. Fundamentals of the theory of magnetism and Electromagnetism used in AC, DC motors, transformers and generators. Study of the differences between single-phase and three-phase connections of the transformers, generators and motors.

**Two (2) hours of lecture and three (3) hours of laboratory per week.**

**Lab fee: \$150.00**

**ENTE 218                                    ELECTRONICS AEROSPACE SYSTEMS                                    3**

**Pre-requisite: ENTE 200 or ELEN 340**

Provides an overview of attitude determination and control system (ADACS) for a spacecraft, including payload pointing. Introduction to systems engineering. A design project is required.

**Three (3) hours of lecture per week.**

**ENTE 323** **BUILDING CONSTRUCTION DRAWING I** **4**  
**Pre-requisite: GEEN 105**

The course focuses in the development of preliminary architectural drawings including elaborated plans, elevations, sections and perspectives of architectural details. It includes interpretation of actual construction regulations.

**Two (2) hours of lecture and a three (3) hours of laboratory per week.**

**Lab Fee: \$100.00**

**ENTE 325** **BUILDING CONSTRUCTION PRACTICE I** **3**  
**Pre-requisite: ENTE 102**

The course studies current methods and procedures in building construction, including construction surveys and layouts, construction of simple structural elements, as well as, practical illustrations of inspection practice.

**Two (2) hours of lecture and a three (3) hours of laboratory per week.**

**Lab fee: \$100**

**ENTE 330** **DRAWING PRESENTATION TECHNIQUES** **4**  
**Pre-requisite: GEEN 107**

This course presents the introduction and Application of the Different Drawing Presentation Techniques. The course emphasizes in the use of rendering (shadow, color, blushing, etc.) and model building.

**Two (2) hours of lecture and three (3) hours of laboratory per week.**

**Lab Fee: \$50.00**

**ENTE 334** **BUILDING CONSTRUCTION DRAWING II** **4**  
**Pre-requisite: ENTE 323**

The course presents the development of advanced architectural construction drawing for projects. It discusses the preliminary study of project, including interrelation between owner designer and the “planning board” regulations. It covers individual creativity, professional ethics and rates.

**Two (2) hours of lecture and four (4) hours of laboratory per week.**

**Lab Fee: \$100.00**

**ENTE 336** **BUILDING CONSTRUCTION AND INSPECTION PRACTICE II** **4**

**Pre-requisites: ENTE 325**

The course studies the building codes requirements, safety measures for protection in construction, construction methods and equipment. It emphasize in local regulations and advantages of inspection practice.

**Three (3) hours of lecture and three (3) hours of laboratory per week.**

**Lab fee: \$100**

**ENTE 341** **APPLIED ELECTRONICS** **3**  
**Pre-requisites: ENTE 200**

AC analysis of Bipolar Transistors (BJT) and Field Effect Transistors (FET). Introduction to power electronics and power computations. Study of power electronics system, such as, rectifiers, DC to DC converters, and inverters. A design project is required.

**Two (2) hours of lecture and three (3) hours of laboratory per week.**

**Lab fee: \$150.00**

**ENTE 342** **ELECTRONICS ENGINEERING** **3**  
**TECHNOLOGY PRACTICE**

**Pre-requisite: Approval of Department Director or Program Coordinator.**

**Must have 29 credits approved, including at least 17 concentration credits.**

The student will provide an electronics engineering technology solution to a practical or technical problem. The students are required to have a period of practice equivalent to three credit hours during a semester. A professor and tutor will be assigned to supervise, advise and guide the students. It is required to coordinate with the Director of the department or Coordinator, an agency in which the student can obtain the required work experience. The students are required to prepare an oral presentation and a written report of their work experience.

**Three (1) hours of lecture and six (6) hours of practice in industry per week.**

**Practice Fee: \$125.00**

**ENTE 346** **BUILDING CONSTRUCTION AND** **3**  
**SPECIFICATIONS**

**Pre-requisite: GEEN 107**

This course covers general construction methods followed in different types of projects (Earthworks, Roadways, Structures and Water Systems) and emphasize on the principles and techniques applied to the above construction methods for estimating input time, labor, equipment and materials for eventual final cost determination.

**Three (3) hours of lecture per week.**

**ERDEF 201** **VIGOROUS HUMAN MOVEMENT I –** **3**  
**FUNDAMENTAL MOVEMENTS**

Experience in fundamental body movements, creative movements, rhythms and dances, floor and rhythmic gymnastics, cheerleading, and aerobic dance choreography. The course considers the strategies and instructional methods that are conscious of the inherent expressive values of body movement. This course is part of the group of courses of the program that enriches future educators.

**Three (3) hours of lecture per week.**



<b>ERDEF 207</b>	<b>VIGOROUS HUMAN MOVEMENT VII – ECOLOGICAL ADVENTURES &amp; RISKS</b>	<b>3</b>
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Movement experiences with the feeling of ecological adventures and risks, the Concentrationity of the experiences are outside. Included are walks, (hiking) mountain climbing, orienteering, camping, and water activities. This course is part of the group of courses of the program that enriches the future educator's repertory of movement experiences.

**Three (3) hours of lecture per week.**

<b>ERDEF 209</b>	<b>ACTIVITIES FOR HEALTH AND WELLNESS</b>	<b>3</b>
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Study of the meaning, components and methods of fitness training, oriented towards holistic health and the mastery of movements through the ages of 5 to 19. Includes practice in adequately choosing and using evaluation methods, valuing healthy aptitudes of the disciplines that study human movement.

**Three (3) hours of lecture per week.**

<b>ERDEF 210</b>	<b>DEVELOPMENT OF VIGOROUS MOVEMENT PROGRAMS</b>	<b>3</b>
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Introductory course of physical education at global levels and at Puerto Rico. It covers the scope and contemporary visions in the development of sports activities for youths.

**Three (3) hours of lecture per week.**

<b>ERDEF 211</b>	<b>PHYSICAL DEVELOPMENT &amp; MOTOR LEARNING</b>	<b>3</b>
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Study of the background and advances of the motor behavior in the human vigorous movement scenario with emphasis in the voluntary motor learning. It includes the study of principles, distinctive characteristics, applicable terminology strategies, methods, and instrumentation to facilitate motor skills learning.

**Three (3) hours of lecture per week.**

<b>ERDEF 216</b>	<b>PHYSICAL EDUCATION FOR YOUTHS WITH SPECIAL NEEDS</b>	<b>3</b>
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Study of legal, ethic, and methodological fundamentals in the movement education of children and youths with special needs, both temporary and permanent. It includes practice in the making and implementation of educational individualized plans.

**Three (3) hours of lecture per week.**

<b>ERDEF 312</b>	<b>ANATOMY &amp; KINESIOLOGY RELATED TO VIGOROUS MOVEMENT</b>	<b>3</b>
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**Pre-requisite: BISC 101 & BIOL 103**

Study of the muscle-skeletal structure in the performance of movement for the physical fitness context and for the acquisition of motion skills. It considers the functional morphology, according

to growing processes and gender development between the ages of 5 to 9 years, as well as the relationship with neuromuscular demands of the physical performance.

**Three (3) hours of lecture per week.**

**ERDEF 313    PHYSIOLOGY OF HUMAN MOVEMENT    3**  
**Pre-requisite: ERDEF 312**

Study of the adaptation and the organism functioning in the energetic, cardio respiratory and neuromuscular order that is produced in the disciplines related to the human movement. These are oriented toward total welfare and a fine physical performance of children and youths from both genders.

**Three (3) hours of lecture per week.**

**ERDEF 315    SOCIALIZATION & DEVELOPMENT OF THE    3**  
**CHARACTER IN EXPERIENCE MOVEMENT**

Study of socializing and moral action theories and models in the physical education. It carefully considers strategies in the discipline for the girls', boys' and youngsters' invulnerability harassed by situations of lack of resources, inattention, or community or home violence. The course procures the development of professionals capable to be theorists of their own actions, instead of a critic reproducers of the studied models.

**Three (3) hours of lecture per week.**

**ERDEF 317    EVALUATION, INVESTIGATION    3**  
**IN PHYSICAL EDUCATION**

**Pre-requisite: EDUC 336**

Study of the paradigms on which evaluation, research, measuring, and assessment concepts are founded within the physical education discipline. It also includes evaluation, design and application of techniques as well as the instrumentation applicable to the studying field. The use of programs and technological media is also included. Application exercises in real scenarios are required. **Three (3) hours of lecture per week.**

**ERDEF 318    LEGAL MANAGEMENT & ASPECTS IN THE    3**  
**PHYSICAL EDUCATION - RECREATION AND SPORTS**

Study of principles, theories, and different functions related to the administration of physical education programs, recreation and sports within school, community, and minor institutions context. Analysis of the law and rules applicable in the implementation of both programs and projects. Prevention and security aspects in programs implantation are included.

**Three (3) hours of lecture per week.**

**ERDEF 319    LUDIC EXPERIENCE IN THE CHILD'S    3**  
**EDUCATIONAL PROCESS**

A The course introduces the phenomenological study of playful activity as a manifestation of

human movement in its physical, mental, emotional and social dimensions. It explores the use of the recreational experiences in a variety of forms including the free and creative, folklore, cooperation, conditioning and pre-sports games according to their contribution in the process of the integral development of the minor.

**Three (3) hours of lecture per week.**

**ERDEF 320                    RATE, CORPORAL EXPRESSION & FORMATIVE                    3**  
**GYMNASTICS**

Study of suitable focuses and methodology for the fomentation and development of exploratory rhythmical expression, and in response to dancing structures, as well as corporal control with intention, versatility, and quality on floor, space, with equipment and implements. Emphasis in the processes and content selection criteria of the corresponding sequence to the particular development between the ages of 5 to 12 years.

**Three (3) hours of lecture per week.**

**ERDEF 321                    PRINCIPLES OF ARBITRATION                    3**

Theoretical and practical consideration of arbitrage and the sport formalization for participants of both genders between the ages of 12 to 19 years. The course's length is distributed in the study and practice of the essential aspects of the formalization: ethical, technical, tactical, legal, and security aspects. It includes experiences of arbitrage and formalization in various disciplines for those ages in schools, communities, institutions, with a critical evaluation of the student's performance as part of the arbitral body from the peers' point of view and from the teacher or course's instructor.

**Three (3) hours of lecture per week.**

**ERDEF 322                    SPORT DEVELOPMENT PROCESS                    3**

Study of the methods and means of sports formation, according to the developmental processes between the ages of 12 to 19 years, school years from 7th to 9th through a holistic perspective)by which well-being and the potential efficiency at the best age to achieve it in one or more sports disciplines are facilitated. Methodology of athletic training and sport pedagogy are considered.

**Three (3) hours of lecture per week.**

**ERDEF 328                    PRE-INTERNSHIP IN SECONDARY PHYSICAL                    3**  
**EDUCATION (7-12)**

**Pre-requisite: ERDEF 411 and ERDEF 413**

Clinical and laboratory experiences that familiarize the students with the educational system and the school community. Visits to secondary schools, class observations, seminars, lectures, films, planning and development of lessons in simulated situations and school laws are covered.

**Three (3) hours of lecture per week.**

**Lab Fee: \$285.00**

**ERDEF 329 PRE-INTERNSHIP IN ELEMENTARY PHYSICAL EDUCATION (K-3) 3**

**Pre-requisite: ERDEF 410 and ERDEF 412**

Clinical and laboratory experiences that familiarize the students with the educational system and the school community. Visits to elementary schools, class observations, seminars, lectures, films, planning and development of lessons in simulated situations and school laws are covered.

**Three (3) hours of lecture per week.**

**Lab Fee: \$ 285.00**

**ERDEF 410 DESIGNS OF PHYSICAL EDUCATION PROGRAMS FROM LEVELS K-6 3**

To study the focus on the curricular models that applies to the physical education programs from kinder to six grades. Development of knowledge attitudes and skills for it design, organization, implantation, and evaluation of programs related to the discipline that study the phenomenon of human movement vigorous in its multiple manifestations. To study the professional recommendations of the rules that can be apply. Curricular segment production with technological integration.

**Three (3) hours of lecture per week.**

**ERDEF 411 PHYSICAL EDUCATION PROGRAMS DESIGN FOR GRADES 7-12 3**

The study of the curricular focus and models that apply to physical education in the seven through twelve grades. Development of knowledge, attitude and skills for the design for the organization, implantation, and evaluation related to the discipline. The study of the phenomenon of the vigorous human movement and its multiple manifestations. To study the professional recommendation and rules that applies. Curricular segment production with integrated technology.

**Three (3) hours of lecture per week.**

**ERDEF 412 TEACHING METHODOLOGY K-6 3**

**Pre-requisite: ERDEF 410**

A critical test of the theories and the practices for the implantation of teaching-learning process in physical education in the elementary level. Focus application, models, strategies, techniques, procedures, and quality elements associated to the achievement in the educational objectives in this class orientated as the holistic learning of the elementary level. Learning the documentation making use of technology. It requires real experiences in the working environment.

**Three (3) hours of lecture per week.**

**ERDEF 413 TEACHING METHODOLOGY 7-12 3**

**Pre-requisite: ERDEF 411**

A critical test of the theories and the practices for the implantation of teaching-learning process in physical education in the secondary level. Focus application, models, strategies, techniques, procedures, and quality elements associated to the achievement in the educational objectives in



this class orientated as the holistic learning of the secondary level. Learning the documentation making use of technology. It requires real experiences in the working environment.

**Three (3) hours of lecture per week.**

**ERDEF 490**    **TEACHING TEACHER'S PRACTICE**    **6**  
**EXPERIENCE IN THE TEACHING OF PHYSICAL**  
**EDUCATION IN THE K-6 LEVEL**

**Pre-requisite: EDUC 329, 115 credits approved and 2.50 GPA as well as concentration point average.**

Supervise teaching experience by a university professor with the help of a cooperative teacher in the traditional classroom and other scenes for the teaching of physical education in the elementary level. Application of the learning and methodology teaching theories and official appraisements related to the class and real job environment.

**Twenty (20) hours of practice per week.**

**Practice fee: \$125.00**

**ERDEF 491**    **PRACTICAL PRACTICE IN THE TEACHING**    **6**  
**OF PHYSICAL EDUCATION LEVELS 7-12**

**Pre-requisite: EDUC 328, 115credits approved and 2.50 GPA as well as concentration point average.**

Supervise teaching experiences by a university professor with the aid of a cooperative teacher in a traditional classroom or another environment for the teaching of physical education to secondary level students. Application of the learning and methodology theories in the teaching and official appraisements in the real job environment.

**Twenty (20) hours of practice per week.**

**Practice fee: \$125.00**

**GEEN 104**    **ENGINEERING DRAWING**    **3**

The course introduces to the field of engineering graphics as a design and documentation tool. Topics include free hand drawing, orthographic projections, points, lines, planes, solids, sections, isometrics, oblique drawing, dimensioning, and feature control symbols.

**Two (2) hours of lecture and two (2) hours of laboratory per week.**

**Lab fee: \$100.00**

**GEEN 105**    **ENGINEERING GRAPHICS AND DESIGN**    **3**

**Pre-requisite: GEEN 104**

An introduction to graphical language techniques used in engineering, including the application of basic delineation, symbols and standards to solve engineering space problems. The course includes the application of descriptive geometric principles, like distances and angles between lines and planes; and rotation problems, as graphic design tools in engineering. The students apply vector graphics solutions as engineering analysis and design tools.

**Two (2) hours of lecture and two (2) hours of laboratory per week.**

**Lab fee: \$100.00**

**GEEN 106**                                      **COMPUTER GRAPHICS & DESIGN I**                                      **3**  
**Pre-requisite: COSC 101 and GEEN 104**

This course introduces the fundamentals of computer aid design (CAD) in engineering. It emphasizes in the application of engineering graphics using a CAD software like AutoCad or other similar program.

**Two (2) hours of lecture and two (2) hours of laboratory per week.**

**Lab fee: \$115.00**

**GEEN 107**                                      **ENGINEERING DRAWING AND**                                      **3**  
**COMPUTER DESIGN**

The course introduces to the field of engineering graphics as a design and documentation tool. Course includes free hand drawing, drawing techniques and the introduction to computer aid design (CAD) in engineering. It emphasizes in the application of engineering graphics with a CAD software as a tool.

**Two (2) hours of lecture and two (2) hours of laboratory per week.**

**Lab fee: \$100.00**

**GEEN 108**                                      **COMPUTER GRAPHICS AND DESIGN II**                                      **3**  
**Pre-requisite: GEEN 106**

Advanced computer drawing in engineering. The course focuses in Three-Dimensional graphical drawing using a CAD software like AutoCad or other similar program.

**Two (2) hours of lecture and two (2) hours of laboratory per week.**

**Lab fee: \$115.00**

**GEEN 111**                                      **INTRODUCTION TO ENGINEERING**                                      **3**  
**& TECHNOLOGY**

This course guides the students in the transition from High School to University, emphasizing in the keys to success in the Study of Engineering and Informatics Technology Programs. It introduces to the use of common software tools such as word processor, spreadsheet and presentation programs. The course introduces to Engineering and Technology as a profession, as well as, discusses the fundamentals of learning and problem solving through a freshman project.

**Three (3) hours of lecture per week.**

**GEEN 212**                                      **ENGINEERING STATICS**                                      **3**  
**Pre-requisite: MATH 230 and PHYS 201**

This course introduces to the analysis of forces and moment systems through force vectors. It discusses the equilibrium laws over particles and rigid bodies, including the study of simple trusses, frames, beam's internal forces, friction forces, centroid and moment of inertia of geometric sections. **Three (3) hours of lecture per week.**

**GEEN 213**                              **ENGINEERING DYNAMICS**                              **3**  
**Pre-requisite: GEEN 212**

The course introduces to the rigid-body kinematics and kinetics applied to engineering problems. It emphasizes on Newtonian dynamics of particles and rigid bodies, work and energy, impulse and momentum, impact and relative motion of a system of rigid bodies in plane motion.  
**Three (3) hours of lecture per week.**

**GEEN 214**                              **ENGINEERING MECHANICS**                              **3**  
**Pre-requisites: MATH 230 and PHYS 201**

Compendium for Engineering Mechanics. Statics: Analysis of force systems. Application of equilibrium law for particles and rigid bodies. Structural analysis including internal forces and friction. Calculation of centers of gravity, centroid and moment of inertia. Dynamics: Kinematics and equations of motion of a particle or rectilinear and curvilinear motion. Planar kinematics or rigid bodies. Kinetics for planar motion of rigid bodies, including equations of motion and principles of energy and momentum.  
**Three (3) hours of lecture per week.**

**GEEN 221**                              **MATHEMATICAL METHODS FOR ENGINEERING**                              **3**  
**Pre-requisite: MATH 304**

Mathematical methods applied to the specific solution of engineering problems with an introduction to numerical methods and computer software. The topics of study included the solution of linear algebraic equations, vector calculus, matrices, Fourier series, partial differential equations, and numerical analysis. In this course, students apply your knowledge of previous mathematics courses to the solution of a variety of engineering problems.  
**Three (3) hours of lecture per week.**

**GEEN 245**                              **ETHICS FOR ENGINEERING**                              **3**

The course focuses on the moral and legal aspects of ethics and the application of these concepts to a variety of engineering disciplines.  
**Three (3) hours of lecture per week.**

**GEEN 310**                              **ENGINEERING UNDERGRADUATE RESEARCH**                              **3**  
**Pre-requisite: Approval of Department Director or Program Coordinator**

This course is for undergraduate research under the direct supervision of a faculty member. In this course the students acquire the necessary skills for doing research and showing results. The research topic could be selected by the student and/or faculty.  
**One (1) contact hour and eight (8) hours of student research per week.**

**GEEN 356**                                      **LECTURE OF CONSTRUCTION DOCUMENTS**                                      **3**  
**Pre-requisite: GEEN 105**

A study of construction documents including reading and interpreting of construction drawings and specifications for projects from civil drawings, architectural drawings, structural drawings, mechanical drawings, electrical drawings and finishes.

**Three (3) hours of lecture per week.**

**GESC 101**                                      **FUNDAMENTALS OF GENERAL SCIENCES**                                      **4**

An introductory interdisciplinary course in natural sciences. Emphasis on the general concepts of Biology, Chemistry and Physical Sciences. The course is designed for non -science Concentrations.

**Four (4) hours of lecture and a two (2) hours laboratory per week.**

**Lab fee: \$115.00**

**HUMA 101**                                      **STUDY OF WESTERN CULTURE AND CIVILIZATION I**                                      **3**

The course focuses on theoretical and critical analysis of economic, political, and socio-cultural processes and military conflicts of the great civilizations of mankind. Beginning from the appearance of mankind, the populace of the Near East, the classical Greco-Roman until the beginning of the Middle Ages. The course develops from the research of the Concentration cultural, religious, philosophical contributions and its application to present.

**Three (3) hours of lecture per week.**

**HUMA 102**                                      **STUDY OF WESTERN CULTURE AND CIVILIZATION II**                                      **3**

**Pre-requisite: HUMA 101**

This course includes the study of Western civilization, from the Middle Ages to the 21<sup>st</sup> century. It analyzes the philosophical and cultural thought of the population that make up the so-called Western civilization. Economic, political, and socio-cultural processes and military conflicts of the population of Europe and its influence on the changes experienced by the Western society in our time are identified.

**Three (3) hours of lecture per week.**

**HUMA 206**                                      **HISTORY OF THE UNITED STATES (CONDENSED)**                                      **3**

The course provides a historical background of the economic, political and socio-cultural development of the United States, from its origins to modern times. Emphasis will be given to the development of colonial institutions, constitutional policy, and the democratic system, the rise of capitalism as an economic system and the problems of the American nation in the 21<sup>st</sup> century. An overview of the contributions made by the American people is presented to humanity.

**Three (3) hours of lecture per week.**

**HUMA 209** **HISTORY OF PUERTO RICO I** **3**

The course studies the geological origins, the environment and the location of the Puerto Rican archipelago in the Caribbean context. Study of the pre-Hispanic cultures and its historical legacy. Stresses the formation and development of the Puerto Rican society from its origins to the 18<sup>th</sup> century. Study the institutions of colonial government in America and the process of economic development in Puerto Rico. Examines the role of the Church in the formation and character of the Puerto Rican, as well as folklore and the outstanding artistic expressions.

**Three (3) hours of lecture per week.**

**HUMA 210** **HISTORY OF PUERTO RICO II** **3**  
**Pre-requisite: HUMA 209**

The study of the formation and development of Puerto Rican society between the 19<sup>th</sup> and 20<sup>th</sup> century. Emphasis will be given on the most important economic events, political and social occurrences during the Spanish Colonial regimen, and after the change of sovereignty to the present.

**Three (3) hours of lecture per week.**

**HUMA 215** **HISTORY OF PUERTO RICO** **3**

Synthesis of economic, political, and socio-cultural processes and armed conflicts in the history of Puerto Rico, from its origins to the present. The discussion of the impact of changes before and after 1898 is integrated. The importance of the geographical location of the Puerto Rican archipelago is analyzed from the 16<sup>th</sup> to the 21<sup>st</sup> century.

**Three (3) hours of lecture per week.**

**INEN 301** **INDUSTRIAL ORGANIZATION AND MANAGEMENT** **3**

**Pre-requisite: MATH 230**

This course introduces to the basic principles of industrial organization and management. Economic analysis, structure of companies, competitive markets, control and design principles, industrial system and models for decision making in engineering are covered. Effective management of resources is emphasized.

**Three (3) hours of lecture per week.**

**INEN 313** **WORK SYSTEM DESIGN** **4**  
**Pre-requisite: INEN 311**

Basic, concepts, strategies and models of work system design. Time and motion studies, design method, human factors, work environments and the implementation of design.

**Three (3) hours of lecture and two (2) hour laboratory, computation per week.**

**Lab fee: \$75.00**

**INEN 314**                                      **WORK MEASUREMENT AND SYSTEM DESIGN**                                      **4**

**Pre-requisite: INEN 301**

The course is divided into three main categories. The first part studies the basic concepts, strategies and models for work system design. It discusses the tools that are available for work system design which includes an assortment of graphic displays of data and work-related charts. The second part studies the work measurement systems employed in the industry. It focuses in the application of work systems principles and measurement techniques to improve the work system results. The third part introduces the important topic of ergonomic and how the work design relies on the capabilities and limitations of the human body, exploring the work design in terms of level of illumination and noise and recommended weight load permitted by OSHA.

**Three (3) hours of lecture and two (2) hours of laboratory, computation per week**

**INEN 320**                                      **PROBABILITY AND STATISTICS II**                                      **3**

**Pre-requisite: MATH 319**

The course emphasizes on the application of mathematical testing in engineering. It can be divided into three main categories of study; hypothesis tests, regression analysis and nonparametric methods. The course exposes the student to common software applications such as Excel and Minitab. It is designed to provide the student the necessary knowledge and at the same time expose him to some of the tools that are commonly used in the practice.

**Three (3) hours of lecture per week.**

**Lab fee: \$50.00**

**INEN 323**                                      **ENGINEERING ECONOMY**                                      **3**

**Pre-requisite: MATH 230**

Economic analysis related to decision making and engineering projects. Cash flow, annual cost worth, present worth, rate of return, break-even analysis, tax effects, depreciation, replacement and decision under risk and under uncertain conditions.

**Three (3) hours of lecture per week.**

**INEN 401**                      **OPERATIONS RESEARCH I: DETERMINISTIC MODELS**                                      **3**

**Pre-requisite: MATH 319**

Deterministic models, linear programming formulation of the models, simplex method, duality, sensitivity analysis. CPM, PERT, branch-and-bound technique for solving integer programming problems. Network flow.

**Three (3) hours of lecture per week.**

**INEN 403**                                      **SYSTEMS SIMULATION**                                      **3**

**Pre-requisites: INEN 320 and COSC 115**

The course will introduce the basic concepts of computation through modeling and simulation that are increasingly being used by engineers to shorten design cycles, innovate new products, and

evaluate designs and simulate the impacts of alternative approaches. Students will use simulation software to explore a range of programming and modeling concepts while acquiring those skills. They will then undertake a final project that analyzes one of a variety of scientific problems by designing a representative model, implementing it, completing a verification and validation process of the model, reporting the project in oral and written form, and changing the model to reflect corrections, improvements and enhancements.

**Two (2) hours of lecture and two (2) hours of laboratory, computation per week.**

**Lab fee: \$75.00**

**INEN 405                                      COMPUTER-BASED INFORMATION SYSTEMS                                      3**

**Pre-requisites: INEN 314 and COSC 115**

This course presents the methods and tools employed to develop a computer base information system for industry. It emphasizes in the theory of communication and information flow, methods of collecting and controlling information, programming and development of information support systems for decision making. It cover the advances in IS and technology in support product design and web-based design environments.

**Three (3) hours of lecture per week.**

**INEN 410                                      HUMAN RESOURCES MANAGEMENT                                      3**

**Pre-requisite: INEN 314**

This course examines the role of the human resource professional as a strategic partner in managing today organizations. Key functions such as recruitment, selection, development, appraisal, retention, compensation, and labor relations are studied. The course introduces to the management of an organization's workforce through the design and implementation of effective human resources policies and procedures.

**Three (3) hours of lecture per week.**

**INEN 411                                      QUALITY CONTROL                                      3**

**Pre-requisite: INEN 320**

A comprehensive coverage of modern quality control techniques to include the design of statistical process control systems, acceptance sampling, and process improvement. Foundation principles developed by Juran, Deming and others will be applied. Sampling techniques and control charts will be applied. Concepts of statistical process control will be emphasized throughout. Design of experiments and Taguchi-type methodologies will be applied.

**Two (2) hours of lecture and a two (2) hours laboratory, computation per week.**

**Lab fee: \$75.00**

**INEN 412                                      PRODUCTION PLANNING                                      3**

**Pre-requisites: INEN 320**

This course deals with the concepts of design, development, implementation and management of production planning systems, including master production scheduling, aggregate planning, material requirements planning, capacity and inventory planning and production activity control.

The course cover topics like process analysis, project analysis, design of operations, facility planning, forecasting, aggregate planning, inventory control, material requirement planning, and scheduling.

**Three (3) hours of lecture per week.**

**INEN 413                                      PRODUCTION PLANNING II                                      3**  
**Pre-requisite: INEN 412**

This course delves into some topics of Production Planning I, such as Material Requirement Planning and goes over them in more detail. The course emphasizes in the modern concepts of production control systems and cover topics like Bill of materials, capacity planning, shop floor control, cycle counting, system implementation, master production scheduling.

**Three (3) hours of lecture per week.**

**INEN 414                                      DESIGN OF EXPERIMENTS                                      3**  
**Pre-requisite: INEN 320**

This course covers the statistical design of experiments for systematically examining how a system functions. Topics covered will include: Introduction to Experiments, Completely Randomized Designs, Blocking Designs, Full Factorial Designs with Two Levels, Fractional Designs with Two Levels and Response Surface Designs.

**Three (3) hours of lecture per week.**

**INEN 415                                      INDUSTRIAL SAFETY                                      3**  
**Pre-requisite: CIEN 313**

An introduction of Industrial Safety elements and descriptive introduction of the basic requirements of some of the most cited OSHA (Hazard Communication, Recordkeeping, Personal Protective Equipment (PPE), Machine Guarding, Hazards concerning with Material Movements, and Control of Hazardous Energy), focuses on accident prevention. It includes the identification, analysis and control of conditions that can present a safety or health hazard and affect the welfare of the employee or the community. Accident prevention, risk management, industrial hygiene and fundamentals of environmental engineering are emphasized.

**Three (3) hours of lecture per week.**

**INEN 420                                      LEAN AND SIX SIGMA                                      3**  
**Pre-requisite: INEN 320**  
**Co-requisite: INEN 411**

An introduction of Industrial Safety elements and descriptive introduction of the basic requirements of some of the most cited OSHA (Hazard Communication, Recordkeeping, Personal Protective Equipment (PPE), Machine Guarding, Hazards concerning with Material Movements, and Control of Hazardous Energy), focuses on accident prevention. It includes the identification, analysis and control of conditions that can present a safety or health hazard and affect the welfare of the employee or the community. Accident prevention, risk management, industrial hygiene and fundamentals of environmental engineering are emphasized.

**Three (3) hours of lecture and two (2) hours of laboratory, computation per week.**



**INEN 421                                  ACCOUNTING FOR ENGINEERS                                  3**  
**Pre-requisite: INEN 323**

Fundamentals of accounting for management planning and control, cost accounting, budgeting and use of the accounting information in management decisions in Engineering.  
**Three (3) hours of lecture per week.**

**INEN 422                                  WORK MEASUREMENT                                  3**  
**Pre-requisites: INEN 312 and INEN 313**

Work measurement systems. Time studies, standard data, predetermined time systems, work sampling.  
**Three (3) hours of lecture and two (2) hour laboratory, computation per week.**  
**Lab fee: \$75.00**

**INEN 423                                  COST ANALYSIS                                  3**  
**Pre-requisites: INEN 323**

The course presents the methods used in industry for budgeting, recording, analyzing and controlling costs. The role of the engineer in profit planning, design and operation of cost systems, standard cost, and financial statement analysis. The course emphasize in the cost analysis for decision making and discuss its importance in the project scheduling.  
**Three (3) hours of lecture per week.**

**INEN 432                                  ROBOTICS AND AUTOMATED SYSTEMS                                  3**  
**Pre-requisite: COSC 115**

Study the basic concepts in the field of robotics. Study of numerical systems and logical operations required to program a manipulator. Study of mathematics used to describe positions and orientations in 3-space. Study of geometry of mechanical manipulators. Study of the forces and moments required to cause motion of a manipulator. Study of motions of the manipulator in terms of trajectories through space.  
**Two (2) hours of lecture and two (2) hours of laboratory per week.**  
**Lab fee: \$100.00**

**INEN 433                                  FACILITIES PLANNING AND DESIGN                                  3**  
**Pre-requisites: INEN 314 and INEN 412**

This course covers the strategic facilities planning through detailed facilities layout design. Considerations include product flow, space and activity relationships, personnel requirements, material handling, and layout. Traditional and contemporary issues in manufacturing and their impact on facilities design including receiving, shipping, warehousing, and integration with manufacturing and supporting operations are explored. Facilities planning models and the process of evaluating, selecting, preparing, presenting, and implementing the facilities plan are covered.  
**Two (2) hours of lecture and a one (1) hour laboratory, computation per week.**  
**Lab fee: \$75.00**

**INEN 450 PROJECT MANAGEMENT 3**  
**Pre-requisites: INEN 323**

This course highlights various aspects of project management, such as, planning, budgeting, scheduling, resources, allocation, monitoring and controlling and closing of the project. The course will present the application of the theory through manual exercises and using software packages.  
**Three (3) hours of lecture per week.**

**INEN 481 INDUSTRIAL ENGINEERING CAPSTONE I 3**  
**Pre-requisite: Approval of Department Director or Program Coordinator. Must have 102 credits approved, including at least 25 concentration credits.**

This course is the first part of the Industrial Engineering Mayor Design Experience (Capstone Project). At the end of this course, the student is required to complete a feasibility study for an industrial engineering problem proposed by the professor or students at the beginning of the course. A professor will be assigned to provide guidance and evaluate students. The project should be made in groups; the scope of the project must be adjusted depending on the group's size. The students will have several presentations and written reports. The course will end with a written report and the project's final presentation, open to the whole academic community. The evaluation depends on all the presentations, reports and evaluation of the group work.

**Two (1) hour of lecture and eight (8) hours of laboratory, computation per week.**  
**Lab fee: \$250.00**

**INEN 482 INDUSTRIAL ENGINEERING CAPSTONE II 3**  
**Pre-requisite: INEN 481**

This course is the second part of the Industrial Engineering Mayor Design Experience (Capstone Project). At the end of the course, the student is required to implement the solution (i.e Feasibility Study) to the problem proposed on INEN 481. A professor will be assigned to guide and evaluate the students. The project will be made in groups; the scope of the project will be adjusted depending on the group's size. The students will have several presentations and written reports. The course will end with a written report and the project's final presentation, open to the whole academic community. The evaluation depends on all the presentations, reports and self-evaluation of the group work.

**Two (1) hour of lecture and eight (8) hours of laboratory, computation per week.**  
**Lab fee: \$250.00**

**INEN 483 PHARMACEUTICAL PROCESS VALIDATION 3**  
**Pre-requisite: INEN 411**

This course presents an introduction to the validation of pharmaceutical processes. It considers the development and implementation of a pharmaceutical process validation program. Methods and reasoning behind protocols are discussed, as well as, the FDA Guidance for Industry on Process Validation Principles and Practices. A risk approach from three major sources: contamination, human errors and process-related issues is emphasized, considering the "minimal" requirements for compliance with national and international expectations from regulators or agencies.

**Three (3) hours of lecture per week.**

**INEN 490** **SPECIAL TOPICS IN INDUSTRIAL ENGINEERING** **3**  
**Pre-requisites: Department Director or Program Coordinator**

Study topics of interest to undergraduate students in the area of industrial engineering.  
**Three (3) hours of lecture per week.**

**INEN 495** **INDUSTRIAL ENGINEERING PRACTICE** **3**  
**Pre-requisite: Approval of Department Director or Program Coordinator. Must have 102 credits approved, including at least 25 concentration credits.**

The student will provide an industrial engineering solution to a practical or technical problem. The students are required to have a period of practice equivalent to three credit hours during a semester. A professor and tutor will be assigned to supervise, advise and guide the students. It is required to coordinate with the Director of the department or Coordinator, an agency in which the student can obtain the required work experience. The students are required to prepare an oral presentation and a written report of their work experience.

**One (1) hour of seminar/conference and ten (8) hours of practice in industry per week.**  
**Practice fee: \$125.00**

**INEN 501** **SUPPLY CHAIN MANAGEMENT AND LOGISTIC** **3**  
**Pre-requisites: INEN 301**

The course emphasizes in design and implement supply chains management and logistic aligned with product, market and customer characteristics. The topics covered include concepts such as important supply chain metrics, primary tradeoffs in making supply chain decisions, and basic tools for effective and efficient supply chain management, production planning and inventory control, order fulfillment and supply chain coordination. Also, global supply chain design, logistics, and outsourcing is mentioned.

**Three (3) hours of lecture per week.**

**INEN 502** **SMART AUTOMATED SYSTEMS** **3**  
**Pre-requisites: COSC 115**

Study basic concepts and description of a variety smart automation systems applied today in industrial manufacturing. Smart systems involve high level of automated decision making, using computer-integration through a different communication protocols available today that include private and public network using cable or wireless. Topics covers automation systems for each step of the industrial manufacturing process: receiving, production line, quality, packing and storage.

**Three (3) hours of lecture per week.**

**INEN 503** **QUALITY ASSURANCE TOOLS** **3**  
**Pre-requisites: INEN 411**

The course introduces to quality assurance practices in industry. It emphasizes on the quality assurance tools and components necessary to maintain quality and services. The course discusses

the process to identify a problem in the industry, the staff training requirements of procedures that are revised and integrates evaluative design, as well as, improvement process and audits.

**Three (3) hours of lecture per week.**

**INEN 514 RELIABILITY 3**  
**Pre-requisites: INEN 320**

The course introduces to reliability engineering. It emphasizes on practical aspects of engineering through an integrated approach to design, engineering and management, through the life cycle of a product. Include different applications for engineering, such as analysis of load, strength and design; as well as, reliability prediction and modeling.

**Three (3) hours of lecture per week.**

**MANA 131 HUMAN RELATIONS IN BUSINESS 3**

The interaction and interpersonal activity of people in the decision making process. Individual leadership and group behavior is analyzed through discussion and case presentations. Managerial and labor relations are examined as related to production, communication and salesmanship.

**Three (3) hours of lecture per week.**

**MANA 181 PRINCIPLES OF MANAGEMENT 3**

Basic management concepts in a business enterprise. The managerial process: planning, organizing, coordinating, directing, and controlling. It emphasizes delegation and decision making.

**Three (3) hours of lecture per week.**

**MANA 266 SMALL BUSINESS MANAGEMENT 3**  
**Prerequisite: MANA 181, ACCO 112**

Study of problems that involve starting and operating a successful small business: selecting the location, determining how to borrow money, budgeting, credit, controlling inventory, and purchasing. Emphasis is given to the aspects of management that are pertinent to the small business.

**Three (3) hours of lecture per week.**

**MANA 303 FUNDAMENTALS OF PRODUCTION MANAGEMENT 3**

**Pre-requisite: STAT 115, ECON 121, MATH 102**

Concepts underlying the production function: plant location, design of manufacturing processes, work simplification and measurement programs; production, quality, cost and inventory control.

**Three (3) hours of lecture per week.**

**MANA 306 PERSONNEL ADMINISTRATION 3**  
**Pre-requisite: MANA 181, MANA 131**

Study of principles, practices and scientific techniques and devices in the development and operation of an effective personnel program.

**Three (3) hours of lecture per week.**

**MANA 308 WAGES AND SALARY ADMINISTRATION 3**  
**Pre-requisite: MANA 306**

Study of wage theory and motivation-to-work theory as related to design of total compensation systems of Concentration organizations. Special attention is given to intrinsic rewards in the development of compensation policies and practices. Included are job evaluation, salary administration, incentive plans and area wage surveys.

**Three (3) hours of lecture per week.**

**MANA 310 ADMINISTRATION IN BUSINESS & SOCIETY 3**  
**Pre-requisite: MANA 181**

Provides the opportunity to solve problems about social, economic and technical issues that upper level management face every day in their organization. Develop short- and long – term alternatives to manage those problems.

**Three (3) hours of lecture per week.**

**MANA 312 LABOR LAW LEGISLATION 3**  
**Pre-requisite: MANA 306 OR MANA 308**

Modern labor legislation and its effect on the relationship between laborer and management. Increasing role of government through federal statutes and federal agencies. Historical background, principles, procedures and judicial aspects of arbitration process. Nature and function of arbitration, process of arbitration, and arbitration cases are covered.

**Three (3) hours of lecture per week.**

**MANA 324 MANAGERIAL DECISION MAKING 3**  
**Pre-requisite: ACCO 112, MATH 102, STAT 115**

A quantitative approach to business decision making. It covers linear programming, transportation problems, optimizing procedures, game theory and economic lot, and other problems.

**Three (3) hours of lecture per week.**

**MANA 381 COMPUTER APPLICATION IN MANAGEMENT 4**  
**Pre-requisites: MANA 181, ACCO 112 and COSC 101**

Study of the application of computers in management: planning for the production, decision making process, analysis of management, market and control.

**One (1) hours of lecture and a three-hour laboratory per week.**

**Lab fee: \$55.00**



**MARK 235**                      **FUNDAMENTALS OF ADVERTISING**                      **3**  
**Pre-requisite: MARK 133**

Thorough analysis of the fundamentals of advertising, planning, development and implementation, using the management decision making processes.  
**Three (3) hours of lecture per week.**

**MARK 303**                      **SALESMANSHIP**                      **3**  
**Pre-requisite: MARK 133**

General principles of personal selling in both consumer and industrial markets. Specialty selling.  
**Three (3) hours of lecture per week.**

**MARK 306**                      **MARKETING MANAGEMENT**                      **3**  
**Pre-requisite: MARK 133**

Studies the principles, functions and practices involved in buying, selling, transporting, storing, grading, distributing and financing of goods. Emphasis is given to the selection, training, supervision, compensation, and stimulation of salesmanship as a profession.  
**Three (3) hours of lecture per week.**

**MARK 308**                      **INTERNATIONAL MARKETING**                      **3**  
**Pre-requisite: MARK 133**

A survey of the aspects involved in marketing products and services in the international market including, tariffs, cultural restrictions, business environment and legal restrictions. It presents the function of local and national businesses and how it influences in the stability of the international markets.  
**Three (3) hours of lecture per week.**

**MARK 309**                      **SALES MANAGEMENT**                      **3**  
**Pre-requisite: MARK 133**

Studies the organization of sales departments and aspects related to product research, personnel selection and recruiting, including compensation plans, routing, supervision and cost analysis. Included in this course is a discussion of the different problems confronted by sales executives.  
**Three (3) hours of lecture per week.**

**MARK 310**                      **MARKETING RESEARCH**                      **3**  
**Pre-requisites: MARK 135, MARK 201 and MARK 233**

It presents and studies the use of the scientific method in gathering, analyzing and interpreting of data. Emphasis is placed on gathering, registering and using data in the decision-making process of marketing strategies. It includes investigation, evaluation and segmentation of market for designing and implementing an effective public relations program.  
**Three (3) hours of lecture per week.**

**MATH 100**    **PREPARATORY MATHEMATICS**    **3**

This course explores the basics of mathematical logical language, which will be used in the following mathematics courses. Basic concepts of theory, the properties of the system of real numbers, operation of arithmetic of cardinal numbers, whole numbers, fractions, decimals and percents are studied. This course adapts to the individual needs of students and integrates a math skills laboratory.

**Three (3) hours of lecture per week and two (2) hours of laboratory per week.**  
**Lab Fee: \$20.00**

**MATH 101**    **INTRODUCTION TO COLLEGE MATHEMATICS I**    **3**

This course offers the students the opportunity to prepare to take advanced courses in the area of mathematics, including solving verbal problems. It begins with the study of real numbers, the number line and the concept of order. The rules of exponents, basic operations and factorization of polynomials, solving equations and inequalities with a variable, graphs and basic operations with algebraic fractions is studied. This course adapts to the individual needs of students and integrates a math skills laboratory.

**Three (3) hours of lecture per week and two (2) hours of laboratory per week.**  
**Lab Fee: \$20.00**

**MATH 102**    **INTRODUCTION TO COLLEGE MATHEMATICS II**    **3**

**Pre-requisite: MATH 101**

This course emphasizes the study of linear equations with two variables, systems of linear equations, radicals, equations with radicals and quadratic equations. In addition, the basic concepts of intuitive geometry are introduced. The solution and application methods are used with oral problems.

**Three (3) hours of lecture per week.**

**MATH 103**    **INTRODUCTION TO COLLEGE MATHEMATICS**    **3**

**Pre-requisite: MATH 100**

This course introduce students to the fundamentals of algebra, which are essential to continue with pre-calculus course. Basic operations with algebraic expressions and polynomial, factorization, basic operations with algebraic fractions, linear equations with two variables, graphic representation of linear equations, linear equations systems and application problems, operations with radicals, basic concepts of geometry and introduce students to work with complex numbers. The course includes a laboratory of math skills.

**Three (3) hours of lecture per week and two (2) hours of laboratory per week.**  
**Lab Fee: \$20.00**

**MATH 133**    **PRE-CALCULUS I**    **3**

**Pre-requisite: MATH – 102**

The course introduces the application of the concepts of sets, sets of real numbers, equations and inequalities with and without absolute value, functions, domains tours, graphs of functions,



composition of functions, inverses, and greater quadratic polynomial functions of degree; radical functions and their graphs; rational functions; horizontal, vertical and oblique asymptotes.

**Three (3) hours of lecture per week.**

**MATH 134**                      **PRE-CALCULUS II**                      **3**  
**Pre-requisite: MATH 133**

This course is a continuation of the course MATH - 133. Application of the concepts of analytic geometry, exponential and logarithmic functions, trigonometric functions, polar equations and solution of systems of linear equations using matrices.

**Three (3) hours of lecture per week.**

**MATH 136**                      **PRE-CALCULUS**                      **4**  
**Pre-requisite: MATH 103 or MATH 102**

Study of functions, domain, values field, graph of functions, asymptotes. Application of analytic geometry concepts, exponential and logarithmic functions, trigonometric functions, polar equations and solution of linear systems equations through matrices.

**Three (4) hours of lecture per week.**

**MATH 230**                      **CALCULUS I**                      **4**  
**Pre-requisite: MATH 134**

Introduction to calculus; limit of functions; continuity; derivative of functions; the mean value theorem; ends, Riemann sums; integral; fundamental theorem of calculus; numerical integration; change of variable; transcendental functions; indeterminate forms, L' Hôpital rule; volumes of solids of revolution and volumes by layers and calculation of work and strength.

**Four (4) hours of lecture per week.**

**MATH 232**                      **CALCULUS II**                      **4**  
**Pre-requisite: MATH 230**

This course is a continuation of Calculus I course; advanced techniques of integration: integration by parts, trigonometric integrals, trigonometric substitution and partial fractions. Improper Integrals; ARC length measures; measures of surface area of solids of revolution; introduction to differential equations; parametric functions; calculation applied to parametric functions; Polar coordinates; areas and lengths in polar coordinates; succession; series; power series; tests of convergence for series and Taylor and Maclaurin series.

**Four (4) hours of lecture per week.**

**MATH 302**                      **CALCULUS III**                      **4**  
**Pre-requisite: MATH 232**

This course is a continuation of the course Calculus II; three-dimensional coordinate system; vectors and vector products; equations of lines and planes in space; functions of several variables and calculation applied to functions of several variables; vector functions and calculation applied

to the vector functions; multiple integrals and their applications; vector fields; line and surface and Green and Stokes theorems.

**Four (4) hours of lecture per week.**

**MATH 304                                  DIFFERENTIAL EQUATIONS                                  3**  
**Pre-requisite: MATH 302**

This course introduces to the solution of differential equations: first order equations, linear equations with constant coefficients, second order linear differential equations, numerical methods, series solutions, and existence theorems, systems of simultaneous differential equations, differential operators and applications.

**Three (3) hours of lecture per week.**

**MATH 319                                  INTRODUCTION TO PROBABILITY                                  3**  
**AND STATISTICS**

**Pre-requisite: MATH 230**

The course introduces experimental and theoretical statistics. It focuses on the application of mathematical testing in engineering. The course includes descriptive statistics, samples, probability distributions, hypothesis tests, correlations and regressions, as well as, elements of probability, theorems of conditional probability, independent and mutually exclusive events.

**Three (3) hours of lecture per week.**

**MEEN 302                                  THERMODYNAMIC FOR ENGINEERS                                  3**  
**Pre-requisite: CHEM 102**

**Co-requisite: MATH 304**

This course introduces the thermodynamic principles. It focuses on the application of the thermodynamics concepts to the solution of engineering problems relating work and energy. The content includes the properties of pure substances, first and second law of thermodynamics, basic gas and vapor cycles, and basic concepts of heat transfer.

**Three (3) hours of lecture per week.**

**MEEN 333                                  MANUFACTURING PROCESSES                                  3**  
**Pre-requisite: CIEN 304 and CIEN 313**

This course presents the principles of manufacturing processes. Discusses dimensions and measurements, metal casting, metal forming, metal cutting, rubber processing, glass working, joining, and soldering, rapid prototyping, injection molding, 3D printing,, electronics assembling and processing, planning and quality control, automation technologies. The course emphasizes in design considerations as a target to select, develop or improve a specific manufacturing process.

**Three (3) hours of lecture per week.**

**NURS 101                                  INTRODUCTION TO NURSING                                  3**

The course introduces the student in the field of nursing. Nursing in the social system, as well as its historical evolution and its dynamic process in our society and new trends are studied. Several philosophical elements that underlie the principles of nursing practice are studied. The study

includes the system theory, the theory of hierarchy of human needs according to Abraham Maslow, Marjorie Gordon's, the Dorothea Orem self-care theory, Sister Callista Roy, among others. The student commences in the nursing process application, as well as the roles and functions. The philosophical framework, vision, mission, and organizational structure of Caribbean University's nursing program is discussed. Explanations of the legal aspects in which the nursing profession is based, and the levels of provision of health services in Puerto Rico is presented.

**Three (3) hours of lecture per week.**

**NURS 102                                BASIC SKILLS IN NURSING                                5**

This course is oriented towards the primary care. The students have the opportunity to acquire basic skills in procedures in preserving life, health and recovery from disease. Basic skills associated with the procedures of the handling of sterile field will be applied. The student will use the communication process to implement these skills with clients, family, community and the interdisciplinary team in the different health scenarios. In addition, it starts with the nursing estimations and analysis of the findings obtained from the history and system reviews of the client. The knowledge and skills acquired in the course will provide the student the tools needed to assume leadership in offering optimal care to their customers who are in different stages of growth and development.

**Three hours (3) of lecture and six (6) hours of clinical practice per week.**

**Lab Fee: \$200.00**

**Practice Fee: \$50.00**

**NURS 103                                PHARMACOLOGY IN NURSING                                3  
Pre-requisites: MATH 101 and NURS 101**

This course provides the student to development skills for medication administration and their relationship in customer care emphasizing pharmaceutical phases, pharmacokinetic and pharmacodynamics. Its Concentration focus is directed to the role of nursing in the management and administration of medications through a theoretical basis, as well as the use of laboratory skills, which will help the student to serve and properly administer medications. Calculation and drug dosage according to body systems through the life cycle, as well as the moral-ethics and legal aspects are included.

**Three (3) hours of lecture per week.**

**NURS 111                                COMMUNICATION AND LEADERSHIP                                3  
    IN NURSING**

In this course, the basic principles of education towards the client, family and community are studied. This helps the promotion and maintenance of health and in the prevention of diseases. Communication as a tool for data collection and as a facilitator of interpersonal relationships is emphasized. In addition, concepts of dynamics group, leadership, theory, role, change and its usefulness within the field of nursing are discussed. It analyzes how these concepts can help provide effective education to the client.

**Three (3) hours of lecture per week.**

**NURS 205**

**NURSING PROCESS WITHIN THE  
CONCEPTION BIRTH AND NEONATAL CARE**

**5**

**Pre-requisites: NURS 101 and NURS 102**

This course will emphasize the normal processes that occur through the stage of procreation of the human being, the prenatal period, birth, postpartum and immediate care of the newborn including early neonatal. The factors and more common disorders that alter the health of the mother, family and community during pregnancy and postpartum is studied. Disorders to be considered in this course are based on the morbidity and mortality rates according to the United States and Puerto Rico vital statistics. Nursing services are directed towards women, infants, families and community through the continuous primary, secondary and tertiary health care scenarios. The course includes clinical practice in various scenarios in which health services are provided.

**Three hours (3) of lecture and six (6) hours of clinical practice per week.**

**Lab fee: \$150.00**

**Practice fee: \$50.00**

**NURS 206**

**HEALTH PHYSICAL ASSESSMENT IN NURSING 3**

**Pre-requisites: NURS 103 and BIOL 304**

This course is designed to provide the nursing student to perform in different health scenarios. It enables them with the basic knowledge to perform a physical examination by identifying the essential of various health problems, pathophysiological processes, with emphasis on the identification of abnormal findings. Conducting diagnoses and nursing interventions are required for intervention with the client. Emphasis is placed on the component content analysis and the development of cognitive, motor, and affective skills related to the taking of the medical history and physical examination. The student will understand the vocabulary and medical terminology.

**Three (3) hours of lecture per week.**

**Lab fee: \$150.00**

**NURS 207**

**PROCESS WITH CHILDREN AND  
ADOLESCENT**

**5**

**Pre-requisite: NURS 205**

In this course, the student acquires knowledge about the different stages of children's growth and development, from infancy through adolescence. Health disorders that affect growth and development, taking into account social, cultural aspects and public policy are studied. Integrate aspects such as family environment, community resources and laws that guard the health, well-being and the protection of the child in the community. With this knowledge the student, using and integrating the nursing process, may intervene with infants, children, adolescents and family in the phases of prevention, maintenance and health deviation stages, with emphasis on the factors that affect the customers self-care.

**Three hours (3) of lecture and six (6) hours of clinical practice per week.**

**Lab fee: \$150.00**

**Practice Fee: \$50.00**

<b>NURS 208</b>	<b>PRINCIPLES IN RESEARCH AND EVALUATION</b>	<b>3</b>
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**Pre-requisite: STAT 117**

This course is designed so that students develop basic skills in the process of scientific research and the use in nursing practice. Describes the changes in the principles of research. The student will use and apply the scientific method in the solution of existing problems, integrating the ethical, moral and legal aspects in research. The different roles that the nursing professional plays in the practice of his profession are also discussed. The research process will be used in the analysis and interpretation of the findings in the solution of problems and/or recommendations.

**Three (3) hours of lecture per week.**

<b>NURS 235</b>	<b>PRINCIPLES OF MORAL AND ETHICS IN NURSING</b>	<b>3</b>
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This course is designed to help professionals in nursing address ethical issues and real life dilemmas from the diverse social, cultural, and religious perspectives. It provides the basic knowledge relating to the legislation applicable to the role of nursing and the theoretical frameworks of ethics. Moral aspects of the profession, as well as laws and their implications for the practice of nursing for the decision-making of client, family and community are discussed.

**Three (3) hours of lecture per week.**

<b>NURS 309</b>	<b>PROCESS WITH ADULTS AND THE ELDERLY I</b>	<b>5</b>
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**Pre-requisites: NURS 102 and NURS 103**

**Co-requisite: NURS 207**

The course is based on the principles of patient, family and community care in the different stages of growth and development. It emphasizes basic needs affected in the young, middle and older adult. It discusses stages of growth and development, balance of fluids and electrolytes, cardiovascular system, respiratory, integumentary, hematological, immunologic, oncology, as well as care pre-intra - and post - operative. The use of the nursing process is applied to estimate, plan, intervene, and evaluate. It collects information from different disciplines to justify in the scientific way the actions of nursing by providing direct holistic care.

**Three hours (3) of lecture and six (6) hours of clinical practice per week.**

**Lab Fee: \$250.00**

**Practice Fee: \$50.00**

<b>NURS 310</b>	<b>MENTAL HEALTH AND PSYCHIATRIC NURSING</b>	<b>5</b>
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**Pre-requisites: NURS 103 and PSYC 101**

This course develops basic skills and scientific knowledge of interpersonal relationships, in the practice of psychiatric nursing. It includes the personality, modalities of psychiatric treatment theories and the effectiveness of therapeutic techniques in behavior. Defense mechanisms in the mentally ill and the basic needs are studied. The student is guided in the use of self, through the

relator process and therapeutic communication to offer holistic care. It emphasizes the prevention of mental illness through education and strategies for handling stressors. The course includes clinical practice in various scenarios in which health services are provided.

**Three hours (3) of lecture and six (6) hours of clinical practice per week.**

**Lab Fee: \$250.00**

**Practice Fee: \$50.00**

**NURS 311    PROCESS WITH ADULTS AND THE    5**  
**ELDERLY II**

**Pre-requisite: NURS 309**

This course discusses the disorders that affect the growth and development of young, middle and older adults. The social, cultural and political aspects are problems and factors that affect customer self-care. Discussed alterations: gastrointestinal, genitourinary, sensory, endocrine, male and female reproductive system, muscle - skeletal and neurological. The course is organized within the framework of the nursing process. In this experience, student performs clinical interventions with community, family, and adult and older patients with alterations in the different systems. Directs the actions through the process of nursing, diagnostic, planning, interventions, and evaluation. Information from different disciplines, scientific way helps the nursing actions to be performed to provide optimum health care.

**Three hours (3) of lecture and six (6) hours of clinical practice per week.**

**Practice Fee: \$50**

**Lab Fee: \$250.00**

**NURS 412    FAMILY AND COMMUNITY HEALTH    5**

**Pre-requisite: NURS 207**

In this course, the student develops knowledge, skills and activities in primary nursing care. Apply theories and concepts that facilitate the study of the family as an integral part of the patient - community. It includes the revision of the principles and concepts of epidemiology, biostatistics and demographics of public health. Discusses the current problems that affect the family and community such as; alcoholism, drug addiction, abuse and misconduct among others. Professionals establish nursing diagnoses relevant to the strengths, needs and performance, family and community levels. Apply legal concepts, humanists and research. Internalize the role of nurses in a culturally diverse and exposed to natural and unnatural phenomena community. Make their clinical practices in different scenarios that provide care to the family and community.

**Three hours of lecture and six hours of community practice per week.**

**Lab Fee: \$250.00**

**Practice Fee: \$50.00**

**NURS 413    PROCESS WITH PATIENT OF    5**  
**CRITICAL, CHRONIC AND TERMINAL DISEASE**

**Pre-requisite: NURS 311**

The contemporary study of critical and terminal illnesses according to the United States and Puerto Rico vital statistics is introduced in this course. It provides care in the acute, chronic and terminal

stages of the disease and emphasizes the psychological and spiritual care. Disorders that interfere with the normal functions of the body are studied. Applies the process of nursing according to the stage of growth and development in which the patient is located. Nursing care will be based on theories of nursing and the latest research trends. The course includes clinical practice in various scenarios in which health services are provided.

**Three hours (3) of lecture and six (6) hours of clinical practice per week.**

**Lab Fee: \$250.00**

**Practice Fee: \$75.00**

**NURS 414                                      PRACTICUM                                      9**  
**Pre-requisite: Approval by the Program Coordinator.**

The student may integrate nursing practice the changes acquired over the process of nursing, leadership, growth, development and investigative processes. Decisions and problem solving in critically analyzing health situations. It emphasizes care management to the client, family and community. This ensures the necessary competence to function as a nursing professional and agent of change comprising the difference between its role and that of other members of the interdisciplinary team. The course includes clinical practice in various scenarios in which health services are provided.

**Three hours of seminar and eighteen hours of clinical practice per week.**

**Lab Fee: \$600.00**

**Practice Fee: \$125.00**

**OSAD 104                                      ENGLISH SPEEDWRITING TRANSCRIPTION                                      4**

Developing of speed writing in English thorough reading, writing and hand transcription. Emphasis the correct use of grammar and punctuation. Requirements at the end of the semester: Take dictation at a speed of 50 words per minute, and transcribe by hand at a rate of 10 words a minute with a minimum of 85% accuracy.

**Four (4) hours of lecture per week.**

**OSAD 113                                      SPANISH SPEEDWRITING SYSTEMS                                      4**

Develops speed writing skills in Spanish through reading, writing and hand transcriptions. Emphasizes the correct use of grammar and punctuation. At the end of the semester students must be able to take dictation of the least 60 words per minute and transcribe at a rate of 14 words per minute with 85% accuracy.

**Fours (4) hours of lecture per week.**

**OSAD 125                                      ELEMENTARY KEYBOARDING                                      3**

Course covers the techniques of typing and the correct use of the computer keyboard. Students study and master different keyboarding techniques and user interface: hardware and software. They also learn to operate the keyboard, format basic business documents, simple reports and basic table. At the end of the semester students should be able to type 26 words per minute with a maximum of 5 errors maximum.

**Three (3) hours of lecture per week.**

**Lab Fee: \$50.00**

**OSAD 126**                      **DOCUMENTS PRODUCTION I**                      **3**  
**Pre-requisite: OSAD 125**

Teaches the techniques for speed and accuracy in keyboarding, emphasizing the application of skills to letter and memo formats, table and tabs to enhance document formats. At the end of the semester students should be able to type 35 words per minute with a maximum of 5 errors.

**Three (3) hours of lectures per week.**

**Lab Fee: \$50.00**

**OSAD 214**                      **SPANISH TRANSCRIPTION**                      **3**  
**Pre-requisite: OSAD 113 and OSAD 126**

Development of transcription skills. Emphasis on correct use of the Spanish language, word division, punctuation, spelling, arrangement of letters and proofreading. At the end of the semester students should be able to take dictation at a speed of 70 words per minute and transcript using a computer at a rate of 14 words per minute.

**Three (3) hours of lecture per week.**

**Lab Fee: \$50.00**

**OSAD 225**                      **DOCUMENTS PRODUCTION II**                      **3**  
**Pre-requisite: OSAD 126**

Emphasizes the further development of speed and accuracy in Keyboarding; application of skills to letter arrangements, writing of letters in the computer; tabulated business forms reports and manuscripts. Minimum requirement at the end of the course: 40 words per minute with a maximum of 6 errors. **Three (3) hours of lecture per week.**

**Lab Fee: \$50.00**

**OSAD 280**                      **RECORDS MANAGEMENT**                      **3**

Introduces the students to the various filing systems with emphasis on the rules of alphabetical, numerical, geographical, subject and other filing systems. Covers control of office documents.

**Three (3) hours of lecture per week.**

**OSAD 287**                      **LAW OFFICE MANAGEMENT**                      **3**  
**Pre-requisite: OSAD 126**

Studies the techniques, procedures, and terminology frequently used in a law firm and aspects related to the functions and responsibilities of a legal secretary.

**Three (3) hours of lecture per week.**

**OSAD 289**                      **MEDICAL OFFICE MANAGEMENT**                      **3**

Covers clinical and administrative techniques that are generally used in medical offices, clinics and hospitals. Emphasis is given to the usage and handling of instruments used in a medical office: the microscope, sterilizer, electro-cardiograph, stethoscope, neurological hammer,



ophthalmoscope, thermometer and others. Medical terminology and the proper way to fill out medical forms used at the office are covered.

**Three (3) hours of lecture per week.**

**OSAD 290 ETHICS AND ETIQUETTE FOR PROFESSIONAL 3**

Study of the ethics, etiquette, civility, and good manners norms to applied to the economics and professional activities in the public as well as private sectors. Its content is based on the belief that the knowledge and practice of good manners are the base of good social and professional relations.

**Three (3) hours of lecture per week.**

**OSAD 325 OFFICE INFORMATION SYSTEMS 3**

**Pre-requisite: OSAD 125**

Covers the creation and revision professional looking documents such as announcements, letting, resumes, reports, brochures, advert, and newsletters. The student learns all the features of a word processing program.

**Three (3) hours of lectures per week.**

**Lab Fee: \$50.00**

**OSAD 326 SPREADSHEETS & ELECTRONIC PRESENTATIONS 3**

**Pre-requisite: OSAD 325**

Seeks to develop skills to organize data, complete calculations, make decisions, graph data, and develop professional looking reports with a spreadsheet program. The student learns to produce professional looking presentations.

**Three (3) hours of lectures per week.**

**Lab Fee: \$50.00**

**OSAD 380 OFFICE PROCEDURES AND ADMINISTRATION 3**

**Pre-requisite: OSAD 125**

An overview of the modern world of business and today's office regarding the technological changes of the present time. Emphasis is placed on the role of the secretary; responsibilities, duties and personal skills expected of today's executive administrative assistant.

**Three (3) hours of lecture per week.**

**Lab Fee: \$50.00**

**OSAD 383 INTERNSHIP IN OFFICE ADMINISTRATION 6**

**Pre-requisite: Approval of Program Coordinator**

Emphasizes the application of secretarial and administrative skills during the last semester of studies. Involves supervised experience in office work to develop initiative and competence in the business office. The student works as an intern in a business, professional, or government office.

**Twenty (20) hours of practice per week and one-hour of lecture per week.**

**Practice Fee: \$125.00**

**OSAD 424**                                 **DATABASE & OFFICE PUBLISHING**                                 **3**  
**Pre-requisite: OSAD 326**

The student learns to integrate the applications of word processing, spreadsheet, and presentation and database management programs in a realistic business context.

**Three (3) hours of lectures per week.**

**Lab Fee: \$50.00**

**OSAD 425**                                 **HIGH TECHNOLOGY OFFICE**                                 **3**  
**Pre-requisite: OSAD 424**

Presents a simulated experience in a high technology office. Emphasizes the comprehensive understanding of the advanced features of office computer application programs.

**Three (3) hours of lectures per week.**

**Lab Fee: \$50.00**

**PHYS 201**                                 **GENERAL COLLEGE PHYSICS I**                                 **4**  
**Co-requisites: MATH 230**

An introduction to the basic concepts of Physics with emphasis on kinematics, dynamics, work, energy and elasticity. Development of scientific-mathematics reasoning using simple theoretical models.

**Three (3) hours of lecture and a two-hour (2) laboratory per week.**

**Lab fee: \$70.00**

**PHYS 202**                                 **GENERAL COLLEGE PHYSICS II**                                 **4**  
**Pre-requisite: PHYS 201 and MATH 230**

This course introduces the electrical and magnetics phenomena and the application of these principles on different aspects of daily life. It includes different theoretical models where tools such as algebraic, vector and basic principles of differential calculus are applied.

**Three (3) hours of lecture and a two-hour (2) laboratory per week.**

**Lab fee: \$70.00**

**PHYS 301**                                 **MODERN PHYSICS**                                 **3**  
**Pre-requisite: PHYS 202, MATH 232**

A survey of the basic concepts of relativity theory, and atomic, nuclear and elementary particle physics. Methods of quantum mechanics are also discussed.

**Three (3) hours of lecture.**

**Lab fee: \$70.00**



**PSYC 102**                                      **INTRODUCTION TO PSYCHOLOGY II**                                      **3**  
**Pre-requisite: PSYC 101**

The course continues the study of the basic principles of psychology. It includes the study of intelligence and personality, the factors that influence their development, theories and its measurement. The effects of stress on physical and mental health, mental disorders, and therapeutic approaches in psychology are studied. It applies the scientific method considering variables such as diversity and the phenomenon of globalization.

**Three (3) hours of lecture per week.**

**PSYC 204**                                      **SOCIAL PSYCHOLOGY**                                      **3**  
**Pre-requisite: PSYC 102**

This course focuses on the social and cultural factors that affect human behavior: social perception, attitudes, social influence and social action. Includes the study of pro-social behavior and an approach is made to the nature, causes and the control of aggression. Applying skills of critical analysis, students will recommend alternatives to prevent and address social problems.

**Three (3) hours of lecture per week.**

**SIGN 101**                                      **SIGN LANGUAGE**                                      **2**

The Sign Language course provides the basic teaching of sign language to facilitate social-cultural interaction between audio-impaired people and listeners. It consists of learning a system of visual gestures and manual codes to express concepts. It also includes the study of theories and laws that impact this population.

**Two (2) hours of lecture per week**

**SOSC 101**                                      **INTRODUCTION TO THE SOCIAL SCIENCES I**                                      **3**

This course examines and analyzes the content of the social sciences, its history and its relevance and importance in contemporary societies. It discusses the behavior of the individual in relation to the socio-cultural aspects in the development of personality, coexistence patterns and historical changes. It also discusses the contributions of social sciences in the explanation, search for solutions and alternatives as a means of preventing social and human problems. Applies the scientific method in social research, considering variables such as cultural diversity, inequality and the phenomenon of globalization.

**Three (3) hours of lecture per week.**

**SOSC 102**                                      **INTRODUCTION TO THE SOCIAL SCIENCES II**                                      **3**  
**Pre-requisite: SOSC 101**

This course studies the principles of human relations in society and discusses the political and economic sciences related to other disciplines in the social sciences. It examines the emergence of the modern state from a historical perspective. Apply scientific methodology in the political and economic research considering the effects on the phenomenon of globalization.

**Three (3) hours of lecture per week.**

**SOSC 103****INTRODUCTION TO SOCIOLOGY****3**

This course examines and analyzes the influences of social relations in behavior, focusing on how they are created and the changes that presents. It examines the social structure and its effects on the individual and groups in society. Evaluates the performance of the individual in relation to socio-cultural aspects, patterns of coexistence and historical changes. It recognizes the contributions of social science in the search for solutions in the prevention of the social and human problems. Scientific methodology is applied considering variables such as cultural diversity, inequality and the phenomenon of globalization.

**Three (3) hours of lecture per week.**

**SOSC 215****STATISTICAL METHODS IN SOCIAL SCIENCES****3**

**Pre-requisite: MATH 101**

This course studies the basic concepts of the applied statistical methodology for the social sciences. It discusses the process for gathering, organizing and ordering the social information data under study. It practices with the methods of descriptive analysis (measure of central tendency, measure of position, variability, correlation and regression) and the inferential analysis (probability, sampling distribution, binomial distribution, normal distribution, t, f,  $\chi^2$ , and others) emphasizing in the selection of the statistics methods in accordance to the variables and objectives of the investigation and the interpretation of the results.

**Three (3) hours of lecture per week.**

**SOWO 210****HEALTH AND HUMAN ECOLOGY****3**

The course analyzes the influence of the environment in physical health, social, mental and emotional in Puerto Rico, from the eco-systemic perspective. The conditions of health and its relationship with the social functioning of individuals, groups, families and communities are investigated. It emphasizes the interrelation of various disciplines and the public policy established in the provision of services in different scenarios and populations.

**Three (3) hours of lecture per week.**

**SOWO 211****INTRODUCTION TO THE STUDY OF  
SEXUALLY TRANSMITTED DISEASES****3**

It studies the importance of prevention and treatment of sexually transmitted diseases, and their physical, social, and emotional implications. It also analyses the role of the social worker in the health system.

**Three (3) hours of lecture per week.**

**SOWO 212****INTRODUCTION TO THE STUDY  
OF CHILD ABUSE****3**

The course focuses on the definition, the dimensions and implications of child abuse. The different forms of child abuse and its effect in the short and long term in the lives of victims and their impact

on society are studied. The discussion on public policies relevant to the social situation, as well as the services offered by the state.

**Three (3) hours of lecture per week.**

**SOWO 213**                                  **VIOLENCE IN THE CONTEMPORARY**                                  **3**  
**PUERTO RICAN SOCIETY**

The course is directed toward the study of violence in Puerto Rico, analyze the causes and the factors that affect this social problem. The models of intervention that uses the social worker for the management of the violent individuals and their families are studied; from a comprehensive and preventive approach.

**Three (3) hours of lecture per week.**

**SOWO 217**                                  **INTRODUCTION TO THE STUDY**                                  **3**  
**OF GERONTOLOGY**

The course introduces concepts related to Gerontology and Geriatrics. Social considerations and institutional services are examined to elderly people. It includes the role of the Social worker with this population, from the legislative perspective related to the rights of elderly persons. The dimension of sexuality in older persons and the respective changes are analyzed. It describes the biological, psychological and social processes that occur prior to death and the strategies appropriate for the management of the loss.

**Three (3) hours of lecture per week.**

**SOWO 218**                                  **SUPERVISION AND ADMINISTRATION**                                  **3**  
**IN SOCIAL WORK**

The course emphasizes the acquisition of principles and skills of basic procedures of supervision and administration in the social welfare system. It analyzes the multiplicity of roles that assumes the social worker in the area of supervision.

**Three (3) hours of lecture per week.**

**SOWO 219**                                  **HUMAN SEXUALITY**                                  **3**

The course introduces concepts related to human sexuality from a historical, political, social, educational and psychological perspective. Lectures are offered in a panoramic view of the different dimensions that converge on the broad spectrum of human sexuality. It is designed to enrich the vision of the student on the proper management of the sexual diversity that will be demonstrated in their performance as a professional.

**Three (3) hours of lecture per week.**

**SOWO 268**                                  **INTRODUCTION TO SOCIAL WORK**                                  **3**  
**Pre-requisite: SOSC 102**

The course emphasizes the historical and philosophical development of the profession. It examines the evolution of social welfare systems in various cultural contexts. The student has the opportunity

to assess their interest and ability to become a professional in social work. The ethical values, skills, methodologies, the professional roles and attitudes necessary to practice the profession are discussed and analyzed.

**Three (3) hours of lecture per week.**

**SOWO 274 SOCIAL AND ECONOMIC PROBLEMS OF PUERTO RICO 3**

**Pre-requisite: SOSC 102**

A systematic analysis of the Puerto Rican contemporary socioeconomic problems and the agencies that provide programs to assist in overcoming them. It covers the social perspectives that assist in understanding the causes of social problems.

**Three (3) hours of lecture per week.**

**SOWO 306 SOCIAL POLICY AND SOCIAL WELFARE SYSTEM 3**

**Pre-requisite: SOWO 268**

This course covers the study and analysis of the concepts of social policy and social welfare services. It examines the Social Welfare System and its relation to social policy. It emphasizes the values, needs, human and civil rights of individuals and the legislative process in the formulation of the laws.

**Three (3) hours of lecture per week.**

**SOWO 310 METHODS AND TECHNIQUES OF SOCIAL SCIENTIFIC RESEARCH 4**

**Pre-requisite: SOSC 215**

**STAT 117 (Only for Speech Language Therapy)**

The course emphasizes the relevance of scientific research in the field of social sciences and of the conduct. The student applies skills, procedures, strategies, methodologies and techniques for the design, verification and exploration of social phenomena. It requires the development of a research proposal.

**Four (4) hours of lecture per week.**

**SOWO 350 HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT 3**

**Pre-requisite: SOSC 101**

The course introduces on human behavior in interaction with the social environment. The transactions and interrelationships between the individual, families, groups and community in close relation to other systems of society are analyzed. The individual is studied in an integrated manner using the systemic perspective, ecological, and organizational roles in addition to other theoretical perspectives necessary for the widespread practice of Social Work.

**Three (3) hours of lecture per week.**

**SOWO 352**                            **FAMILY AS A SOCIAL SYSTEM**                            **3**  
**Pre-requisites: SOWO 350 and PSYC102**

The course emphasizes the family as part of an interaction social system in the social context. It discusses the structural and functional characteristics, cycle of family life, changes in the family through the time, followed by the economic and social prospects. It also looks at all aspects of family theories and dynamic in the family. With the knowledge acquired through analysis and practice exercises it is expected that the student will be able to speak during the process to help with all kinds of family.

**Three (3) hours of lecture per week.**

**SOWO 382**                            **ETHICS, PROFESSIONAL RELATION AND**                            **3**  
**INTERVENTION IN SOCIAL WORK**

**Pre-requisite: SOWO 268**

This course emphasizes the study of concepts, theoretical and methodological frameworks of the social system of services to strengthen the process of professional intervention. It analyzes the Code of Ethics of the Professional Social Work Association in Puerto Rico in the establishment of social intervention. The student starts in the implementation of the skills and techniques required of communication, interviews, writing of histories, and drafting of reports.

**Three (3) hours of lecture per week.**

**SOWO 490**                            **SOCIAL WORK AND THE LAW**                            **3**  
**Pre-requisites: SOWO 274 and SOWO 306**

The course provides the student the opportunity to learn about the connection between Social Work and the laws. It emphasizes the operationalization of social policies in various scenarios governed by laws, which govern the provision of human services. The student will learn and analyze laws and issues related to the judicial scenario and its relevance in the ethical-professional role.

**Three (3) hours of lecture per week.**

**SOWO 492**                            **METHODOLOGY IN SOCIAL WORK I**                            **3**  
**Pre-requisites: SOWO 382 and SOWO 352**

In this course, the student will apply communication skills, interview and perform assessment in the field of Social Work. It focuses on the identification of social situations that affect the participants and the application of methods of intervention. The student will select the right model to meet the client system. It focuses on the implementation of the models: troubleshooting, intervention with families, ecological and bio-psychosocial.

**Three (3) hours of lecture per week.**



**SOWO 494****METHODOLOGY IN SOCIAL WORK II****3****Pre-requisite: SOWO 492****Co-requisite: SOWO 496**

During this course, the student applies knowledge, skills, techniques and strategies related to the methodology of intervention of Social Work in the support process. It applies theories, models, and conceptual frameworks, which facilitate the study, analysis, and considering of the social situations that impact individual, family, groups and communities. It includes a review of the principles and concepts of the generic approach in social work and problem-solving model during the process of support. It emphasizes the concepts of crisis intervention, family therapy, social action and conflict mediation. The students establish ideas on the needs, areas to improve, strengths, and processes of the population to be attended.

**Three (3) hours of lecture per week.****SOWO 495****SOCIAL WORK WITH COMMUNITIES  
AND SMALL GROUPS****3****Pre-requisite: SOWO 268**

The course initiates the student in the study of characteristics and methods of intervention of social work with small groups and communities. It covers the models of intervention with the communities, the strategies and techniques for working with both systems. It provides the knowledge, skills and abilities required of the future social worker to help the small groups and communities to achieve their social status.

**Three (3) hours of lecture per week.****SOWO 496****SEMINAR AND SOCIAL WORK PRACTICE I 6****Pre-requisite: Approval of 100 credits and approval of Program Coordinator**

This course provides experiences that will help the student in their development as a professional in social work. The Manual of Supervised Practice in Social Work from Caribbean University is studied, analyzing in detail the duties, responsibilities and desirable attitude of the practitioner. The course integrates the seminar and the practical experience. The seminar offers the opportunity to review concepts related to the comprehensive social intervention. In the practice experience, the student begins in the exercise of the profession.

**Three hundred (300) hours per semester.****Practice fee: \$100.00****SOWO 497****SOCIAL WORK PRACTICE II****6****Pre-requisites: SOWO 492 and SOWO 496. Approval of Program Coordinator.**

Internship that provides intensive experience to develop the self-awareness essential to the social work profession. The course offers the opportunity, and expects the students, to perform as an Independent beginning professional. All students taking this course must follow the guidelines in the Practice Manual.

**Three hundred (300) hours per semester.****Practice fee: \$100.00**

**SPAN 100 PREPARATORY SPANISH 3**

This course reinforces basic spelling skills: use of lyrics doubtful use of questionable spelling, use of uppercase or lowercase letters, accentuation and punctuation rules applying in writing of sentences. In addition, increases the conception and use of the Spanish Lexicon, integrating the analysis of reading with writing simple sentences. The course includes laboratory and technology sessions as complements for the achievement of the objectives, adapted to the individual needs of the students.

**Three (3) hours of lecture per week and two (2) hours of laboratory per week.**

**Lab Fee: \$20.00**

**SPAN 101 BASIC COURSE IN SPANISH 3**

The course introduces the study of the Spanish grammar from the structural point of view grammar, functional, training and integrated perspective. It develops fundamental skills of the language arts. Basic form is introduced the study of the origins of the Spanish and the conceptualization of the linguistic signs. The simple sentence syntactic formation is discussed. The course includes laboratory and technology sessions as complements for the achievement of the objectives, adapted to the individual needs of the students.

**Three (3) hours of lecture per week and two (2) hours of laboratory per week.**

**Lab Fee: \$20.00**

**SPAN 102 BASIC COURSE IN SPANISH II 3**

**Pre-requisite: SPAN 101**

This course continues the development of written communication skills. It is used as the basis for a structural, functional, training and integrated conception. The syntactic composition of the compound sentence and their different classifications is analyzed. The study of the principles of practical writing, through different types of paragraphs and composition. In addition, it is an introduction to the study and analysis of literary works, the news and advertising texts.

**Three (3) hours of lecture per week.**

**SPAN 201 BUSINESS COMMUNICATION IN SPANISH I 3**

**Pre-requisite: SPAN 102**

The course introduces principles of analysis business writing and communication. It develops the grammatical skills necessary for the drafting of documents related to the business world. The student studies the psychological principles of business communication. Explains the basic and complimentary parts of the letter. The resume is drafted, the letter that accompanies the resume and the emails.

**Three (3) hours of lecture per week.**

**SPAN 202 BUSINESS COMMUNICATION IN SPANISH II 3**

**Pre-requisite: SPAN 201**

The course consists of writing letters and documents related to the business world. The



**SPLAT 204**                              **ANATOMY AND PHYSIOLOGY OF THE SPEECH    3**  
**AND HEARING MECHANICS**

**Pre-requisite: BISC 102**

Structure and function of the organs of hearing and speech as they related to normal and pathological communication: theories of cortical involvements, central and peripheral nervous systems relevant to rehabilitation procedures.

**Three (3) hours of lecture per week.**

**SPLAT 206**                              **SPEECH AND LANGUAGE DISORDERS                              3**

**Pre-requisite: SPLAT 202**

This course provides for the study of the behavioral and social aspect of the communication disorders. Include a broad overview of human communication with emphasis on development, diagnosis and treatment.

**Three (3) hours of lecture per week.**

**SPLAT 300**                              **APPLICATIONS OF COMPUTERS TO SPEECH 3**  
**AND LANGUAGE THERAPY**

**Pre-requisite: SPLAT 202**

This course provides for the study of application of computer technology for speech/language therapy. Application of technological tools as they relate to screening and treatment in communicative disorders. Student design and develop applications.

**Three (3) hours of lecture per week.**

**Lab fee: \$55.00**

**SPLAT 301**                              **GENERAL LINGUISTIC    3**

The course provides skills to students in order to identify alternatives that technological assistance offers to people with significant communication disabilities. General abilities are developed for technological assistance. Necessary experience is acquired to visualized technological assistance such as: the process that facilitates the disable person to perform independent at home, school, and work or community.

**Three (3) hours of lecture per week.**

**SPLAT 302**                              **ARTICULATION DISORDERS    3**

**Pre-requisites: SPLAT 204 and SPLAT 206**

This course includes an introduction to normal aspect of articulation and phonological development, phonological disorders, assessment and remediation of phonological disorders, instrumentation available for acoustical analyses and phonology as it relates to language and dialectal variations. Include clinical observation experience in articulation disorders therapy.

**Three (3) hours of lecture per week.**





**SPLAT 352**                                      **AUTISM SPECTRUM DISORDERS**                                      **3**

The course provides for the study of the social, communicational and behavioral aspects of the continuous Autism disorder. It includes a panoramic vision with emphasis on the development, early identification and treatment.

**Three (3) hours of lecture per week.**

**SPLAT 390**                                      **CLINICAL OBSERVATION IN SPEECH AND**                                      **3**  
**LANGUAGE DISORDERS (Pre-Practice)**

**Pre-requisite: SPLAT 204, SPLAT 206, SPLAT 302, SPLAT 304, SPLAT 306, SPLAT 308 and SPLAT 316**

This course is design as a clinical seminar with directed observation. Introduce the student to the processes through which communication delays and disorders and differences are evaluated and treated. Involves discussions of clinical methodology, analysis of demonstrative therapy and 25 hours direct-guided clinical observation.

**Three (3) hours of lecture per week.**

**Fee: \$50.00**

**SPLAT 489-490**                                      **CLINICAL PRACTICUM IN SPEECH AND**                                      **3-3**  
**LANGUAGE DISORDER I-II**

**Pre-requisite for SPLAT 489: SPLAT 390**

**Pre-requisite for SPLAT 490: SPLAT 489**

Clinical experience supervised by Licenses Speech and Language Pathologist in approved clinical sites during two semesters. The practicum consists of minimum of 65 hours per semester of direct services to clients between 0-21 years old with communicative disorders. 15 hours in a Clinical Practicum Seminar are required during each semester. Clinical focus is on screening, planning and implementation of treatment procedures or articulation, language, voice and fluency disorders.

**Three (3) hours of lecture per week.**

**Practice fee for each course: \$75.00**

**STAT 115-116**                                      **ELEMENTS OF STATISTICS I-II**                                      **3-3**

**Pre-requisite for STAT 115: MATH 102**

**Pre-requisite for STAT 116: STAT 115**

General theory of statistics; procedures for collecting and analyzing data. Graphing frequency distribution and curves, index members and the figuring of correlative statistical methods to solve business problems.

**Three (3) hours of lecture per week.**

**STAT 117**                                      **BASIC ELEMENTS OF BIO-STATISTICS**                                      **3**

**Pre-requisite: MATH 102**

The use of basic principles of statistics in the health related areas; procedures on collecting and analyzing data, use of the figuring of correlative statistical methods of investigating health problems.

**Three (3) hours of lecture per week.**

**STAT 330**

**STATISTICAL ANALYSIS AND DESIGN**

**3**

**Pre-requisite: MATH 102**

Study of general uses of statistics in data analysis. Emphasis is given to the following concepts: description, parameter, probability, sampling and distribution, statistics estimates, correlation and others.

**Three (3) hours of lecture per week.**

**Lab fee: \$55.00**

**UNIV 100**

**INTRODUCTION AND ADJUSTMENT  
TO UNIVERSITY LIFE**

**3**

This course aids the student in the process of adaptation to the university level, offering him/her the opportunity to develop a number of basic skills needed to achieve success. The personal, academic and educational adjustment of the student is stressed to facilitate his/her self-realization.

**Three (3) hours of lecture per week**



## FULL TIME FACULTY

BERMUDEZ SANCHEZ, CARLOS, Instructor -Spanish- BA Hispanic Studies, UPR - MA Linguistics, UPR

CAMACHO ALICEA, ISRAEL, Instructor -Business Administration-Management, Marketing-BBA Management, UPR- MBA Management, Turabo University - JD – Law Interamerican University

CARRENO CHAVEZ, ROLANDO, Instructor – Engineering – BS Energy Engineering, National University of Santa, Chambote, Peru – MS Mechanical Engineering, UPRRM – PhD. Mechanical Engineering, West Virginia University

COLON CARPENA, ROSA M., Instructor- Criminal Justice- BA Elementary Education, Pontifical Catholic University of Puerto Rico – MA Criminal Justice, Interamerican University

CORDOBA RODAS, ANGIE, Instructor- Electrical Engineering – BS Mathematics, Escuela Colombina de Ingeniería, Julio Garavito – MS Computer Engineering (Computer System), UPR

CORDERO GARCIA, MARCO A., Instructor –Computer Sciences –BA Computer Sciences, USC- MS Management Information Systems, EDP College

COTTON LOPEZ, HECTOR I., Auxiliary Professor- Criminal Justice- BA Policies Sciences, International Institute of the America – MA Criminal Justice, Interamerican University

DELGADO QUINTERO, RAFAEL, Auxiliary Professor-Management- BBA Accounting, Catholic University of Puerto Rico, MBA- Business Administration (Accounting, Management) Catholic University of Puerto Rico

FRANCO DOMINICCI, ANGEL R., Instructor – Education – BS Secondary Education (Spanish), UPR – MAE – Technology Educative & System de Instruction, Caribbean University – EdD – Curriculum & Teaching, Pontifical Catholic University of Puerto Rico Catholic

GALARZA ECHEVARRIA, RAMON A., Auxiliary Professor- General Sciences – BS Biology (Pre-Medical), UPR – MD Medicine, Central University of Este, RD.

GARCIA VILLAMIL, JOSE E., Instructor- Engineering Civil – BS Engineering Civil, Caribbean University - MSCE Engineering Civil, Michigan State University

HERNANDEZ ROMAN, LOURDES, Instructor- Spanish- BA Studies Hispanic, UPR- MA Studies Hispanic, UPR.

INFANTE MENDEZ, RAFAEL, Instructor-Chemistry- PhD Analytical/Physical (Chemistry), University of Nebraska - MS Analytical/Physical (Chemistry), University of Nebraska - BS in Chemistry, UPR

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LEBRON CORTES, EMERITA, Instructor- Nursing- BSN Nursing, Pontifical Catholic University of Puerto Rico - MSN Medical Surgical Nursing, Pontifical Catholic University of Puerto Rico

LEON VELAZQUEZ, MADELINE S., Instructor – Chemistry - PhD Chemistry, UPR - MS Chemistry, UPR - BS Chemistry, UPR

LLORENS ALICEA, IDALIA I., Instructor- History - PhD Geography & History, Complutense University, Madrid - BA History, Pontifical Catholic University of Puerto Rico

MANGUAL MIRANDA, MARIANITA, Auxiliary Professor - Educational Technology- BA Sciences (Sociology & Mathematics), UPR – MAE Technology Educational, Caribbean University

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MARRERO MARTINEZ, WILFREDO, Instructor – Nursing- BSN Nursing, Caribbean University- MSN Nursing (Gerontology), Caribbean University

MARTINEZ LUGO, LYGIA, Instructor-English – BS English, Interamerican University - MAE, Curriculum English, Caribbean University

McKINLEY LEBRON, LARRY D., Instructor- Education – BS Sciences (Biology), USC- MS Education (Teaching of Science Secondary) Interamerican University

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PEREZ SANTOS, VILMA, Instructor-Nursing – BA Nursing, UMET – MSN Nursing (Critical Care), UMET

PEREZ TORRUELLAS, EDNA M., Instructor- Social Sciences – BA Psychology, UPR – MA Psychology, UPR - JD in Law, Interamerican University – PhD Psychology, Carlos Albizu University

RAMOS NIEVES, JOSE A., Instructor – Social Sciences- BA Elementary & Secondary Education, UPR- MA Puerto Rican Studies, Centro Estudios Avanzados de PR y el Caribe

RIVERA MATOS, RUDOLPH, Instructor – Mathematics – BA Education (Mathematics), UPR – MA Education (Mathematics) Interamerican University

RODRIGUEZ DAVILA, ILEANA., Instructor- History – BA System Office Administration, Catholic University of PR – MA Commercial Education, Interamerican University – PhD Philosophy, History, Interamerican University

RODRIGUEZ PAGAN, MICHELLE, Instructor – Social Sciences – BA Criminology, Pontifical Catholic University of Puerto Rico – MSP Clinic Psychology, Pontifical Catholic University of Puerto Rico

ROSAS CINTRON, NELSON A., Instructor-Physical Education – BA Physical Education, UPR MA Physical Education Secondary, New York University.

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SOUCHET GARCIA, ARLENE, Instructor – Spanish - BA Public Communication, UPR.

TENORIO PEREZ, AIDA L., Instructor –Chemistry- BS Chemistry, Santiago de Cali University MA Secondary Education (Chemistry), UPR.

TORRES TORRES, NEIL O., Instructor - Studies Hispanics- BA Studies Hispanics, UPR – MA Studies Hispanics, UPR

VEGA RIVERA, JOSE R., Instructor -Mathematics- BS Biology (Minor: Chemistry/Mathematics), UPR – MIS Management Information System, EDP College

VELEZ FRONTERA, JOSE I., Instructor -Humanities – BA Social Studies and Spanish, Pontific Catholic University of Puerto Rico – MA School Administration and Supervision, UPR.

VIERA RAMIREZ, MINERVA, Auxiliary Professor - Nursing – BSN Nursing, Interamerican University - MSN Nursing (Mental Health, Critical Care), UPR.

05/2019®

*ADDENDUM*  
*UNDERGRADUATE CATALOG*  
*2018-2023*

The information in the Undergraduate catalog is corrected, on page 16, Section:  
Accreditation

It should read as follows:

*Approved by the State Approving Agency for Veterans' Education and Training*