

UNIVERSITY OF PUERTO RICO
SCHOOL OF ARCHITECTURE

ARCHITECTURAL PROGRAM REPORT 1993

1.0 INTRODUCTION

1.1 Preface by the Dean

The Dean and the Faculty of the School of Architecture of the University of Puerto Rico are committed to every activity that fosters and underwrites the program of education of the future architects of Puerto Rico. The process of accreditation is perceived as an exercise in self-study and analysis, which allows us to gain a better understanding of our achievements and weaknesses. As we continue to search for creative ways of teaching, we recognize our moral obligation to provide the best possible opportunity for the education of the individual, to help each and every student attain the highest standard of excellence possible, and to prepare professionals to meet the challenges of an ever-changing world. Above all, we feel a responsibility towards education as a means to the betterment of our society and of all Puerto Ricans.

The preparation of this *Architectural Program Report* (APR) is the work of many individuals who combined their talents in response to the needs of the School of Architecture. The School held two special seminars intended to train our faculty in the preparation of the document. The first one, held early in the 1992-93 academic year, included the APR Committee, the Dean, Associate Dean and the Coordinator of Graduate Studies. Discussions were held on the goals of the accreditation process and the procedures for the preparation of the APR. It also served to explain the NAAB visit and the Team Report.

The second seminar, held later in the year, was divided into two sessions: a morning session, for the Design faculty, and an afternoon session, for all other faculty. NAAB's 1991 Conditions and Procedures were presented to the faculty and the sections making up the APR were then analyzed in detail. The discussion clarified and facilitated the procedures, and made possible the preparation of the document by instructing the faculty in ways to respond to it.

Faculty members updated their *Vitae*, summarized the descriptions of courses, seminars and studios they teach, and responded how they complied with the achievement-oriented criteria, as requested by NAAB. Our administrative personnel prepared the material relating to the administration of the School, such as the budget, the Library and the various Laboratories, and assisted in preparing the data that explains how we conform with required conditions and procedures. Several students provided discussion material in the evaluation of courses and expressed valuable opinions on the concerns expressed in the self-assessment.

The assistance of the faculty was exceptional; however, there are some whom I wish to acknowledge for their exemplary collaboration, joining me during the last few months of the academic year and into the Memorial Day weekend, in a combined effort to give final form to the Report. These are the members of the APR Committee, Prof. Aureo Andino, Prof. Humberto Betancourt, Dr. Arleen Pabón and Dr. Jorge Rocafort.

Their support through the many days of working on the preparation of the APR, included

scanning sessions, copying material on photocopiers, struggling with word processors heretofore unfamiliar to them, searching the files for data from 1989 onward, transferring data from Macintosh to IBM format, designing the format of the APR, editing and reworking the material submitted, and offering encouraging support.

I also wish to acknowledge the School's administrative team, secretaries and assistants, without whose support the APR would not have been possible.

Rafael A. Crespo, PhD
Professor and Dean

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2.0 INSTITUTIONAL PROFILE

2.1 History of the University

The University of Puerto Rico was established in the early twentieth century. One of Puerto Rico's greatest needs at the time was to establish a uniform, systematic, Island-wide educational system. Since teacher training was considered of primary importance, a Normal School was opened in 1900, under the direction of the Commissioner of Education, with the purpose of preparing teachers to carry out this project. The School was originally located in Fajardo and subsequently transferred to Río Piedras, which was considered a more accessible location.

This School proved to be the core of the new University of Puerto Rico, which was legally constituted as an academic institution by the Legislative Assembly, on March 12, 1903. In 1908, the United States Congress extended to Puerto Rico the financial aid conferred to Land Grant Colleges under the Morrill-Nelson Act. The University of Puerto Rico thus adopted a North American university style differing from that of other Latin American universities, which continued the European academic tradition.

Over the years, new colleges were added: The College of Liberal Arts in 1910 and the College of Agriculture and Mechanical Arts, established in Mayagüez, in 1911, through legislation introduced by local patriot José de Diego. The Law School and the College of Pharmacy were established in Río Piedras in 1913.

The University Act of 1924 was the first step toward university autonomy: the University of Puerto Rico was separated from the jurisdiction of the Department of Education, and given its own identity and administrative framework. Dr. Thomas E. Benner was appointed its first Chancellor, while representatives of the Government and the Legislature remained on the Governing Board of the University.

The Normal School became the College of Education in 1925 and the following year, the School of Tropical Medicine and the School of Business Administration were created. In 1931, the benefits of the Hatch, Adams, Purnell and Smith-Lever Acts were applied to Puerto Rico, providing funds to initiate the Agricultural Extension Service and the Agricultural Experimental Station.

Another event that influenced the development of the University was the signing of the U. S. Bankhead-Jones Act, which provided financial aid for research work in Puerto Rico after June 29, 1935. The University Act 1942, passed by the Legislative Assembly of Puerto Rico, provided for greater autonomy for the University of Puerto Rico, internal reorganization and the creation of the Superior Educational Council.

In 1943, the College of Arts and Sciences was divided into the College of Humanities, the College of Natural Sciences and the College of Social Sciences. At the same time, a new College of General Studies was created to offer courses in general education to all new students. The College of Agriculture and Mechanical Arts was also reorganized under a Vice-Chancellor, and divided into three colleges: Agriculture, Engineering and Science.

By the 1960s, the University of Puerto Rico was growing so rapidly that the Institution began to plan an island-wide expansion by means of a network of regional colleges. The first regional college opened in the city of Humacao in 1962.

The current University Act, enacted in 1966, created three autonomous units: the Río Piedras Campus, the Mayagüez Campus and the Medical Sciences Campus, each directed by a Chancellor, all responding to their Administrative Boards and to the Office of the President. The Superior Educational Council was also reorganized as the Council of Higher Education, with the Secretary of Education as an *ex-officio* member.

Among its first academic acts, in April of 1966, the Council of Higher Education authorized the six-year Bachelor's Degree of Architecture (B.Arch.). This degree was replaced in 1976, by a 4 + 2 Program in Architecture: a four-year BED and a two-year M. Arch.

The multifaceted and accelerated growth of new entities in the University System led to the creation of more regional colleges in different parts of the Island, so that more people could have greater opportunities to study. Regional colleges were created in Arecibo and Cayey in 1967, and in 1968, the Graduate School of Business Administration was established. After the creation of the Ponce Regional College in 1969, came the establishment of the Regional Colleges Administration under the direction of a Chancellor in 1970. The establishment of new regional colleges followed: Bayamón (1970), Aguadilla (1972), Humacao (1974), Carolina (1974) and Utuado (1979-80).

Since it was founded in 1903, the University of Puerto Rico has followed a course of uninterrupted growth

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and development, and has continued to offer the people of Puerto Rico the opportunity for achieving an optimum cultural and professional education.

2.2 Academic Mission

The University of Puerto Rico, as a public institution of higher education, has been entrusted by law with the responsibility of serving the people of Puerto Rico, adhering to the ideals of a democratic society. Its fundamental mission is to transmit and increase knowledge by means of the development of the arts and sciences, placing this knowledge at the service of the community through the work of its faculty, students and alumni. It is expected that it will also contribute to the development of the ethical and aesthetic values of culture.

As expressed in its Charter, the University must fulfill its mission: to promote the love of learning as conducive to freedom through the search for truth with an attitude of respect toward creative dialogue; preserve, enrich and strengthen the cultural values of the Puerto Rican people; seek the full formation of the student in the light of his/her responsibility to serve the community; develop the intellectual and spiritual wealth latent in the Island; and collaborate with other organizations in the study of the problems of Puerto Rico within those spheres of action appropriate to a university.

2.3 Accreditation and Affiliations

The University of Puerto Rico has been recognized as an institution of higher learning, since its admission to the Middle States Association of Colleges and Secondary Schools in 1946. It has also been a member of the Association of Spanish American Universities (*Asociación de Universidades Hispanoamericanas*) since 1955. The University has been associated with the College Entrance Examination Board since 1965.

2.4 History of the Program

The University of Puerto Rico, established in 1903, is the major higher learning institution on the Island. It comprises eleven campuses with a total enrollment of 55,000 students, and offers undergraduate and graduate education in architecture, agriculture, arts and sciences, business administration, communications, engineering, law, library sciences, medicine, planning, and other fields. The University employs over 4,000 faculty members, and 8,000 non-teaching personnel.

The School of Architecture is part of the Río Piedras Campus, the oldest and largest academic unit of the University. Located in San Juan, the island's capital city, the Campus has an extensive ensemble of buildings (143 buildings in a 250-acre site), that represent various stylistic manifestations of Puerto Rican architecture. It includes an original academic quadrangle (listed in the National Register of Historic Places), with a Spanish Revival tower and theater (seating 2,000). The General Library contains nearly 2,600,000 volumes, and boasts collections of international significance. The Schools of Law and Architecture maintain specialized libraries.

The Río Piedras Campus has been accredited since 1946 by the Middle States Association of Colleges and Schools. Seventeen percent of its 19,300 students are enrolled in graduate studies: twenty-nine Master's degree programs (fifty-five specialties) and nine Doctoral degree programs (sixteen fields).

Institutional policies guarantee equal opportunity, in studies, employment, as well as in all services. As a public institution, the University is committed to provide educational services to the economically disadvantaged. Currently two out of every three undergraduate, and one third of its graduate students receive financial aid.

Over seventy percent of students at the Río Piedras Campus are women, sixty percent are first-college generation, most come from outside the Metropolitan Area, and five percent are handicapped. The Campus requires a minimum of 2.0 GPA (on a 4.00 scale) for undergraduate and 3.0 GPA for graduate admission. Approximately one third of applicants are accepted.

The School of Architecture was founded twenty-seven years ago, in April 1966. It was successfully established after three earlier attempts, the first one being a Department of Architecture at the College of Agriculture and Mechanical Arts in Mayagüez, begun by Prof. Frederick Revels of Syracuse University in 1921. Although it lasted only until 1924, several important Puerto Rican architects began their studies there: Pedro Méndez, Eloy Ruiz, Augusto Plard and Juan Acevedo Chico. The second attempt occurred in 1946, with the establishment of an

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Architectural Engineering Program at the Department of Engineering of the same College of Agriculture in Mayagüez. The program, directed by Arch. Juan Amador, lasted only a short time. The third attempt was carried out by Interamerican University, with the establishment of a School of Architecture at its Metropolitan Campus. It lasted for several years during the decade of the 1960s, with Arch. Angel Cabán as Dean.

The Legislature of Puerto Rico had approved, in 1958, a law requesting that the University of Puerto Rico study the possibility of establishing a school of architecture on the Island. That year, at the AIA Annual Meeting held in Cleveland, a resolution presented by Arch. Santiago Iglesias, hijo, won unanimous approval and resulted in an expression of support by the AIA for the School. In recognition of his commitment and support, the School's Library is named after him.

Interest in a School of Architecture remained strong until, in 1966, the Council of Higher Education officially created it as a new unit of the University of Puerto Rico. The School was the result of many years of labor by Puerto Rican and North American architects. Special reports by Prof. José Luis Sert and Prof. Reginald Isaacs, of Harvard University, in February 1959 ("*Creación de una Escuela de Arquitectura en Puerto Rico*"); by the American Institute of Architects, in April 1959 ("*Report to the University of Puerto Rico*"); and a by Arch. Jesús Amaral, in 1966 ("*Propuesta para la organización y funcionamiento de la Escuela de Arquitectura de la Universidad de Puerto Rico*") were submitted to then Chancellor Jaime Benítez.

Río Piedras was selected over Mayagüez because of its humanistic orientation, its proximity to cultural activities, the concentration of architectural examples and firms in the Metropolitan area, contacts with the Planning Board and the Institute of Puerto Rican Culture, better employment opportunities, and better housing facilities for students. The location also permitted the School to develop its own distinct character, different from that of the Engineering faculties.

In October 1965, Arch. Jesús Amaral was appointed Executive Consultant and charged with the responsibility of organizing the School. He recommended the rehabilitation of the Faculty center building as temporary facilities for the new School until a new structure could be built. It was intended to hold 180 students, on a temporary basis. Noted architect Henry Klumb, the original designer of the building, was in charge of the rehabilitation work; while Arch. Jaime Cobas designed the interior spaces and selected the furnishings.

Distinguished professors from the Universities of Cornell and Harvard, and from the Massachusetts Institute of Technology, acted as consultants for the creation of the first academic program and pensum, a six-year Bachelor of Architecture degree.

During the summer of 1966, 600 entrance applications to the School were processed; only sixty applicants were admitted. A curricular revision in 1976, created a 4 + 2 program: a four-year preprofessional degree, the Bachelor of Environmental Design (BED), and a two-year first professional degree, the Master of Architecture (M Arch).

The School, accredited by the National Architectural Accrediting Board since 1973, has graduated 350 architects since its creation. Presently, the School is on the last year of a five-year accreditation period, granted in 1989.

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3.0 COMPLIANCE WITH NAAB CONDITIONS FOR ACCREDITATION

3.1 Regional Accreditation

The Río Piedras Campus of the University of Puerto Rico has been accredited since 1946 by the Middle States Association of Colleges and Schools. It is also accredited by the Council of Higher Education, the accrediting agency for all institutions of higher learning in Puerto Rico. Individual accreditation of the Graduate School of Planning, the Law School, and other colleges, schools, and departments of the Campus is complied with as required.

3.2 Recognized Academic Unit

The School of Architecture is one of eight academic faculties on the Río Piedras Campus. It operates autonomously from other faculties, with its own assigned annual budget. It has over 330 students enrolled in its undergraduate and graduate programs. It functions under the direction of a Dean, an Associate Dean, two Administrative Assistants and a Coordinator of Graduate Studies. It has an autonomous Library, a research architectural archives, and Computer, Photographic and Technology Laboratories.

The School is committed to the education of architects that possess a strong professional sense of social responsibility. Our students must cultivate intellectual concerns, aesthetic and innovative ideas; they must be prepared to apply, in a methodical manner, the process of design and the application of available technology to the solution of problems of the built environment.

Due to its place and location, the School also strives to educate architects capable of recognizing and understanding the particular problems which architecture faces in Puerto Rico. They must be able to analyze problems and issues directly related to our social, historical and tropical contexts. The School and its faculty encourage research in the areas of Puerto Rican and Caribbean architecture, climate technology, popular (vernacular) architecture and historic preservation.

In order to provide our students with an interdisciplinary experience, the School works closely with other University (e.g., Fine Arts, Planning, Social Studies and Natural Sciences Departments) and government units (the Office of the Governor: State Historic Preservation Office, the Department of Natural Resources, the National Park Service, the Institute of Puerto Rican Culture, the Housing Department, among others).

3.3 Offering Recognized Program Types

The School of Architecture offers a 4 + 2 program: a four-year Bachelor of Environmental Design (BED) degree and a two-year Master of Architecture degree (M Arch). The BED combines basic architecture professional studies, with a solid curriculum in the arts and sciences. The Graduate School, with its emphasis on advanced architectural design and research, accepts students who have the equivalent of the BED degree, as well as those who already possess professional degrees in Architecture. The M Arch is the professional degree in Architecture offered by the School.

The Undergraduate Program: Bachelor of Environmental Design (BED)

Philosophy Statement

The pre-professional degree is designed to give the student a sound general education, founded in the humanities, the social and natural sciences, and providing general language and mathematical skills. It intends to prepare students with the basic skills needed to enter advanced programs that lead to professional degrees in architecture, as well as other related fields. Upon graduation, students are expected to understand introductory and intermediate architectural design, technology and structures, and architectural theory and history. It is expected that they will have the tools needed to contribute constructively to the formulation of a better environment.

The undergraduate program seeks to balance a specialized education in design with technical training, in response to the requirements that our society places on the professional development of our students within the context of the Island and the Caribbean. The BED emphasizes the identification, analysis, and solution of real-life

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problems, as well as the development of decision-making capacity in the design process. The program pays special attention to issues such as tropical climatology, town and country design, and the special environmental concerns of islands in developing countries, without neglecting the need for well-rounded knowledge needed by individuals that can work anywhere in the world.

Program Description

The four-year undergraduate program leads to the degree of Bachelor of Environmental Design (BED). This pre-professional degree is useful for those wishing a foundation in the field of architecture, as preparation for continued education in a professional degree program or for employment options in architecture-related areas.

The first two years of the program combine a basic design and elementary architectural design studio experience with basic courses in the arts and sciences (Biological Sciences, Humanities, Social Sciences, Mathematics and Physics). The third and fourth years combine more advanced studio work in architectural design, with basic and intermediate professional studies in structures, architectural technology, climatology and architectural history and theory. Elective courses are available in art history, art, drawing, study trips, landscape architecture and computers, among others. Individual research projects are encouraged by many of the courses. To obtain the BED degree, the student must complete 138 credit hours with a 2.00 grade point average.

The Graduate Program: Master of Architecture (M Arch)

Philosophy Statement:

The Graduate School provides study opportunities for those who have a BED or its equivalent and seek a first professional degree in architecture. It also welcomes professionals seeking to continue their education by advancing research into design problems with strong urban and social implications, environmental impact and cultural context.

Because of its particular location in the Caribbean, the search for an appropriate form and content by means of the architectural design processes is an underlying concern in the Program. This involves a rigorous, self-analytical approach to both design and research.

Program Description:

The Master of Architecture (M Arch) is the professional degree offered by our School. It is structured to educate those who aspire to registration/licensure as architects.

Admission to the Program requires completion of the School's undergraduate BED program with a 3.00 grade point average (on a 4.00 scale) or its equivalent from an accredited program. Students enter the advanced phase of professional study by completing required work in practice-oriented courses and advanced courses in the areas of theory, structures, technology, and design. They choose among a variety of free electives or topics of their own interest (e.g., historic preservation, ecology, planning, society and culture, acoustics, environmental technology, architectural history, among others).

The final year of the two-year program, requiring fifty-six graduate-level credit hours, involves a Design thesis that demonstrates the student's competence for functioning at a self-disciplined, comprehensive, and integrative professional level. In consultation with the Graduate Committee and thesis advisers, the student identifies a relevant architectural design problem and proceeds to research it and develop a viable solution.

Students who already possess a first professional degree may receive up to fifty percent of the required credit hours by transferring credits or through advanced standing, and may pursue an M Arch program tailored to their individual needs.

3.4 Recognition of Ethical Responsibilities

The School's faculty actively encourages students to recognize their social responsibilities as future architects and as Puerto Ricans. Many projects are created as a response to special petitions either by private citizens or by government agencies. Design projects, on the other hand, deal with such topics as low-income

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housing, architectural barriers, the conservation of our cultural heritage and our natural resources, among others. Each course and each project undertaken at the School has the implicit motivating concept, that architecture is both science and art and, therefore, directly reflects and impacts culture and society.

Institutional Policy as to Equality of Opportunity

The Río Piedras Campus of the University of Puerto Rico guarantees equal opportunities to students and employees for both study and employment opportunities. The Campus does not exclude from participation, nor exclude from benefits to, nor discriminate against any person for reasons of age, race, sex, color, place of birth, social origin or condition, physical or mental handicap, or political or religious belief.

3.5 Self-Assessment

As proposed by its faculty and recommended by the National Architectural Accrediting Board, Inc. (NAAB) during its 1987 visit, the School of Architecture has been implementing its revised academic curriculum during the past three years. This curriculum was designed to adapt the School's offerings to new pedagogical requirements that future architects will benefit from as they practice their profession. The 4 + 2 program format was kept, but the curriculum as an entity was streamlined in terms of the number of required courses, while new elective offerings were created to adapt the academic process to the new dimensions of the profession.

The program was divided into several major components formed by core courses in the areas of architectural design, architectural history and theory, and architectural technology and structures. Elective courses and general studies courses (required by the University of Puerto Rico) are the other two components. The School aims at a balanced academic preparation between the liberal arts and technology. These two fundamental cores about the six-year sequence in the architectural design area. While these other areas are not meant to be considered as subservient, it is understood that their main function is to:

- o Formulate a working interaction with the Design curriculum
- o Provide basic, intermediate and advanced knowledge skills
- o Generate interest in particular areas which students might pursue in the future.

It is still early to fully assess the revised curriculum as a whole. On the one hand, it is still in the process of being implemented. On the other hand, there are courses still being created or revised to respond to the new requirements. It is expected, however, that this new academic curriculum will result in a more flexible and varied processes of educating the future architect.

In view of the publication of the new NAAB 1991 Conditions & Procedures, we have undertaken this self-assessment of our undergraduate and graduate programs, with the intention of determining how they conform to the new accreditation concerns. It is hoped that this document, and others that will be generated during the next few years, will help the faculty in assessing how the program complies with NAAB requirements.

This evaluation is made on the basis of our new architectural program, which was approved in 1989 by the Council of Higher Education of Puerto Rico, as the official academic and legal professional offering by the School of Architecture. This new curriculum, formulated on the bases of the NAAB 1991 Conditions & Procedures in effect at the time, is in the process of being implemented.

Obviously, the new NAAB 1991 Conditions & Procedures have identified some new areas of concern that are not being addressed at the present time. Valid concerns are in the process of being addressed by the School and will be submitted through proper channels for attention. These involve the School's various academic committees (*Comités de Materias*) and the Committee of Academic Affairs (*Comité de Asuntos Académicos*).

Any new concerns that affect the content and intent of the academic offerings at the graduate level have to be submitted for approval to the Office of the Dean of Graduate Studies and Research (*Decanato de Estudios Graduados e Investigación*), a recently formed academic unit, entrusted with the supervision of all graduate offerings at the Río Piedras Campus of the University of Puerto Rico.

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3.5.1 Design Department: Self-Assessment/Concerns

In some cases, the Design sequence lacks a sense of continuity. Some Design Studios exist as "provinces" of their own, with little relation between one year and the next; at some levels, a lack of relation between sections of the same year is also evident. These cases occur when Design faculty members pursue their own personal interpretation of the curriculum and offer little discussion about their academic material or pedagogical strategies with their peers. Since last year, however, first and second-year Studios have been working closely together, collaborating in the integration of the curriculum, promoting contacts throughout the year. Professors and students were rotated among the various sections, and the faculty participated in each other's juries. We feel optimistic that this effort will establish a model for other levels to follow.

The integration between Technology courses and the Design Studios remains weak, leaving it mostly to the student to establish links; the same situation occurs with the History and Theory courses. However, during the past three years these issues have been the central discussion point among faculty members in the general meetings of the faculty, as well as in committees or informally in the corridors. A vital element of this discussion has been the evaluation of the new curriculum, its pros and cons, as well as the effort by the Design Committee to coordinate the courses.

Since 1991, Design Studio coordinators have been responsible not only for the synchronization and coordination of each year's design exercises, projects and programs, but also for the establishment of a linkage between levels. This has enabled the Design Committee to verify the performance of the new curriculum and to identify its weaker points.

The most important aspect that has resulted from this process has been the recognition of a design core program coordination between first and second-year Design Studios; principles and fundamentals of composition and design are abstractly developed with spatial exercises pertinent to architectural problems. Students are introduced to the basics during the first year, broadly navigating through architectural and spatial experiences.

These fundamental issues are reinforced during the second year, by introducing projects with a higher degree of complexity. This core has been implemented with a great deal of expectation and is being tested to determine if it serves its pedagogical intention.

In upper level Studios, the coordinator's committee has stressed the fact that specific themes with specific levels of complexity guide the various sequences of exercises. This provides professors with a guide enabling them to measure the project results, as well as gauging the students' personal interest. This is accomplished within a framework that guarantees that the curriculum material complies with requirements, and that it is revised after every semester, in order to assess its performance and determine future readjustments.

In order to expose students to more complex problems by the addition of new elements, the Graduate Committee has reorganized the first-year graduate Design Studio. After a reevaluation of the quality and content of the course, visiting professors or scholars from Italy, Spain and the United States, as well as local practicing architects, have been incorporated into the course. This has proven to be a positive experience for the students, for they have learned to approach their thesis projects with more maturity and professionalism.

Individual thesis projects are continually under scrutiny of the Graduate Committee, in order to assess their validity and content. It is still early to provide a full assessment of the design component under the new curriculum. However, the following recommendations have been presented to the faculty:

- o the coordination of each year, as well as between years has to be mandatory, in order to guarantee that the sequence is well orchestrated and that pedagogical objectives are met under continuous scrutiny
- o the integration of Technology, Structures, Environmental systems, History and Theory as well as Computer-Aided Design, has to be reinforced
- o better physical facilities, with appropriate visual equipment, such as video travelling through 3-D models, computer interactive systems and photography, among others, should be added to provide a better academic environment
- o the Studios lack proper lighting and acoustics, as well as appropriate water-proofing for the roof,

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- o the budget for lectures and exhibitions should be increased.

3.5.2 Technology and Structures: Self Assessment/Concerns

The Technology faculty held periodical committee meetings to discuss relevant issues, maintain contact between individual faculty members and exchange ideas. New adjunct professors in the Structures area enrich our program.

The reduction in credits mandated by the new curriculum has limited the possibilities of addressing and developing many issues, particularly in energy, safety, etc. In addition, the loss of a full-time Technology faculty position has expanded the workload of the remaining faculty, particularly those involved in teaching physics and mathematics. This has resulted in a limitation in the number of elective and research courses that can be offered to expand graduate offerings.

It is the opinion of many faculty members, including some who teach Design Studio, that a basic lower-level course in building construction and anatomy is needed, presenting an overview of this important subject matter. Students are unfamiliar with this area. The graduate level course "Building Anatomy" is in the process of development, and its efficacy at this late stage in the professional development of the student (fifth year) is questionable.

Integration of Technology and Structures with the Design Studios remains a concern, and more effective methods should be attempted in the near future.

The thesis philosophy should be expanded to include research work on building technology. Traditionally, the only thesis approach has been the development of design projects. This limiting view has prevented some students from undertaking such work in technology, where the potential for valuable and interesting results is evident and urgent to the profession.

Interdisciplinary ties with the Environmental Sciences program at the University of Puerto Rico have been established. A number of relevant courses in the areas of ecology, waste disposal, air/water quality and land use and management are now available to our students. A course in environmental acoustics and noise pollution is being offered once a year by an architecture faculty member. New elective courses in the area of natural ventilation and lighting are being offered.

Technology and Structures faculty are active in the development of campus projects, and consultation and professional collaboration with the Law School has been maintained effectively.

The wind tunnel facility is in operation. Some improvements in the physical facilities will allow us to expand research and demonstration capabilities in the area of ventilation, natural lighting and acoustics, but only a new building will provide the up-to-date space and equipment required in this area.

A more effective integration of computers and CAD into technology courses is desirable; Computer Science should be a required subject matter for the undergraduate program.

The "sick building syndrome" is an important contemporary concern. The Technology Department believes that this is an area where development is possible, particularly with the collaboration of other faculties on campus (Chemistry, Physics and Environmental Sciences) and with the engineering faculty in Mayagüez. There are possible sources of funding in this field, and these should be explored.

3.5.3 History Department: Self-Assessment/Concerns

The History Department, which includes the Theory sequence, is presently understaffed, due to the fact that its senior professor is serving as Dean of the School, one professor retired last year, another served as Associate Dean for the first semester and has been on leave of absence since then, and another is directing the Architectural Archives and teaches only one course per semester. For the past three academic years, invited professors from the Design Studio sequence have been participating in the offering of Theory courses. The lack of a full-time faculty has weakened the characteristic personality and cohesiveness of the Department.

The new curriculum has severely limited students from being in contact with the areas of art and architectural history. For example, the History of Art courses (6 credits) were eliminated with the unrealistic expectation that the material could be incorporated into the four-semester History of Architecture sequence. The course was also important because it complemented the required Humanities course, which the General Studies

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Faculty agreed to modify (from twelve to six credits) on that condition. The contents of the Planning course is also required to be included in the History of Architecture sequence.

The role of the history sequence has not been perceived as an academic entity in its own right. Themes and topics cannot be unloaded into history courses, since they have a specific methodology and thematic context.

It is recommended that the History of Art course be incorporated into the curriculum once again. It supplied the student not only with vital information about architecture and its allied arts at an early stage (second year), but also provided this information in an academic, systematic and professional manner. Finally, the course exposed the student to the concept of artistic creation, to exceptional examples of the design process and to a vocabulary that was to become part of his own as an architect.

The physical facilities are, needless to say, in a lamentable condition. Rooms lack proper lighting (when slides are shown all lights must be turned off, so that students cannot take notes), proper acoustics, privacy and comfort, as well as emergency exits. Professors, in most cases, lack assistance and must tote slide projectors and other material to and from classrooms every day.

The Theory sequence, at the present time, is offered by two professors: a Design Studio professor and the Director of the Architectural Archives. The new curriculum specifies four one-credit theory courses at the undergraduate level and a three-credit advanced theory course at the graduate level. It has been our experience that the amount involved in undergraduate courses far exceeds the one credit offered. Furthermore, the narrow definitions of the contents of the courses might limit the interests of the professor. It has been suggested that an open menu of theory courses be offered by at least four professors each semester, so that the students can better structure their educational preferences.

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3.6 Meeting Curriculum Requirements

3.6.1 THE UNDERGRADUATE PROGRAM: Bachelor of Environmental Design (BED)

List of Required Courses (BED):

138 credits

First Year

32 credits

First Semester		16
ARCH 3131 Design Fundamentals I		4
ARCH 3121 Introduction to Architecture I	2	
ARCH 3045 Mathematics I		4
SPAN 3101 Spanish I		3
ENGL 3101 English I		3

Second Semester:		16
ARCH 3032 Design Fundamentals II		4
ARCH 3122 Introduction to Architecture II	2	
ARCH 3046 Mathematics II		4
SPAN 3102 Spanish II		3
ENGL 3102 English II		3

Second Year

34 credits

First Semester:		17
ARCH 3001 Beginning Architectural Design I		5
ARCH 3521 Physics I		3
HUMA 3011 Humanities I	3	
SOSC 3121 Social Sciences I		3
BISC 3001 Biological Sciences I	3	

Second Semester:		17
ARCH 3002 Beginning Architectural Design II	5	
ARCH 3522 Physics II		3
HUMA 3012 Humanities II		3
SOSC 3122 Social Sciences II		3
BISC 3002 Biological Sciences II		3

Third Year

36 credits

First Semester:		18
ARCH 4001 Intermediate Design I		5
ARCH 4045 Architectural Theory I		1
ARCH 4321 Structures I		3
ARCH 4005 History of Architecture I		3
ARCH 4311 Technology I		3
Elective		3

Second Semester:		18
ARCH 4002 Intermediate Design II		5
ARCH 4046 Architectural Theory II		1
ARCH 4322 Structures II		3
ARCH 4006 History of Architecture II		3
ARCH 4018 Technology II		3
Elective		3

Fourth Year

36 credits

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First Semester:	18	
ARCH 4011 Intermediate Design III	5	
ARCH 4047 Architectural Theory III	1	
ARCH 4323 Structures III		3
ARCH 4007 History of Architecture III	3	
ARCH 4019 Technology III	3	
Elective	3	
Second Semester:	18	
ARCH 4012 Intermediate Design IV	5	
ARCH 4048 Architectural Theory IV	1	
ARCH 4032 Structures IV		3
ARCH 4008 History of Architecture IV	3	
ARCH 4025 Technology IV	3	
Elective	3	

3.6.2 THE GRADUATE PROGRAM: Master of Architecture (M Arch)

List of Required Courses (M Arch)

56 credits

First Graduate Year

28 credits

First Semester:	14	
ARCH 6311 Advanced Architectural Design I	5	
ARCH 6361 Building Anatomy	3	
ARCH 6341 Architectural Theory and Criticism	3	
Elective	3	

Second Semester:	14	
ARCH 6312 Advanced Architectural Design II	5	
ARCH 6145 Research Techniques	3	
ARCH 6383 Professional Practice	3	
Elective	3	

Second Graduate Year

28 credits

First Semester:	14	
ARCH 6313 Architectural Design Thesis I	5	
ARCH 6385 Financial Aspects of Construction	3	
ARCH 6384 Professional Ethics, Administration, and Regulations	3	
Elective	3	

Second Semester:	14	
ARCH 6314 Architectural Design Thesis II	5	
Electives		9

The 18 elective-credit requirement at the graduate level is divided as follows: 6 in free electives; 6 electives at the School of Architecture; and 6 electives in other graduate programs.

3.6.3 Course Descriptions

See Appendix 5.1

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3.7 Addressing the NAAB Perspective on the Professional Degree in Architecture

3.7.1 Education and the Academic Environment

The University of Puerto Rico, established in 1903, is the foremost institution of higher learning on the Island. It comprises eleven campuses with a total enrollment of over 55,000 students. It offers undergraduate and graduate education in agriculture, architecture, arts and sciences, business administration, communications, education, engineering, humanities, law, library sciences, medicine, planning, social sciences and other fields.

Seventeen percent of its 19,300 students are enrolled in graduate studies: twenty-nine Master's degree programs (fifty-five specialties) and nine Doctoral degree programs (sixteen fields).

The School of Architecture is part of the Río Piedras Campus, the oldest and largest academic unit of the University. Located in San Juan, the island's capital city. The Campus has an extensive ensemble of buildings (143 buildings in a 250-acre site), that represent various stylistic manifestations of Puerto Rican architecture. It includes an original academic quadrangle (listed in the National Register of Historic Places), with a Spanish Revival belltower and a theater that seats 2,000. The General Library contains nearly 2,600,000 volumes, including collections of national, regional and international significance. The Schools of Architecture and Law maintain specialized autonomous libraries.

In its effort to educate the general public about architecture and its social impact and relevance, the School promotes a series of activities and programs. Among these are the following: a summer workshop for high school students interested in studying architecture (offered in collaboration with the Colegio de Arquitectos de Puerto Rico); a newsletter to inform about its activities, among others. The School also has a visiting lecturer series that brings world-wide architectural experiences to local audiences.

The School maintains an active profile in academic and professional organizations, including the Association of Collegiate Schools of Architecture (ACSA). In response to Puerto Rico's cultural and geographic contexts, and to strengthen our ties with our Hispanic heritage, the School maintains strong affiliations with organizations in both Latin America and Spain, such as the *Conferencia Latinoamericana de Escuelas y Facultades de Arquitectura (CLEFA)*.

3.7.2 Education and the Student

The School promotes direct student involvement in relevant social-related and urban issues. Studio courses constantly explore special community projects, and courses in the areas of architectural history and historic preservation have specifically dealt with the cultural resources of the Island and with the issue of vernacular architectural heritage.

Students are encouraged to participate in local and international design competitions (e.g., Disney's Imagine Nations, 2004 Olympic Games Village, Helsinki Museum of Art, Venice Biennale, ACSA Housing Student Competition, *Charrette Urbano: Las Superparalelas de Hato Rey*, among others), as well as in courses created in specialized areas (e.g., NASA related issues, regional architecture, interventions in low-income housing areas in the Caribbean). To foster collaborative efforts between academic units, the projects sponsored by NASA and Disney Imagineering have been opened to students at the School of Engineering of the Mayagüez Campus. In support of student academic affairs, the School maintains an Academic Orientation Office.

Our students participate actively in the American Institute of Architecture Students (AIAS) and the University of Puerto Rico General Student Council. Their academic achievements are recognized by the National Dean's List, the Alpha Rho Chi National Professional Fraternity, the AIA Academic Awards Program, and the Colegio de Arquitectos.

3.7.3 Education and Registration

The licensing requirement for the professional practice of architecture has been instituted to ensure the protection of the health, safety and welfare of the public. Our educational program is geared to develop competence in architectural design, technical systems and requirements, health and safety considerations, as well as developing the understanding of the historical, human, and environmental contexts of architecture, including the role

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and responsibilities of the architect in society.

Graduates from our program have been influential in the practice of the profession in Puerto Rico. This is due, not only to the increasing number of graduates, but also to the quality of their interventions, as reflected by the numerous prizes and awards obtained in local, national and international competitions. Since registration laws in Puerto Rico do not distinguish between the practitioners of civil engineering and architecture, for many years engineers supplied almost exclusively the need for architectural design in the Island. Since the incorporation of our graduates to the profession, their influence can be noted, as a deeper appreciation of the role and capabilities of the architect are been taken into consideration by the general public.

Most of our alumni apply for the Puerto Rico licensing NCARB Board's Exam immediately upon graduation. Upon approval of the exams, they are conferred the title of Graduate Architect. At the end of a four-year period as architect-in-training, working under a Licensed Architect, final Registration is granted. They are then able to establish independent practice, and certify, sign and seal construction documents on their own.

The Puerto Rico Licensing Board has maintained its policy of offering only the National Council of Architectural Registration Board (NCARB) Exams, for the advantage of reciprocity with other jurisdictions. The main objection to the exams is that they are offered only in the English language. However, this has not hindered our alumni in the process of obtaining registration to practice in Puerto Rico and elsewhere.

3.7.4 Education and the Profession

As professionals, architects are engaged in one of the learned endeavors, which are characterized by high ethical and technical standards, for the creation of environments for human habitation. Recognizing that, our program aims to instill in our students such awareness in the pursuit of the art and science of architecture.

To ensure that, it has been a policy of the School to support significant faculty relations with the profession. At present, sixty percent of the architects and engineers who teach at the School are registered licensed practitioners, and many of those who are full-time faculty members maintain some kind of professional practice. Several faculty members are presently architects-in-training, and others practice in allied and affiliated fields, such as Historic Preservation. An optimum balance between the academic pensum and practice is strongly promoted by the School and its faculty; there is a continuous and fluid interchange between the classroom and the field.

Required courses at the graduate level deal specifically with the study of architectural practice as a profession, and with its ethical, administrative, and statutory aspects. There is an elective course dealing specifically with the legal aspects of the practice of architecture.

The Council of Higher Education is considering at the present time a proposal that will allow extended interaction of the university faculty with the professions. In the case of our School, it is envisioned that a mutually beneficial relationship could be developed with professionals, that would include items such as:

1. Continuing education
2. Institutional library and research services
3. Computer software and hardware support
4. Laboratory and workshop facilities

These services, when offered by the School to alumni and general practitioners, could generate new resources needed to enhance and support our academic offerings.

The establishment of a School of Architecture in Puerto Rico was in great measure the result of the efforts of a number of local professional practitioners, who approached University authorities over twenty-seven years ago, with this purpose. Consequently, the School has kept close ties with the Colegio de Arquitectos de Puerto Rico in a mutually beneficial relationship. It is an important source for adjunct professors and visiting critics, as well as for theme and project assignments.

3.7.5 Education and Society

Puerto Rico, a densely populated island in the Caribbean (3.7 million census inhabitants / 3,500 square miles), has at present, only one School of Architecture offering a complete, self-contained program of studies. As an integral part of the public university system, its responsibility towards the community cannot be understated.

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The Design Studios at the School attempt to address most problems and concerns relating to the built environment in Puerto Rico, such as low-income housing, public housing, resort and tourist developments, industrial complexes, historic preservation projects, and developments in historic zones, hurricane-resisting structures, and appropriate technologies for the tropical zone (e.g., natural ventilation and daylighting).

Last year Prof. Edwin Quiles offered Housing and Community (ARCH 6373), a graduate course intended primarily to develop the student's understanding of the social, economic and political issues that mold the built environment with special emphasis in housing and community development for low and middle-income groups. Through lectures, readings and field trips the course explored issues related to: the needs of different user groups and the possibilities of user participation in the design, construction and management of space and in the development of the communities, the housing problem, social, economic and political alternatives and the role of design in the generation of these alternatives, the implication of these factors in the practice of architecture, and the redefinition of the roles of the architect under these circumstances. The course ended with the study of conceptual alternative proposals.

For the fall of 1993-94, Prof. Quiles will offer a Vertical Studio, Seminar on Intermediate Architectural Design (ARCH 4030) for third and fourth-year Design students, to deal with the problems of housing in Puerto Rico: low-income and middle class, individual and collective housing in urban, suburban and rural contexts. The course will involve various agencies that affect housing in Puerto Rico, as well as specialists in related fields. The course will have as co-requisite a Workshop in Directed Research (ARCH 3017).

The School also promotes faculty and student participation in community projects as a means of reinforcing a sense of social responsibility among its graduates. During the coming academic year a Vertical Studio for third- and fourth-year Design students will explore the fundamental issues that affect housing in Puerto Rico and its region. It is anticipated that as a result we will see a renewed commitment to the solution of these crucial problems in our evolving society.

Research projects of the faculty allow students to explore past and present realities of Puerto Rico. NASA-sponsored projects on extraterrestrial habitat developments and spacecraft interior design, with the involvement of faculty and students, have led to their participation in conferences, symposia, and competitions, as well as to travel and exchanges with institutions abroad.

Through exhibitions, public lectures and publications, the School continued to acquaint the general public with the history and reality of the profession of architecture.

The School considers it important to encourage faculty to serve as advisors, consultants and public officials in governmental agencies and programs. Some have occupied important positions on the Planning Board, State Historic Preservation Office, Public Buildings Authority, and as Special Assistants to the Governor, in the Institute of Puerto Rican Culture, and in the administration of the University of Puerto Rico System, while others have undertaken the direction of special projects of significant social importance. This participation has been of great value to the proper conduct of government and to the general benefit of society, and the experience has been essential to the development of their professional careers. Their presence in private firms has had a significant impact in the evolution of practice in Puerto Rico over the last two decades.

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3.8 Satisfying Achievement-Oriented Performance Criteria

FUNDAMENTAL KNOWLEDGE

SOCIAL

The School of Architecture considers that the "Social" component of its curriculum is strongly designed. It enables students to fully understand the importance of the social context of architecture, by encouraging to explore liberal arts studies, architectural history, general culture and human behavior.

The School believes is in compliance with all the criteria established by NAAB for the area denominated as "Social." The University of Puerto Rico has a distinguished faculty in all areas related to the social sciences, humanities and Hispanic Studies. Undergraduate courses in the areas of the social sciences, biological sciences and humanities are part of the basic curricular philosophy of the general studies program required in all academic areas. This program has been successfully implemented since 1943.

The School offers undergraduate and graduate courses in the areas of architectural history, architectural theory, general culture, and planning, dealing with most major issues related to social context and its relationship to architecture. The following courses deal directly with this component: Introduction to Architecture, undergraduate Theory, History of Architecture, graduate Architectural Theory and Criticism, Humanities, and Social Sciences.

These courses address issues arising from the consideration of human nature and social interaction. The analysis and discussion of these issues throughout their academic career, will allow students not only to understand better the issues at hand, but to respond responsibly to them during their professional practice. It must be remembered, though, that some of the achievement performance criteria included in the "Social" area are also covered by other courses.

The history of architecture sequence provides opportunities for the examination of the impact of economic issues in the context of specific architectural projects and tendencies. Planning electives examine the impact of ecological resources on growth development and the construction of housing.

The required research elements of Advanced Architectural Design Studio courses and Thesis address the impact generated by economic and social policies. Several elective courses offered at the School provide students with the opportunity to expand their experience in areas directly related to the "Social" component. Among these are: Art History, Architectural History Seminars, Identity and Culture of the Caribbean Seminar, and Themes in Puerto Rican Culture.

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1. Be aware of basic principles governing the formation of diverse cultures and human behavior.

The Humanities and Social Sciences courses introduce students to the basic principles involved in the study of universal human culture and its regional manifestations.

The History of Architecture sequence presents the fundamental issues relating to the formation of diverse cultures and the organization of societies. It discusses architecture as a cultural product and its relationship with political, economic, religious, ideological and social considerations, as well as how natural elements and scientific discoveries affect human thought and behavior. In the Theory of Architecture course students encounter the notion of place and how it contributes to the understanding of everyday life. The understanding of place is presented as a clue to the appropriation of past architectural production and the relation that it has with the culture that produced it.

The studios present issues dealing in general with the development of culture and the notions of human behavior. Issues and projects vary in complexity throughout the studio sequence yet remain concerned with the cultural, spatial and temporal contexts.

Electives in various areas at the School and the University, provide students opportunities to further explore the issue of the formation of diverse cultures and its impact upon the creation of architecture.

COURSE NO.

ARCH 3121*
ARCH 3122
ARCH 4005
ARCH 4006
ARCH 4007
ARCH 4008
ARCH 4045
ARCH 6991

HUMA 3011
HUMA 3012
SOSC 3121
SOSC 3122

STUDIOS
THESIS

UNIVERSITY OF PUERTO RICO

3 - 19

2. **Be aware of the values, needs, and ethics that guide human behavior.**

The History of Architecture sequence and the Humanities and Social Sciences courses examine the values, needs and ethics that have guided and guide human behavior. Social and cultural values and needs are studied as they inspire and affect the creation and production of architecture, and as they generate a foundation for ethical behavior, such as religious and scientific considerations. Architecture and the arts are analyzed as they directly impact these concerns and as a means for expressing them.

The Design studios present, with ever-increasing depth, the principle that Design responds to concerns of human values and needs and the ethical and moral context upon which professional practice should be founded.

The Introduction to Architecture course provides the student with a survey of these topics, including the changing values and needs that have guided human behavior within the profession.

COURSE NO.

ARCH 3121

ARCH 3122

ARCH 4005

ARCH 4006

ARCH 4007

ARCH 4008

ARCH 6991

HUMA 3011

HUMA 3012

SOSC 3121

SOSC 3122

STUDIOS

THESIS

UNIVERSITY OF PUERTO RICO

3 - 20

3. Be aware of methods of historical inquiry.

The History of Architecture sequence introduces students to a wide range of architectural and artistic examples which present the everchanging aesthetic milieu within its historical context. Historical inquiry is emphasized as students are encouraged to critically analyze these examples not only as products of their time but as examples of universal values. Students become aware of the processes of how we value historical epochs and their products and how that value changes, permitting them to understand the aesthetic and historical significance of different architectural periods and works. The transformation of that value affects how we perceive the architecture of the past and helps explain the importance of major works and their designers along a historical path.

The Introduction to Architecture, Humanities and Social Sciences courses present topics which provide general ideas in terms of cultural behavior, social values and traditions, thus reinforcing the understanding of historical progression. Electives in various areas provide students with the opportunity to further explore these methods.

The Design studio courses stress the use of historical methods of inquiry by requiring research into original documents, drawings, models, as well as the critical analysis of the artifacts and their urban context.

COURSE NO.

ARCH 3121
ARCH 3122
ARCH 4005
ARCH 4006
ARCH 4007
ARCH 4008
ARCH 6145
ARCH 6991

HUMA 3011
HUMA 3012
SOSC 3121
SOSC 3122

STUDIOS
THESIS

UNIVERSITY OF PUERTO RICO

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4. **Be aware of the diversity of architectural history and traditions throughout the world.**

The History of Architecture sequence makes the student aware of the diversity of architectural history and traditions throughout the world, with particular emphasis on Western civilization. In these and other courses (Architectural Design Studio, Technology, Theory, Electives), besides presenting a thorough and ample view of the historical evolution of architecture, we conscientiously explore our Spanish Caribbean history and traditions.

In the studio, many Design solutions require an approach based on the study of architectural precedents and the analysis and transformations of diverse traditions.

COURSE NO.

ARCH 3121
ARCH 3122
ARCH 4005
ARCH 4006
ARCH 4007
ARCH 4008
ARCH 4018
ARCH 4045
ARCH 4046
ARCH 4047
ARCH 4048
ARCH 4311
ARCH 6341
ARCH 6991

HUMA 3011
HUMA 3012

STUDIOS
THESIS

5. **Be aware of the implications of economic systems and policies on the development of the built environment.**

The History of Architecture sequence provides opportunities for the examination of the impact of economic systems and policies as they relate to general architectural manifestations, as well as specific architectural projects and tendencies through history. These courses deal as specifically as determining the cost of construction in contemporary terms, financing (sources, methods, payments for services, land purchase, patronage, guild system, apprenticeship, among others).

Planning electives examine the impact of ecological resources on growth development and the construction of housing; required research for Advanced Architectural Design Studio courses and Thesis address the impact generated by economic and social policies; Social Sciences courses cover issues related to economic systems and policies.

The Financial Aspects of Construction course covers, in more detail, specific financial issues as they relate to the development of architectural strategies.

Design studios investigate the economic systems and social policies behind architectural production. In addition, on many occasions, they encourage the incorporation of such aspects in the development of solutions.

COURSE NO.

ARCH

UNIVERSITY OF PUERTO RICO

3 - 23

4005
ARCH 4008
ARCH 6385

PLAN 6016

SOSC 3121
SOSC 3122

STUDIOS
THESIS

6. **Be aware of levels of government and the areas of the law each has generated that affect architecture.**

This criterion is partly covered by Professional Practice, Professional Ethics, Administration and Regulations, Legal Aspects of Professional Practice, Planning electives, Historic Preservation electives. The History of Architecture sequence examines the underlying political, economic and legal dimensions of particular architectural movements.

Advanced Studio courses and Thesis specifically deal with aspects of government and law, including building codes and regulation, preservation laws and standards, zoning and urban codes. Design Studio research requires students to become involved in these areas, as they explore the various processes relating to the production of the actual design of complex projects and structures.

7. **Understand the impact of various cultural values and societal settings on the social responsibilities and the role of the architect.**

COURSE NO.

ARCH 4005

ARCH 4008

ARCH 6380

ARCH 6383

ARCH 6384

NASC 4167

STUDIOS

THESIS

The Introduction to Architecture courses offer a panoramic view of the discipline of architecture, the cultural values and societal settings that affect the human being and its response via architecture.

The History of Architecture sequence deals with this criterion extensively: architecture, the history of the profession, relationship with other professions, crafts, on-the-job training, engineering vs. architecture, the impact of construction and urbanism upon society; these are seen as the reflection and consequence of cultural values. The architectural forms, typologies, and morphologies are studies within the context of societal setting traditions.

Design Studio courses perceive architecture as a direct response to place. Exercises begin with a research project geared towards the understanding of the physical and cultural environment and its impact.

In the first Theory course the architect is introduced as a professional with the capacity to synthesize society's needs into a design. The first notions of a non-arbitrary architecture are presented to the student. The graduate level Theory course, emphasizes the notion of architecture as a social phenomenon, theories explored are relevant to society and its endeavors rather than to an abstract aesthetic theory. Architectural criticism is given from within a cultural and social context, understanding architecture as a text.

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COURSE NO.

ARCH 3121
ARCH 3122
ARCH 4005
ARCH 4006
ARCH 4007
ARCH 4008
ARCH 4045
ARCH 6341
ARCH 6380
ARCH 6383
ARCH 6384

HUMA 3011
HUMA 3012

STUDIOS
THESIS

8. Understand how individuals and groups respond to and affect their environmental settings.

Introduction to Architecture studies the physical dimensions of the human being, as well as the principles that affect human behavior in interaction with the environment and architectural space.

The History of Architecture sequence shows how the environment and environmental control have shaped physical form; it also deals with issues such as the development of cities, sanctuaries on natural sites, preservation of sites with natural and medicinal value, etc.

Humanities and Social Science courses address this criterion.

The Design Studio sequence addresses this issue by requiring students to incorporate specific social environmental concerns in the development of their projects.

Elective Planning courses present the issue of human settlement and its effect upon the environment.

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PLAN 6016

**STUDIOS
THESIS**

COURSE NO.

**ARCH 3121
ARCH 3122
ARCH 4005
ARCH 4006
ARCH 4007
ARCH 4008
ARCH 4018
ARCH 4045
ARCH 4048
ARCH 4311
ARCH 6341**

**HUMA 3011
HUMA 3012
SOSC 3121
SOSC 3122**

FUNDAMENTAL KNOWLEDGE ENVIRONMENTAL

Environmental issues are addressed in most of the courses in the technology sequence. Issues relating to climate and geography are presented and discussed in the introductory technology course.

The Humanities course also deals with environmental issues from the philosophical perspective, as presented within their historical context. Writings that relate how past societies related to the natural order are part of the required workload. This establishes an effective basis for the student's understanding of how the evolution of our knowledge of the natural (physical) world affects our general understanding. Future architects might benefit from this knowledge and apply it in terms of how the architect deals with those forces of nature that influence (or infer upon) design and the building of architecture.

The two-semester Physics course, as well as the two-semester Biological Sciences course deal with general theories and principles that are to be used as basis for the interpretation of the environmental issues. The Land Use and Management elective explores the issue of the impact of the building upon the environment.

These courses discuss natural phenomena, making the student aware of the principles that govern the natural world. Great importance is given to the understanding of the natural world, in particular in terms of the local environment. It is expected that the student will be able to develop the sensitivity necessary to the ecological issues that he will be facing as he graduates.

Design Studio courses, in increasing complexity, from elementary through advanced level, on the other hand, present specific problems that deal with the ecological impact that the built environment has upon its dwellers, and a wide range of issues (psychological, aesthetic, symbolic) are presented as pertinent to specific projects. It must be understood that projects and themes do vary each year.

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9. Be aware of the principles governing the natural world.

The Physics requirement introduces students to the study of the basic forces and energies in nature. Biological Science courses present a broad survey of the living world. Building technology and Structures courses utilize and reinforce the knowledge of these principles in the development of coherent ideas for construction and environmental control.

Numerous elective courses offer students opportunities to further their understanding of important physical theories in the areas of light, sound, wind, and space science.

COURSE NO.

ARCH 3121

ARCH 3122

ARCH 3521

ARCH 3522

ARCH 4005

ARCH 4006

ARCH 4007

ARCH 4008

ARCH 4018

ARCH 4037

ARCH 4045

ARCH 4046

ARCH 4047

ARCH 4048

ARCH 4311

ARCH 6531

BISC 3001

BISC 3002

HUMA 3011

HUMA 3012

UNIVERSITY OF PUERTO RICO

3 - 29

10. **Be aware of theories and methods that clarify the interrelationships between human behavior and the physical environment.**

The Introduction to Architecture course involves consideration of topics such as human comfort, biology and homeostasis as vital elements in the physical relationship between man and the environment. The required courses in the Social Sciences, the History of Architecture, Theory, and various Design Studios also address this criterion specifically.

The first Technology course is devoted to the issue of the human being and his physical needs for survival in relationship to the surrounding environment.

Electives in the area of lighting, acoustics and ventilation explore both perceptual and physiological factors that are critical for human life.

COURSE NO.

ARCH 3121

ARCH 3122

ARCH 3905

ARCH 4005

ARCH 4006

ARCH 4007

ARCH 4008

ARCH 4019

ARCH 4025

ARCH 4037

ARCH 4045

ARCH 4046

ARCH 4047

ARCH 4048

ARCH 4311

ARCH 6531

UNIVERSITY OF PUERTO RICO

3 - 30

- 11. Be aware of the principles and theories that deal with environmental context, and the architect's responsibility with respect to global environment.**

This criterion is strongly addressed in the two lower level Technology courses and in the Introduction to Architecture cours

UNIVERSITY OF PUERTO RICO

3 - 31

es. Students are encouraged to take special electives offered by the Environmental Science Department and the School of Planning covering such topics as land use planning, environmental quality and environmental impact statements.

The environmental context is a theme that is stressed throughout the design studio sequence where instructors continually emphasize the critical importance of environmentally responsive design.

COURSE NO.

ARCH 3121

ARCH 3122

ARCH 4311

PLAN 6016

STUDIOS

THESIS

UNIVERSITY OF PUERTO RICO

3 - 32

12. **Understand how a specific site influences, and is influenced by, its physical and emotional components.**

This criterion is specifically addressed in the second Technology course; the technical aspects of site planning is the major topic in this course. Design Studio courses (Intermediate and above) entail detailed evaluation of site requirements in most projects.

The History of Architecture sequence, the Theory of Architecture sequence, as well as the Introduction to Architecture courses, discuss and analyze the relationships between environment and human habitation in its historical, cultural, social and ecologic context.

The Landscape architecture elective courses complement the student's understanding of the relationship between site and building addressed by the design studio courses.

COURSE NO.

ARCH 3019

ARCH 3025

ARCH 3121

ARCH 3122

ARCH 4005

ARCH 4006

ARCH 4007

ARCH 4008

ARCH 4018

ARCH 4045

ARCH 4046

ARCH 4047

ARCH 4048

PLAN 6016

NASC 4167

UNIVERSITY OF PUERTO RICO

3 - 33

13. **Understand the ecological impact of buildings and their occupants.**

The Introduction to Architecture courses present an early consideration of the ecological impact of buildings and their inhabitants. This is further amplified in the environmental technology courses. It is also a major concern in Design Studio projects, particularly in Thesis work.

Environmental Science and Landscape Architecture electives offer ample opportunities for interested students to pursue this subject matter in depth.

COURSE NO.

ARCH 3905

ARCH 4018

ARCH 4019

ARCH 4025

ARCH 4037

ARCH 4311

ARCH 6531

NASC 4167

NASC 4995

STUDIOS

THESIS

FUNDAMENTAL KNOWLEDGE AESTHETIC

Basic principles of architectural ordering are covered, in addition to the first year Design courses, by the new Introduction to Architecture course, where the student is presented with a wide range of issues that deal directly with the processes of design. History, theories and general aesthetic principles of both the architectural object and the urban form are covered extensively in these courses. Purposes, symbolism and meaning are also explored by the general theory and history sequences.

14. **Understand basic principles and systems of order underlying two- and three-dimensional design.**

The Introduction to Architecture and the History of Architecture courses illustrate how the basic principles and systems of order underlying two- and three-dimensional design have been utilized in the past. The freshman Design Fundamentals Studio course begins with two-dimensional and then three-dimensional design projects, where the basic principles of order are clearly addressed. In all Design Studio sequences there is a continuity in the application of these principles.

In the Theory of Architecture courses, ARCH 4047 and 4048, order is a theme that is used throughout the sequence. Meaning has different levels of order, each in turn may represent different architectural discourses.

COURSE NO.

ARCH 3019
ARCH 3025
ARCH 3071
ARCH 3072
ARCH 3121
ARCH 3122
ARCH 4005
ARCH 4006
ARCH 4007
ARCH 4008
ARCH 4047
ARCH 4048

STUDIOS
THESIS

15. Understand history, theories, and principles that are the basis for the making of architecture and urban form.

The History of Architecture, Theory and Introduction to Architecture sequences form an infrastructure that allows students to gain significant understanding of these critical issues. In ARCH 4045, the production of architecture is presented as a phenomenon that is related to and offers multiple solutions to society's every day needs. To see architecture in place and time, will enable the student to understand his position within a network of architectural production. In ARCH 6341, on the other hand, this criterion is presented when architecture and the development of urban form are presented as non-arbitrary phenomena that are rooted in time, in the understanding of the world and its expression through art, politics and culture.

The development and refinement of personal ideas regarding the ways in which architecture and urban forms are created, is a fundamental activity of all Design Studio courses.

The written part of the Thesis requires students to define their theoretical position regarding these fundamental issues.

Planning electives expand the students' understanding of the principles upon which architecture and urban form are created.

COURSE NO.

ARCH 4005
ARCH 4006
ARCH 4007
ARCH 4008
ARCH 4045
ARCH 6341

PLAN 6016

STUDIOS
THESIS

16. Understand significant design methodologies and their application to architectural design.

Design methodologies, functional purposes, as well as programmatic, technical objectives, are covered by the Design Studio, Theory, Technology and Structure courses.

The Introduction to Architecture and the History of Architecture sequences explore how the architect works (processes) and the ways of perceiving architecture and communicating building ideas (plans, models, discourse, on-site training, bay system, modules, scale) from Ancient Greece to the present. Also addressed is the nomenclature of architectural design.

In ARCH 4048, students are asked to analyze design methodologies and compare them to their own methodology used in design studio. In ARCH 6341 methodologies are presented as a consequence of particular ideological "projects" that all architects have. Therefore, to explore their own "project" in each design, will give the student an opportunity to develop his own research into what architecture is.

COURSE NO.

ARCH 4005
ARCH 4006
ARCH 4007
ARCH 4008
ARCH 4018
ARCH 4019
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ARCH 4032
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ARCH 4323

17. Understand the purposes for building and how those purposes are realized and given meaning through architectural form.

The Introduction to Architecture courses explore the relationship between program and product, and the basics of the functional diagram are addressed.

The History of Architecture sequence discusses historic considerations in the design of buildings, purposes, symbolism, etc.

In the theory course ARCH 4048, this criterion is viewed through the methodology of semiotics, through the different definitions of symbols and symbolism, through the analysis of ideological content of a work of architecture in order that students may be able to see a building imbued with meaning or, at least, as a cultural text.

The activity of the Design Studios at all levels reinforces the understanding of the purposes for building and how specific forms are required to achieve design objectives.

Thesis work presupposes that the student has gained a complete perspective of the abovementioned issues.

COURSE NO.

ARCH 3121

ARCH 3122

ARCH 4005

ARCH 4006

ARCH 4007

ARCH 4008

ARCH 4045

ARCH 4046

ARCH 4047

ARCH 4048

ARCH 4311

ARCH 6341

STUDIOS

THESIS

18. Understand ways in which different forms are successful or unsuccessful in satisfying programmatic, technical, accessibility, and contextual objectives in a design proposal.

The Introduction to Architecture course and the early Design Studio courses involve the basic issues of context, structural concepts and environmental relationships.

Further work in the D

esign Studio sequence, in projects of increasing scope and complexity, reinforce the understanding of these matters.

The History and Theory of Architecture sequences, involving the analysis of buildings and how they serve their functions, typological considerations and their transformations through history as well as critiques of projects (built and unbuilt), address this criteria particularly well.

The building anatomy course involves detailed evaluation and proof of performance of an existing building.

COURSE NO.

ARCH 3121
ARCH 3122
ARCH 4005
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ARCH 4007
ARCH 4008

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ARCH 4311
ARCH 4321
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ARCH 4323
ARCH 6361

STUDIOS
THESIS

FUNDAMENTAL KNOWLEDGE TECHNICAL

The natural laws that affect the actual construction and building of an architectural artifact are explored first, in a general fashion, in the Physics course. The Mathematics sequence provides the foundation for an understanding of areas of college mathematics that find application in Technology and Structures courses. Later, the Structures sequence analyzes in detail the structural behavior of buildings, from the very basic theories to a more complete and detailed analysis of the structural component of the built environment. The basic theories of accessory but basic components to architecture, such as lighting, acoustics, environmental control and systems and energy management, plumbing, electrical, communication and security, are amply covered by the Technology sequence. Principles, standards, codes are studied as part of the education in each and other of the areas mentioned above.

The Anatomy of the Building graduate course specifically programs visits to particular sites and places to encourage an active relationship between the student and the existing market and products.

The School places particular emphasis in the teaching of the adaptation of the built environment to the local climate conditions. Architecture electives dealing with Daylight and Natural Ventilation explore these issues at a more advanced level.

19. **Understand the principles embodied in natural laws affecting the science of building.**

The Physics sequence presents the basic theories of classical physics that are relevant in architectural technology and structures. The Mathematics courses provide a foundation in basic College mathematics, allowing students a more profound understanding of technology and science.

The Technology and Structures sequence present detailed expositions of the physical principles required in each discipline.

Special electives in the areas of natural ventilation, sound and acoustics, and lighting also require an understanding of the relevant physical laws embodied in each field.

COURSE NO.

ARCH 3045

ARCH 3046

ARCH 3521

ARCH 3522

ARCH 3905

ARCH 4018

ARCH 4019

ARCH 4025

ARCH 4032

ARCH 4037

ARCH 4311

ARCH 4321

ARCH 4322

ARCH 4323

ARCH 6531

20. **Understand the basic theories of structures and the structural behavior of typical systems.**

This is the fundamental concern of the Structures sequence. An early exposure to the basic theories of structures and the structural behavior of typical systems is also offered by the Introduction to Architecture course.

Structural knowledge, at a basic level, is required in upper level Design Studios.

In the History of Architecture sequence the student will encounter examples of outstanding building exhibiting a wide variety of structural solutions. These examples expand the students' understanding of basic structural theories and the historical application of typical systems (post-lintel, arch and vault, dome, concrete-compression, etc.)

COURSE NO.

ARCH 3121

ARCH 3122

ARCH 4005

ARCH 4006

ARCH 4007

ARCH 4008

ARCH 4032

ARCH 4321

ARCH 4322

ARCH 4323

STUDIOS

THESIS

21. **Be able to organize and design simple structural systems to withstand gravity and lateral forces.**

This a fundamental concern of the entire Structures sequence but is addressed specifically in the third and fourth courses.

Close collaboration between the upper level and thesis studios is maintained with the structural specialist instructors. Thesis projects must exhibit an acceptable level of basic structural design.

COURSE NO.

ARCH 4032

ARCH 4321

ARCH 4322

ARCH 4323

STUDIOS

THESIS

22. **Be aware of relevant codes and regulatory standards and their application to physical and environmental systems.**

This criterion is addressed in advanced Structures and Technology courses. Intermediate and Advanced Design Studios deal extensively with code issues and regulations in the elaboration of the student's design projects.

The Professional Practice course give students an awareness of building, zoning and accessibility codes and standards.

COURSE NO.

ARCH 4019

ARCH 4025

ARCH 4032

ARCH 4323

ARCH 6383

STUDIOS

THESIS

23. **Understand the basic theories of lighting, acoustics, environmental control, and building systems and energy management.**

The Physics sequence specifically covers the theories of light, sound, fluid motion, and heat. The basic theories of lighting, acoustical control, and environmental control (ventilation, air-conditioning) are amply covered in the two upper level Technology courses. Building control systems and energy management are also important concerns at this level. The first Technology course considers natural lighting and ventilation as important concerns, particularly as they relate to the tropical climate.

The Building Anatomy course examines these systems in existing buildings.

A number of special electives in Acoustics, Natural Lighting and Natural Ventilation are available and are taken by a substantial number of students at our School.

COURSE NO.

ARCH 3521
ARCH 3522
ARCH 3905
ARCH 4019
ARCH 4025
ARCH 4037
ARCH 4311
ARCH 6361
ARCH 6531

24. **Understand the basic elements, organization, and design of mechanical and electrical, plumbing, communication, security, and vertical transportation systems.**

Electrical and communication systems in buildings are thoroughly discussed in the third course in the Technology sequence. Plumbing, vertical transportation and security systems receive special attention in the fourth course in the Technology sequence. Students in upper level Design Studio courses and in Thesis are required to incorporate the physical elements of these systems in at least some of their projects.

The Building Anatomy course examines these systems in existing buildings.

COURSE NO.

ARCH 3521

ARCH 3522

ARCH 4019

ARCH 4025

ARCH 4037

ARCH 4311

ARCH 6361

**THESIS
STUDIOS**

25. **Be aware of the principles, conventions, standards, applications, and restrictions associated with the manufacture and use of existing and emerging construction materials and assemblies.**

Materials used in architectural construction are explored in the second Technology course and in the Structures sequence. Design Studios require the development of an awareness and appreciation of existing and emerging construction materials and assemblies.

Elective courses in Construction Drawing allow students to further increase their knowledge of material properties and specialized construction systems.

The Building Anatomy course furthers an understanding of commonly used construction materials and assemblies via extensive site visits to existing buildings.

COURSE NO.

ARCH 4018

ARCH 4019

ARCH 4025

ARCH 4032

ARCH 4321

ARCH 4322

ARCH 4323

ARCH 6361

STUDIOS

THESIS

26. Understand safety requirements and selection processes for equipment and materia

Is in site and building design.

Safety consideration relating to electrical systems are discussed in third Technology course. Safety factors as related to structural design are carefully analyzed in the Structures sequence. Recent concerns about fire safety have led to the inclusion of such matters in some Advanced Design Studio projects.

The Building Anatomy course emphasizes the selection process of actual, real world materials and construction systems. Visits to building sites and manufacturing facilities are an essential requirement of this course.

27. **Understand the problems related to the use of hazardous and toxic materials in new and existing buildings.**

COURSE NO.

ARCH 4019
ARCH 4032
ARCH 4321
ARCH 4322
ARCH 4323
ARCH 6361

STUDIOS
THESIS

At present, this issue is not specifically addressed in any of our academic courses. The School recognizes, however, its importance and intends to develop an interdisciplinary program of research and related coursework in the sick building syndrome, with the collaboration of competent faculty in Environmental Sciences, Chemistry, Physics and Engineering.

The Architecture program is housed in a building exhibiting major deficiencies and the existing conditions enable the faculty to utilize it as a case study of deterioration and the use of hazardous building material, i.e., asbestos. Our faculty and students are painfully aware of these issues even if these are not formally included in our courses.

COURSE NO.

FUNDAMENTAL KNOWLEDGE DESIGN

The School considers the Design courses to be the core of the curriculum. Much attention is then given to the organization of the design sequence which last a total of five years. During the sixth year, students are required to work on their Master's thesis, which includes a semester of research, program creation and analysis of site and other issues. During the previous five years, students are guided through an ever-progressing sequence that presents more complex projects as the student passes through it. From basic principles the students are expected to be able to sophisticated design principles and processes.

28. **Be able to examine architectural issues rationally, logically, and coherently.**

Throughout the design studio sequence the student must learn to recognize the importance of prioritizing and supporting, rationally, criteria and issues relative to spatial principles and fundamentals, program, site and context. These will be emphasized via individual criticism as well as in group juries.

Upper level studios emphasize various architectural themes within a framework that can be described as follows: program in second year, site and context in third year, and construction methods, materials and techniques in fourth year.

The theory sequence presents reason and emotions as collaborators that produce character in architecture, therefore, they can be analyzed and understood. Graduate level theory explores how thinking and feeling are verifiable. In this manner, thought or emotion can be critically appreciated and developed.

COURSE NO.

ARCH 3017

ARCH 3018

ARCH 3121

ARCH 3122

ARCH 4045

ARCH 4046

ARCH 4047

ARCH 4048

ARCH 6341

STUDIOS

THESIS

29. **Be able to gather and analyze information about human needs, behavior, and aspirations to inform the design process and do basic research as it relates to all aspects of design.**

The design studios address the issues of spatial sequences, limited space exercises, human dimensions and needs, which provide a framework for diverse design strategies at the conceptual stage as well as in detailed design development. The School provides other courses that complement the students' understanding of human needs, behavior, and aspirations. The social science courses provide support.

A number of elective courses specifically address the issue of the low-income and handicapped populations.

Thesis work involves the profound research work culminating in a major, and hopefully successful design project addressing these needs.

COURSE NO.

ARCH 3121

ARCH 3122

ARCH 4005

ARCH 4006

ARCH 4007

ARCH 4008

ARCH 4037

ARCH 4311

SOSC 3121

SOSC 3122

STUDIOS

THESIS

30. **Be able to use architectural history and theory in the critical observation and discussion of architecture and bring an understanding of history to bear on the design of buildings and communities.**

Design studios emphasize the use of precedents as a basis for creation, design and invention. They also introduce the student to the potential of historical precedent studies and its understanding as a plausible design tool.

The history sequence exposes the student to a wide range of information on how aesthetic, constructive and technological issues have developed and shaped architecture throughout time. Theory courses provide a bridge between historical facts and possible applications in design.

In the theory course the architectural issues concerning type and typology are seen as a way of relating history and theory to studio work. In the course, theory and criticism are viewed as factors that will enable the student to give meaning to his location in time. Therefore past times is of substance to the understanding of the collective meanings of architecture. Forms, types, models and precedents are presented as charged with theoretical and historical meaning.

COURSE NO.

ARCH 4005

ARCH 4006

ARCH 4007

ARCH 4008

ARCH 4045

ARCH 4046

ARCH 4047

ARCH 4048

ARCH 6341

STUDIOS

THESIS

31. **Be able to integrate natural and imposed site constraints into the development of the program and the design of the project.**

The importance of site analysis is stressed throughout the design sequence, be it urban, rural, natural, or even abstract.

The student is introduced to analytical criteria and graphical tools that aid in the understanding of topography, climate and other factors in the environmental technology sequence.

COURSE NO.

ARCH 4018

ARCH 4037

ARCH 4311

STUDIOS

THESIS

32. **Be able to articulate and clarify basic project goals and objectives and to plan appropriate design activities using techniques of programming, analysis, and synthesis applicable to a variety of project types.**

This is addressed in the second year design studio in which program and function are strongly emphasized. The student is required to conduct an analytical process enabling him to understand the intrinsic conflicts or relationships existing within a given program; the student must then establish priorities before developing appropriate solutions.

In the third year design studio the program and functions are tested in diverse contextual situations which introduce the student to the transformation process of a program in different site conditions.

The fourth year design studio and the graduate level studios require students to articulate objectives, goals and priorities in their chosen solutions.

COURSE NO.

**STUDIOS
THESIS**

33. **Be able to design both site and building to accommodate those with varying physical abilities.**

The issue of diverse physical abilities and disabilities is introduced very early in the design studio. Issues related to the problems of the physically handicapped and their need for equal accessibility to spaces and facilities is strongly stressed at this and all levels.

In this category the design studio considers the problems of the elderly, young children, and the psychologically impaired as well.

COURSE NO.

ARCH 4311

**STUDIOS
THESIS**

34. **Be able to apply principles t**

hat underlie the design and selection of life safety systems in the general design of buildings and their subsystems.

In the design sequence at all levels the student encounters exercises which require the addressing of these issues. Field visits to buildings emphasize life safety systems and how they have been incorporated efficiently into the building itself. Specifically in the third year design studio this issue is incorporated into the design program requirements. A fourth year student must be able to integrate security systems into the design projects, taking into account relevant safety and fire codes.

The principles of life safety systems are presented in the fourth course in the technology sequence.

35. **Be able to assess, select, and integrate structural and environmental systems into building design.**

COURSE NO.

ARCH 4025

**STUDIOS
THESIS**

Second year design studios introduce the student to the general terminology and description of the basic structural and environmental control systems. In the third year design studios the student is required to integrate these systems into the design proposals and their solutions. However, it is in the upper level design studios where proefficiency in incorporating the technical systems is thoroughly evaluated.

The structures sequence and the technology sequence thoroughly address these issues in a formal manner. The graduate level building anatomy course takes these topics to their more refined expression.

36. **Be able to select building materials and assemblies as an integral part of the design and to satisfy requirements of building programs.**

COURSE NO.

**ARCH 4018
ARCH 4019
ARCH 4025
ARCH 4032
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ARCH 4321
ARCH 4322
ARCH 4323
ARCH 6361**

**STUDIOS
THESIS**

These issues are considered throughout the design sequence at various levels of complexity. In the second year design studios the issue of materials and assemblies is introduced. Detailed incorporation of these elements is required in the upper level design studios. Thesis work involves a complete development of building materials and assemblies employed in this final design project. Courses in the structures and technology sequences specifically address these issues.

37. **Be able to develop interior and exterior building spaces, elements, and components, using basic principles of architectural form-making.**

COURSE NO.

**ARCH 4018
ARCH 4032
ARCH 6361**

**STUDIOS
THESIS**

The design sequence provides a wide range of exercises, at various levels of complexity, which introduce the students to the resources and strategies of spatial definition and manipulation. Beginning in the first year design studios the abstract notions of approach, path, openings, spatial connections and sequences are introduced. Second and third year design studios introduce structure, landscape and light as critical elements in the interior as well as the exterior definition of space. The third year emphasizes landscape as context and as an integral component of building design.

Through theory and history courses the relationship between architecture and landscape is also explored.

A number of electives in the areas of visual communication, photography, and computer graphics complement the activities in the design studios.

38. Be able to use the interactions between technical, aesthetic, and ethical values in the formation of architectural judgments.

COURSE NO.

ARCH 3021
ARCH 3071
ARCH 3072
ARCH 4007
ARCH 4008
ARCH 4046
ARCH 4048
ARCH 5005

STUDIOS
THESIS

In the theory sequence, this criterion is verified as the understanding of architecture as a synthesis of technical, aesthetic and ethical values. To enable a student to formulate an architectural judgement, he is encouraged to consider the dynamics that exist in all aspects of architecture, understood as a complex interaction of all of society's endeavors within a particular place and time.

In the third year design studio the issues related to the value judgements described above are presented. In the upper level design studios the student must manifest real understanding of the importance of ethical, legal, cultural, social and economic issues in the decision-making process encountered by the designer.

Courses in the area of professional practice and an elective dealing with the legal aspects of architectural practice promote higher level understanding of these issues.

COURSE NO.

ARCH 4048

ARCH 6341

ARCH 6380

ARCH 6383

ARCH 6384

STUDIOS

THESIS

COMMUNICATION

The School of Architecture is profoundly committed to the education of future architectural professionals who exhibit well-developed communication skills in all areas of their endeavors. The students must develop skills that allow them to communicate their ideas effectively, skills that permit them to study, illustrate, and document their work, as well as to exchange ideas with other professionals and their own clients throughout the design process.

39. Be able to write, speak, and listen effectively.

This criterion is addressed by a variety of courses that develop basic communication skills. As part of the general studies university requirements students take courses in the English and Spanish languages, which complement and reinforce their previous schooling. By learning to speak and write correctly in both languages, the students' ideas relating to their professional field can be effectively structured and communicated in a logical manner. Reading and discussing literature adds to their understanding of culture, people and societies.

By making oral presentations and by preparing original written essays on various subjects, the architectural student becomes skilled in the arts of communication. These skills are further enhanced by the requirements of original research and essays presented in the history of architecture and theory courses. In studio courses, students learn to communicate verbally the ideas they have developed in the course of their design work. They also must develop critical listening skills during their participation in juries, learning to defend their viewpoints in front of an audience.

COURSE NO.

ARCH 4005
ARCH 4006
ARCH 4007
ARCH 4008
ARCH 4045
ARCH 4046
ARCH 4047
ARCH 4048
ARCH 6341

ENGL 3101
ENGL 3102
HUMA 3011
HUMA 3012
SPAN 3101
SPAN 3102

STUDIOS
THESIS

40. **Be able to identify theories and principles of representation, communication, and information technology and apply them to design.**

The first-year design studio course introduces a variety of drawing exercises and techniques so as to develop the skills necessary for the representation and communication of design concepts. Further work along the design studio sequence refines the students' competence.

The history sequence presents to students the variety of representation techniques employed by architects throughout history in communicating their ideas.

The theory sequence presents to students the variety of representation techniques employed by architects throughout history in communicating their ideas.

COURSE NO.

ARCH 3021

**STUDIOS
THESIS**

41. **Be able to use a variety of media techniques appropriate to the various stages of a design process and to convey the essential elements of a building program and architectural design.**

w and radical methods of representation which undoubtedly have revolutionized the field.

Students must also construct models, exhibit skills in the art of photography, and produce videos to communicate their analytical and design skills.

The first-year design studio course emphasizes a variety of drawing skills and techniques required for the representation and communication of design concepts. The visual communication course, taken as an elective, reinforces these skills. Further work along the design studio sequence refines the students' competence.

Computer courses present ne

42. **Be able to use computer technology in the display and use of information, images, and architectural design.**

COURSE NO.

ARCH 3021
ARCH 3071
ARCH 3072
ARCH 3101
ARCH 3102
ARCH 5005
ARCH 5006

**STUDIOS
THESIS**

As part of their first year studio experience, the student visits the school's computer laboratory and is encouraged to learn the skills necessary to operate a computer in the area of basic CAD skills. Most choose to develop skills in word processing, which are particularly useful at all stages in their architectural studies.

Elective courses at the undergraduate and graduate levels can be taken to further enhance computer skills. A growing number of students have elected to take these courses. Recent thesis work reflects skillful application of this technology.

In the advanced courses, students are actively encouraged to use the computer laboratory in the development of their projects. Virtually all students prepare the research part of the thesis on a computer, and many prepare their presentations using the equipment available for CAD programs.

43. **Be able to communicate with those who must review and/or construct the project through technically precise descriptions of the proposed design.**

COURSE NO.

ARCH 3101
ARCH 3102
ARCH 5005
ARCH 5006

STUDIOS
THESIS

An important goal of our professional program is the development of the student's capacity to create proper technical drawings that accurately convey the designer's intentions. Throughout the design sequence the level of the proposed design description is refined and in the final stages the student is well qualified to produce reasonable technical drawings.

The technology courses require development of simplified site, electrical, air conditioning, and plumbing plans. In the structures courses specific design details must be developed, requiring accurate drawings.

COURSE NO.

ARCH 4018

ARCH 4019

ARCH 4025

ARCH 4032

ARCH 4311

ARCH 4321

ARCH 4322

ARCH 4323

STUDIOS

THESIS

PRACTICE

PROJECT PROCESS AND ECONOMICS

Since Architecture is so closely tied to economic fluctuations, it is imperative that designers be aware of the financial impact of their proposals, in order to ensure their viability. The School starts creating this awareness in the Design Studios incrementally, beginning in the later stages of the intermediate level and culminating at the advanced level. This effort is emphasized by the required course in finances of construction at the graduate level. Interaction with professionals in related fields strengthens the student's understanding of the professional concerns that directly affects relations between all those involved in the project process, particularly from the point of view of the design and construction teams.

The Technology sequence also provides support to this aspect, as consideration is given to the incorporation of criteria for the selection of building materials and processes, structural and mechanical systems, etc., and how they are incorporated into the design process. The professional practice courses introduce students to the actual workings of architectural offices, exposing them to all aspects involved in the conception and development of projects and its ancillary responsibilities.

44. **Be aware of the issues, ideas, individuals, groups, and resources that shape the project process for various types of practice.**

The factors that shape the process for producing projects are a major concern in the professional practice courses. Survey courses that examine the history and the factors that have affected the shape of cities provide important input in this process.

Historic Preservation electives and Urban Design studios explore important relevant issues.

COURSE NO.

ARCH 4005

ARCH 4006

ARCH 4007

ARCH 4008

ARCH 6383

ARCH 6384

ARCH 6443

ARCH 6444

STUDIOS

THESIS

45. **Be aware of the associated professional disciplines that make contributions to the project process and of methods for their coordination and management.**

The School's faculty members are a diverse group including architects, engineers, historians, preservationists, graphic artists, planners, and urban designers, among others. Each imparts his or her vision as a fundamental component in courses taught at various levels. The student cannot fail to perceive and understand the variety of viewpoints associated with each particular endeavor.

The School also offers many different types of courses in each component discipline: technical courses taught principally by architects and engineers, history courses by professional historians, practice courses by leading practicing architects, etc.

COURSE NO.

ARCH 3121

ARCH 3122

ARCH 4018

ARCH 4019

ARCH 4025

ARCH 4311

ARCH 6380

ARCH 6383

ARCH 6384

STUDIOS

THESIS

46. **Be aware of the implications of economic systems, finance, and building costs on specific building projects.**

The required course dealing with the financial aspects of construction specifically attends these issues. Participating students must be able to determine and evaluate the financial viability of a large project.

The principles and implications of economic systems, finance and building costs are an integral part in every development process as well as in the environmental design of most projects.

COURSE NO.

ARCH 6383

ARCH 6384

ARCH 6385

STUDIOS

THESIS

47. **Be aware of the roles of value engineering, life-cycle cost analysis, and construction cost estimation in the framework of a design project.**

Instruction in the selection of materials and methods in the construction of a design project is provided in the Building Anatomy course and in the second Professional Practice course. The upper level Technology courses address this issue in the area of environmental control systems.

COURSE NO.

ARCH 6361
ARCH 6385

STUDIOS
THESIS

48. **Understand the architect's role in the project's design and construction, in the administration of the construction contract, and in the relationship with others involved in the project.**

The architect's role is covered in a particularly detailed manner by lectures and class discussions of the owner-architect, architect-consultant, and owner-contractor relationships in the Professional Practice course sequence. It is also stressed in the upper level design studios, by faculty members who usually maintain private practice as well.

COURSE NO.

ARCH 6380

ARCH 6383

ARCH 6384

ARCH 6385

STUDIOS

THESIS

49. **Understand the types of documentation required to render competent and responsible professional service.**

Each phase of the design and construction process will require specific types of documentation. In the design studios, in the Structures and Technology courses, as well as in the Professional Practice courses the student is exposed to the technical documentation which is relevant in that specific area.

COURSE NO.

ARCH 4018
ARCH 4019
ARCH 4025
ARCH 4032
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ARCH 4321
ARCH 4322
ARCH 4323
ARCH 6380
ARCH 6383
ARCH 6384

STUDIOS
THESIS

PRACTICE
BUSINESS PRACTICE AND MANAGEMENT

In the final stages of the Graduate Program, students come to understand those aspects of the practice of the profession that relate to ethics, administration, regulations and the interaction between client and architect, and between architect and contractor. Contractual documentation and construction management is covered in two graduate level required courses. The School believes that a comprehensive understanding of the responsibilities of the architect regarding the building process is necessary to ensure a responsible and ethical practice of the profession.

50. **Understand contract negotiations, office organization, financial management, and other activities surrounding the practice of architecture.**

The issue of business, practice and office management is clearly presented in the Professional Practice courses. It is strongly reinforced by elective courses in the area of legal aspects of the practice of architecture.

COURSE NO.

ARCH 6380

ARCH 6384

ARCH 6385

PRACTICE LAWS AND REGULATIONS

The Design Studio sequence incorporates aspects of code requirements beginning with the third. Consideration is given to building laws and applicable regulations, incrementally, as the student progresses in the sequence.

Laws, regulations, codes and specifications, which are covered in a general manner in the undergraduate Technology / Structures sequence, are explained in a more thorough and businesslike manner in the practice and legal aspects courses at the graduate level. The School also covers specific legal aspects of architectural practice in an elective course at the graduate level. It is aimed at those students planning to establish private offices for the practice of the profession.

51. **Be aware of the relevance of laws to professional registration, professional service contracts, and formations of design firms and other legal entities.**

COURSE NO.

This topic is amply discussed in the professional practice courses. Students receive advice from faculty and invited architects on the problems of operating a practice without full knowledge of the responsibilities that this entails.

An elective course on the legal aspects of architectural practice is taken by many students.

ARCH 3121

ARCH 3122

ARCH 6380

ARCH 6385

52. **Be aware of the architect's responsibility to the client and to the public under different contractual and organizational arrangements.**

The architect's responsibilities to the client and to the public are addressed in the Professional Practice courses. This experience is reinforced by lectures given by visiting practicing architects. The studio courses also emphasize continually and throughout the sequence this aspect of the architect's activities.

COURSE NO.

ARCH 3121

ARCH 3122

ARCH 6380

ARCH 6383

ARCH 6384

53. **Understand the architect's responsibility to provide for safety and accessibility and to incorporate relevant codes and standards in architectural design.**

The studio and lecture courses emphasize the architect's responsibility to provide the requisites of safety and accessibility. The needs of the handicapped and other special populations are included.

Current codes and standards are utilized in both the Technology and Structures courses.

COURSE NO.

ARCH 4019

ARCH 4025

ARCH 4032

ARCH 4321

ARCH 4322

ARCH 4323

ARCH 6380

STUDIOS

THESIS

54. **Understand the legal relevance of public health, safety, and welfare, property rights, building codes, zoning and subdivision, and other factors affecting building design, construction, and architectural practice.**

The studio, structures, technology, and professional practice courses all address aspects of this criteria. Topics included are, zoning restrictions, egress and access requirements, fire safety standards, structural stability, maintenance of proper interior conditions (light, ventilation, air and water quality, sound control), waste disposal, construction process laws, and the legal responsibilities associated with all of these processes.

COURSE NO.

ARCH 4019

ARCH 4025

ARCH 4032

ARCH 4323

ARCH 6380

ARCH 6384

ARCH 6385

STUDIOS

THESIS

UNIVERSITY OF PUERTO RICO

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3.9 Human resources

3.9.1 The Student Body, Advising System and University Support System

The Student Body is representative of Puerto Rico's university population. Both urban and rural population are represented, and students from all socioeconomic backgrounds can be found at the School. At present, we have 210 full-time and eighty-eight part-time students are enrolled in the preprofessional BED program. Twenty-three full-time and twenty part-time students are enrolled in the professional Master of Architecture Graduate Program.

The School implements a direct admissions process with the collaboration of a special Admissions Committee. The admission process is particularly selective; for 1992-93 academic year, the School processed 420 applications, and sixty candidates were admitted. For the 1993-94 academic year, the School received 299 applications and, again, only sixty candidates were selected.

The School Advising System

Since 1990, the School has implemented a special advising program, coordinated by the Office of Academic Counseling. It is directed by a senior faculty member, with the assistance of other faculty members. Students are encouraged to seek counsel, particularly in the solution of academic and career questions. The Office reports directly to the Dean.

The Coordinator of the Graduate Program closely monitors the graduate students' progress.

The University Support System

The Office of the Dean of Students offers the following services: Housing Program, Health Education Program, Peer Counseling Program, Vocational Rehabilitation Program, Program of Psychological and Psychometric Services, Veteran's Program, Occupational Development Emplacement Program, Cultural and Recreational Activities Program, and Student Organization Program.

Tuition Costs / Scholarship / Aid

Due to the special interest of the Government of Puerto Rico to support public higher education, tuition costs at the University are very reasonable. This commitment is reflected in a cost of \$23 per tuition credit at the undergraduate and \$55 at the graduate and professional levels. The University Financial Aid Office provides students with assistance to help defray the cost of education. There are local scholarship funds available to the architectural student, such as Legislative Scholarships, as well as federal, such as the Supplemental Education Opportunity Grants (SEOG), the State Student Incentive Grants (SSIG), Basic Educational Opportunity Grant Program (BEOG), National Direct Student Loan Program (NDSLPL), Guaranteed Student Loan Program (GSLP). There are also Work/Study Programs.

The University of Puerto Rico also offers its scholarship aid program: Presidential Scholarships, Honor Student Grants, Graduate Teaching Assistantships, among others. The School of Architecture, in its effort to encourage community support for our students, has

recently generated several grants in collaboration with the Colegio de Arquitectos de Puerto Rico: the Dan-El Viera Scholarship and Travel Grants.

A Guidance and Counseling Center for Student Development integrates all the professional assistance services in the field of human behavior in a multi-disciplinary approach to attend student needs. Social workers, guidance and rehabilitation counselors and other helping professionals constitute the staff of this Center. There is an Occupational and Educational Information Section, which introduces students to occupational and educational fields, and provides them with information on the curricula of colleges and universities in Puerto Rico and abroad.

3.9.2 Faculty

Our School has substantial human resources dedicated to the mission of teaching architecture. Presently we have twenty-five full-time and fifteen part-time or adjunct faculty. Fifteen faculty members are tenured and six are on tenure-track appointments; fifteen faculty members are licensed registered architects and four faculty members are registered professional engineers. We also have a licensed attorney serving as Administrative Assistant to the Dean in Student Affairs, who teaches the elective course on legal aspects of professional practice. The student/faculty ratio in the design studio is (226 students / 13 professors = 17.4); total contact hours per design studio faculty is 12.

The faculty at the School is active in a great variety of academic and professional fields. They have advanced academic degrees in the following areas: architecture, urban design, engineering acoustics, computer graphics, structures, history of art and architecture, architectural technology, landscape architecture, art, graphic arts, communication arts, among others.

Full-time faculty credentials (highest degrees obtained) are as follows: five PhDs, one D.Arch., six M.A. / M.S., five M.Arch, five B.Arch., and three MLS.

Most faculty members are actively engaged in professional practice, and many have worked (either as directors, advisors, consultants or employees) for agencies such as the Puerto Rico Planning Board, Natural Resources, Health, and Education Departments, the Puerto Rico State Historic Preservation Office, the Smithsonian Institution, among others. The School faculty also maintains close ties with the local community of architects through their professional associations: the Colegio de Arquitectos de Puerto Rico (CAPR) and the American Institute of Architects (AIA), Puerto Rico Chapter.

To further strengthen its academic offerings, the School maintains an active international and national visiting faculty program, drawing participating professors from North and South America, and Europe as well.

Teaching and Other Responsibilities

The University requires full-time Design faculty to carry a teaching load entailing fifteen contact hours per week; this involves twelve hours in the Studio and a additional three hours in another area. Full-time faculty in other areas have a teaching load equivalent to twelve credit-hours per week.

Faculty Evaluation

The Personnel Committee, composed typically of five (5) upper-rank tenured faculty members, representing all departments, monitors faculty performance, academic development and professional accomplishments. Peer evaluations are the primary criteria for faculty recruitment, retention, tenure and promotion; these are complemented by student evaluations, and classroom and Studio visits by members of the Committee.

Faculty listing:

José G. Amador, RA, Lecturer, M Arch Cornell University, 1984, *Design*

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Aureo Andino, RA, Professor, B Arch Massachusetts Institute of Technology, 1968, *Design, Special Projects*
Manuel Bermúdez, RA, Adjunct, M Arch University of Puerto Rico, 1978, *Design*
Carlos Betancourt, RA, Lecturer, M Arch University of Puerto Rico, 1978, *Design*
Humberto Betancourt, RA, Instructor, B Arch Cooper Union, 1982, *Design, Theory*
Astrid Colón, Associate Professor, Library Director, MLS University of Puerto Rico, 1971, *Architectural Librarian*
Samuel Corchado, RA, Adjunct, MLAUD Harvard University, 1978, *Thesis*
Rafael A. Crespo, Professor and Dean, PhD Harvard University, 1987, *History of Architecture*
Norberto Dávila, PE, Professor, MS University of Illinois, 1966, *Structures*
José Ramón de la Torre, Adjunct Professor, PhD Madrid (Spain), 1966, *General Culture*
Manuel García-Fontebao, Instructor, MA University of Massachusetts, 1984, *Design, Graphic Design*
Darío González, Professor, B Arch Cornell University, 1948, *Design, Technology*
José González-Peniza, Assistant Professor, Director, Photography Laboratory, MS Indiana State University, 1973, *Photography*
Gregorio Hernández, PE, Professor, PhD University of Illinois, 1958, *Structures, Finances*
Carlos Lavandero, RA, Professor, M Arch Harvard University, 1961, *Landscape Architecture*
Richard Loosle, RA, Visiting Professor, M Arch University of Utah, 1985, *Design, Graphic Design*
Juan Marqués, RA, Professor, M Arch University of Puerto Rico, 1971, *Design*
Emilio Martínez, RA, Assistant Professor, Director Graduate Studies, MSAUD Columbia University, 1985, *Design, Urban Design*
Oscar Marty, RA, Professor, MAUD Harvard University, 1965, *Design, Technology*
Andrés Mignucci, RA, Adjunct, M Arch Massachusetts Institute of Technology, 1982, *Urban Design, Thesis*
Antonio Miró-Montilla, RA, Professor, B Arch University of Notre Dame, 1961, *Design*
Pedro Muñiz, RA, Associate Professor, PhD Virginia Polytechnic Institute, 1986, *Technology, Climatology*
Arleen Pabón, Professor, PhD Northwestern University, 1983, *History of Architecture and Preservation*
Juan Penabad, RA, Instructor, M Arch Yale University, 1989, *Design*
Efraín Pérez-Chanis, RA, Professor, Lic Arch University of Panama, 1950, *Design, Thesis*
Edwin Quiles, RA, Associate Professor, M Arch Massachusetts Institute of Technology, 1972, *Design*
Sylvia Ramos, Assistant Professor, MS Pratt Institute, 1972, *Design, Technology*
Jorge Rocafort, PE, Professor, PhD Northwestern University, 1979, *Technology, Architectural Acoustics*
Emiliano Ruiz, PE, Adjunct, MSCE University of Illinois, 1972, *Structures*
Esteban Sennyey, Assistant Professor, M Arch Cornell University, 1982, *Design*
Eduardo Sobrino, Assistant Professor, D Arch University of Michigan, 1988, *Computers, Structures*
Lilliam Soler, Instructor, MLS University of Puerto Rico, 1985, *Librarian*
Edward Underwood, RA, Adjunct, B Arch Clemson University, 1975, *Professional Practice*
Gloribel Vega, Instructor, M Arch University of Virginia, 1989, *Design, Theory*
Enrique Vivoni, RA, Associate Professor, PhD University of Pennsylvania, 1985, *Archives, Theory*

3.9.3 School Administration

The administrative head is a full time position, supported by a staff of two administrative assistants, four secretaries and a property manager. As part of the academic administration the School has an Associate Dean, a Coordinator for Graduate Studies and four Design Coordinators (one for each Design Studio level). Faculty assistance is provided by the secretarial pool.

3.9.4 Staff

Teaching Administrative Personnel:

Dr. Rafael A. Crespo, Dean

Dra. Arleen Pabón, Associate Dean (on leave)

Prof. Emilio Martínez, Coordinator of Graduate Studies

Non-teaching Administrative Personnel:

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Ms. Aida Morales, Assistant to the Dean for Administrative Affairs
Mr. Eliel Quiñones Montalvo, Esq., Assistant to the Dean for Academic Affairs
Mrs. Ana Valle, Secretary to the Dean
Mrs. Nelly Ramos, Administrative Secretary II
Mrs. Betty Pastrana, Administrative Secretary II
Mrs. Myriam Torres, Administrative Secretary II
Mrs. Ivette Sánchez Rivera, Administrative Typist III
Mr. Víctor Meléndez, Property Supervisor
Mr. Saúl González, Laboratory Technician I

Santiago Iglesias, Hijo, Library:
Prof. Astrid Colón de Jesús, Director
Prof. Lilliam Soler, Librarian I
Mrs. Elsa Rosa, Administrative Secretary IV
Mr. Noel Rivera Ayala, Assistant Librarian II
Mr. Dámaso Cruz, Assistant Librarian II

Archivo de Arquitectura y Construcción de la Universidad de Puerto Rico (AACUPR):
Dr. Enrique Vivoni, Director
Mrs. Marilia Hernández Latorre, Archivist I
Mrs. Marta Villaizán, Archivist

Photography Laboratory:
Prof. José González Peniza, Director
Mr. Jorge Rodríguez Agostini, Photography Technician

Computer Laboratory:
Dr. Eduardo Sobrino, Director

3.10 Physical Resources:

Being an independent academic unit within the University, the School of Architecture occupies its own building, which houses its administrative offices, specialized library, exhibition gallery, design studios, classrooms and several support facilities. Our specialized facilities also serve the general University and professional communities.

The Technology Department offers courses in areas directly related to the Puerto Rican and Caribbean environment and climate, including research and experiments in a variety of specialized fields, such as Architectural Acoustics and Computers. There is a wind tunnel used in the natural ventilation courses. The School has a Photography Laboratory and a Graphic Arts Studio, which provide support to students and faculty. A workshop for model construction is also available.

There are facilities for research and demonstration in the areas of Computer Graphics, Acoustics, Lighting and Natural Ventilation.

The School has the only specialized architectural Library and slide collection in Puerto Rico (which includes a photographic record of most student work). The School has an Architecture and Construction Archives, a repository of documents and a source of research pertaining to Puerto Rican architecture, and which assists in the preservation of the Puerto Rican design and construction historic experience.

3.10.1 Laboratory Resources

The School maintains a small scale acoustical laboratory, with equipment that supports courses in the areas of basic acoustics, environmental acoustics, architectural acoustics and noise control. Electroacoustic instrumentation (sound-level meters, real-time spectrum analyzers, FFT analyzer, analog filters, noise generator, wave synthesizer, reverberation time instrumentation, statistical analyzer, oscilloscopes and others) allow the

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professors to present demonstrations of important phenomena in class and to conduct field-measurements and basic research related to architectural acoustics.

A reference sound-reproduction system and sound-recording system is available for demonstration purposes.

Laboratory and demonstration equipment for the Physics courses is also available, particularly for the mechanics, wave motion, electricity, light and thermal physics areas.

A low-speed wind tunnel was constructed recently, with considerable peripherals augmenting its research capability.

Instrumentation for wind-speed measurements in a multi-channel configuration has been incorporated. Computer control and data collection is being added. Photometers (luminance and illuminance meters) are available for field and laboratory work in lighting courses.

3.10.2 The Computer Laboratory

The Computer Laboratory supports the academic needs of the School by facilitating the use and teaching of computers and applications to groups and individuals. The Laboratory has encouraged students to learn about applications that enrich the learning process and facilitate the preparation of projects.

With the acquisition of new computer hardware, users have become more experienced in the incorporation of Computer-Aided Design programs into their education. The amount of design projects and three-dimensional modeling projects produced by our students have triplicated in just a few years.

Since receiving our first Apollo workstation in 1989, under NASA sponsorship, the Laboratory has benefitted from an ambitious academic computing initiative by the University, by requesting and receiving close to \$250,000 in equipment during the last three years.

Besides being used for computer courses, workshops, and individual design projects (of as many as 35-45 students and professors), the Laboratory equipment is utilized for NASA design and research activities. As more students are trained in their use, it is expected that even more users will come to develop their architectural design projects and modeled in the Laboratory.

The laboratory at present contains an Ethernet Network with six Apollo terminals (3 HP-Apollo 400dl B/W and 3 HP-Apollo 425dt Color), an Apollo DN 3000, an Apollo DN 3500, an IBM Plotter (A-B sizes), two SCSI-2 650MB Hard Disks, several printers (HP LaserJet II, Apple Image Writer I, Epson EPL 7500, Okidata PR), an Apple Macintosh Plus, an IBM PS/2-50 a personal computer, a Summagraphics Digitizer, an HP-DrafPro EXL Plotter, Library of Manuals and Software Instruction booklets. Recently, a Scanner and a Tristar Computer (with 640K of basic memory, expandable to 1,045.4 MB) were acquired.

The equipment at the Laboratory runs software such as, Gedit, Plan, VersaCAD, AutoCAD, Island Draw, Island Paint, Island Write, Wingz, Mathematica, C, C++, Fortran, Motif, X-Window, among others. The computer equipment has memory capacity to store very large files, so that students are free to create complex projects. These projects are individually protected. Since the Unix operative system permits the creation of independent accounts, students are guaranteed privacy and protection of works and projects.

Students are exposed to computers in diverse ways:

1. Computer courses.

Introductory courses and CAD Workshops are some of the alternatives provided to students to help them learn to use the system. The introductory courses emphasize the utilization and productivity of applications, as they apply to the profession of architecture. They cover areas such as word processing, paint and drawing applications, calculus, databases. In the CAD workshop efforts are concentrated in three-dimensional modeling and drawing applications.

2. Seminars to student groups.

Interest on the part of faculty members has promoted the coordination of seminars for students involved in other courses in the School. The laboratory has offered seminars on Wingz, for solving computation problems, solid modeling and architectural design projects.

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3. Laboratory assistants.

In order to help users navigate through the system, the School has contracted laboratory assistants who are knowledgeable of the applications. They have provided help to all who require the use of the computer laboratory. They also use the facility to expand their own academic and research interests.

We are now in the process of connecting the Laboratory to a University-wide LAN (UPR-NET), and we are applying for an "Internet" address.

3.11 Information Resources:

3.11.1 Santiago Iglesias, Hijo, Library

The Library of the School is the only one in Puerto Rico completely specialized in the field of Architecture. It is an academic library, supportive of research activities, a base for architectural education. Besides architectural publications, the Library has material on other related fields, such as: art and architectural history, technology, urbanism and planning, landscape design, fine arts, historic preservation, among others. It also houses original architectural plans and drawings. During the past academic year, the Library was visited by approximately 14,500 users per semester.

The Library is completing the process of updating its services by establishing a modern computer system that will expand the offerings available for research. It has established "on line" access to professional publications and other external resources, both domestic and foreign, such as Avery Database, DIALOG, OCLC (On-line Computer Library Center) and the Wilson Databases. Terminals operating under the NOTIS (Northwestern On-line Totally Integrated System) program will be available to all users, in the near future. This will allow the Library to enter into a wide area network with other University System libraries, thus expanding its services and available information.

I. Library Collections

a. Context:

Since it was founded in 1966, the Library of the School of Architecture has been actively developing its architecture collection. In order to conform with the goals and pensum of both the University of Puerto Rico and the School of Architecture, the library staff is involved in the students' integral academic and future professional development, in research and creative activities, sponsored by faculty and/or students, and in the development of a unified academic vision. These objectives are approached by the expansion of access to resources in a fully developed collection, and by the organization of talks, conferences and special exhibitions. The Library also encourages the enrichment and strengthening of Puerto Rico's cultural heritage. As a result, it actively promotes the acquisition of important material about Puerto Rican and Caribbean architecture.

b. Funding:

The major bulk of funding for the Library of the School comes directly from the School of Architecture's budget. During the academic year 1992-93, the Library was assigned \$50,000 for book acquisitions. Since the Library is also used by members of the profession, the Colegio de Arquitectos de Puerto Rico has been providing funds to help defray the cost of adding extra hours of operation to the Library schedule.

c. Subject Coverage:

In addition to the current collection that covers most of practical, theoretical and historical aspects of the discipline relevant to our curriculum, the Library contains other special collections: the Henry Klumb Collection, the Rare Books Collection, the Puerto Rican Collection, the Fine Arts Book Collection, among others. Users also have access to the various related collections at the Main Campus Library.

d. Levels of Coverage:

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The collection exhibits sufficient breadth and thematic depth to support the curriculum. In recent years, the Library has been emphasizing the acquisition of important current and retrospective monographs and dissertations, complete collections on the work of important architects, and other fundamental reference tools.

e. Number of Volumes:

As of May 1993, the collection had 26,556 volumes.

f. Serials:

The serials collection has proven to be relevant and sufficient in coverage and scope to support the Program. At the present time, the Library has 476 titles. Those titles deemed by the staff to be the most important sets, are complete. The percentage of available serial titles included as part of the major architectural periodical indexes are as follows:

Architectural Index		91%
Architectural Periodicals Index	32%	
Art Index		31%
Avery Index to Architectural Periodicals	23%	
Construction Index		20%

g. Visual Resources and Non-book Resources:

The most important visual resource is the Slide Collection, which is a primary learning tool for both faculty and students. Its main purpose is to support the History of Architecture, Theory and the Design components of the curriculum. At the present time, the Collection consists of 107,225 slides. There is also a collection of 235 VHS videotapes, 685 photographs related to Puerto Rican architecture, 165 audiocassettes, 17 films, 120 microfiche and 1,135 microfilms.

h. Access:

The Library collection is fully catalogued. In March 1993, the Technical Services Unit began the conversion process of its bibliographic records through the NOTIS System; as of May 15, 1993, there were 8,000 titles available through the on-line catalog. Books are catalogued using the national standards MARC and AAC 2nd. ed. New material is usually processed within a four- to six-week period, but material can be made available earlier. At the present time, all University of Puerto Rico libraries are undergoing a conversion process, becoming part of an insular network. In addition, all libraries have (or will soon have) access to library catalogs in the United States and other countries through INTERNET Access Software V2.0.

i. Conservation and Preservation:

The Collection is housed in an air-conditioned space; nevertheless, due to the high humidity levels common to our tropical climate, fungi contamination presents a severe problem, causing physical degradation of both library material and equipment. To combat this problem, the University administration spends considerable amounts of money in fumigation. The problem, however, is the direct result of inadequate maintenance of equipment (e.g., air-conditioning ducts) and improper environmental conditions. Lack of space is not only affecting the conservation of our collection, but also its future development. For the last five years, the Library has been using a compact-shelf system to alleviate this problem. The Library uses private professional firms for all binding and mending services, in order to protect the collection. Pamphlets and similar materials are protected with a pamphlet-binding system handled by the Library. The photographic collection is kept in archival quality boxes.

j. Policy Statements:

Although the Library has not yet established a formal written collection development policy, it is, at the present time, considering the creation of such a document.

II. Services

a. Access:

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The Library provides access for the handicapped, but the Library's entrance should be remodelled, in order to reduce minor architectural barriers. With the exception of the Rare Book Collection, the periodicals and the reserve and reference materials, the rest of the collection is of general circulation.

b. Circulation:

There are written loan policies.

c. Reference:

The Library has access to international networks through LIBS-Internet Access Software. It is possible, by using the NOTIS system, to connect with other library catalogs of the University. Also available are other computerized reference services, such as the Art Index, Sweet's Catalog, and SpecSystem, among others.

There are sufficient reference publications which provide quick consultation services. The circulation staff is also in charge of the reference service.

d. Bibliographic Instruction:

Instruction services are presented upon request by the faculty. Special services are provided to freshmen and thesis students.

e. Time Schedule:

The School Library is open Monday through Thursday from 8:00 AM until 10:00 PM, except Fridays, when closing time is 4:30 PM. The Library also opens on Saturdays, from 9:00 AM until 5:00 PM and on Sundays, from 1:00 PM until 5:00 PM. The schedule changes during the Christmas and Summer periods.

f. Current Awareness:

Information on new acquisitions is available on a continuous basis. A "New Acquisition List" is published four times a year.

g. Cooperative Agreements:

Interlibrary loans are available through the General Circulation Section. As mentioned previously, the Library has access to other library catalogs, whether international or regional, through the LIBS and NOTIS system.

III. Staff

a. Numbers:

The Library is accomplishing its goals and services, in spite of its limited staff. However, due to its autonomous status, all technical services are performed in-house. A larger staff would support the development of more special projects.

b. Professional:

The Library has three librarians, all of whom hold a Master's degree in Library Science. Two of them, the Director and the Slide Collection Librarian, hold Bachelor's degrees in Art; this academic experience allows them a fuller understanding of architectural issues. The Director has twenty-five years of experience as an architectural librarian, and is a member of the Association of Architectural Librarians, the Visual Resources Association, and the Art Libraries Society of North America. According to the University system, all librarians have academic status, so they are considered members of the faculty.

c. Support Staff:

At the present time, the Library has one employee in charge of all technical and clerical activities related to the acquisition process. In addition, there are two paraprofessional librarians (in charge of the Circulation section), one secretary and several student assistants (120 hours per week). Even though the basic academic preparation required by the University's authorities for a paraprofessional librarian is a Bachelor's degree, one of our paraprofessional librarians holds a Master's degree in History.

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d. Reporting Structure:

The Director, who is the Head Librarian, reports directly to the Dean of the School of Architecture. All other employees report to the Director. The Library maintains a very close working relationship with the architecture program by perceiving itself as a learning resource. It actively involves all interested faculty members in its materials selection process and other pertinent issues.

e. Professional Development:

Although some members of the staff have participated in specialized conferences, seminars and workshops, it is not part of a systematic practice, due primarily to budget limitations. As University employees, all staff members have a right to study at the University of Puerto Rico, free of charge.

f. Salaries:

In terms of their training and experience, library staff salaries are commensurate with other comparable positions within the University.

IV. Facilities

a. Space:

The lack of space represents a very serious limitation to future Library development. If the present rate of growth is kept, during the next five years a saturation point will be reached. The lack of space has also adversely affected some clerical and administrative activities.

b. Equipment:

The Library has five VT100 terminals for public use, six VT100 terminals to be used by Staff, one microfilm reader printer, two slide viewers (Caramate), eight slide projectors, one IBM PC, one Apple II PC, one slidetyper, two computer printers, one portable videocassette record/player, one TV/videocassette player, and one photocopy machine.

c. Furnishings:

There are sufficient workstations for both staff and users. The Library, however, needs additional compact shelves and slide drawers.

d. Security:

Although the Library has the necessary number of fire extinguishers, it does need a sprinkler system and also an emergency exit. The staff is working towards the creation of a disaster plan and emergency procedures. To reduce theft, all books are protected with the 3M Tattle Tape System.

V. Budget/Administration/Operations

a. Funds:

The funds presently assigned are sufficient to achieve all stated goals, objectives and services; they are, however, insufficient to cover special projects. As mentioned previously, the Colegio de Arquitectos de Puerto Rico is paying for the extended service hours. We feel that this service should be part of the School's annual budget and not depend on non-recurrent donations. (Last year, for example, the Library received \$6,000.00, this year only \$2,000.00.)

b. Evidence of Planning:

The goals and objectives are found in written form in reports and manuals created by the Library. The proposed annual plans on how to achieve them are included in the Annual Work Plan.

c. Intra-Institutional Relationships:

The School Library is integrated into the architecture program through the participation of its Director and librarians in faculty meetings and committees. Direct communication with faculty members that are frequent users

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of our collections and services is also encouraged.

The relationship with other libraries is possible through the participation of the Director in the Board of Libraries Directors of the University of Puerto Rico, and by the membership of our Technical Services Librarian in the Board of Automation Coordinators of the University. Our staff has also been offering technical assistance to other University units such as the Colegio Regional de Carolina and the University Museum.

d. Efficiency of Operations and Services:

Basically, all operations and services are functioning properly. The Library, however, would benefit from a complete physical reorganization, including additional space to improve services. For example, noise control measures are strongly needed; acoustical problems could be mitigated by the construction of special study rooms for groups.

e. Participation of Faculty and Students:

The School has a Library Advisory Committee in which the Library Director participates. Students and faculty members actively participate in recommending library acquisition materials and other pertinent issues.

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ADDENDUM II: Architecture Library Collection Expenditures

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ADDENDUM III: Architecture Library Staff (Full-time Equivalents)

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3.11.2 Architectural Archives

In 1986, the establishment of the Archivo de Arquitectura y Construcción de la Universidad de Puerto Rico (AACUPR) at the School of Architecture of the University of Puerto Rico-Río Piedras Campus, allowed for the systematic rescuing of important architectural collections, to make them available to researchers and students alike. The work of AACUPR started through an UPR-RP seed investment, and with approximately thirty-one cubic feet of documents stored at the School of Architecture's Library. Today, AACUPR's holdings include approximately 1,000 cu. ft. of documents, of which some 200 cu. ft. have been arranged, described and inventoried.

AACUPR stands as the only repository for architectural collections of private origins in Puerto Rico and the Caribbean. In other words, it is the only place where the production of architectural firms, as well as the holdings of private entities, are being saved, kept, organized, preserved, catalogued, and disseminated in the Region.

AACUPR makes historical documents, related to the architectural endeavor in Puerto Rico from 1898 onwards, accessible to students, faculty and researchers. During the past six years, AACUPR has gathered the largest architectural holding in Puerto Rico, with over 1,000,000 architectural documents that include drawings, photographs, correspondence and other textual records pertaining to the development of private and public architecture. These comprise the fifty-six collections currently conserved at AACUPR. Through the use of these documents, researchers have been able to study, among other things, the work of prominent Puerto Rican architects such as, Pedro de Castro, Rafael Carmoega and Toro y Ferrer; the history of the modernization of the sugar cane industry in Puerto Rico; the building growth of the Catholic Church and of the Protestant communities; and the development of the architectural profession in Puerto Rico. By placing these endangered collections in the hands, and under the management and supervision of the University of Puerto Rico, researchers and students will soon yield a comprehensive and well-documented history of 20th century Puerto Rican architecture, and of architectural practice on the Island. No doubt numerous forgotten architects, designers and builders, as well as their work, will surface from oblivion.

In the fulfillment of its objective to inform the general public, and instill pride and respect towards our architectural heritage, AACUPR has organized eighteen exhibitions. These exhibitions have presented architecture as a cultural phenomenon, sometimes expressing it as the enlightened work of an individual, as powerful statements from a governing body, or as representing the way in which a community views itself. Some of these exhibits have traveled to the Dominican Republic, Miami and New York. AACUPR has also been attentive to the dissemination of scholarly knowledge of 20th century Puerto Rican architecture through major publications and various articles and essays.

Through these academic and scholarly efforts, AACUPR has become an intricate part of the academic endeavor of the School of Architecture. For the past five academic years, the professors of the School have directed their students to research projects that require extensive and intensive use of AACUPR holdings. In order to ensure access to the collections, AACUPR has generated grant proposals to finance its activities. Since 1986 grants for the amount of \$317,000.00 have been secured for the development of archival and educational projects. Grants have been awarded by the National Endowment for the Humanities, the Office of the President of the University of Puerto Rico and the Offices of the Chancellor and Dean of Academic Affairs at Río Piedras.

In March 1992, new facilities were inaugurated for AACUPR in the School of Architecture. The 1,900 sq. ft.-space has been equipped with temperature and humidity controls in order to insure the conservation of the architectural drawings and documents. In the pursuit of archival excellence, AACUPR initiated an Island-wide network of historical archives, ARCHIREC, with Dr. Enrique Vivoni, Director of AACUPR as its founder and first president.

3.12 Enrichment Opportunities:

The School promotes an active approach to the enrichment of the academic and intellectual experience of its students and faculty. Our Visiting Lecturer Program has been extremely popular and successful during the past four years. Many of these visitors have also provided Studio critique sessions for the benefit of our students. During that period, the list of visiting lecturers includes:

1989-90

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Enrique Albín, México
Enrique Browne, Chile
Francesco Dal Co, Venice, Italy
Robert M. Ford, Mississippi State (Visiting Professor)
Kenneth Frampton, Columbia University
Rogelio Salmona, Colombia

1990-91:

Juan Bassegoda i Nonell, Barcelona, Spain
Javier Blanco, Historic Preservation Trust, Puerto Rico
Emilio Brea, UNIBE, Dominican Republic (Visiting Professor)
Eusebio Leal, University of Havana, Cuba
Rodolfo Machado, University of Harvard
Luis Pumarada, Recinto Universitario de Mayagüez
Mark Schimmenti, University of Miami
Jan Wampler, Massachusetts Institute of Technology
Mirko Zardini, Rome, Italy

1991-92:

Diana Agrest, Argentina
Frederick Cooper-Llosa, Perú
Richard Etlin, University of Maryland
Judith Kinnard and Kenneth Schwartz, University of Virginia
Antonio Pietro Latini, Rome, Italy (Visiting Professor)
Neil Levine, Harvard University
Mark Mack, California
William G. McMinn, Cornell University
Liliana Porter, Argentina
Henry Sanoff, North Carolina State University
José María Torres Nadal, University of Madrid, Spain (Visiting Professor)
Cecilia Vicuña, Ecuador

1992-93:

Luis Burillo, University of Barcelona (Spain)
(Visiting Professor)
Wayne Drummond, University of Florida
Stanley Hallett, Catholic University
Jorge Iglesias, University of Chile
Carlos Jiménez, Houston, Texas
Richard Loosle, Catholic University (Visiting Professor)
Gary Moore, University of Wisconsin-Milwaukee
Wolfgang Preiser, University of Cincinnati
J. Thomas Regan, North Carolina State University
Leland Roth, University of Oregon
David Underwood, Rutgers University
Jan Wampler, Massachusetts Institute of Technology

1993-94: We have invited the following visiting lecturers:

James Ackerman, Harvard University

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Charles Gwathmey, New York
Frances Halsband, Pratt Institute
Neil Levine, Harvard University
Jan Wampler, Massachusetts Institute of Technology
Martin Weaver, Columbia University

Faculty Development:

The School is interested in promoting faculty participation in programs aimed at improving academic offerings. During the last five years we have sent many junior faculty members to seminars and workshops, such as Cranbrook Academy. We are beginning to encourage faculty to take advantage of exchange opportunities with other NAAB accredited schools, as well as with schools in México and Europe. The University of Puerto Rico has a sabbatical leave plan intended to support faculty research, and our School faculty has taken advantage of this opportunity. We also have an active program for the support of advanced studies by our faculty, intended to advance their academic and professional status.

We have begun plans to establish student exchanges with the Schools of Architecture at the University of Florida/Gainesville, Clemson University and the Cátedra Gaudí in Barcelona, in the area of Historic Preservation. In the last two years, the School has completed two exchange projects in the area of Urban Design with M.I.T. students under the direction of Prof. Jan Wampler.

We have granted financial support for faculty travel to participate in seminars and lectures. We have also actively supported and encouraged student participation in fora, travel (AIAS, Clemson, México, Europe, M.I.T., Dominican Republic). We have established contacts directed at all levels of exchange and enrichment with the School of Engineering, University of Puerto Rico -- Mayagüez Campus, in projects involving NASA/USRA and Disney Imagineering. It is our hope that this will extend into professional exchanges between both Schools.

Faculty members have been actively participating in academic and professional activities in representation of the School. Dean Rafael A. Crespo and Prof. Arleen Pabón, ACSA Faculty Councilor, have represented the School at the ACSA Annual, Regional and Administrators Conferences. Dr. Pabón has lectured at the Institut des Humanitats, Barcelona, Spain, and at the Annual Meeting of the Southeast Society of Architectural Historians. She has participated as faculty at the Preservation Institute: Caribbean of the University of Florida at Gainesville, and was invited by the Cuban Government to visit that nation. Prof. Efraín Pérez-Chanis has also lectured at the PI: Caribbean, and has been a representative at ICOMOS.

Prof. Gloribel Vega attended Cranbrook last year; Prof. Jorge Rocafort participated in a workshop on environmental noise at the University of Valencia, Spain; Prof. Aureo Andino and Prof. Eduardo Sobrino are participants of the NASA/USRA projects and travel to Houston to direct our students in their end-of-year presentation. Prof. Enrique Vivoni lectured at the University of Salamanca, Spain, and at the Annual Meeting of the Society of Architectural Historians, held in Albuquerque, New Mexico. Library Director Astrid Colón traveled to a technical seminar at the University of Texas; Profs. Pedro Muñoz, Jorge Rocafort and Norberto Dávila attended a two-day seminar on masonry construction at the University of Florida at Gainesville; Visiting Prof. Richard Loosle participated in a seminar on ritual architecture at the University of Miami, and Prof. Emilio Martínez lectured in the Dominican Republic and locally, on the subject of his urban interventions that earned him a P/A Award for 1992.

Students:

Our students have had an active participation in the AIAS Forum, traveling to Miami, Seattle and New York. They also travelled to Clemson University in 1991 with Prof. Edward Underwood, to participate in a Charrette on Health Care, and to MIT with Prof. Andrés Mignucci to participate in an exchange on urban design in 1992. A group traveled to Italy and France in the summer of 1989, led by Profs. Arleen Pabón and Jorge Rocafort. Other students visited Cuba and New York in 1991 and 1992, and participated in a competition on housing at Santiago de los Caballeros in the Dominican Republic. This summer, a group of students will participate, together with students from several other countries, in a three-week project on housing in the Dominican Republic. Two professors will accompany them. Another group of students will attend classes at Catholic University, as part of an exchange program.

Students participated in a Charrette on Roosevelt Avenue in 1991, under the direction of Prof. Emilio

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Martínez and Prof. Mark Schimmenti of the University of Miami, as visiting critic. They have also been participating in local and international design competitions (e.g., Disney's Imagi-Nations, 2004 Olympic Games Village, Helsinki Museum of Art, Venice Biennale, ACSA Housing Student Competition, *Charrette Urbano: Las Superparalelas de Hato Rey*, among others), as well as in courses created in specialized areas (e.g., NASA related issues, regional architecture, interventions in low-income housing areas in the Caribbean).

To foster collaborative efforts between academic units, groups of students from the School of Engineering at the Mayagüez Campus of the University of Puerto Rico, were invited to participate in projects sponsored by NASA and Disney Imagineering at our School. This year, a group from Mayagüez won the Disney Imagineering Competition at the national level.

3.13 Financial Resources and Institutional Support:

The School has been facing very difficult financial times, just like other Schools that are part of the public higher education system. Nevertheless, aware of the importance of professional schools and their impact upon society, and concerned with maintaining the accreditation of the Program, our Institution has been responsible in supporting and encouraging our program to the best of its ability. This is in the areas of faculty employment (special scale, higher than the most of the faculty at other Campus units), salaries, recruitment, travel, equipment, participation in various fora.

The School of Architecture has operated for the past five years with the following annual budget assigned by the University:

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4.0 RESPONSE TO 1989 VISITING TEAM'S REPORT

4.1 Program Assessment and Development

4.2 Team Observations

During the February 12-15, 1989, visit, the NAAB Visiting Team made observations of seven program strengths, eleven program concerns, and made four recommendations. The following includes our reactions, report and updates regarding the same.

4.2.1 Program Strengths

1. *The historic and cultural setting of Puerto Rico presents a unique environment for the study of architecture.*

The School has remained consistently committed to the idea of incorporating our environment into the study of architecture. It has been a valuable resource in the definition of our regional character. Our historical context is being explored constantly in the programs developed at most levels of Design Studio. The rescue of this distinct historical and cultural setting has become a very valuable asset in the definition of the goals of AACUPR, as well as in the re-definition of our urban context. As we look into the future, our School must recognize the issue of our historic patrimony as a defining element of our program.

Our natural setting is also being explored as an asset in the study of our tropical environment, especially as a source of information to be incorporated into the design lessons of our architecture. This setting also offers a valuable stimulus for the incorporation of landscape architecture projects into our Design experience. The recognition of our tropical context extends into the creation of special projects, such as will be explored in the Vertical Studio on Housing proposed to begin next semester.

2. *The teaching and content, and student work from the history sequence of courses is quite strong.*

The History of Architecture sequence has remained virtually unchanged, with several exceptions that are being critically evaluated at the present time. With the elimination of the required History of Art and Planning courses, the material previously presented in those courses is now being incorporated into the sequence. The Design sequence has been enriched by the requirement of complementary Theory courses.

3. *The establishment of the architectural archives at the University of Puerto Rico is a valuable resource to both the profession and the School. The new resource is bringing distinction to the School.*

The *Archivo de Arquitectura y Construcción de la Universidad de Puerto Rico* (AACUPR) has become an even stronger presence, with its collections becoming part of research for many Design Studio and other courses. The new, larger location has facilitated the growth of the collections.

Since the last NAAB visit, AACUPR has gathered the largest architectural holding in Puerto Rico, with over 1,000,000 architectural documents that include drawings, photographs, correspondence and other textual records pertaining to the development of private and public architecture. Under the management and supervision of the University of Puerto Rico, researchers and students will soon document the history of 20th century Puerto Rican architecture and practice.

By fulfilling its objective to inform the general public through exhibitions and scholarly publications, AACUPR has become an important part of the academic endeavor of the School of Architecture. The new 1,900 sq. ft.-facilities inaugurated in March 1992, will ensure the conservation of our architectural heritage.

4. *The collection and the energetic administration of the architecture library is an excellent resource to both the profession and the School.*

The Library remains one of our strongest resources. The new Director is committed to maintaining the high standard of excellence achieved previously. We have been actively computerizing the facilities, so that access to

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material is done in a more rapid and efficient fashion. On-line access to publications and computer networking with other libraries, both nationally and internationally, has further enhanced the research capabilities of our users.

5. *The educational and professional experience background of the faculty is quite broad and of high quality.*

We continue to maintain a strong and varied educational and professional faculty, guaranteeing a valuable resource for the education of our future architects. The Personnel Committee of the faculty reviews candidates, and makes recommendations regarding hiring, granting tenure, promotions, and granting of sabbaticals. Resources for travel to conferences, symposia, publications, and visit to other institutions are available.

The School has maintained a positive balance between practicing adjunct faculty and full-time academic faculty. We have incorporated specialists in several fields, such as real estate, finance, landscape architecture, urban design, regional culture, in order to sustain a vital exchange of ideas at the service of educating our students. This has enriched our curricular offerings.

The educational background of our faculty is a source of great pride for the School, as we have graduates from the most reputable institutions in all fields affiliated with the teaching of architecture. Many professionals in various fields, from architecture to engineering, have responded positively to the needs of the School, often agreeing to join our teaching effort pro bono, both in the classroom and in their offices, where our Thesis students receive proper professional advise and direction.

6. *The students are enthusiastic and focused on professional objectives in the practice of architecture.*

Through a very rigorous admissions process, the School keeps attracting able and competent students. This has helped the School maintain high academic standards. We have striven to maintain their focus in professional objectives, as perceived by the 1989 visiting team.

7. *The program is currently operating under excellent leadership in the person of Dean Juan Marqués.*

Dean Rafael A. Crespo has continued this track of undisputed excellence and leadership at the School. With the assistance of Prof. Emilio Martínez, Coordinator of Graduate Studies, and Dr. Arleen Pabón, Associate Dean, he has significantly improved many areas of the School's Program and achieved a better integration of its components. The administrative team has also been instrumental in supporting this collaborative effort.

The program has benefitted from Dean Crespo's professional experiences at the Smithsonian Institution, Washington, D.C., where he served before returning to our School. Dr. Crespo has introduced new and more efficient administrative mechanisms, and created effective ways to implement the new curriculum.

The relationship between students and the administration has been very positive, on an individual basis as well as through the various organizations (General Council AIAS) active at the School. Their collaborative efforts have resulted in benefit for all.

The projection of a positive image of the School's outside the confines of the Campus has been notable, particularly among architectural professionals. The School has gained presence and prestige not only at the University and in Puerto Rico, but at other distinguished fora. Dean Crespo has, during the last two years, co-chaired the Latin American Focus Session at ACSA's Annual Meeting and is, presently, the President of the Review Board of the State Historic Preservation Office for Puerto Rico. As a highly respected architectural historian on the Island, he has been invited to participate in seminars, symposia and similar activities, in Puerto Rico, Latin America and the United States.

Dean Crespo and his Staff have consistently addressed the critical problem of the physical facilities that currently house the School of Architecture. They have presented compelling arguments to the University and Government authorities in support of a new and up-to-date building, and have successfully obtained a commitment by University authorities for the construction of a new structure. As part of the project, they have also advocated the incorporation of the Graduate School of Planning within the new facilities. This was done with the vision of establishing an active collaborative effort by both faculties during the next few years, with the purpose of addressing the serious architectural and urban problems that affect our context.

4.2.2 Program Concerns

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1. *The faculty has not clarified the structure, mission and desired identity of the program.*

During the last four years, the School has concentrated on defining and reinforcing the identity of the program, basing it on a Hispanic-Caribbean context. The School has become very active in encouraging student and faculty participation in Latin American activities through ACSA, CLEFA and through direct contacts with architectural schools. During each of the last three years we have brought a visiting Studio professor from Spain or Latin America. This has reaffirmed the emphasis on the Spanish background of our cultural milieu.

The Architectural Archives (AACUPR) has supported this effort by expanding research efforts into Spanish architectural concerns, culminating with the proposed *Hispanophilia* project. Research into the Sugar Mills, the presence of Moorish-style forms in our architecture, etc., also supports this concern.

2. *The School should develop a policy and procedures to provide for better and more use of qualified adjunct faculty (who also practice).*

Since 1990 the School has emphasized a policy of recruiting qualified adjunct faculty, who also practice, to offer specialized courses such as: Design Studio courses (4-week, 6-week, 3/4 load contracts), Technology, Structures and Cultural Identity. Specialists who cannot afford the time to teach full-time, have been successfully incorporated into the program in this manner.

3. *The thesis requirement needs re-evaluation and careful articulation of the goals and student requirements. The current product is not as integral or supportive to a professional curriculum as it might be.*

The Coordinator of Graduate Studies has begun an exhaustive evaluation of the existing situation, in order to identify the major problems faced by students at this stage. It is being emphasized that thesis research be more directed toward architectural solutions than in other disciplines.

4. *The studio instruction methodologies should be carefully evaluated by the design faculty, in consort with the technology and practice faculty, for the means to bring more integration of these knowledges, understandings and abilities through the studio experiences.*

The Design Committee has been particularly active during the past three years. Defining guidelines for the course objectives at each stage of the Design Studio sequence have been established, and the level of work expected at each level has been clearly identified. Communications between design faculty has improved significantly, particularly between first and second years. A short term goal is the incorporation of structures and technology into the Design Studio; some progress in this direction is evident, but there is general agreement that it must increase in scope as well as depth.

5. *While the relationship between the School and the profession appears to be improving, more joint programming and collaborative efforts are encouraged.*

Since 1990 a great effort has been made in establishing a strong relationship with the profession. As a consequence, we have had positive results: recognition of excellence in teaching, travel/exchange scholarship, Dan-El Viera Scholarship, Thesis Prize, financial support for the Library, common visiting lecturers, use of our facilities for NCARB exams, and reviews, Summer Workshop for High School students, etc. The School believes that contact with the profession has reached an all-time high. Our graduates are in demand, reflecting quite favorably the reputation that our program has in the competitive professional world beyond the University. This positive relationship has been strengthened by the fact that the number of our graduates in the profession has grown considerably in the past few years, many of whom have reached influential positions, either as heads of their own firms, principals of others, or in significant positions in public and private service.

The School recognizes the need to become involved in continuing education, and is now exploring the procedures for offering these courses. Our technical facilities, such as the computer graphics laboratory, the wind tunnel, the photography laboratory and the acoustics laboratory, are utilized by outside professionals.

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The profession has increased their presence in the School by our recent policy of recruiting qualified adjunct faculty, who also practice, to offer courses in their areas of specialization.

The School has also received support from the profession in its effort to secure the building of new facilities to house its programs.

6. *The School has accomplished about all the space saving and higher efficiency renovations which the current building will afford. If the program is to continue to grow and expand, the University must begin soon to plan for major new construction of space for the School.*

The School's students, faculty and administrators are well aware of the sub-standard facilities that are currently in use. Every effort is being made at all levels to obtain support for a new building capable of housing our program. The Dean has been actively seeking external funds and the collaboration of the University administration, in order to effectively address this critical concern. These efforts are beginning to bear fruit, as the University administration has finally acknowledged and supported the School's need for new facilities, identifying funds for academic year 1993-1994, with the objective of developing a preliminary project for a new building.

The School of Architecture has proposed that the new facilities be shared with the Graduate School of Planning, a prestigious program on our Campus. This step has brought the proposed project closer to reality. Several committees are now active in this effort. The program calls for a 100,000 sq. ft. building, with a construction budget of approximately \$10,000,000. It is anticipated that a design competition will be held in the very near future, as both the Chancellor of the University and the President of the Council of Higher Education have publicly expressed their support for this project.

7. *A defined and dependable student advising system must be implemented.*

The School has established a special academic advising office, directed by a senior design faculty member. The office provides counseling to students in areas related to academic performance, career objectives and course selection; it is complemented by extensive University facilities dedicated to student advising. This office has been particularly active, and students have responded well to these efforts.

8. *Students are confused and uninformed about the School's present transfer and student progress policies.*

The School's Academic Affairs Committee has examined these matters carefully; the procedures required in the transfer processes are now clearly established and students do not encounter as many difficulties of an administrative order at School level.

However, since our undergraduate program admits students mostly as freshmen, very few students transfer into it. For advanced standing admission, the School requires a certain level of architectural studies, as well as compliance with the University required core courses. Being the only School of Architecture on the Island, very few who apply qualify for admission by transfer.

9. *The School lacks a general spirit of "professional community", or a close and collaborative working relationship between students and between students and faculty.*

This situation is vastly improved. There is general consensus that relationships between students, between students and faculty, and between students and faculty and the School's administration are harmonious. There exists an excellent working relationship in our School, particularly in the task of maintaining and improving the quality of architectural education.

10. *The students' work demonstrates a lack of knowledge and awareness of the principles of urban design and landscape architecture.*

Expertise in the area of urban design has been incorporated into our program, particularly at the graduate level. Several thesis projects and the first-year graduate studios address this issue. The School has faced difficulties in recruiting experienced faculty in this area.

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The course in landscape architecture will again be offered as an elective during the coming academic year, with the anticipation that it will become a permanent offering.

11. *The students' work demonstrates a lack of experimentation, variety and strength in graphic communications.*

Beginning this past academic year, first year Design Studio has embarked upon a revision of its program and its procedures. After basic notions in design, the projects become rapidly involved in architectural issues. Aably directed by Profs. Esteban Sennyey, Humberto Betancourt and Manuel García-Fontebao, the Studio has shown great success in exploring a great variety of problems. They have also been free to experiment with forms, means of representation, etc. Efforts have been made in training their hand to respond more nimbly to their conceptual exercises, and their understanding of the tools of the profession is advancing rapidly.

The renewal of the Graphic Arts studio should provide opportunities for students to explore issues of design in the arts and bring that experience into the Studio. The art professor also teaches the first-year studio. Following a successful offering of Visual Communication (ARCH 3021) course by Prof. Loosle this past year, a new course to be offered in the Fall, Design Parameters (ARCH 3007), will include exercises of representation techniques.

The computer laboratory has been expanding its offerings in graphics, modelling and animation, in order to expose students to the value of computers in their architectural studies. Starting two years ago, students are beginning to present their thesis with the assistance of computer-aided design programs.

The offering of a prize by a private architectural firm to the best presentation at thesis level, should reinforce the students' awareness of the importance of good representation techniques. There is also great interest in reinforcing the photography laboratory with adjunct professor who can teach courses in creative photography.

4.2.3 Recommendations

The School has made a concerted effort to address the four recommendations made by the 1989 Visiting Team.

1. *The proposed new curriculum must be implemented immediately.*

The School began implementing the new curriculum, since its approval by the Council of Higher Education, in 1989. Each new academic year, new courses were created and offered to respond to the curriculum requirements. As the relevant student class advanced, the curriculum responded with the required offerings. With some minor concerns, the curriculum has been reflected in the content of the new courses.

2. *The faculty should turn its attention next to the search and development of one, or more, distinctive and unique features of the School (e.g., tropical architecture, architecture of the sea, colonial preservation and restoration, bridging the English speaking and Spanish speaking worlds of architecture, etc., etc.).*

Since 1990 the School has been emphasizing the search for re-definition of a unique character. We believe that we have recognized that our role is that of responding to the needs of our Island nation, that is basically Hispanic and Caribbean. Our interest lies in solving problems that are fundamentally regional, without sacrificing the general universal aspects of an architectural education.

We have taken a strong position to participate in those areas that respond to this character, as reflected by the following: CLEFA, ACSA Latin American Focus Session, Administrators' Conference in San Juan (1991). By doing this we take advantage of our circumstance, trying to link the Spanish- and English-speaking worlds, North and South. The School has a good mix of faculty that responds well to this goal: from South and Central America, Puerto Rico, the United States, and visiting European faculty every year. Several of our students represent countries from the region -- Dominican Republic, Colombia, Mexico, Venezuela -- as well as from Argentina and North America. More needs to be done in this area.

In order to focus attention on our Hispanic heritage and to recognize the urgency of colonial preservation and restoration, the School offers courses in Historic Preservation. As part of this effort, a new Internship Program has been established with the State Historic Preservation Office. It will start this summer.

Primarily due to our concern in this area, the School will be offering an Intermediate Design Studio course on

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housing during the coming academic year 1993-94. While responding to the formal academic requirements of third- and fourth-year students, the course will address the problem of housing as a fundamental social concern in Puerto Rico and the Caribbean. It will explore problems and solutions, as it explores the possibility of establishing a workshop to assist service organizations, community groups, even individual requests, in the amelioration of housing problems. Above all, the course will develop its program vis-a-vis the tropical context, with its violent weather, extreme humidity, its regional characteristics and materials, social and economic concerns, etc.

The School is also interested in exploring projects that deal with our interest in tropical conditions; projects that employ the wind tunnel and integrate our landscape architecture course.

The Caribbean context has also been emphasized in our relations with neighboring nations, where our students and teachers have traveled. The Dominican Republic and Cuba have been visited regularly by groups; an exchange project with M.I.T. emphasized Jamaica; and AACUPR emphasizes research in Puerto Rico and the neighboring Caribbean, with exhibitions aimed at expanding this awareness. Several Design thesis have successfully participated in Biennial competitions in the Dominican Republic and Cuba.

Interest in the neighboring Dominican Republic have always been high. For example, a documentation project, titled *1890-1930: Arquitectura y Urbanismo en la República Dominicana*, was carried out in 1990 by three local architects, Jorge Rigau, Emilio Martínez and Andrés Mignucci. The latter two architects are professors in the School, and the former is a frequent collaborator to our Theory sequence and juries. Several students from our School participated in the project.

This past year we offered a course dealing specifically with our Hispanic Caribbean, Identity and Culture of the Caribbean, given by a specialist in the culture of our region. And in the Fall of 1993-94, two new courses, Design Parameters for a Contemporary Regional Architecture (ARCH 3007) and (ARCH 4030), will explore solutions to architectural design problems, relating them specifically to our Caribbean context. ARCH 3007 will consider local and international precedents and will analyze typologies, elements and architectural details, focusing them in terms of the regional issue. It will give students conceptual and practical design tools to address our tropical and Caribbean island reality. The course ultimately will make a special emphasis in the design process and in the use of particular conceptual representation techniques.

For the fall of 1993-94, Prof. Quiles will offer a Vertical Studio, Seminar on Intermediate Architectural Design (ARCH 4030) for third and fourth-year Design students, to deal with the problems of housing in Puerto Rico: low-income and middle class, individual and collective housing in urban, suburban and rural contexts. The course intends to continue and coordinate School efforts in involving itself in similar problems in other areas of the Caribbean, such as the multi-national projects in the Dominican Republic mentioned above.

3. The School, because of its geographical isolation, should develop a funded and continuous faculty development program.

The University of Puerto Rico has a generous policy of financial support for faculty interested in pursuing advanced degrees. This support is intended for paying tuition costs at the Institution of choice, transportation, health insurance, plus a housing and living stipend based on the individual and family needs of the faculty.

The University and the School have the ability to offer financial support for faculty to participate in professional and academic fora and symposia, conferences, in Puerto Rico, the United States and elsewhere. This comes from funds within the School's budget, and from other funds managed by various University units. Sometimes, the full cost is borne by the Institution; other times, the support is matched by either the faculty or external sources. This year faculty members traveled to the United States, the Dominican Republic and Spain in official representation of the School and the University.

4. Also to overcome the isolation of the program, both on campus and geographically, the School should develop a plan for enhancement of more and more effective outward linkages (e.g., other disciplines, schools, countries, elements of the professional community, etc., etc.).

The School has reinforced its links to the rest of the University, by exploring effective joint ventures: Charrettes, a new building for the Schools of Architecture and Planning, acoustical research services to Law School, Computer offerings (academic and professional) to the University, exchange programs with Mexico, Catholic University, University of Florida (Vicenza), joint participation with the School of Engineering at Mayagüez in NASA/USRA

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and Disney Imagineering competitions; creating courses in other faculties with double numbering to facilitate access to our students), such as a land use course by the Natural Sciences faculty and a Seminar on the Image of the City by the School of Planning; courses given by professors from other Faculties (Mathematics, Humanities, Social Sciences, Research Techniques, among others); and adjunct practicing faculty active in more and varied professions.

The School has been introducing courses in new areas: Real Estate, Caribbean Culture, Ecology, Presentation Techniques, Historic Preservation Internship. Library services are available to the profession, and we offer the use of our facilities cost-free for Summer Workshops, NCARB review courses, NCARB exams. Our active visiting lecture program (sometimes in conjunction with the profession) is open to the public, and professional photographic services and courses are open to the rest of University. By reducing the number of required credits, our students can now take many more courses in other disciplines as approved electives.

This summer, for the third consecutive year, students in the NASA course will travel to the Houston Space Center in Texas for presentation of their final projects. Also this summer, as a result of a concerted effort with the State Historical Preservation Office, several students will work as interns, concentrating on preservation issues. A group of students will attend summer school on an exchange with Catholic University.

A new collaborative effort with the Department of Environmental Sciences has been initiated. Areas of concern to both programs are being addressed, such as ecology, environmental pollution, air and water quality, and land use and management. A fruitful interchange between both faculties has emerged.

In addition to the efforts mentioned under entry no. 4. above, the School has been invited to participate in an upcoming research project in the Dominican Republic, *Ciudad Alternativa*, to be held in July and August, 1993. The project will bring together teams of ten students and two professors from Italy, Colombia, Venezuela, Puerto Rico and the Dominican Republic for three weeks, with the stated intention of facing the serious issue of "social housing." This interest will be expanded upon by new courses to be offered during the Fall 1993-94 semester.

5.0 APPENDICES

5.1 COURSE DESCRIPTIONS

ARCH 3001 (Required) Credits: 5

Course title: Elementary Architectural Design I

Instructor: J. Penabad

Prerequisites: ARCH 3032

Course Description:

This is the first course in the sequence of architectural design studios. It serves as an introduction to the processes and strategies of architectural design. The course involves elementary exercises analyzing the components of the architectural piece along with its formal determinants.

The human being, the handling of space, the architectural spatial sequence and circulation, and ultimately, the fundamental elements of architecture such as beams, columns, walls, roofs and floor slabs acting together.

Another essential aspect of this design studio is the development of the bi-dimensional and tri-dimensional graphic skills applied to architecture.

The course's structure consists of four sequential exercises.

Texts:

Architecture: Form Space & Order, Francis D. K. Ching.

How to Look at Architecture, Bruno Zevi.

Completion requirements:

Design projects (drawings and models).

ARCH 3002 (Required) Credits: 5

Course Title: **Elementary Architectural Design II**

Instructor: J. Penabad

Prerequisites: ARCH 3001

Course Description:

This is the second course in the sequence of architectural design studios. It serves as an introduction to the process and strategies of architectural design. The course involves elementary exercises analyzing the components of the architectural piece along with its formal determinants.

The human being, the handling of space, the architectural spatial sequence and circulation and ultimately, the fundamental elements of architecture such as beams, columns, walls, roofs and floor slabs acting together. Some more complex aspects such as facade composition, climate, landscape, materials, structure and constructive techniques, along with client and program needs, are also studied during this second introductory course to architectural design.

An essential aspect of this design studio is the development of bi-dimensional and tri-dimensional graphic skills applied to architecture.

The course's structure consists of four sequential exercises.

Texts:

Architecture: Form Space & Order, Francis D. K. Ching.

How to look at architecture, Bruno Zevi.

The Classical Language of Architecture, Hohn Summerson.

Architecture Principles in the Age of Humanism, Wittkower.

Completion requirements:

Design projects (drawings and models). Comprehension written tests on all texts.

ARCH 3007 (Elective) Credits: 3

Course title: Design Parameters for a Contemporary Regional Architecture

Instructor: N. Fúster-Félix

Prerequisites: ARCH 3032, ARCH 3122

Course description:

The course will explore solutions to architectural design problems, relating them specifically to our Caribbean context. It will consider local and international precedents and will analyze typologies, elements and architectural details, focusing them in terms of the regional issue. It will give students conceptual and practical design tools to address our tropical and Caribbean island reality. The course ultimately will make a special emphasis in the design process and in the use of particular conceptual representation techniques.

Texts:

A reading list will be provided.

Completion requirements:

Class project.

ARCH 3015 (Elective) Credits: 3

Course title: Field Work Seminar (Disney Competition)

Instructor: A. Andino

Prerequisites: ARCH 3002

Course description:

This course aims at developing multi-disciplinary teams of three students that work together in the making of a visual and oral presentation to the Walt Disney Imagineering Company's sponsored competition for theme park attraction proposal. Readings, viewing of theme park videos, studying plans and descriptions of existing theme parks, and sharing theme park visit experiences, stimulates the students into thinking critically about them and to develop their own ideas according to their particular interests. Students coalesce in team formation as they discover similarities and congruence when they report to the class their initial proposal. As teams are defined, they develop their final proposals.

Texts:

Theme park videos, materials supplied by the Walt Disney Imagineering Company.

Completion requirements:

A complete visual and oral description of a proposal for a theme park attraction.

ARCH 3016 (Elective) Credits: 3

Course title: Field Work Seminar (Disney Competition)

Instructor: A. Andino

Prerequisites: ARCH 3002

Course description:

This course aims at developing multi-disciplinary teams of three students that work together in the making of a visual and oral presentation to the Walt Disney Imagineering Company's sponsored competition for theme park attraction proposal. Readings, viewing of theme park videos, studying plans and descriptions of existing theme parks, and sharing theme park visit experiences, stimulates the students into thinking critically about them and to develop their own ideas according to their particular interests. Students coalesce in team formation as they discover similarities and congruence when they report to the class their initial proposal. As teams are defined, they develop their final proposals.

Texts:

Theme park videos, materials supplied by the Walt Disney Imagineering Company.

Completion requirements:

A complete visual and oral description of a proposal for a theme park attraction.

ARCH 3017 (Elective) Credits: 3

Course title: **Workshop in Directed Research**
(NASA/USRA Advanced Design Program)

Instructor: A. Andino

Prerequisites: ARCH 3002

Course description:

The course aims at researching and developing Habitability criteria for prolonged stay in extraterrestrial space. Through readings, viewing NASA videos, and interacting with NASA mentors from the Johnson Space Center and the Goddard Space Flight Center, together with on-line access to the NASA Libraries, students obtain the necessary information to work on criteria-defining proposals so as to be able to analyze and propose methods of qualitative and quantitative assessment. Since the work is multi-disciplinary, students from other faculties, including the School of Engineering, are encouraged to participate in the course. Class work is organized in teams according to student resources and capabilities, to produce a final project that demonstrates application of research findings such as a Mars Mission Transport, a Lunar Base, First Lunar Outpost, or an Initial Mars Habitat.

Texts:

NASA STD 3000 and on-line access to Johnson Space Center Library for Research and a list of Video presentations.

Completion requirements:

A project that demonstrates the application of Habitability Criteria to be presented by students at NASA during the Advanced Design Program's Annual Summer Conference. Publication, presentation drawings and models.

ARCH 3018 (Elective) Credits: 3

Course title: Workshop in Directed Research (NASA/USRA Advanced Design Program)

Instructor: A. Andino

Prerequisites: ARCH 3002

Course description:

The course aims at researching and developing Habitability criteria for prolonged stay in extraterrestrial space. Through readings, viewing NASA videos, and interacting with NASA mentors from the Johnson Space Center and the Goddard Space Flight Center, together with on-line access to the NASA Libraries, students obtain the necessary information to work on criteria-defining proposals so as to be able to analyze and propose methods of qualitative and quantitative assessment. Since the work is multi-disciplinary, students from other faculties, including the School of Engineering, are encouraged to participate in the course. Class work is organized in teams according to student resources and capabilities, to produce a final project that demonstrates application of research findings such as a Mars Mission Transport, a Lunar Base, First Lunar Outpost, or an Initial Mars Habitat.

Texts:

NASA STD 3000 and on-line access to Johnson Space Center Library for Research and a list of Video presentations.

Completion requirements:

A project that demonstrates the application of Habitability Criteria to be presented by students at NASA during the Advanced Design Program's Annual Summer Conference. Publication, presentation drawings and models.

ARCH 3019

(Elective)

Credits: 3**Course title:** **Basic Principles of Landscape Architecture Design****Instructor:** V. Blanco**Prerequisites:** None**Course description:**

The course will explore the basic aspects of landscape architectural design in its intrinsic relationship to architecture. It will focus of landscape site analysis as a required preliminary phase to the architectural design process, in order to achieve a harmonious integration of human-made structures, existing surroundings and nature.

Themes upon which prominent issues may be brought into focus are: the preservation and utilization of natural resources; the outdoor scale; grading as the art of earth sculpture; landscape features, such as topography, water, plant material, etc., as design elements for the control of erosion, wind, heat, noise and sight pollution, energy conservation, among others.

The course will feature site tours and workshops to integrate landscape architectural principles into the students' current design projects in an inter-disciplinary manner.

Texts:

Reading assignments in various texts.

Completion requirements:

Site tours, graphic assignments and a monograph.

ARCH 3021

(Elective)

Credits: 3**Course title:** **Visual Communication****Instructor:** R. Loosle**Prerequisites:** None**Course description:**

An introduction to the use of graphics as a tool for thinking about, documenting, and expressing architectural design. The course will cover graphic techniques for analysis, conceptual studies, design development, and presentation. This is a course which emphasizes hands-on experience, but includes lectures, demonstrations, and reviews. Exercises containing architectural ideas and issues will be used as a vehicle to develop graphic and model making skills.

Principles of scale. Principles of line and tone. Drawing principles of shade and shadow. Representation of building materials and entourage. Principles of perspective. Principles of the axonometric. History of architectural drawing. Principles of sketching

Texts:

Architectural Graphics, Francis D. K. Ching.

Suggested texts:

Drawing on the Right Side of the Brain, Betty Edwards.

Architectural Rendering, Halse.

Completion requirements:

Students must receive a grade of C or better in the graphic projects assigned.

ARCH 3025

(Elective)

Credits: 3

Course title: **Basic Principles of Landscape Architecture Design**

Instructor: V. Blanco

Prerequisites: ARCH 3019

Course description:

Continuation of ARCH 3019. Second course in **Basic Principles of Landscape Architecture Design** sequence.

Texts:

Reading assignments in various texts.

Completion requirements:

Site tours, graphic assignments and a monograph.

ARCH 3045 (Required) **Credits:** 4

Course title: **Mathematics I**

Instructors: A. Correa / J. Rocafort / E. Sobrino

Prerequisites: Admission to the School of Architecture

Course description:

Introductory course in precalculus mathematics for students in the Architecture program, emphasizing applications and basic problem-solving and calculation. Utilization of the pocket calculator, or portable computer is strongly encouraged.

Topics include the following: review of algebra and geometry, functions, coordinate systems, basics analytic geometry, graphs, polynomial functions, solution of equations, exponential and logarithmic functions, trigonometry, simple trigonometric applications, trigonometric functions, systems of equations, vector concepts and conic sections.

Texts:

Precalculus: Functions and Graphs, Munem & Yizzie.

Completion requirements:

Three partial examinations and a comprehensive final exam.

ARCH 3046 (Required) Credits: 4

Course title: **Mathematics II**

Instructors: A. Correa / J. Rocafort

Prerequisites: ARCH 3045

Course description:

An introduction to the basic principles of differential and integral calculus. The approach to this traditionally difficult subject involves the utilization of "intuitive" geometrical arguments, to facilitate comprehension of the basic concepts by an audience of non-specialists.

Applications of the calculus to simple problems of interest in technological courses are included.

The history of this field of mathematics is discussed briefly, emphasizing its genesis in basic physical problems.

Topics discussed include: limit concepts, speed and its measurement, the derivative, derivative functions, geometrical interpretation of the derivative, tangents to a curve, differentiation maxima and minima, distance and its measurement the definite integral, applications of integration, antiderivatives.

Texts:

Calculus, Deborah Hallett-Hughes, *et al.*

Completion requirements:

Three examinations and a comprehensive final examination.

ARCH 3071 (Elective) Credits: 3

Course title: **Basic Photography for Architects**

Instructor: J. González-Peniza

Prerequisites: None

Course description:

Basic principles of photography. The history of photography. Light, the basic element of photography. The photographic camera: types of cameras, lenses and depth of field control, the shutter and movement control, exposure control and light meters. The essential elements of photography and basic composition. Laboratory practice in black and white processes, film development and printing.

Texts:

Step by Step Guide to Photography, Michael Langsford.

Completion requirements:

In addition to written tests the students are required to complete at least four laboratory projects during the semester.

ARCH 3072

(Elective)

Credits: 3**Course title:** **Advanced Photography for Architects****Instructor:** J. González Peniza**Prerequisites:** ARCH 3071**Course description:**

Advanced photographic techniques for the future professional in the field of architecture. Special photographic equipment and techniques, filters for color and black and white photography. Studio lighting using flash and tungsten lighting. Advanced composition including color as a basic element. The use of medium and large format cameras for field and studio assignments. Photographing people, architectural models, the still life and photo reproduction. Laboratory exercises in black and white and color.

Texts: None**Completion requirements:**

In addition to written tests the students are required to complete at least five laboratory projects during the semester.

ARCH 3101 (Elective) Credits: 3

Course title: **Introduction to Computers I**
(Introductory level)

Instructor: E. Sobrino

Prerequisites: ARCH 3045

Course description:

The introduction to computers course is offered to provide students their first experience with computers. Hardware and software components are studied in detail with emphasis on desktop applications. General knowledge of operating systems, peripherals and commonly-used computers are covered. Word processing, spread sheets and database applications are used to solve basic problems found in architectural practice. Painting and drawing applications are used to prepare business-type presentations. Basic concepts of computer programming are discussed using the C language.

Texts:

MS-DOS User Reference Guide, UNIX User Reference Guide; Wingz User Reference Guide, MS-Word User Reference Guide, Ms-excel User Reference Guide; MS-Windows User Reference Guide, X-window User Reference Guide.

The C Programming Language, B. Kernighan and D. Ritchie.

Other reading material is supplied before each topic discussion.

Completion requirements:

The students work with real problems to be solved with particular applications on the following areas: structural design, budget analysis, construction cost analysis, architectural research and presentation. Each student needs to complete an exercise, one for each of the above areas.

ARCH 3102 (Elective) Credits: 3

Course title: **Introduction to Computers II** (Intermediate level)

Instructor: E. Sobrino

Prerequisites: ARCH 3101

Course description:

The course promotes the student's understanding of the use of computers as tools for modeling and analyzing different problems related to architecture. Emphasis is given to architectural research methods, computer programming and application customizing using the C language, spread sheet, macro languages, and database management applications. The central objective is to help students develop skills in problem-solving, formulating strategies for the transformation of such knowledge into a working computer program; alternatively, the use of existing applications may be applied to the solution of the problem.

Texts:

DBase and MS-ACCESS reference manuals, AutoCAD AutoList reference manual , AutoCAD C Application Programming, Interphase (API) reference manual.

The C Programming Language, B. Kernighan and D. Ritchie.

Other reading materials are supplied before each topic discussion.

Completion requirements:

Students are expected to demonstrate skills in organizing ideas, detailing procedures and strategies for solving problems, and developing applications and solutions. Required projects include: design and implementation of a facilities management application using a Relational Database Management System, design of an archive of historic buildings linking graphics with data using AutoLisp or C languages and a database, statistical-survey analysis using a spread sheet, and others. The final project topic is selected by the student.

ARCH 3121 (Required) Credits: 2

Course title: **Introduction to Architecture I**

Instructor: P. Muñoz Rivera / J. Marqués Mera

Prerequisites: Admission to the School of Architecture

Course description:

Panoramic vision of the profession in architecture and its role in society. Definition of architecture and the architecture vocabulary. The human being as means and center of the architectural endeavor. Principles that affect human behavior in its interaction with the environment and the architectural space.

Texts:

Architecture and Allied Design: An Environmental
Design Perspective, Antoniade.

Architecture and you: How to Experience and Enjoy Buildings, Caudill, Peña an Kennon.
Experiencing Architecture, Rasmussen.

Completion requirements:

Lectures, visits to sites, four study trips, and various short projects.

ARCH 3122 (Required) Credits: 2

Course title: **Introduction to Architecture II**

Instructors: P. Muñiz Rivera / J. Marqués Mera

Prerequisites: ARCH 3121

Course description:

Introduction to the determinants and components of the architectural form: history and culture, historical precedent and typology in architecture, climate, topography, landscape and vegetation; materials, structure and constructive systems; the client and the design program. Interaction between human needs and the architectural space.

Texts:

Architecture and Allied Design: An Environmental Design Perspective, Antoniades.

Architecture and you: How to Experience and Enjoy Buildings, Caudill, Peña and Kennon.

Experiencing Architecture, Rasmussen.

Completion requirements:

Lectures, visits to sites, four study trips, and various short projects.

ARCH 3131

(Required)

Credits: 4**Course Title:** **Design Fundamentals I****Instructors:** H. Betancourt / M. García Fonteboa / E. Sennyey**Prerequisites:** Admission to the School of Architecture**Course description:**

The primary elements of architectural space (surface, horizontal, linear, vertical, planar, enclosure, function, program, volume, landscape, path, center, frame, interior, exterior, transparency, opacity, etc.) are introduced and explored through a series of two- and three-dimensional exercises.

The principles and techniques in two- and three dimensional representation, graphic communication and descriptive geometry are introduced and explored through a series of technical and free-hand drawing, and model-making exercises.

Texts:

Architecture: Form Space and Order, Francis D. K. Ching.

Drawing A Creative Process, Francis D. K. Ching.

Architectural Graphics, Francis D. K. Ching.

A reading list is provided with each design exercise.

Completion requirements:

Design projects (models, drawings and mixed media compositions).

ARCH 3032 (Required) **Credits: 4**

Course Title: **Design Fundamentals II**

Instructors: H. Betancourt/M. García Fonteboa/ E. Sennyey

Prerequisites: ARCH 3131

Course description:

The primary elements of architectural space (surface, horizontal, linear, vertical, planar, enclosure, function, program, volume, landscape, path, center, frame, interior, exterior, transparency, opacity, etc.) are introduced and explored through a series of two- and three- dimensional exercises.

The principles and techniques in two- and three dimensional representation, graphic communication and descriptive geometry are introduced and explored through a series of technical and free-hand drawing, and model-making exercises.

Texts:

Architecture: Form Space and Order, Francis D. K. Ching.

Drawing A Creative Process, Francis D. K. Ching.

Architectural Graphics, Francis D. K. Ching.

A reading list is provided with each design exercise.

Completion requirements:

Design projects (models, drawings and mixed media compositions).

ARCH 3521 (Required) Credits: 3

Course title: **Applied Physics I for Architecture**

Instructor: J. Rocafort

Prerequisites: ARCH 3045

Course description:

Introductory physics for students of architecture. Basic topics in mechanics. Vectors and forces. Kinematics. Newton's Laws. Energy and power. Conservation of energy. Impulse and momentum. Rotation. Elasticity. Simple harmonic. Motion. Fluid statics and dynamics. Includes demonstration of relevant physical principles in class.

Texts:

College Physics, 7th Edition, Sears, Zemansky & Young.
Study Guide for College Physics, Sandler and Bouadana.

Completion requirements:

3 written examinations, requiring numerical solution of problems based on class discussion.

ARCH 3522 (Required) Credits: 3

Course title: **Applied Physics II for Architecture**

Instructor: J. Rocafort

Prerequisites: ARCH 3046/3521

Course description:

Continuation of introductory physics for students of architecture. Mechanical waves. Sound and acoustics. Heat and temperature. Heat transfer. Basic thermodynamics. Electricity and magnetism. Electrical circuits. Electromagnetic waves. Light and optics.

Includes demonstration of relevant physical principles in class.

Texts:

College Physics, 7th Edition, Sears, Zemansky & Young.

Completion requirements:

3 examinations, requiring numerical solution of problems and discussion of topics presented in class.

ARCH 3905

(Elective)

Credits: 3**Course title:** **Introduction to Acoustics****Instructor:** J. Rocafort**Prerequisites:** ARCH 3046 / ARCH 3522**Course description:**

An introduction to the basic principles, both physical and psychoacoustical, underlying this interdisciplinary field. The course is open to students in other departments, particularly Environmental Sciences, Physics, and Music.

Topics include: review of basic wave physics, sound in air, acoustical measurements and the decibel scale, reflection, refraction, diffraction and absorption of sound, description of basic sound signals and the concept of frequency and spectral (Fourier) analysis. Physiology of hearing, perceptual factors in acoustics. Electroacoustics and sound reproduction. Basic architectural acoustics: sound in rooms, reverberation, isolation of sound sources.

The course incorporates numerous demonstrations of relevant acoustical phenomena in class.

Texts:

The Science of Sound, T. Rossing.

Waves and the Ear, J. Pierce & D. David.

Physics of Sound, R. Berg & T. Stork.

Completion requirements:

Mid-term examination, final examination and a project or paper related to topics discussed in class.

ARCH 4001

(Required)

Credits: 5**Course title:** **Intermediate Architectural Design I****Instructors:** C. Betancourt / D. González / J. Marqués**Prerequisites:** ARCH 3002**Course description:**

Third course in the design sequence. Development of the process and strategies of design, in projects of intermediate complexity. Emphasis is given to the formulation of architectural concepts and to the consideration of form determinants and components in an integral way.

Three projects are developed per semester. They are organized in a sequence that progressively adds spatial possibilities between the program and the site.

Texts:

Readings assigned or recommended for each project.

Completion requirements:

Models and two- and three-dimensional drawings.

ARCH 4002

(Required) Credits: 5

Course title: **Intermediate Architectural Design II**

Instructors: C. Betancourt / D. González / J. Marqués

Prerequisites: ARCH 4001

Course description:

Third course in the design sequence. Development of the process and strategies of design, in projects of intermediate complexity. Emphasis is given to the formulation of architectural concepts and to the consideration of form determinants and components in an integral way.

Three projects are developed per semester. They are organized in a sequence that progressively adds spatial possibilities between the program and the site.

Texts:

Readings assigned or recommended for each project.

Completion requirements:

Models and two- and three-dimensional drawings.

ARCH 4005 (Required) **Credits:** 3

Course title: **History of Architecture I**

Instructors: R. Crespo / E. Crommett / M. P. González

Prerequisites: HUMA 3012

Course description:

This course deals with the historical development of architecture from Pre-historic times until the fall of the Roman Empire. A historical background is presented in order to promote an understanding of the cultural development of the architectural artifact, including, but not limited to, such aspects as: typology, morphology, iconography, technological and construction issues, as well as their relation to the urban context and its historical development.

The course begins with the analysis of the basic concepts of what comprises architecture and the human being's first intervention in the environment. It continues with a survey of architectural developments in Mesopotamia, Egypt, Pre-hellenic Greece, Classical Greece, Etruria and Ancient Rome. Special emphasis is given to the development of the architectural vocabulary that the student will use during his career. General urban aspects are also covered.

Slides are used each semester as a means of providing insight into the complexities of the architectural form. In addition, videos, movies and architectural models are also used. The academic material is presented by means of lectures by professors who have visited and studied many of the buildings and sites, as well as art objects. Class participation and discussion are strongly encouraged.

Texts:

Both a general and a selected bibliography are distributed to the students at the beginning of the semester. Due to the complexity of each period and time span covered by the course no single text is utilized.

Completion Requirements:

Requirements vary according to the professor and may include partial and final examinations, and/or research projects. Students may choose to present research projects either in written or oral form.

ARCH 4006 (Required) Credits: 3

Course title: **History of Architecture II**

Instructors: R. Crespo / E. Crommett / M. P. González

Prerequisites: ARCH 4005

Course description:

This course deals with the historical development of architecture between the fall of the Roman Empire and the beginning of the Early Christian expansion in the Near East and Europe, until the Gothic period. A historical background is presented in order to understand the cultural development of the architectural artifact, including, but not limited to, such aspects as: typology, morphology, iconography, technological and construction issues, as well as their relation to the urban context and its historical development. The course begins with the analysis of Early Christian and Byzantine art and architectural examples, and continues with the Carolingian, Romanesque and Gothic periods. Special emphasis is given to the development of urban cores during the Middle Ages, and particularized typologies, including defensive architectural organizations, domestic, civic and religious monuments and public architecture and spaces. The course also deals with Islamic architecture and its influence in Europe. It should be mentioned that particular emphasis is made of the Hispano-Moorish tradition and its impact upon Puerto Rico and its cultural heritage.

Slides are used each semester as a means of providing insight into the complexities of the architectural form. In addition, videos, movies and architectural models are also used. The academic material is presented by means of lectures by professors who have first-hand experience for they have visited and studied most of the buildings and sites, as well as art objects. Class participation and discussion are strongly encouraged.

Texts:

Both a general and a selected bibliography are distributed to the students at the beginning of the semester. Due to the complexity of each period and time span covered by the course no single text is utilized.

Completion requirements:

Requirements vary according to the professor and may include partial and final examinations, and/or research projects. Students may choose to present research projects either in written or oral form.

ARCH 4007 (Required) Credits: 3

Course title: **History of Architecture III**

Instructors: R. Crespo / A. Pabón

Prerequisites: ARCH 4006

Course description:

This course deals with the historical development of architecture between the early 15th century and the middle of the 18th century. The following periods are studied in detail: Early Renaissance, High Renaissance, Mannerism, Baroque and Rococo. A historical background is given in order to understand the cultural development of the architectural artifact, including but not limited to, such aspects as: typology, morphology, iconography, theoretical issues, as well as the relationship between architecture, its urban context and historical development. The course begins with the analysis of the early development of the architecture of the Renaissance and the evolution of the architect as a professional and his role within society. Special emphasis is given to the individual artistic approach and to the interaction between the architectural form and other art forms.

Slides are used each semester as a means of providing insight into the complexities of the architectural form. In addition, videos, movies and architectural models are also used. The academic material is presented by means of lectures by professors who have visited and studied most of the buildings and sites, as well as art objects. Class participation and discussion are strongly encouraged.

Texts:

Both a general and a selected bibliography are distributed to the students at the beginning of the semester. Due to the complexity of each period and time span covered by the course no single text is utilized.

Completion requirements:

Requirements vary according to the professor and may include partial and final examinations, and/or research projects. Students may choose to present research projects either in written or oral form.

ARCH 4008 (Required) Credits: 3

Course title: History of Architecture IV

Instructors: M. P. González / A. Pabón

Prerequisites: ARCH 4007

Course description:

This course analyzes the development of the architectural artifact since the middle of the 18th century and continuing to the present time. As well as in all other courses in the history of architecture sequence, this one studies architecture within a historical context. It presents the development of ideas and theories that have shaped the architectural form during this time span. Subjects such as new materials, construction techniques, aesthetic values and new typologies that characterize the period are also analyzed. The course includes the American experience, from the middle of the 18th century to the present. A strong emphasis is made on presenting to the student contemporary examples as a means of understanding the present praxis of the profession.

Particularized themes important for their relevance to the future professional are presented. These include, among others, the analysis of the development of the profession and the study of the profession in the different cultural traditions (e.g., Ecole des Beaux-Arts, the Bauhaus and the British educational experience, among others). Emphasis is also made on the developing typologies (museums, skyscrapers), and on individual architectural expression. Development of building techniques (e.g., skyscraper construction), specialized technological developments (e.g., elevators, electrical lighting) and the development of new materials (e.g., reinforced concrete, steel) are presented to the student. By the end of the course, students are expected to understand the most important urban developments of the period, ranging from theoretical expressions (e.g., Chaux) to built ones (e.g., Brasilia).

Texts:

A general and a selected bibliography are distributed to the students at the beginning of the semester. Due to the complexity and span of the period covered by the course, no single text is used.

Completion requirements:

Requirements vary according to the professor and may include partial and final examinations, and/or research projects. Students may choose to present research projects either in written or oral form.

ARCH 4011 (Required) Credits: 5

Course title: **Intermediate Architectural Design III**

Instructor: A. Miró-Montilla

Prerequisites: ARCH 3002 / ARCH 4005 / ARCH 4321 / ARCH 4311 / ARCH 4045

Course description:

Fifth course in the architectural design sequence of studios. Development of the processes and strategies of architectural design applied to projects of medium complexity. The development of architectural concepts and the components and determinants of architectural form are emphasized and explored.

The general objective of the course is the application of the design process in the solution of architectural problems of an intermediate level taking into consideration the pertinent technical aspects, such as lighting, electrical systems, mechanical equipment, air conditioning, ventilation systems, and plumbing.

Texts: None.

Completion requirements:

Design projects (drawing and model presentations).

ARCH 4012 (Required) Credits: 5

Course title: **Intermediate Architectural Design IV**

Instructor: A. Miró-Montilla

Prerequisites: ARCH 4011 / ARCH 4006 / ARCH 4046 / ARCH 4018 / ARCH 4322

Course description:

Sixth course in the architectural design sequence of studios. Development of the processes and strategies of architectural design applied to projects of medium complexity. The development of architectural concepts and the components and determinants of architectural form are emphasized and explored.

The general objective of the course is the application of the design process in the solution of architectural projects at an intermediate level, taking into consideration the pertinent technical aspects, such as lighting, electrical systems, mechanical equipment, air conditioning, ventilation systems and plumbing.

Texts: None

Completion requirements:

Design projects (drawing and model presentations).

ARCH 4018 (Required) Credits: 3

Course title: **Technology II**

Instructor: P. Muñiz

Prerequisites: ARCH 4311

Course description:

Consideration of the detailed analysis of a particular place or site: geological, topographical, ecological, climatological and infrastructural characteristics. Movement and circulation systems, services and utilities in response to site conditions and land use restrictions.

Consideration of site constraints, safety requirements and selection of particular site improvement and construction techniques. Soil testing, drainage, grading, earthwork, foundations, temporary supports and site improvements as a result of a meticulous building and environmental design.

Texts:

Suggested texts:

A guide to Site and Environmental Planning, Rubenstein.

Site Planning Standards, De Chiara.

Architectural Graphic Standards.

Time-Saver Standards.

Local building codes and regulations.

Completion requirements:

Lectures followed by discussion. Site analysis, site work and details for a particular project. Exams and class participation are required.

The effect of climate, geography, social and other phenomena upon site design are explored by a real project in a particular setting.

ARCH 4019 (Required) Credits: 3

Course title: **Technology III**

Instructors: J. Rocafort / D. González

Prerequisites: ARCH 4018

Course description:

A general introduction to electrical power systems and communications systems utilized in modern buildings, and to the technology of artificial lighting and acoustical control.

Specific topics include: review of the basic physical principles of electricity, light and sound. Electrical circuits. Alternating currents. Generation, transmission and distribution of electrical power. Electrical systems in residences, buildings and industry. Communications and signal systems. Light sources and illumination. Artificial lighting systems. Methods of lighting calculations. Design of simple lighting systems. Perceptual factors. Sound in rooms. Acoustical measurements. Acoustical control in buildings.

Demonstrations of electrical, lighting and acoustical measurements are performed in class. Visits to specialized facilities and projects under construction, when available.

Texts:

Mechanical and Electrical Systems in Buildings,
McGuinness, Stein & Reynolds (reference).

Completion requirements:

Mid-term and final examinations. A specialized project (individual or group) may be assigned.

ARCH 4025 (Required) Credits: 3

Course title: **Technology IV**

Instructor: J. Zeno-Villafaña

Prerequisites: ARCH 4019

Course description:

An introduction to plumbing, ventilating and air conditioning systems utilized in modern buildings and to the vertical transportation and safety technology required in building design.

Specific topics include: review of basic physical principles of heat, temperature, heat transfer and fluid dynamics. Physiological factors related to comfort. Psychrometrics. Thermal dynamics of buildings. Simple load calculations. Air-conditioning systems. Ventilating systems. Control systems. Energy conservation in buildings. Water supply. Plumbing systems. Sewage disposal. Fire protection. Elevators and escalators.

Texts:

Mechanical and Electrical Systems in Buildings,
McGuiness, Stein & Reynolds.

Completion requirements:

Mid-term and final examinations. Group projects.

ARCH 4037 (Elective) Credits: 2

Course title: **Natural Ventilation in Architecture**

Instructor: P. Muñiz

Prerequisites: ARCH 4311

Course description:

The influence of the architectural shape and environmental factors on air movement patterns. Its effect upon thermal comfort, particularly in the hot-humid regions, is evaluated. The opportunity to create climatically responsive structures is explored. Basic principles and concepts of air movement are analyzed by examining its interaction with the building shape, openings and projections, utilizing low-speed wind tunnel testing.

Texts:

Notes and research experiences compiled during the instructor's tenure at Virginia Tech.

Reference texts:

Wind in Architectural and Environmental Design, Melaragno.

Controlling Air Movement. A Manual for Architects and Builders, Terry S. Boutet.

A Breeze in Time and Natural Air Flow Around Buildings, Evans.

Analysis of Wind Tunnel Data on Naturally Ventilated Models, Sobin, *et al.*

Completion requirements:

Research work dealing with a particular building shape, opening or projection established via wind tunnel testing. Class participation and laboratory work is required (final project).

ARCH 4045 (Required) Credits: 1

Course title: **Theory of Architecture I**

Instructor: E. Vivoni

Prerequisites: HUMA 3012

Course description:

First course in the sequence of architectural theory. Introduction to the phenomenological concept of the building task and the effects that the environment, region and culture have upon the work of architecture.

Architecture considered as part of everyday life, a "return to things" in contrast to the abstractions and mental constructions that the scientific method has imposed upon us in the identification of the design process.

Texts:

Texts vary according to each semester, examples are:

Building, Dwelling and Thinking, M. Heidegger.

On the Problems of Function in Architecture,

J.R. Muckarovsky.

Genius Loci, C. Norberg-Schultz.

The Concept of Dwelling, C. Norberg-Schultz.

El mito del hombre allende la técnica, J. Ortega y Gasset.

The Ten Books on Architecture, Vitruvius.

Completion requirements:

Midterm and final exam.

ARCH 4046 (Required) Credits: 1

Course title: **Theory of Architecture II**

Instructor: H. Betancourt

Prerequisites: ARCH 4045

Course description:

Second course in the sequence of architectural theory.

The study of the conceptual development of architectural form. The analysis of the historic, symbolic and technical determinants of architectural form within a social and cultural context.

This will be undertaken through the analysis/mapping of a building by Le Corbusier, in particular those located outside the European continent. This analysis/mapping will include the geometric, topographic and topologic relationships of mass, space, surface, program, and function, among others.

Analyses having a common criteria, format and analytical procedure will be required from each student.

Texts:

Assigned readings, among them:

Modern architecture since 1900, William J. R. Curtis.

Modern architecture, Vincent Scully, Jr.

Modern architecture and expressionism, Dennis Sharp.

The mathematics of the ideal villa, Colin Rowe and Robert Slutzky.

Poética de la arquitectura neoplástica, Bruno Zevi.

Selected articles from Oppositions.

Completion requirements:

Paper, exam, and class presentation of an analytical project.

ARCH 4047 (Required) Credits: 1

Course title: **Theory of Architecture III**

Instructor: H. Betancourt

Prerequisites: ARCH 4046

Course description:

Third course in the sequence of architectural theory.

The study and analysis of technique and its architectural expression: the nature of materials, structure as organizer of architectural form, organizational systems of architectural space, and how these reflect a particular culture at a particular time.

This will be undertaken through the analysis of a building from an influential twentieth century architect. This analysis will include studies of the technique through drawing, photography and models.

Analyses involving a common criteria, format and analytical procedure is expected from each student.

Texts:

The Natural House, Frank Lloyd Wright.

Selected readings:

Sacred Games, Colin St. John Wilson.

Contemporary Transformations of Modern Architecture, William J. R. Curtis.

La Tourette and Le Thoronet, Peter Buchanan.

Form and the Nature of Materials, Pierre von Meiss.

Utility, Technology and Expression, Anthony C. Weber.

Completion requirements:

Paper, exam and class presentation of analysis project.

ARCH 4048 (Required) Credits: 1

Course title: **Theory of Architecture IV**

Instructor: E. Vivoni Farage

Prerequisites: ARCH 4047

Course description:

Fourth course in the sequence of architectural theory. Content of the architectural work: symbology, meaning, semiotics and architectural representation.

This final semester of Theory in the undergraduate program is dedicated to the exploration of meaning in architecture. The study of semiotics, symbols and signification is emphasized. Students are made aware of conceptual frameworks developed by architects, researchers or theorists and apply them to the analysis of their own work.

Texts:

Texts vary according to each semester, examples are

Architecture, Mysticism and Myth, W. Lethaby.

Symbols of Transformation, C. Jung.

Myth and Meaning, C. Levi-Strauss.

The Poetics of Space, G. Bachelard.

Sign, Image, Symbol, G. Kepes.

Shelter, Sign and Symbol, P. Oliver.

Architecture: Meaning and Place, C. Norberg-Schultz.

Meaning in Architecture, C. Jencks.

Monsters in Architecture, M. Frascari.

Order is, L. Kahn.

Completion requirements:

Oral presentation and essay.

ARCH 4311 (Required) Credits: 3

Course title: **Technology I**

Instructor: P. Muñiz Rivera

Prerequisites: ARCH 3046 / ARCH 3522

Course description:

The human thermal and physiological response to the environment. Basic methods, strategies and architectural components which promote natural or passive environmental control systems within a particular climatic region, with emphasis on hot and humid climates. Application of such principles in the architectural design process.

Texts:

Enfoque Biotropical para la Arquitectura en Puerto Rico,
P. A. Muñiz Rivera.

Completion requirements:

Examinations. Final project dealing with particular architectural components or passive methods. Participation in class and laboratory demonstrations is required.

ARCH 4321 (Required) **Credits:** 3

Course title: **Structures I**

Instructors: N. Dávila / E. Ruiz

Prerequisites: ARCH 3046 / ARCH 3522

Course description:

Introduction to the study of structures. Principles and concepts of statics and strength of materials. Force systems and the laws of static equilibrium. Types of supports and their reactions. Free body diagrams. Friction forces. Stress and strain. The stress-strain curve of a material. Temperature stresses. Mechanical properties of materials. Application of these concepts to the analysis of simple structures, plane and space trusses.

Texts:

Statics and strength of materials, Jensen and Chenoweth.

Completion requirements:

Three major examinations, home work, final examination.

ARCH 4322 (Required) Credits: 3

Course title: **Structures II**

Instructors: N. Dávila/E. Ruiz

Prerequisites: ARCH 4321

Course description:

Strength of materials, continuation. Shear and bending moment in beams. Shear and moment diagrams. Shear and bending stresses. Beam deflections. Compression members, buckling of slender compression members. Application of these concepts to the analysis and design of wood and steel beams.

Texts:

Statics and Strength of Materials, Jensen and Chenoweth.

Completion requirements:

Two major examinations, homework, final examination.

ARCH 4323 (Required) Credits: 3

Course title: **Structures III**

Instructors: N. Dávila / E. Ruiz

Prerequisites: ARCH 4322

Course description:

Structural analysis. Concepts of stability and statical determinacy. Analysis of indeterminate structures. Method of the redundant reaction. Moment distribution method. Approximate methods for the analysis of continuous beams. The portal method for lateral loads.

Texts:

Structural Analysis, Jack C McCormac.

Indeterminate structural Analysis, Sterling Kinney.

Structural Analysis, Louis C. Tartaglione.

Completion requirements:

Two major examinations, homework, final examinations.

ARCH 4032 (Required) Credits: 3

Course title: **Structures IV**

Instructors: N. Dávila / E. Ruiz

Prerequisites: ARCH 4323

Course description:

Design of reinforced concrete structures. Properties of concrete and reinforcing steel. Analysis and design of one-way slabs, beams, columns, walls and footings. Discussion of the ACI Code. Applications.

Texts:

Design of reinforced concrete structures, Henry J. Cowan.

References:

Building Code Requirements for Reinforced Concrete (ACI 318-89), American Concrete Institute.

Design of Concrete Structures, Nilson and Winter.

Completion requirements:

Two major examinations, homework, final examinations.

ARCH 5005 (Elective) Credits: 3

Course title: **CAD-Studio (Introductory Level)**

Instructor: E. Sobrino

Prerequisites: Graduate standing

Course description:

The course introduces the students to basic CAD concepts. Mechanical drawing, architectural and solid modeling applications are studied and used. Presentation, rendering, and multimedia applications are used to prepare studio quality documents. This course allows the students the opportunity to generate the design studio drawings and presentations as part of the class requirements.

Texts:

AutoCAD reference manual, Plan, Gedit reference manuals, MicroStation, Model-View reference manuals.

For other applications their respective reference guides are used. Other reading materials are supplied before each topic discussion.

Completion requirements:

Each student must prepare drawings and models on various applications. The final project involves modeling of a building and a presentation consisting of rendering or multimedia applications.

ARCH 5006 (Elective) Credits: 3

Course title: **Computer Graphics Programming (Advanced level)**

Instructor: E. Sobrino

Prerequisites: ARCH 5005

Course description:

2-D and 3-D data structures and algorithms used to support computer generated graphics and images are studied in detail. Object description, definition and transformation and related procedures to support these and other manipulations are studied using the C/C++ programming languages. Some of the topics that are covered are: basic data structures to describe primitive objects, basic transformations to translate, rotate and scale, interactive techniques to build a 2-D/3-D scene, variable geometry data structures, and others.

Texts:

The art of Computer Graphics Programming, W. J. Mitchell, R. S. Ligget, and T. Kwan.

AutoCAD AutoList Reference Manual, AutoCAD C Application Programming Interphase (API) Reference manual. Other reading materials are supplied before each topic discussion.

Completion requirements:

Each student is expected to complete 4 computer programming projects. Some of the project topics are: interactive 2-D or 3-D applications for manipulating primitive objects, geometry editor building 2-D or 3-D scenes, data conversion of CAD formats, and others.

ARCH 6341 (Required) Credits: 3

Course title: **Architectural Theory and Criticism**

Instructor E. Vivoni

Prerequisites: Graduate standing

Course description:

Exploration towards a definition of Architecture and the architect and his mission by means of a study of the literature in the field, lectures, projects and open discussion. The architect as a humanist. Architecture as a vehicle of social and cultural development. Interdisciplinary relations and communication.

This graduate theory and criticism course presupposes that students have already taken the undergraduate theory courses where they are presented architecture as phenomenon and, as such, dependent on an ideology to produce it and interpret it. In this final semester of the theory sequence, the students will explore their own theoretical framework and apply it to existing architectural work. The examples are primarily taken from contemporary Puerto Rican architecture, where in some cases, they will have the opportunity to listen to architects talk about their own architectural creations and principles.

This course allows students an opportunity to review their past four years of architectural studies, and redefine or explore their own thinking on architecture.

Texts:

Students are asked to develop their own bibliography in consultation with the professor.

Completion requirements:

Oral presentation and written monograph.

ARCH 6145 (Required) Credits: 3

Course Title: **Research Techniques**

Instructor: D. Cora

Prerequisites: Graduate standing

Course Description:

Discussion and development of research techniques that aid the student in selecting a topic for the thesis and presenting a proposal for the development of the thesis that complies with the requirements for a Master's degree.

The above will be achieved through orientation for the selection of analytical research topics in the field of Architecture, the development of report-writing methods, the determination of the problem scope, the planning of the investigation, the gathering of information, the library research, the primary research, the use of graphic aids, the arranging and interpreting of information, the construction of an outline, the actual writing of the proposal and the development of techniques of readable and effective writing. The qualities of effective writing, resulting in correct written communication, are emphasized.

Texts:

Manual de Preparación de Informes y Tesis, I. García de Serrano.
Handbook for Writers of Research Papers, J. Gibaldi.

Completion Requirements:

Complete development of proposal for the thesis.

ARCH 6311 (Required) Credits: 5

Course title: Advanced Architectural Design I

Instructor: J. Amador / E. Sennyey

Prerequisites: Graduate standing

Course Description:

The principal objective of the course involves a study of the impact that architectural objects have upon the morphology of the city. All of the constituent elements of the spatial morphology of the city -- the street, the square, the park, the block -- are to be examined, along with all of its circumstantial determinants -- cultural, economic, legal, topographic -- and from two perspectives -- the regional and the international. This is done in order to speculate about the alternative array of contributions that the architectural object can make to the enhancement of the spatial armatures of our cities. This will be achieved by applying the strategies and design processes developed by the student at this level in the resolution of an architectural problem of a complex level in its symbolic, spatial, technical and urban aspects.

The first exercise involves an analysis of the morphology of significant urban centers at different periods in history, both from a regional and an international perspective. The student will attempt to decode the different determinants that influenced the form and structure of both urban space and the architectural object.

Later the student will be assigned an urban context of more complex level and will be required, after a period of analysis of its particular circumstances, to identify its morphological problems and to propose projects that will attempt to resolve these issues. A final exercise will develop a portion of the proposed solution in order to explore, in greater detail, the relationship between the architectural object and the creation of urban space.

Texts:

Selected readings from the following references:

The City Shaped: Urban Patterns and Meaning Throughout History, Spiro Kostoff.

The Elusive City: Five Centuries of Design Ambition and Miscalculation, Jonathan Barnett.

The History of Urban Form: Prehistory to the Renaissance, Anthony Edwin James Morris.

Collage City, Colin Rowe & Fred Koetter.

Puerto Rico 1900, Jorge Rigau.

Theory of Good City Form, Kevin Lynch.

Completion Requirements:

Submittal of projects that illustrate design proposals for the rehabilitation of a large urban context of a complex level, through the use of architectural drawings and models.

ARCH 6312 (Required) Credits: 5

Course title: **Advanced Architectural Design II**

Instructor: E. Quiles / J. Amador

Prerequisites: ARCH 6311 / ARCH 6361 / ARCH 6341

Course Description:

The principal objective of studio work at this level is to enable the student to get involved in a highly detailed and sophisticated development of the architectural object. The emphasis will be on the various design development issues encountered throughout the design process, from integration of the varied technical requirements of a given project to the development of architectural details and tectonic vocabulary consistent with both the particular circumstances inherent in the problem and the spatial aspirations of the designer.

This pursuit begins with the analysis of the real urban context and the proposed master plan for its development. This master plan will identify the location of a specific building type, to be developed in detail later, and will indicate general uses and configurations for the rest of the context created. When compatibility has been established between the specific determinants of the building type and those of its context, the building will be developed in greater detail. The subsequent stage will concentrate on the detailed resolution of all programmatic requirements in plan and section, the selection of materials and assemblies for the interior and exterior of the proposal and the selection and integration of structural and environmental systems into the project.

Texts:

A variety of texts will be used as references throughout the semester.

The Building Systems Integration Handbook, A.I.A.

Building Construction Illustrated, Francis D.K. Ching.

Life Safety Code Handbook, James K. Lathrop.

Completion requirements:

Submittal of a project that illustrates a design proposal for a building program of a complex level within an urban context of historic significance, through the use of architectural drawings and detailed, large scale models.

ARCH 6313 (Required) Credits: 5

Course title: **Thesis in Architectural Design I**

Instructors: E. Martínez / S. Corchado / A. Mignucci / C. Lavandero / O. Marty / M. Bermúdez

Prerequisites: ARCH 6145/6312

Course Description:

Individual work demonstrating the capacity of the student to identify a problem, conduct research, and formulate an architectural design program. The student will work under the supervision of a thesis director.

Texts:

Dependent upon the student's area of research. Consisting mainly of relevant books, and articles from professional journals and other sources.

Completion requirements:

A written research document is submitted by each student. The thesis advisor and the thesis committee review this document and, when approved, the student is permitted to move forward to the next course, ARCH 6314.

ARCH 6314 (Required) Credits: 5

Course title: **Thesis in Architectural Design II**

Instructors: E. Martínez / S. Corchado / A. Mignucci / C. Lavandero / O. Marty / M. Bermúdez

Prerequisites: ARCH 6313

Course Description:

Final student work in the area of architectural design. Expression of the student's personal concerns and values. The course offers students the opportunity to develop an innovative concept that will expand their potential and widen their understanding of architecture.

Texts:

Depends on each student's thesis theme. The bibliography developed in the first phase is expanded as required and referred to during the design process.

Completion Requirements:

Students are required to submit for review progress reports upon completion of all the different phases of the design process. A preliminary jury is required prior to the final jury. The purpose of this review is to determine if the student has developed the design thesis to the level of quality required for the award of the architectural professional degree.

ARCH 6361 (Required) Credits: 3

Course title: **Building Anatomy**

Instructors: O. Marty / J. Amador / D. Gonzalez

Prerequisites: Graduate standing

Course description:

The modern building is a complex system; many subsystems must be successfully integrated in order to create an efficient and pleasant edifice. The course examines in detail the structure, the construction materials and systems, the electrical, mechanical, communications and transportation systems of a large existing building. Consultation with the architects, consulting engineers, constructors and maintenance engineers is conducted. Numerous site visits to the chosen project are required.

The real-life operation of the building is carefully examined in the proof of performance criteria are evaluated.

Texts:

Mechanical and Electrical Equipment for Building.
Mc Guinness, Stein & Reynolds.

Completion requirements:

Detailed documentation of a class project, a mid-term and a final examination.

ARCH 6373 (Elective) Credits: 3

Title: **Housing and Community**

Instructor: E. Quiles

Prerequisite: Graduate standing

Course Description:

The principal objective of this course is to develop the student's understanding of the social, economic and political issues that mold the built environment with special emphasis in housing and community development for low and middle-income groups.

Through lectures, readings and field trips the course explores issues related to: the needs of different user groups and the possibilities of user participation in the design, construction and management of space and in the development of the communities, the housing problem, social, economic and political alternatives and the role of design in the generation of these alternatives, the implication of these factors in the practice of architecture, and the redefinition of the roles of the architect under these circumstances.

The course begins with a study of urban space as a variable intimately linked to the development of society. This furthers an understanding of the housing problem for low and middle-income groups and the development of self-built communities.

A series of conceptual alternative proposals are subsequently studied. To gain a deeper perspective of these issues and proposals, a series of projects and community development schemes with user involvement are studied.

Texts;

Man's Struggle for Shelter in an Urbanizing World, Abrams. Housing by People, Turner.

People, Poverty and Shelter, Skinner Rodill.

Making a Space-Women and the Man-Made Environment, Matrix.

After the Planners, Goodman.

Architecture: the study of practice, Cuff.

The Scope of Social Architecture, Hatch.

Completion requirements:

Written exam, participation in class discussions and research project.

ARCH 6380 (Elective) Credits: 3

Course title: **Legal Aspects of Architectural Practice**

Instructor: E. Quiñones-Montalvo

Prerequisites: Graduate standing

Course description:

The course emphasizes the legal responsibilities of architects in their professional work thorough lectures and case studies. It is structured in three parts: laws regulating the admissions to the practice of architecture, the architect's contractual and extra contractual responsibilities, and contract and real-estate law principles. The course's goal is to develop an awareness of the legal consequences of decisions taken in the architectural design process.

Texts:

Puerto Rico Civil Code Annotated, Puerto Rico Construction Code, AIA contract forms.

Completion Requirements:

Mid-term and final exam. Paper consisting of an analysis of a case situation chosen by the student.

ARCH 6383 (Required) Credits: 3

Course title: **Professional Practice**

Instructor: E. Underwood

Prerequisites: Graduate standing

Course Description:

Architecture as professional practice takes place when the student is exposed, in a variety of incidental but important ways at the undergraduate level, with the academic exercise of the profession, but in a more specific manner at the graduate level. The professional practice course examines the various stages associated with entering the profession, from internship programs through state and national registration, to the role of the practitioner. The ethical and professional behavior expected in architectural practice and the establishment and management of a practice is carefully described and analyzed.

Texts:

The Building Professions' Guide to Contract Documents,

Walter S. Page.

Design Office Management, Fred A. Stitt.

Puerto Rico Building & Zoning Codes, Puerto Rico Architects Association Practice Manual, AIA Documents.

Completion Requirements:

Demonstration of familiarity with the accepted procedures of the practice of the profession. Proof of performance through examinations. Demonstration through open discussion and written papers of the ability to apply specific acquired knowledge. Presentation of a book report or paper dealing with the practice of the profession.

ARCH 6384 (Required) Credits: 3

Course title: Professional Ethics, Administration and Regulations

Instructor: E. Underwood

Prerequisites: ARCH 6383

Course Description:

Architecture as professional practice takes place when the student is exposed, in a variety of incidental but important ways at the undergraduate level, with the academic exercise of the profession, and in a more specific manner at the graduate level. The course deals with documentation and contractual obligations between the architect, the owner and the contractor. The final section concentrates on the management of the project, the architect's role during the construction process and the relationship with the contractor and the owner. The systematic understanding of the traditional sequence of events in the project process, along with a comprehensive knowledge of the responsibilities attendant to the architect are carefully described and analyzed.

Texts:

The Building Professions Guide to Contract Documents, Walter S. Page.

Design Office Management, Fred A. Stitt.

Puerto Rico Building & Zoning Codes, Puerto Rico Architects Association Practice Manual, AIA Documents.

Completion Requirements:

Demonstration of familiarity with the accepted procedures of the practice of the profession. Proof of performance through examinations. Demonstration through open discussion and written papers of the ability to apply specific acquired knowledge. Presentation of a book report or paper dealing with the practice of the profession.

ARCH 6385 (Required) Credits: 3

Course title: **Construction Finance for Architecture**

Instructor: G. Hernández

Prerequisites: Graduate standing

Course description:

Financial aspects in construction and project development. Land acquisition and development financing, construction costs, cost estimating techniques, cost control, long-range cost, costs and benefits, etc.

Texts: None

Completion requirements:

Comprehensive individual projects, including detailed financial evaluations utilizing the appropriate mathematical modelling. Final examination.

ARCH 6443 (Elective) Credits: 3

Course title: **Historic Preservation Seminar**

Instructor: A. Pabón

Prerequisite: ARCH 4008

Course description:

The first semester of the course presents the student with the principles governing the concept of preservation of historical cultural resources. Although the course is designed for future architects, archaeological resources are also amply discussed. Students are introduced to such issues as: the historical development of the conservation concept, the different theories that have existed about the conservation of the cultural patrimony, the critical analysis of the concept of monument and cultural resources, the concept of culture, guidelines, basic rehabilitation work, compatible design, the development of the historic preservation movement in Puerto Rico and all applicable standards and by-laws.

Materials: Slides, lectures, photographs, models and samples of materials are utilized to instruct the student in the topics being analyzed.

Format: The material is presented by means of lectures, case studies, talks by invited guests, visits to different buildings and sites. Group discussion and class participation are strongly encouraged. Students make formal presentations during the semesters, covering diverse topics.

Texts:

A general bibliography is recommended at the beginning of the course.

Completion requirements:

Attendance, class participation and the formal presentations assigned are all taken into account as requirements. At the end of each semester, a project is required. These are related to architectural interventions in the process of historic preservation.

ARCH 6444 (Elective)

Credits: 3

Course title: **Historic Preservation Seminar**

Instructor: A. Pabón

Prerequisite: ARCH 6443

Course description:

During the second semester, students are introduced to the basic concepts of materials preservation, rehabilitation and conservation, including but not limited to wood, stone, rubble, terra-cotta brick, terra-cotta (in general) and reinforced concrete. Emphasis is made on the process of conserving and rehabilitating historic structures within all types of structural systems, yet the Puerto Rican experience is strongly detailed.

Materials: Slides, lectures, photographs, models and samples of materials are utilized to instruct the student in the topics being analyzed.

Format: The material is presented by means of lectures, case studies, talks by invited guests, visits to different buildings and sites. Group discussion and class participation are strongly encouraged. Students make formal presentations during the semesters, covering diverse topics.

Texts:

A general bibliography is recommended at the beginning of the course.

Completion requirements:

Attendance, class participation and the formal presentations assigned are all taken into account as requirements. At the end of each semester, a project is required. These are related to architectural interventions in the process of historic preservation.

ARCH 6531 (Elective) Credits: 3

Course title: Architectural Acoustics

Instructor: J. Rocafort

Prerequisites: Graduate standing

Course description:

Detailed presentation of the physical and the psycho-acoustical principles required for an in-depth understanding of room and building acoustics. Topics include: Sound in rooms. Reverberation. Absorption of sound. Sound isolation. Noise control. Acoustical design considerations. Demonstrations illustrating the acoustical principles are presented in class. Introduction to basic architectural-acoustic measurements (reverberation time, energy-time distribution, absorption coefficient, noise-insulation class, spectral analysis, octave-band SPL, noise criteria and others).

Texts:

Architectural Acoustics, M. David Egan.

Acoustical Designing in Architecture, Knudsen & Harris.

Completion requirements:

Midterm exam and final exam. Class project, involving a topic closely related to course content.

ARCH 6991 (Elective) Credits: 3

Course title: Architecture of Ritual and Celebration

Instructor: R. Loosle

Prerequisites: Graduate standing

Course description:

An illustrated lecture seminar course investigating architecture which celebrates birth, life, initiation and death. The subject matter is presented under three headings: Beginnings, Passages, and Endings. The role of cosmology in architecture is also touched upon. Early culture sites explored include the Anasazi, Meso-American and the Alhambra; Religious pilgrimages to the Rabba, Wailing Wall and Dome of the Rock. Works of contemporary artists such as Charles Sommonds and Robert Smithson are presented. Rites centering around the American Strip, war and Olympic events precede the final weeks of the course which covers the funerary architecture of cemeteries such as Forest Lawn, Brion Vega, and Woodland. Weekly lectures are followed by group discussions.

Texts:

No specific text is required. Students are required to read from an extensive reserve list of books, journals and articles.

Completion Requirements:

Opinion papers required weekly based on readings in addition to a major research paper on any subject appropriate to the course dealing with myth, ritual and architecture.

ARCH 6991 (Elective) Credits: 3

Course title: **Culture and Identity of the Caribbean**

Instructor: J. R. De la Torre

Prerequisites: Graduate standing

Course description:

The course explores major trends in the development of the different cultures that converge in the Caribbean. It concentrates in the concept of culture itself, as seen from the wide perspective of the human sciences and in its manifestations in the historical development: literary and artistic creation, institutional and popular religions, political, social, economic and demographic processes, etc.

The course, interdisciplinary in character, consists of a series of lectures delivered by well-known specialists in each field, and is conceived within the Puerto Rican experience.

Texts:

Special assigned readings from various sources.

Completion requirements:

Class presentation and participation and a written essay.

ARCH 6991 (Elective) Credits: 3

Course title: Internship in Historic Preservation

Instructor: A. Pabón / R. Crespo

Prerequisites: Graduate standing

Course description:

The objectives of the course are as follows:

expose students with hands-on experience in the conservation of cultural resources;

offer students direct knowledge of many of governmental procedures relating to the protection of our cultural heritage (patrimony);

permit to those students interested in continuing advanced studies in the field of conservation, an opportunity to participate in this type of specialized activity.

Texts:

Special readings will be assigned from various sources.

Completion requirements:

Students will participate in one or more of the following activities:

the preparation of card files and inventory of the architectural plans and models in the SHPO Collection;

participate in the process of computerizing the archaeological inventory of the SHPO;

check and reorganize the architectural inventory of the SHPO;

participate in the process of nomination of properties to the National Historic Register;

update data on archaeological quadrangles;

revise archival material and prepare entries;

prepare bibliographical files and inventory of the SHPO publications and library material;

participate in new inventories of historic zones.

Students work (attendance and productivity) is supervised by personnel assigned to the Office of the SHPO, under the direction of a professor of the School. Grading will be Pass / Fail.

HUMA 3011 (Required) Credits: 3

Course title: **Introduction to the Study of Western Civilization**

Instructor: A. Cruz / S. Alvarez / B. Cotto / M. Alvarez

Prerequisites: Admission to the School of Architecture

Course description:

The study of the most important structures in the developing of western culture in the fields of philosophy, literature, art and history. Different types of discourses are studied in relation to historical contexts which are related to the city and space systems. The course also proposes other cultural models to give a pluralistic vision of the rise and development of human societies.

Texts:

Special readings will be assigned from various sources.

Completion requirements:

Exam	75%
Discussion	10%
Reports	15%

HUMA 3012 (Required) Credits: 3

Course title: **Introduction to the Study of Western Culture**

Instructor: A. Cruz / S. Alvarez / B. Cotto / M. Alvarez

Prerequisites: HUMA 3011

Course description:

Continuation of HUMA 3011. The study of the most important structures in the developing of western culture in the fields of philosophy, literature, art and history. Different types of discourses are studied in relation to historical contexts which are related to the city and space systems. The course also proposes other cultural models to give a pluralistic vision of the rise and development of human societies.

Texts:

Special readings will be assigned from various sources.

Completion requirements:

Exam	75%
Discussion	10%
Reports	15%

SOSC 3121 (Required) Credits: 3

Course title: **An Introduction to the Social Sciences**

Instructor: Various

Prerequisites: Admission to the School of Architecture

Course description:

This course introduces students to theories of social reality that have influenced the social sciences disciplines. An interdisciplinary and integrated approach is used to critically analyze social phenomena in areas such as psychology, sociology, politics, anthropology and economics. Historical processes, such as the Industrial Revolution, the development of Capitalism, and the rise of Socialism are also discussed along with the analysis of classical models of major ideologies such as Conservatism, Liberalism and Socialism. Special attention is also paid to important aspects of Puerto Rican society.

Texts:

Special readings will be assigned from various sources.

Completion requirements:

Written exams

SOSC 3122 (Required) Credits: 3

Course title: An Introduction to the Social Sciences

Instructor: Various

Prerequisites: SOSC 3121

Course description:

This course introduces students to theories of social reality that have influenced the social sciences disciplines. An interdisciplinary and integrated approach is used to critically analyze social phenomena in areas such as psychology, sociology, politics, anthropology and economics. Historical processes, such as the Industrial Revolution, the development of Capitalism, and the rise of Socialism are also discussed along with the analysis of classical models of major ideologies such as Conservatism, Liberalism and Socialism. Special attention is also paid to important aspects of Puerto Rican society.

Texts:

Special readings will be assigned from various sources.

Completion requirements:

Written exams

5.2 RESUMES

5.2.1 FACULTY RESUMES

Name: José G. Amador Carlo

Position: Instructor

Age: 30

Education: B.Arch., Cornell University, 1984

Teaching Duties: Design
ARCH 6312

Teaching Experience: 1992 to present. University of Puerto Rico, School of Architecture. Design Teaching Assistant, Freshman Class, Cornell University.

Professional Experience: Staff Architect, Pre-Design, Design & Contract, Administration (8 years)

Research and Public Service: Current research on "The Determinants of Urban Morphology"

Academic & Professional Honors: Honor, Fourth Year Design Studio, Cornell University

Publications, Exhibitions: N/A

Name: Aureo F. Andino

Position: Professor

Age: 48

Education: B. Arch., Massachusetts Institute of Technology, 1968; B.S., University of Puerto Rico, 1963

Teaching Duties: Design
ARCH 3131
ARCH 3132
ARCH 4011
ARCH 4012

Workshop in Directed Research (NASA/USRA) Advanced Design Program
ARCH 3017
ARCH 3018

Field work Seminar (Disney Competition)
ARCH 3015
ARCH 3016

Non-teaching duties: Member, Academic Senate, 1989-92; Member, University Law and Regulations Committee, 1989-92; Member, Consultation Committee for Appointment of the Dean of Graduate Studies and Research, 1992; Member, Consultation Committee for appointment of the Dean of Students, and the Dean of Administration, 1990; Member, Intellectual Property Committee, 1991-92; Member, Campus Self-study Steering Committee, 1992-93; Secretary of the Faculty-School of Architecture, 1988-93; Member, Personnel Committee, 1988-89; Member, Academic Affairs Committee, 1988-89; Member, Admissions Committee, 1990-91.

Teaching Experience: 1968-present: School of Architecture, University of Puerto Rico,

Professional Experience: NCARB Registered Architect, License: P. R. 5373 Present Aureo F. Andino & Associates, Rio Piedras, P. R. Architects, Engineers, and Planners; Design and Consulting firm.

Research and Public Service: 1992 NASA/JOVE Program: Design and research for a Human Rated Test Facility at the Johnson Space Center; 1989: NASA/USRA Advanced Design Program: Habitability Studies; Present: Board of Trustees Member, Wittenberg University; 1990: 149th Session, Haggai Institute for Advanced Leadership Training, Singapore; 1980: Member, Historic Preservation Advisory Committee, Institute of Puerto Rican Culture, San Juan, P.R.

Academic and Professional Honors: 1992: Who's Who in Puerto Rico; NASA/JOVE Program Grant; 1988: NASA/USRA Advanced Design Program Grant.

Recent Publications: 1991 "Selenia: A third generation Lunar Base", in 1991 Summer Conference Proceedings, NASA/USRA Advanced Design Program, Cocoa, Florida; 1990: "Habitability for prolonged space travel (CAMELOT IV)", in 1990 Summer Conference Proceedings, NASA/USRA Advanced Design Program, Cleveland, Ohio; 1990: "Architectural implications of artificial gravity in environments for human habitation", in IAPS Conference Proceedings, Ankara, Turkey; 1989: "CAMELOT III: Habitability Criteria", in 1989 Summer Conference Proceedings, NASA/USRA Advanced Design Program, Huntsville, Alabama.

Name: Manuel Bermúdez

Position: Instructor

Age: 41

Education: BED, University of Puerto Rico, 1976; M Arch, University of Puerto Rico, 1978

Teaching Duties:Design
ARCH 6313
ARCH 6314

Teaching Experience: School of Architecture, University of Puerto Rico, 1985, 1991-present

Professional Experience: 1990 to present, Principal, Manuel Bermúdez-Blanquita Calzada, Architects; 1985-90, Principal, Agrait, Bermúdez, Betancourt, Architects

Research and Public Service: 1989, American Institute of Architects, Puerto Rico Chapter; 1985-86, Professional Practice Director, Colegio de Arquitectos de Puerto Rico.

Academic and Professional Honors: 1992, Honor Prize, Cuatro Calles Park Project, AIA-Puerto Rico Chapter; Honorable Mention, Cuatro Calles Park Project, Caribbean Bienale; 1990, Project of the Year, Sierra de Cayey Plaza, Colegio de Ingenieros de Puerto Rico, Caguas Region; 1989, Honorable Mention, Cidra Central Office, AIA, Puerto Rico Chapter.

Publications: 1992, Urban Furniture Handbook, Oficina de Asuntos Urbanos; 1990, Culebra: Development Guides, Urban Studio of Culebra.

Exhibitions: 1992, Fourth Santo Domingo Biennale; Quito Biennale, Ecuador, Caribbean Biennale, Cuba; 1991, First Puerto Rico Biennale, San Juan, Puerto Rico; 1990, UIA Congress, Montreal, Canada.

Seminars: The Grid in the Cities of the New World, School of Architecture, University of Puerto Rico; 1987, Hispanic Traditions in American Architecture, Columbia University, New York.

Name: Carlos E. Betancourt Llambías

Position: Associate Professor

Education: BED University de Puerto Rico, 1976; M.Arch., University de Puerto Rico, 1978

Teaching Duties:Design

ARCH 4001

ARCH 4002

ARCH 4012

Teaching Experience: 1991 to present. Instructor, University of Puerto Rico, School of Architecture

Professional Experience: July 1990 to present: Partner, Agrait Betancourt Arquitectos, Hato Rey, Puerto Rico.
Partner - Agrait Bermúdez Betancourt, Architects, Hato Rey, Puerto Rico.

Awards: American Institute of Architects, Puerto Rico Chapter, Mention for Design Excellence, 1989;

Professional Organizations: Colegio de Arquitectos de P.R.; American Institute of Architects; Treasurer, P.R. Chapter - 1988

Name: Humberto José Betancourt

Position: Instructor

Age: 38

Education: B.Arch., The Cooper Union, School of Architecture, 1982; Registered Architect, Commonwealth of Puerto Rico, 1986.

Teaching Duties:Design

ARCH 4001

ARCH 3002

ARCH 3131

ARCH 3132

Planning

Plan 6526

Theory

ARCH 4046

ARCH 4047

Non-teaching Duties: Spring 92: Member, Design Committee; Second Year Design Studio Coordinator; Member, School Newsletter Editorial Board; Fall 1992-93: Member, Design Committee, First Year Design Studio Coordinator; School Newsletter Editorial Board Member; American Institute of Architecture Students Faculty Advisor

Teaching Experience: 1988 to present. Instructor, University of Puerto Rico

Professional Experience: 1990: Principal, Humberto Betancourt, Arquitecto, Private Practice. 1992: Director, American Institute of Architects, Puerto Rico Chapter.

Research and Public Service: 1989: Conceptual design intervention of a State Highway as a joint project of the AIA/Puerto Rico Chapter and the School of Architecture. 1989: Permanent Housing Prototype design for the Department of Housing, following Hurricane Hugo. 1990: Master Plan Proposal for the island of Culebra for the Department Housing. 1991: Master Plan Proposal for the Río Piedras Campus of the University of Puerto Rico.

Academic & Professional Honors: 1990: First Award, Architectural Photography Contest. 1989: Design Award, Florida Association AIA for the Mayaguez Marina and Waterfront Master Plan. EXHIBITIONS: 1992: Contemporary Architecture in Puerto Rico, Museum of Contemporary Art, San Juan, Puerto Rico, 1991: Samarkand Rehabilitation Competition Samarkand, Uzbekistan, USSR. 1990: Nagisa Idea Contest, Citizens Gallery, Fujisawa City Kanagawa Prefecture, Japan. 1989: Architecture Biennale, Museum of Modern Art, Santo Domingo, Dominican Republic.

Name: Astrid Colón de Jesús

Position: Associate Professor

Age: 46

Education: 1971: Master Library Science, University of Puerto Rico, 1971. 1966: B.A., University of Puerto Rico

Non-teaching Duties: 1988, 1991-92: Member, Personnel Committee, School of Architecture. 1988: Member, Activities Committee, School of Architecture.

Professional Experience: 1992 to present: Director, Library, School of Architecture, Río Piedras Campus. 1984 to 1992: Audiovisual Librarian, Library, School of Architecture, University of Puerto Rico, Río Piedras Campus. 1976-1984: Cataloguer and Audio-visual Librarian.

Academic & Professional Honors: N/A

Publications, Exhibitions: N/A

Seminars: 1991-92: Seminario sobre Dinerología Básica: Preparación de propuestas, Biblioteca General, Universidad de Puerto Rico. 1991-92: Simposio sobre el uso de la computadora en la enseñanza y en la investigación, Cayey, Puerto Rico. 1992: Adiestramiento sobre el proyecto NOTIS, Catalogación. 1990: Fundamentals for Art / Architecture, Slide Curators, Austin, Texas.

Name: Samuel Corchado Vega

Position: Instructor

Age: 41

Education: Harvard University, Master of Landscape Architecture in Urban Design, 1978; University of Puerto Rico, M.Arch., 1974, BED, 1972.

Teaching Duties:Design

ARCH 6312

ARCH 6314

ARCH 6314

Teaching Experience: 1989 to present: Instructor, School of Architecture, University of Puerto Rico

Professional Experience: ESCALA Samuel Corchado y Asociados, 1980 to present, Principal

Research and Public Service: President, Colegio de Arquitectos de PR, 1988-90; Secretary, Colegio de Arquitectos de PR, 1986-87; Director of Education, Colegio de Arquitectos, 1985-86.

Academic & Professional Honors: University of Puerto Rico, Presidential Scholarship, 1977-78; University of Puerto Rico, M.Arch. (*cum laude*), 1978.

Seminars: Disaster Workshop for Preservation and Conservation Organizations in San Juan, PR 1991; Towards a Puerto Rican Architecture-School of Architecture, UPR, 1991; Summer Workshop for incoming Architectural Students CAPR, 1987,88,91; Integrating Landscape and Architecture-School of Architecture UPR, 1984; Apuntes sobre la Vivienda-Primer Simposio de los Educadores de la Vivienda, San Juan, PR, 1983.

Name: Rafael A. Crespo

Position: Professor, Dean

Age: 54

Education: PhD, Harvard University, 1987; MFA, Harvard University, 1969; MA, The George Washington University, 1963; B.A., University of Puerto Rico, 1961 (*magna cum laude*)

Teaching Experience: Professor, University of Puerto Rico, 1990 to present; Teaching Fellow, Harvard University; 1967-69; Assistant Professor, San José State University, 1965-67.

Administrative Experience: Dean, School of Architecture, University of Puerto Rico, 1990-present. Member, Administrative Board, University of Puerto Rico, Río Piedras Campus, 1990-present

Academic and Professional Activity: President, Supervisory Board, State Historical Preservation Office, San Juan, Puerto Rico, 1993-present. President, Chancellor's Advisory Board on Campus Design, 1990-present. Co-Chairman, "Latin American Focus Session," Association of Collegiate Schools of Architecture (ACSA), 1990-present. Member, Junta de Subastas de Mejoras Permanentes, 1990-present. Editorial Board, DEARQUITECTURA, School of Architecture, University of Puerto Rico, 1990-present. Session Chair, "Latin American Session," 1992 Administrators Annual Meeting, Association of Collegiate Schools of Architecture (ACSA), San Juan PR, 1992. Senior Architectural Historian, Smithsonian Institution, 1989-90. Treasurer, Society of Architectural Historians, Latrobe Chapter, Washington, D.C., 1989-1990. Member, Steering Committee for Human Resources, Facilities Services Group, Smithsonian Institution, 1989-1990. Visiting Fellow, Harvard University, 1987-1988. Member, Academic Senate, University of Puerto Rico, Río Piedras Campus, 1990-present.

Honors: Certificado de Mérito, Colegio de Arquitectos de Puerto Rico, 1992. ACSA Service Award, Annual Meeting, Association of Collegiate Schools of Architecture (ACSA), Orlando, FL, March 1992. Certificate of Merit, Smithsonian Institution, 1989. Ford Foundation, Fellowship for Minorities, 1972-73. Harvard University, Graduate Prize Fellow, 1967-69. University of Puerto Rico, *magna cum laude*, 1961. University of Puerto Rico, Honor Student, 1958-60.

Professional Societies: College Art Association of America; Asociación Puertorriqueña de Profesores Universitarios; Society of Architectural Historians.

Public Lectures: Introductory Lecture, "Siglos de Arquitectura en España," Exhibition, 1990, Banco Central, San Juan. "First Spanish Renaissance in Florida: Carrère and Hastings in St. Augustine"; University of Puerto Rico, 1988.

Unpublished Manuscripts & Research: "Los estilos del resurgimiento español en la arquitectura de Florida," Hispanofilia: arquitectura y vida en Puerto Rico (1900-1950), AACUPR, School of Architecture, UPR, 1993. "The Competition for the Reconstruction of the Patent Office

Building after the
Fire of 1877,"
OAHP, 1990.
"The History of
the Patent Office
Building,
1836-1990,"
OAHP, 1990.
"Smithsonian
Architects,
Builders and
Designers,"
OAHP, 1990.
"Exoticism and
Technology:
Franklin W.
Smith and the
Introduction of
the Hispano-
Moorish Style in
Florida,"
Writings in
Honor of James
S. Ackerman on
his 70th.
Anniversary,
Harvard
University, 1990.
"Catalog of
Patent Office
Drawings at the
National
Archives,"
OAHP, 1989.
"The Decoration
of the Grand
Gallery, Renwick
Gallery of Art,"
OAHP, 1989.
"Structural
Innovation in
Carrère and
Hastings' Florida
Hotels," 1988.
"Florida's
Spanish
Renaissance,"
1988. "The
Copper Queen
Hotel in Bisbee,
Arizona," 1988.
"Tyche: the
Greek Goddess
of Fortune," M.

A. Thesis, The
George
Washington
University, 1963.

Name: Norberto Dávila

Position: Professor

Age: 53

Education: MSCE, University of Illinois, 1966; BSCE, University of Puerto Rico, 1963.

Teaching Duties: Structures

ARCH 4321

ARCH 4322

ARCH 4323

ARCH 4324

ARCH 4031

ARCH 4032

ARCH 6321

ARCH 6322

Non-teaching Duties: Chairman, School of Architecture, Technology Committee: Member, School of Architecture, Committee on Academic Affairs: Member, Academic Senate: Member, Administrative Board as Senate Representative.

Teaching Experience: 1968 to present: University of Puerto Rico, School of Architecture

Professional Experience: 1984 to present: Partner, Gregorio Hernández Civil Engineering Office

Research and Public Service: Member, Colegio de Ingenieros de Puerto Rico; Member, American Concrete Institute; Member, American Society of Civil Engineers; Member, The Masonry Society; Participant, University Professors Masonry Workshop, University of Florida

Academic & Professional Honors: *magna cum laude*, University of Puerto Rico

Publications, Exhibitions: N/A

Name: Manuel García Fonteboa

Position: Instructor

Age: 44

Education: MFA, University of Massachusetts 1984; BA, University of Puerto Rico, 1971

Teaching Duties: Design

ARCH 3031

ARCH 3032

Graphic Composition

ARCH 3011

Non-teaching Duties: Since September 1989 to present, Chairperson, Admissions Committee; Comité Celebración XXV Aniversario; 1990: Comité Beca de Excelencia Dan-El Viera

Teaching Experience: 1989 to present. Instructor, School of Architecture, University of Puerto Rico.

Professional Experience: Working artist in the field of graphic design and fine arts, print making.

Research and Public Services: 1991: Summer Initiatives: "Applicant Orientation Bulletin for the School of Architecture."

Academic and Professional Honors: 1991: Publication Award, 500 years of the Discovery of America; Poster, Publications Exhibitions; 1991: Publication Award Poster for the Puerto Rico Pavilion in Seville 92; 1989: UPR Drawing and Print Show "Salon Oller" UPR, Río Piedras; Seminars; 1992: Invited to submit design for Print Commission for the Restoration of Ballajá complex

Name: Darío González De Greiff

Position: Professor

Age: 68

Education: B.Arch., Cornell University 1948

Teaching Duties: Design
ARCH 4001
ARCH 4002

Technology
ARCH 4019
ARCH 4025

Teaching Experience: School of Architecture, Universidad Bolivariana, Medellín, Colombia; School of Architecture, University of Puerto Rico.

Professional Experience: Private practice as Architectural Construction Consultant.

Academic & Professional Honors: Honorary Professor, Universidad Nacional de Colombia.

Publications, Exhibitions: Materials & Methods of Construction (in progress)

Name: María del Pilar González-Lamela

Position: Associate Professor

Age: 42

Education: BA, Humanities, University of Puerto Rico 1972; MA, Art History and Criticism, Florida State University 1977; Doctoral Candidate, University of Valladolid, Spain.

Teaching Duties: History
ARCH 4005
ARCH 4006
ARCH 4007
ARCH 4008

Non-teaching Duties: 1992-1993: Curriculum Committee, School of Architecture, UPR., Río Piedras Campus.

Professional Experience: Executive Director, Museo Casa Roig, Humacao.

Research: 1989 to 1992: La Guerra Civil española y el exilio artístico. Presencia e influencia de los arquitectos y artistas plásticos en el Caribe: Cuba, República Dominicana y Puerto Rico (Doctoral Dissertation). Fall 1992 - Spring 1992: "El Revival español en las producciones artesanales y en la plástica". Hispanofilia: arquitectura y vida en Puerto Rico (1900 - 1950), AACUPR, School of Architecture, UPR.

Seminars: December 1989: Primer Coloquio Iberoamericano en Suelo Puertorriqueño sobre la Conservación y Protección del Patrimonio Urbanístico

Exhibition, Curator: 1989: "Presencia del exilio español en Puerto Rico," José M. Lázaro Library, UPR, Río Piedras Campus (November)

Publications: 1989: "La VIII Bienal de San Juan del Grabado Latinoamericano y del Caribe", Exegesis, (CUH), Yr. 2, no. 6; 1989: "La Casa Roig en Humacao: Un monumento histórico-arquitectónico. Antonin Nechodoma: umbral para una nueva arquitectura caribeña. Río Piedras, PR: AACUPR, pp. 37-40. 1989: "El exilio español en las artes plásticas en Puerto Rico". Presencia del exilio español Puerto Rico, Sala de Exposiciones, Biblioteca José M. Lázaro, UPR, Río Piedras, November 5-21. 1990: "A través de la magia de trece obras y siete artistas: una interpretación". Siete artistas a través de la magia, Galería de Arte Raíces, Hato Rey, P.R., December - January 1991. 1991: "El mundo particular y fantástico de Dalia Nieves: figura y color". Dalia Nieves, Registro de Itzú, Galería de Arte Coabey, San Juan, P.R. February 19. 1991: "La Casa Roig, recinto para la introspección: Una exposición de Arnaldo Roche-Rabell". Arnaldo Roche - Rabell: Raptos. Museo Casa Roig, Humacao. February 23. 1991: "Rafael Trelles: Reflexiones en torno a El Velorio de Francisco Oller, una nueva propuesta". Visitas al Velorio por Rafael Trelles Museo de la UPR, Río Piedras. October 10 - January 31, 1992. 1991: Cincuenta años de exilio español en Puerto Rico y el Caribe (1939-1989). "La aportación del exilio español a las artes plásticas en Puerto Rico". La Coruña: Ediciones Do Castro 1991.

Lectures: 1989: Forum: José Campeche "Los retratos de Campeche". Museo de Arte e Historia de San Juan. February 16. 1989: José Campeche y Jordan Special lecture for Professor Pablo Ojeda O'Neill - Historic Preservation, School of Architecture, UPR. February 22. 1989: El Museo Casa Roig Club Rotario de Humacao, April 25. 1989: La arquitectura del Renacimiento italiano. School of Architecture, UPR Special lecture for high school students, July 11. 1989: Forum: Identidad y cambio cultural en Puerto Rico. "La Casa Roig en Humacao: Un ejemplo de restauración arquitectónica en Puerto Rico". Universidad Metropolitana (UMET), Cupey. Faculty members. August 9. 1989: "La aportación del exilio español a las artes plásticas en Puerto Rico", El exilio español y las bellas artes, International Symposium: La Guerra Civil y el exilio español en Puerto Rico y el Caribe. UPR, Río Piedras Campus,

November 8.

Name: José González-Peniza

Position: Instructor, Supervisor Audiovisual Laboratory

Age: 42

Education: M.A. in Education; Instructional Systems Technology, Indiana University, Bloomington Ind., 1973;
B.A. in Secondary Education, University of Puerto Rico, 1972

Teaching Duties:Photography

ARCH 3071

ARCH 3072

Non-teaching Duties: Supervisor, Audiovisual Laboratory, School of Architecture

Teaching Experience: Instructor, Continuing Education and Extension Division, University of Puerto Rico;
Instructor, School of Architecture, University of Puerto Rico.

Professional Experience: Professional Photographer

Recent Seminars: Professional Studio Workshop, Kodak Caribbean P.R., October 1992,: Electronic
Communications, Computer Seminar Lab Cad., University of Puerto Rico, November 1992.

Name: Carlos F. Lavandero

Position: Professor

Education: Master in City Planning, Harvard University, 1961; Master in Landscape Architecture, Harvard University, 1961; B.Arch., The Catholic University of America, 1954.

Teaching Duties:Design
ARCH 6313
ARCH 6314

Teaching Experience: Professor, School of Architecture, University of Puerto Rico, 1975 to present

Professional Experience: Professor of Architecture. At present, doing research on architecture and construction in Puerto Rico.
Consultant to the
Department of Planning,
University of Puerto Rico,
Río Piedras Campus.

Research and Public Service: 1987-89, Research on Architecture, Construction and Landscape in Puerto Rico

Academic and Professional Honors: Foundation Grant, Fundación Angel Ramos, 1992-93; Guajataka Award, Puerto Rico Council of the Boy Scouts of America, 1980.

Name: Ricardo Loosle-Ortega

Position: Assistant Professor

Education: M. Arch., University of Utah-Graduate School of Architecture 1985; B.S. Psychology, Brigham Young University

Teaching Duties:Design

ARCH 3021

ARCH 3031

ARCH 3032

Teaching Experience: University of Puerto Rico, School of Architecture, 1992. The Catholic University of America, Department of Architecture and Planning, 1988-92.

Non-teaching Duties: Administrative Director, The Summer Institute, 1988 to present. Director - Experiences in Architecture (Pre-College Program). 1987-present.

Professional Experiences: Six years of professional experience. Experience in schematics, design development, working drawings and job observation.

Research and Public Service: Washington Area Architecture Group (WAAG) Board Member, 1987-present. Designed Communications Association, Charter Member. Lectures and Exhibitions Committee, 1987-present. Gates Committee, 1990 to present. Department of Architecture, The Catholic University.

Academic and Professional Honors: Art by Architects (Curated Exhibit, Salt Lake Arts Center) Best of Show: Elevations of a House in a Unnamed Forest (drawing) 1987. Honorable mention: American Long House with Four Pavilions in Blue (model), 1987. First place award: Travels in the Interior II (drawing) 1986

Publications: "Rituals in the Desert, CRIT 22, Spring, 1989; "The Drawing as Canvas," Representation, Summer 1989; "Quinset Huts on the River Styx: The Bomb Shelter Design Book," Competition entry, 1987; "A Garden Necropolis," Faith and Form, Fall 1985; "A Garden Necropolis," Architectural Record, April 1985. Faculty Advisor, Urbis, The Journal of the department of Architecture and Planning, The Catholic University of America, 1987-88; Contributor and Production Assistant, Utah Architect, 1984-86.

Name: Juan Marqués Mera

Position: Professor

Age: 46

Education: M.Arch., University of Puerto Rico, 1971: BED, (*magna cum laude*), UPR, 1970

Teaching Duties: Design
ARCH 4001
ARCH 4002
Introduction to Architecture
ARCH 3121
ARCH 3122

Non-teaching Duties: 1992-Present: Director Design Committee; 1987-1990: Dean, School of Architecture, UPR, 1989-90; Consultant for the Development of the UPR Museum

Professional Experience: 1974-present: Juan Marqués Mera, Arquitecto, San Juan, Puerto Rico

Public Service: 1992: Jury Assessor, Built Work Competition, Jamaican Institute of Architects; 1989-1990: Consultant for the Development of the UPR Museum

Publications: 1988-1990: Editor Newsletter DeArquitectura

Name: Emilio Martínez

Position: Assistant Professor

Age: 40

Education: MS Architecture and Urban Design, Columbia University, 1985; M.Arch., University of Puerto Rico, 1979.

Teaching Duties: Coordinator, Graduate Studies

Design
ARCH 3001
ARCH 3002

Non-teaching Duties: Chairman, Admissions Committee; Member, Activities Committee; Chairman, Academic Affairs Committee

Teaching Experience: 1979-1990 Instructor, Assistant professor, 1990-present

Professional Experience: Private Practice 1987 to present, Emilio Martínez Arquitectos.

Research and Public Service: 1990, Urbanism and Architecture in Dominican Republic (1890-1930)

Academic & Professional Honors Awards: 1993: P.A. Awards Citation Urban Design; 1992: 2nd Bienal de Arquitectura del Caribe, Cuba, Award; 1992: 8th Bienal de Arquitectura Quito, Ecuador. Honorable Mention: 1992 AIA Honor Awards, Award and Honorable Mention: 1991 1ra Bienal de Arquitectura de Puerto Rico. Architectural Award, Urban Design Citation; 1990: 1ra. Bienal de Arquitectura del Caribe, Santo Domingo, República Dominicana. Gran Premio Bienal. Special Mention for the Documentation Work of: 1890-1930. Architecture and Urbanism in Dominican Republic.

Name: Oscar Guillermo Marty Baldissoni

Position: Professor

Age

Education: 1965: M.Arch. in Urban Design, Graduate School of Design, Harvard Cambridge, Massachusetts;
1962: Architect, Universidad Nacional del Litoral, Rosario, Argentina. Registered architect.

Teaching Duties: Design

ARCH 4011

ARCH 4012

ARCH 6313

ARCH 6314

Technology

ARCH 6361

Non-Teaching Duties: 1991 at present: Member, Graduate Studies Committee; 1991-93: Member, Personnel Committee.

Professional Experience: 1973-present: Private Practice, Oscar Marty, Architect, San Juan, P.R.

Research and Public Service:

Name: Andrés Mignucci Giannoni

Position: Instructor

Age: 35

Education: M.Arch., Massachusetts Institute of Technology, 1982; B.S. in Architectural Studies, University of Wisconsin, Milwaukee, 1979

Teaching Duties:Design

ARCH 6312

ARCH 6313

ARCH 6314

Non Teaching Duties: N/A

Teaching Experience: Instructor, School of Architecture, University of Puerto Rico; Visiting Professor, Summer 1990, 9th year Design/Research Studio Universidad Iberoamericana, Santo Domingo, República Dominicana; Lecturer, Summer 1986, Level II Architectural Design Studio, School of Architecture and Planning, MIT; Teaching Assistant, 1980-1982; Teaching Assistant, 4.01 Formative Design Studio, Jan Wampler (1980-82); Level III Advanced Design Studio, Maurice Smith/Giancarlo de Carlo (1981), School of Architecture and Planning (MIT).

Professional Experience: Registered Architect. Andrés Mignucci Giannoni, Arquitecto, San Juan, Puerto Rico, 1988 to present; Ellenzweig, More and Associates, Cambridge, MA, 1987-88.

Research and Public Service: American Institute of Architects, Puerto Rico Chapter, President, 1992; Formando Ambiente/Making Places: Co-Director of an environmental-architectural education program for intermediate and high school students in Puerto Rico, project sponsored by the American Architectural Foundation, 1991; Arquitectura Dominicana: 1890-1930: Documentation and research project on the urban growth and architecture of three cities in the Dominican Republic at the turn of the century, projects sponsored by the American Institute of Architects and Universidad Iberoamericana, Santo Domingo, 1990.

Academic and Professional Honors: Mention of Honor, Conjunto de Viviendas, Bayamón, 1992, AIA Puerto Rico Chapter Design Awards, San Juan, Puerto Rico; Honor Award: Casa sobre una Hondonada, 1990 AIA Puerto Rico Chapter, Design Awards, San Juan, P.R; First Prize / Research: Arquitectura Dominicana 1890-1930 / 1990 III Architecture Biennale of Santo Domingo, Santo Domingo, RD

Publications and Exhibitions: Arquitectura Contemporánea en Puerto Rico 1976-1992, American Institute of Architects, Puerto Rico Chapter, San Juan, Puerto Rico, 1992; Arquitectura Dominicana 1890-1930, American Institute of Architects, Puerto Rico Chapter, San Juan, Puerto Rico, 1990.

Name: Antonio Miró Montilla

Position: Professor

Education: B.Arch., University of Notre Dame, 1961.

Position: Professor

Teaching Duties: Design
ARCH 3031
ARCH 3032
ARCH 4001
ARCH 4002

Non-teaching Duties: 1988-91: Director, Design Committee; 1991-93: Director, Academic Orientation office;
1991-93: Member, President, Personnel Committee; Chancellor, Río Piedras Campus, University of Puerto Rico, 1978-85.

Teaching Experience: University of Puerto Rico, 1979-present

Professional Experience: Registered Architect, Lic. No. 3972

Academic and Professional Honors: 1985: Recognition from the Council of Higher Education for the work done as Chancellor of the Río Piedras Campus of the University of Puerto Rico.

Name: Pedro A. Muñiz Rivera

Position: Assistant Professor

Age: 37

Education: Ph.D. Virginia Polytechnic Institute & State University, 1986; M.Arch., University of Puerto Rico, 1981; BED, University of Puerto Rico, 1979.

Teaching Duties:Technology

ARCH 4017

ARCH 4018

ARCH 4037

ARCH 4311

Introduction to Architecture

ARCH 3121

ARCH 3122

Design

ARCH 6313

Non-teaching Duties: 1991 to present: Faculty Representative, U.P.R. Academic Senate; 1987-89: President, Academic Affairs Committee, 1986-92: Member, Admissions Committee; 1986 to present: Member, Technology Committee

Teaching Experience: Associate Professor, School of Architecture, University of Puerto Rico, 1991-present.
Assistant Professor, School of Architecture, University of Puerto Rico, 1986-1991.

Professional Experience: P.A. Muñiz Rivera, Architect and Associates, Principal 1991-present; Office of O.J. Rivera Otero, Architecture, Interiors, Planning Architecture, 1986-1991.

Research and Public Service: 1987-1992: Member, Asociación Recreativa de Borinquen Gardens Baseball & Basketball Club. 1992 to present: Member, Asociación Recreativa Educativa El Señorial, Secretary. 1992: Professional Member, The Masonry Society.

Academic & Professional Honors:

Name: Arleen Pabón PhD

Position: Professor

Age: 42

Education: BED, University of Puerto Rico, 1972; M.Arch., University of Puerto Rico, 1974; PhD, Northwestern University, 1983

Teaching Duties: History, Historic Preservation

ARCH 4007

ARCH 4008

ARCH 6444

Study Trip

ARCH 4009

Thesis

ARCH 6313

ARCH 6314

Non-teaching Duties: Associate Dean, 1992-93; ACSA Faculty Councillor, 1991-present; Member, Personnel Committee; Dean Search Committee, 1990.

Teaching Experience: Instructor, 1979-84. Assistant Professor, 1984-86. Associate Professor, 1986-91; Professor 1991-present.

Professional Experience (1988-1992). Consultant to: Einhorn, Yaffee, Prescott Architects, 1992. Luis Gutiérrez, Arquitectos, 1990-92. National Park Service, 1990, The Washington Group Ltd. 1988, Garrow & Associates. 1988, Rivera y Alejandro, Arquitectos e Ingenieros 1988

Research and Public Experience: State Historic Preservation Officer, 1983-84, 1993-present; Assistant to the Governor in Urban and Planning Affairs, 1993 to present.

Academic and Professional Honors: Member, Historic Zones Advisory Committee Puerto Rico Planning Board 1991 to present. Corresponding Academician Reial Academia de Belles Arts de Sant Jordi, Barcelona Spain 1991-present. Honorary Member, Casal Catala a Puerto Rico 1990-present. Member, Council for the Protection of the Archaeological Patrimony of Puerto Rico 1987-1992. Member, Advisory Board, Historic Zones and Monuments Division, Institute of Puerto Rican, Culture, 1985-1992. Member, Governor's Committee for the Celebration of the 500th Anniversary of the Discovery of Puerto Rico, 1985-present

Publications and Exhibitions: List available upon request.

Name: Juan Carlos Penabad Sánchez

Position: Instructor

Age: 27

Education: M.Arch., Yale University, 1989

Teaching Duties: Design
ARCH 3001
ARCH 3002

Teaching Experience: Visiting Critic, Universidad Pontificia. Universidad Madre y Maestra, Santiago de los Caballeros Dominican Republic. Assistant Visiting Critic, First Year Graduate Studio, University of Miami, Spring 1992; Assistant Visiting Critic, First Year Graduate Studio, Rice University, Fall 1992.

Professional Experience: Architect, Office of Jorge Rigau Arquitecto, AIA, San Juan, Puerto Rico. 1989 to present.

Research and Public Services: Secretary and co-founder of INGENIUM, Inc. a non-profit organization for urban studies. Incorporated 1992.

Academic and Professional Honors: Feldman Fellowship Nominee for Arduino Cantafora's Graduate Design Studio, awarded to best project, Yale University, Spring 1989

Publications Exhibitions: "Renovación Urbana de una Manzana en la Joya" four-day charrette project exhibited and presented at the Tercer Encuentro de Arquitectura y Urbanismo de las Antillas, Santiago de los Caballeros Dominican Republic. "GDANSK: Granary Island Renovation Project" Yale University, School of Architecture student work publication "RESTROSPECTA", 1990-91 New Haven Connecticut.

Name: Efraín E. Perez-Chanis

Position: Professor

Age: 72

Education: Master in Architecture, University of Panamá; Urbanista, Instituto de Administración Local; Madrid Architect Stafiere, Atelier Le Corbusier; Paris, France Urbaniste, Cour's D'Ete, Institut Superieur D'Urbanisme, Appliqué, Bruxelles, Belgium

Teaching Duties: Design:

ARCH 3001

ARCH 4012

ARCH 6311

ARCH 6312

ARCH 6313

ARCH 6314

Non teaching Duties: Personnel Committee - President

Teaching Experience: University of Puerto Rico, Professor and Lecturer

Professional Experience: Many Architectural Projects

Research and Public Service: Research on Caribbean Architecture - Member and Founder of CARIMOS - Caribbean Plan for Monuments and Sites.

Academic and Professional Honors: Henry Klumb Award, Maximum prize, Colegio de Arquitectos de Puerto Rico, 1992

Publications, Exhibitions: Award, Association of Architects of Panamá, 1992

Seminars: Seminar, Life and work of Henry Klumb, Architects, Many publications in professional magazines and newspapers

Name: Edwin R. Quiles-Rodríguez

Position: Associate Professor

Age: 43

Education: BS in Architectural Design, Washington University, 1970; M.Arch., Massachusetts Institute of Technology, 1972; Diploma in Urban, Regional & National Planning, Architectural Association, London, 1985.

Teaching Duties:Design:

ARCH 3001

ARCH 4001

ARCH 6312

Study Trip:

ARCH 4010

Seminar (Housing and Community):

ARCH 6373

Teaching Experience: School of Architecture, University of Puerto Rico. Lectures in Bolivia, Guatemala, Jamaica, Dominican Republic, Washington D.C. and Puerto Rico in the past 5 years.

Professional Experience (1988-1992): Responsible for the design of several buildings & community development projects. Consultant to community groups in Puerto Rico and abroad.

Research: Working on a book on vernacular housing in Puerto Rico

Academic and Professional Honors: Who's Who in Puerto Rico. 1992 Urban Design Award Bienal of Santo Domingo Dominican Republic - 1992

Name: Sylvia Ramos-Alamo

Position: Assistant Professor

Age: 47

Education: Interior Designer, Licencia San Juan School of Interior Design, 1990; MS, Tropical Architecture, Pratt Institute; B.Arch., Pratt Institute, 1970.

Teaching Duties:

Design:

ARCH 3001

ARCH 3002

ARCH 3021

ARCH 3022

ARCH 3031

ARCH 3032

Technology:

ARCH 4019

ARCH 4025

Non-teaching Duties: Faculty Representative, Academic Senate, University of Puerto Rico. Member, Academic Affairs Committee, past faculty secretary, past member Technology Committee, Past interview on student applying to the School of Architecture, University of Puerto Rico.

Teaching Experience: 1972-present, Assistant Professor, School of Architecture, University of Puerto Rico. 1990 to 1992, San Juan School of Interior Design.

Professional Experience: 1983 to present, Private Practice - Design, Rehabilitation, Restoration & Interior on Public Housing Projects, Private Projects at Residential. 1979-1983 Associate - Lugo, Ramos & Associates.

Research and Public Service: President - Board of El Monte North Condominium, Hato Rey, Puerto Rico; Vice-President Annual Rescue Committee, Hato Rey, Puerto Rico; Past Treasurer, Board of El Monte Condominium.

Publications, Exhibitions: The Master Plan of Puerto Rico Forests; Planning and Design of Recreational Areas in the Forests of Puerto Rico.

Name: Jorge Rocafort

Position: Professor

Age: 46

Education: BSEE University of Notre Dame (Cum Laude) MS Northwestern University. PhD Northwestern University

Teaching Duties: Technology-Structures:
ARCH 3521
ARCH 3522
ARCH 3995
ARCH 6531

Non Teaching Duties: Member, Personnel Committee, (1989-93); Member, Technology Committee; Member, Academic Affairs Committee (1988; 1992-93); Director, Technology Committee (1991-present)

Teaching Experience: Professor, School of Architecture, University of Puerto Rico (22 years).

Professional Experience: Registered Professional Engineer, 12 years Professional Practice in: Architectural Acoustics, Noise control and Audio Engineering

Research and Public Service: Environmental noise studies for industry and government; Architectural acoustics research (theater / auditoriums / small rooms) for the University and the private project development

Academic & Professional Honors: Member, Acoustical Society of America, Audio Engineering Society

Publications, Exhibitions: Technical Manuals for Industrial Noise Control

Name: Emiliano H. Ruiz

Position: Instructor

Age: 47

Education: M.S.C.E. University of Illinois

Teaching Duties:Technology-Structures:
ARCH 4321
ARCH 4322

Teaching Experience: UPR Bayamón Regional College, 1972; UPR School of Architecture 1992-present

Professional Experience: Structural analysis and design in private practice (23 years). Office of Emiliano H Ruiz, Eng., 1976-present

Research & Public Service: Research in the structural response of reinforced concrete structures when subject to dynamic loads caused by blasting activities (for Explowork Corp.)

Publications, Exhibitions: "Response of Reinforced Concrete. Structures in Villa Evangeline, Manatí, Puerto Rico, Due to Blasting Vibrations," 1978

Professional Organizations: Construction Committee of the P.R. Advisory Council of America. Arbitration Association (past President). Engineers and Surveyors Institute of P.R., Lic. #5581 (PE) (1969). Member, Continuing Education Committee, American Concrete Institute, P.R. Chapter; Past President, Society of Explosives Engineers

Lectures: "Earthquake activity in P.R.", 1989, "Structural damages caused by Hurricane Hugo.", 1990

Name: Esteban L. Sennyey Halasz

Position: Assistant Professor

Age: 37

Education: B. Arch., Universidad Central de Venezuela; M. Arch., Cornell University

Teaching Duties: Design
ARCH 3031
ARCH 3032
ARCH 4001
ARCH 4002
ARCH 6311
ARCH 6312

Non-teaching Duties: Member, Activities Committee, School of Architecture, UPR, Member, Design Committee, School of Architecture, UPR, 1990-91, Member, Graduate Program Committee, School of Architecture, UPR, 1991-92; Member, Graduate Program, School of Architecture, UPR, 1992-93.

Teaching Experience: Cornell University (one year); Syracuse University (five years); University of Puerto Rico 1988-present.

Professional Experience: Werner Seligmann and Associates (seven years); Masque, Inc., Marco Mattei, Arquitecto; Héctor Arce, Arquitecto

Research and Public Service: School of Continued Education-Remodeling Counselor; Affordable Housing Research Squares of Puerto Rico "a typological study"

Academic and Professional Honors: First Prize Urban Design, National Competition, Venezuela, 1991; First Prize Urban, Puerto Rico Biennale, 1992; First Prize Urban Design Awards in Latin America, Quito, Ecuador, 1992

Publications, Exhibitions: Ciudad Bolivar "Revitalization Project, First Prize Governor's, 1991; Puerto Rico Biennale, Exhibition, 1991.

Name: Eduardo Sobrino

Position: Assistant Professor

Education: D Arch, University of Michigan, 1988; M Arch, University of Puerto Rico, 1981; BED, University of Puerto Rico, 1979

Teaching Duties:Technology-Structures:

ARCH 3045

ARCH 4021

ARCH 4022

ARCH 4321

Computer Graphics:

ARCH 3101

ARCH 3102

CAD:

ARCH 3005

Non-teaching Duties: Member, Academic Computing Committee, 1989; Director, Computer Laboratory, School of Architecture, 1990-present; Member, Admissions Committee, 1988-present.

Teaching Experience: Assistant Professor, UPR

Professional Experience: 1989 Open Knowledge - Systems Developers and Planners.

Research and Public Service: 1992 JOVE-NASA USRA. Summer-Internship in JOVE Program at the Advance Visualization Laboratory at NASA

Lectures, Seminars and Publications: 1991 "UNIX networking", ACSEI Guest Speaker. 1990 to present "Unix Shell Programming, System Administration and Programming in C". 1990 "Operating Systems", PRE-IEEE Chapter Guest Speaker. 1989 "CAD in the Architectural Design Process", VersaCAD Guest Speaker

Name: Lillian D. Soler López

Position: Librarian I

Age: 33

Education: Master in Library Science (MLS) University of Puerto Rico, 1985: B.A. in Humanities (BBA) University of Puerto Rico, 1983.

Professional Experience: Library System, University of Puerto Rico 1986-1990: Library System, School of Architecture University of Puerto Rico 1991, Academic Duties: To catalogue and classify books and other printed materials. References services. Coordinate the Library Automation Project. Training and supervision of assistance students in the retrospective conversion project.: SEMINARS: "Simposio sobre el uso de la computadora como herramienta en la enseñanza y en la investigación". 1992, Training on use of NOTIS System, 1992.

Name: Edward Underwood Ríos

Position: Instructor

Age: 51

Education: B.Arch., Clemson University, 1975

Teaching Duties:Professional Practice:
ARCH 6383
ARCH 6384

Teaching Experience: Visiting Critic, Clemson, University, School of Architecture (1987). Visiting Critic, UPR, School of Architecture, (1987). Lecturer & Studio Critic, Clemson University, Charleston Center (1989); Sponsor & Studio Critic, Health Care Graduate Studio, Clemson University, for Hospital InterAmericano de Medicina Avanzada Master Plan (1989)

Professional Experience: Underwood & Cabán (1976-77). Edward Underwood Ríos, AIA (1977-1988) Underwood Architects. 1988-Present Professional Participation Delegate A.I.A. Convention (1976). President C.A.P.R. (1990-1991, 1991-1992). Secretary C.A.P.R. (1987-88), Secretary CAPR (1988-89). First Vice Pres. C.I.C.A.P. (1991-1992). Instructor -Professional Practice, U.P.R. Graduate School of Architecture (1990-1992).

Professional Memberships & Affiliations: Colegio de Arquitectos de Puerto Rico; American Institute of Architects; American Society of Interior Designers; Colegio de Diseñadores y Decoradores de Puerto Rico; Urban Institute; Home Builders Association; National Fire Protection Association

Name: Enrique Vivoni-Farage

Position: Associate Professor

Age: 43

Education: Ph.D. in Architecture, University of Pennsylvania, 1985; MS, University of Pennsylvania, 1984; M.Arch., University of Puerto Rico, 1973; BED (*cum laude*), University of Puerto Rico, 1971.

Teaching Duties:Theory

ARCH 6341

ARCH 4045

ARCH 4046

ARCH 4048

Seminars

ARCH 6991 (Seminar on Architectural
Archives Research)

ARCH 6991 (Seminar on History of
Architecture in Puerto Rico)

Non-teaching Duties: Director, Archivo de Arquitectura y Construcción de la Universidad de Puerto Rico (AACUPR), 1986-present; Acting Dean, School of Architecture, Summer 1990; Assistant Dean, School of Architecture, 1987-1989; Graduate Program Coordinator, School of Architecture, 1986-1990.

Research and Public Service: Research grant: Fondo Institucional para la Investigación en las Ciencias de la

Conducta y
Disciplinas
Humanísticas,
UPR, 1992;
Henry Klumb
and his
architectural
context, 1992;
Research grant:
National
Endowment for
the Humanities:
Arrangement and
Description of
the Centrales
Guánica, Aguirre
and Fajardo
Collections.
Project grant,
1991; Research
grant: National
Endowment for
the Humanities:
Hispanophilia:
The Spanish
Revivals as seen
through
Architecture and

Life in Puerto Rico 1900-1950, Planning grant, 1991; Grant: Legislative grant for the restoration and exhibition of the original drawings of the Capitol Building of Puerto Rico, 1991; Research grant: Fondo Institucional para la Investigación, UPR: Public Buildings in Puerto Rico: 1907-1948. 1990, Research grant: National Endowment for the Humanities: Arrangement and Description of the Centrales Guánica and Fajardo Collections at the Architecture and Construction Archives at the University of Puerto Rico (AACUPR) Planning Grant 1990: Research grant: Fondo Institucional para la Investigación, UPR.: Desarrollo continuo del AACUPR, etapas de consolidación, Institutional Research Funds, University of Puerto Rico 1986-1989: Research grant: Fondo Institucional para la Investigación, UPR: Esquema

para el desarrollo de una investigación en la conservación y catalogación de documentos arquitectónicos dirigida hacia la implantación de unos Archivos de Arquitectura y Construcción en la Universidad de Puerto Rico (AACUPR) Public service.

Member, Consejo para la Protección del Patrimonio Arqueológico Terrestre de Puerto Rico, Instituto de Cultura Puertorriqueña, 1991-present; Member, Consejo Asesor de Sitios y Zonas Históricas, Planning Board of Puerto Rico, 1991-present; President, Historical Archives Network of Puerto Rico (ARCHIREN), 1988-91; Member Board of Directors Museum of Puerto Rican Architecture, San Juan, P.R., 1988-1991; Auditor, Board of Directors, Colegio de Arquitectos de Puerto Rico, 1988-1989.

Academic and Professional Honors: 1993, Award: Excellence in Service, Historical Archive of the Year, given by the Sociedad de Bibliotecarios de Puerto Rico. 1991, Award: Quincentenary Commission Award for the essay *El Capitolio y Puerto Rico: la arquitectura como registro de las transformaciones causadas por la influencia norteamericana en Puerto Rico*. 1990, Award: Manuel A. Pérez Award, by the Government of Puerto Rico for outstanding public service for the establishment of the Architectural Archives (AACUPR) and the Historical Archives Network of Puerto Rico (ARCHIREN).

Publications and Exhibitions: Lectures Publications 1992: "El Capitolio de Puerto Rico: 1907-1929. Origen y transformación de un ideal puertorriqueño," published in *Senado de Puerto Rico. 1917-1992*. San Juan: Senado de Puerto Rico, 1992; "Rafael y Carlos del Valle Zeno: evocación de lo francés en la arquitectura puertorriqueña," *El Capitel. Boletín Oficial del Colegio de Arquitectos de Puerto Rico*, August 1992; "Pedro Méndez Mercado: Workman of Puerto Rican Architecture," published in *Pedro Méndez Mercado: in his time (1902-1990)* by the Miami-Dade Community College, Wolfson Campus, 1992; "La importancia de las crónicas caribeñas en los conceptos arquitectónicos de la Ilustración francesa," *La Torre, University of Puerto Rico Journal*, Año V, Número Extraordinario, 1991; "El Capitolio y Puerto Rico: la arquitectura como registro de las transformaciones causadas por la influencia norteamericana en Puerto Rico," *Encuentro*, núm. 4, 1991.

Lectures: "La recuperación de España en la arquitectura de Puerto Rico, 1900-1950," Paper read at Iberoamerican Congress of Architecture, Salamanca, Spain, 1992; "The Retrieval of Spain in the Architecture of Puerto Rico, 1900-1950," Paper read at the annual meeting of the Society of Architectural Historians, Albuquerque, New Mexico. 1991; "La arquitectura como texto cultural," Interamerican University, Bayamón, P.R., 1991; "Rafael y Carlos del Valle Zeno: evocación de lo francés en la arquitectura puertorriqueña," Annual meeting, Colegio de Arquitectos de Puerto Rico, Hotel Cerromar, Dorado, P.R., 1990; "Los Archivos Históricos de Puerto Rico," White House Pre-conference on Library and Information Services, San Juan, P.R., 1989; "Americanization South of the Border: the Architecture of the Sugar Mills in Southern Puerto Rico," Association of Collegiate Schools of Architecture, Southeastern Regional Meeting, New Orleans, 1989; "La importancia de las crónicas caribeñas en los conceptos arquitectónicos de la ilustración francesa," Paper read at a symposium on the Bicentennial of the French Enlightenment, University of Puerto Rico, 1988; "Crisis y transformación de la arquitectura en Puerto Rico," Biennial of Dominican Architecture, Santo Domingo, Dominican Republic.

5.2.2 STAFF RESUMES

Name: Aida Morales Donate

Position: Assistant to the Dean for Administrative Affairs

Education: BA in Psychology, Minor in Accounting, 1966 - University of Puerto Rico, Mayagüez Campus

Professional Experience: 1987 to present, University of Puerto Rico - School of Architecture - Assistant to the Dean in Administrative Affairs; 1983-86, University of Puerto Rico - Complementary Services Office - Deputy Director; 1978-86, Manager, Mortgage and Service Department; 1972-78, Banco de la Vivienda, Assistant to the Executive Vicepresident; 1966-1972, Corporación de Renovación Urbana y Vivienda, Mortgage Loan Officer

Name: Eliel Quiñones Montalvo

Position: Assistant to the Dean in Academic Affairs

Age: 53

Education: B.A. University of Puerto Rico, 1962, M.Ed., University of Puerto Rico; Juris Doctor, Interamerican University, 1979

Honors: Dean's List, School of Law, Interamerican University

Licences: Admitted to Practice Law: Puerto Rico Supreme Court, 1979; Federal District Court for Puerto Rico, 1980; Federal Court of Appeals for the First Circuit, Boston, Massachusetts, 1981; Public Notary of the Commonwealth of Puerto Rico, 1980

Experience: 1985 to present, Private Practice of Law; 1980-85, Partner, Cruzado & Quiñones Law Offices; 1981 to present, Assistant to the Dean for Academic Affairs, School of Architecture, University of Puerto Rico; 1980-81, Special Assistant to the Dean of Academic Affairs of the University of Puerto Rico.

Teaching Experience: Organization and teaching of graduate course in Legal Aspects of Architectural Aspects in Puerto Rico (ARCH 6385), School of Architecture.

Professional Associations: Colegio de Abogados de Puerto Rico, American Bar Association, Federal Bar Association, Phi Alpha Delta-International Law Fraternity.

5.3 NAAB STATISTICAL REPORT: 1993

5.3.1 NAAB STATISTICAL REPORTS: 1989-92

5.4 CATALOG

5.5 1989 VISITING TEAM REPORT