



**General Catalog 2016-2018(Rev.3/9/2017)
Addendum General Catalog 2016-2018**

Effective Date: March 16, 2017

The following program name changes have been made:

<i>Previous Program Name:</i>	<i>New Program Name:</i>
Electricity with PLC	Electricity with Renewable Energy
Refrigeration and Air Conditioning with PLC	Refrigeration and Air Conditioning with Inverters

Effective Date: March 16, 2017

The following changes have been made to the academic programs:

ADMINISTRATIVE ASSISTANT WITH MEDICAL BILLING

This study program offers the student the knowledge, skills, and abilities required in the medical secretary field. It focuses on the medical procedures, document administration, handling of equipment, filing, and invoicing of medical plans by electronic programs. The course incorporates computer application programs (Word and Excel) for processing information and document production. The graduates from this program will be able to fill positions such as: Secretary, Clerk, Medical Billing, or other similar positions in private medical offices, hospitals, laboratories, etc.

<i>CODE</i>	<i>TITLE</i>	<i>CREDITS</i>
PROA 1000	Office Administration Procedures	3
ESPA 1005	Basic Spanish	3
ADDO 1001	Document Administration	3
MADO 1001	Keyboard Skills	3
INGL 1106	Basic English I	3
FUNS 1001	Clinical Principles	3
PRCO 1000	Production of Business Documents (Basic)	3
CODI 3001	Codification of Diagnostics and Injuries	3
INGL 1107	Basic English II	3
REME 1001	Production of Medical Documents and Electronic Record	3
CODI 3002	Coding of Services and Procedures	3
FACT 3000	Medical Plans Billing (Manual)	3
EXCL 1000	Electronic Spreadsheet (Excel)	3
CONT 1090	Elementary Accounting I	3
FACT 3010	Electronic Medical Plans Billing I	3
FACT 3011	Electronic Medical Plans Billing II	3
INGL 2103	Conversational English	3
OFIC 3007	Externship*	3
TOTAL CREDITS		54

* There is no guarantee of specific centers, days, and schedule.

FACT 3010 Electronic Medical Plans Billing I 3 credits
 (Pre-requisitos: FACT 3000)

En este curso el estudiante aprenderá a manejar y a utilizar adecuadamente el programa de facturación y “clearing house” “Secure Claim”. Se incluye el aprendizaje y dominio de las funciones del sistema tales como: “Front Desk”, “Claim Center”, “Back Office”, “Analytics” y “Support”. Con este programa electrónico el estudiante podrá crear y mantener información de pacientes, la preparación de facturas, emisión electrónica y reconciliación de pagos. El estudiante obtendrá los conocimientos y destrezas necesarios para satisfacer y atender las principales demandas del mercado laboral en lo referente al procesamiento electrónico de facturación médica profesional, dental e institucional para el recobro por servicios médicos prestados.

EXCL 1000 Electronic Spreadsheet (Excel) 3 credits
 (Pre-requisite: None)

In this course the student get acquainted with the theory and practice of the worksheet in the Microsoft Excel program. It includes the development of worksheets through different applications while working with graphs and database systems. The theoretical concepts will be applied in laboratory exercises. Students will search for documents to be modified, using the knowledge acquired in the course. Prepare a portfolio of daily class where the work done in class and those obtained by the external search will be organized. This course will also prepare students to take the Microsoft Office Specialist (MOS) exam for Microsoft Excel. This course will cover all the topics specified by the MOS Program – Score Level.

FACT 3011 Electronic Medical Plans Billing II 3 credits
 (Pre-requisite: FACT 3010)

In this course students will acquire the necessary knowledge to delve into the dental billing market, as well as learning to adequately operate the electronic dental billing program “Secure Claim.” In addition, students will understand auditing processes. This includes learning and mastering system functions such as patient registration and records, dental billing processes, and printing of documents. Students will learn the dental anatomy needed for effective billing, and will identify and manage necessary documentation to carry out audits. This will place students in a more competitive level on today’s job market.

INGL 2103 Conversational English 3 credits
 (Pre-requisite: INGL 1107)

This course is geared towards the improvement of verbal communication through intensive practice of phonological patterns of English and structured communicative activities involving a relevant social and functional formulas of the language. In addition, includes reinforcement of listening discrimination and comprehensive skills with drills and natural speech in structured situations.

OFIC 3007 Externship 3 credits
 (Pre-requisite: PRCO 1000; REME 1001; FACT 3010)

In this course students will apply and practice all the skills and knowledge acquired to demonstrate mastery of the procedures in documentation management within a medical office. Among the documents and tasks to be performed are: letters, memos, reports, tables, payroll, schedules, legal documents, presentations, electronics agendas, medical billing and archiving among others. It is expected that the student learn to use the highest possible level all office equipment.

PLUMBING TECHNICIAN

This study program offers the student the technical and practical knowledge that will enable them to work competently in domestic and commercial plumbing. It also includes occupational safety measures, equipment operation, reading and interpretation of plumbing diagrams, basic electricity components, pluvial systems, installation techniques, plumbing equipment and devices, repairs, etc. The graduates will have the opportunity to work as plumber in private or public enterprises, construction projects, or in their own businesses.

<i>Código</i>	<i>Título</i>	<i>Créditos</i>
PLOM 1001	Introduction to Plumbing	3
SEGU 1042	Occupational Safety	3
MATE 1220	Applied Mathematics	3
PLOM 1002	Plumbing Diagrams / Designs (Basic)	3
INGL 1106	Basic English I	3
PLOM 1012	Tank Systems, Pumping and Handling of Liquids and Other Fluids	3
ELED 1041	Fundamentals of Electricity	3
PLOM 1014	Plumbing Installation in Single Family Buildings and Residential	3
PLOM 1013	Plumbing Diagrams and Designs (Advanced)	3
PLOM 1011	Sanitary Plumbing Systems (Residential and Commercial)	4
PLOM 1007	Maintenance/Repairs Sanitary Systems	3
PLOM 1008	Preparatory Course for Plumber's Board Exam	2
TOTAL CRÉDITOS		36

Note: Graduates from this program must pass exams offered by the Plumbers Examination Board in order to work in Puerto Rico as a plumber or master plumber. See the Examination Boards Information section of this catalog.

COURSE DESCRIPTIONS

PLOM 1001 Introduction to Plumbing 3 credits
(Pre-Requisite: None)

In this course the students learn the chief fundamental theories, principles, and conceptual models leading the plumber occupation. Other subjects included are the job opportunities, drafting instruments, and materials and equipment necessary to operate. They will also become familiar with reading of symbols, tracing of conventional lines, and drawing orthographic and isometric views. It will encourage the student's awareness of their environment by introducing the eco-friendly plumbing, presenting ways of building plumbing systems that reduce the use of potable water and in turn reduce the amount of processed water in the treatment plants.

SEGU 1042 Occupational Safety 3 credits
(Pre-requisite: None)

This course emphasizes the fundamental knowledge and concepts related to occupational safety. Prevention and remedial measures to face accidents caused by electric shocks, and toxic gases inhalations, explosive, accidents with machinery and others are discussed. Regulation of the Department of Labor and OSHA, and OSHA Puerto Rico offices applicable to these industries is also covered.

MATE 1220 **Applied Mathematics** 3 credits
(Pre-requisite: None)

This course of mathematical applied it includes two parts. In first it is examined the basic operations of mathematical such as: sum, reduces, multiplication and division of whole numbers, decimal and fractions. In second part is emphasized in: the application of the basic concepts of algebra, geometry, trigonometry, the graphs and solution of numerical problems applied to the technology.

PLOM 1002 **Plumbing Diagrams / Designs (Basics)** 3 credits
(Pre-Requisite: None)

In this curricular component students will learn to interpret and read most common symbols in building plans. They also know the main foundations of plumbing, electrical and mechanical plans design, use and handling of different architectural design instruments and equipment and their application in a building planning and construction. It includes freehand drawing, perspectives with the approximation method, symbols, dimensions, annotations and other rules applicable to architectural drawing. They learn to interpret and read symbols related to plumbing, electrical and mechanical installations, in addition to trace complex and conventional lines which will give you the ability to perform orthographic and isometric drawings of detached buildings. They could draw plot plan and the drinking water system, sanitary and recycled water, in electrical and mechanical systems, using the tools, equipment and materials required, according to each situation.

INGL 1106 **Basic English I** 3 credits
(Pre-requisite: None)

This course is intended to promote the correct use of the English language. It will reinforce the basic skills such as: listening, speaking, reading, writing, and understanding new vocabulary. Once this course is completed, the student will have a better understanding of the English language for future job opportunities.

PLOM 1012 **Tank Systems, Pumping and Handling of Liquids
and Other Fluids** 3 credits
(Pre-requisite: None)

This course exposes the student with the design, installation and maintenance of pumping systems, systems and firefighting systems for fluid storage.

ELED 1041 **Fundamentals of Electricity** 3 credits
(Pre-requisite: None)

This is an introductory course designed to introduce students to more advanced courses in programs of electricity, refrigeration, computer repair, plumbing, alarms and sounds. Theories, parameters and devices which are necessary to design, modify, and build electrical circuits will be studied. The relationship between energy, electric charge, voltage, current, resistance and power will be established.

PLOM 1014 **Plumbing Installations in Single Family Buildings and
Residential** 3 credits
(Pre-requisite: None)

In this course the student will get acquainted with sanitary facilities and drinking water plumbing for single-family residences. They will learn the different techniques for the installation of these systems, the standards of the plumbing industry, as well as the required test for materials and expected performance standards in construction projects.

PLOM 1013 **Plumbing Diagrams and Designs (Advanced)** 3 credits
(Pre-requisite: PLOM 1002)

In this curricular component the students will learn advanced concepts and skills in the reading and interpretation of plumbing applications order to trace structural and plumbing lines and carry out pictorial drawings, using the plumbing instruments, equipment, and materials according to each activity. This component is designed to provide professionals involved in the tasks of hiring others and/or sub-contracting services or development of commercial offers, budgeting, with the theoretical and practical knowledge of the latest techniques and appropriate methods to reliable, accurate and realistically estimate costs, benchmark estimate costs for bid analysis and cost control during the execution of the work.

PLOM 1011 **Sanitary Plumbing Systems (Residential and Commercial)** 4 credits
(Pre-requisite: PLOM 1013; Concurrent with PLOM 1007)

During this course, the students learn the skills to install sanitary conventional and special systems with their different devices following the occupational standard procedures using the safety measures. Also, in this curricular component, the students will acquire the knowledge and technological skills through the application of the occupational standard procedures to carry out commercial plumbing projects, installations, and repairs of piping and other devices using hot or cold water. The students will observe the safety measures learned previously when working with piping projects.

PLOM 1007 **Maintenance / Repairs Sanitary Systems** 3 credits
(Pre-requisite: None)

During this course, the students practice the installation, preventive maintenance, and repair of pluvial and sanitary systems using the occupational standard procedure and observing the safety measures. Students learn to recognized and manage equipment and its accessories designed to reduce water consumption from offload technologies to taps and Eco-friendly mixers and discharge valves that use the energy of moving water and high efficiency sanitary equipment. The Handyman program graduate will be able to request the plumber apprentice license in order to work under the direct supervision of a certified master plumber, helping and aiding in this profession and complying with Act No. 88 of 1939, as amended.

PLOM 1008 **Preparatory Course for Plumbers Board Exam** 2 credits
(Pre-requisite: Approved all previous courses, except PLOM 1011 and PLOM 1007)

This course will prepare the student for take the Puerto Rico Board of Journeyman and/or Master Plumber Exams, in order to become a licensed apprentice, journeyman (Official) or master plumber. Instruction includes: Description of the occupation, Description of the Plumbers Board Exam, Reviewing of topic included in the exams, such as: basic mathematics, physics (especially of liquids), recognition of plumbing equipment and materials and the study of the laws and regulations related to the occupation. Also include simulated board exam taking practices. Students will learn professionalism along with shop management and product/services sales.

REFRIGERATION AND AIR CONDITIONING WITH INVERTERS

This study program offers the student the technical and practical knowledge to make installation tasks, provide service, and repair refrigeration and air conditioning equipment with inverters at residential, commercial and industrial level. It also includes occupational safety measures, equipment operation, reading and interpretation of refrigeration diagrams, and automotive air conditioning systems. The graduates from this program will be able to fill positions as: Refrigeration Technician in manufacturing, construction firms, refrigeration and air conditioning companies, and in their own business.

CODE	TITLE	CREDITS
SEGU 1042	Occupational Safety	3
MATE 1220	Applied Mathematics	3
INGL 1106	Basic English I	3
ELED 1041	Fundamentals of Electricity	3
LATE 1201	Electrical Instrumentation- Lab	3
AIRR 1169	Principles of Refrigeration	3
LATE 1220	Mechanical Instrumentation-Lab	3
AIRR 1173	Domestic Refrigeration and A/C (Inverters)	3
LARE 2070	Domestic Equipment - Lab	3
AIRR 1174	Commercial Refrigeration	3
LARE 2071	Commercial Equipments - Lab	3
AIRR 2002	Commercial Air Conditioning with Inverters	3
AIRR 2003	Automotive Air Conditioning	4
LAIR 2002	Automotive Air Conditioning - Lab	5
AIRR 3016	Preparatory Course for Board Exam	3
TPLC 3000	Programmable Logic Controller (PLC)	3
LPLC 3000	Programmable Logic Controller Units- Lab	3
TOTAL CREDITS		54

Note: A graduate from this program who wants to work as an independent refrigeration and AC contractor must pass the Exam offered by the Board of Refrigeration and Air Conditioning of Puerto Rico. Also, for the handling of refrigerants, an EPA License is required.

COURSE DESCRIPTIONS

SEGU 1042 **Occupational Safety** **3 credits**
(Pre-requisite: None)

This course emphasizes the fundamental knowledge and concepts related to occupational safety. Prevention and remedial measures to face accidents caused by electric shocks, and toxic gases inhalations, explosive, accidents with machinery and others are discussed. Regulation of the Department of Labor and OSHA, and OSHA Puerto Rico offices applicable to these industries is also covered.

MATE 1220 **Applied Mathematics** **3 credits**
(Pre-requisite: None)

This course of mathematical applied it includes two parts. In first it is examined the basic operations of mathematical such as: sum, reduces, multiplication and division of whole numbers, decimal and fractions. In second part is emphasized in: the application of the basic concepts of algebra, geometry, trigonometry, the graphs and solution of numerical problems applied to the technology.

INGL 1106 **Basic English I** 3 credits
(Pre-requisite: None)

This course is intended to promote the correct use of the English language. It will reinforce the basic skills such as: listening, speaking, reading, writing, and understanding new vocabulary. Once this course is completed, the student will have a better understanding of the English language for future job opportunities.

ELED 1041 **Fundamentals of Electricity** 3 credits
(Pre-requisite: None)

This is an introductory course designed to introduce students to more advanced courses in programs of electricity, refrigeration, computer repair, plumbing, alarms and sounds. Theories, parameters and devices which are necessary to design, modify, and build electrical circuits will be studied. The relationship between energy, electric charge, voltage, current, resistance and power will be established.

LATE 1201 **Electrical Instrumentation-Lab** 3 credits
(Pre-requisite: Concurrent with ELED 1041)

This course is designed to apply the fundamentals of electricity through the construction of electrical circuits. The suitable use of measuring and tests instruments is emphasized. It is verified by means of measurements, the theories and properties of electrical circuits. The relation between energy, the electrical charges, the voltage, current, resistance and power are established.

AIRR 1169 **Principles of Refrigeration** 3 credits
(Pre-requisite: None)

Introduction to the basic refrigeration cycle, thermodynamics, application of pressure-enthalpy diagrams and major refrigeration components and systems. Refrigerant properties, transferring, evacuation and system recycling, pressure, vacuum, heat, temperature, heat transfer, sensible latent heat, states of matter, gas laws, pressure-temperature relationship of liquids and vapors, pressure-temperature relationship of refrigerants, compressor construction, condensers evaporators, refrigerant mastering devices, refrigerant characteristics and lubrication.

LATE 1220 **Mechanical Instrumentation- Lab** 3 credits
(Pre-requisite: AIRR 1169)

This is a laboratory course to acquaint students with the basic principles of mechanical system of refrigeration and air-conditioning equipment, the tools, instrumentation and techniques used today in the industry. This includes general procedures of security and a basic technique to conservation of equipment is also discussed. Students will be instructed on the 608 EPA Certification and the certification exam will be offered.

AIRR 1173 **Domestic Refrigeration and A/C (Inverters)** 3 credits
(Pre-requisite: AIRR 1169)

In this course the student studies the residential refrigeration cycle. This include, compressor types and operation, defrost methods, frost-free systems, hot gas and electric heat defrost, condensate disposal, room air-conditioner cycle and operating characteristics. Psychometrics, measuring of relative humidity. Use of psychometric charts is covered. Also, the quote process and preparation of invoices for residential services, as well as safety measures during the installation and preventive maintenance is included.

LARE 2070 **Domestic Equipment - Lab** 3 credits

(Pre-requisite: Concurrent with AIRR 1173)

This is a laboratory course in which students are instructed in diagnosis, maintenance, installation and repair of residential air conditioning systems and refrigerators. Students will learn safety procedures, installation of gauges, temperatures and pressure measurements, the using of sling psychrometer to measure relative humidity, test for refrigerant leaks, and to troubleshooting air conditioning and refrigeration systems mechanically, as well as preventive maintenance techniques and procedures to improve systems efficiency.

AIRR 1174 **Commercial Refrigeration** 3 credits

(Pre-requisite: AIRR 1173)

In this course the student studies the commercial refrigeration cycle. This includes sizing and selection of air conditioning and refrigeration equipment, familiarization of flow controls, pump down systems, defrost cycles (hot gas and electric), and pressure controllers. The structural components of different refrigerators, ice machines, bottle displays and walk-in cabinets; repair procedures in commercial applications using safety measures are also covered.

LARE 2071 **Commercial Equipment - Lab** 3 credits

(Pre-requisite: Concurrent with AIRR 1174)

This is a laboratory course in which students is instructed in testing, maintenance, installation and repair commercial refrigeration and air conditioning systems following safety guidelines. This includes electrical and mechanical familiarization of high, medium and low temperature systems such as ice machine, ice fleers, thermobank, display cases, dual temperature systems, grocery cabinets, and water towers. Commercial quoting and billing is also included.

AIRR 2002 **Commercial Air Conditioners with Inverters** 3credits

(Pre-requisite: AIRR 1173)

In this course the student studies the basic principles of the air flow, the method of designs and maintenance of conduits in commercial applications. This includes reading and interpretation of commercial system planes for the corresponding air distribution, types of conduits (flexible, galvanized, fiber glass and others), equipment and tools, design of systems, selection and maintenance of ducts, and using the safety measures.

AIRR 2003 **Automotive Air Conditioning** 4 credits

(Pre-requisite: AIRR 1169)

This course presents the theory and operation of the air-conditioned car. Auto electrical and electronic system, flow controls and replacements, types of compressors, condensers and evaporators are studied. Moreover, methods of installation, maintenance and repair of air conditioners of cars are described.

LAIR 2002 **Automotive Air Conditioning - Lab** 5 credits

(Pre-requisite: Concurrent with AIRR 2003)

This laboratory allows students to apply the theoretical knowledge acquired in the class of AIRR 2001. Installation practices, maintenance and repair of air conditioning system car are made. Testing efficiency of the auto's electrical system, air valves, condensers, evaporators, and air flow passages are provided. Security measures are applied in a workshop.

AIRR 3016 **Preparatory Course for Board Exam** 3 credits

(Pre-requisite: Approved all previous courses except for: SEGU 1042; MATE 1220; INGL 1106; TPLC 3000; LPLC 3000)

This course will prepare the student for take the Puerto Rico Board of Refrigeration Technician Exams, in order to become a licensed apprentice, or technician. Instruction includes: description of the occupation, description of the Refrigeration Board Exam, reviewing of topic included in the exams; such as: basic

mathematics, physics (especially of gases), recognition of refrigeration equipment and materials and the study of the laws and regulations related to the occupation. Also include, simulated board exam taking practices, and the development of a portfolio with the required documentation. Students will learn professionalism along with shop management and product/services sales.

TPLC 3000 Programmable Logic Controller (PLC) 3 credits
(Pre-requisite: None)

This course is designed to study the theory and programming of Programmable Logic Controller (PLC). It establishes the programming using logic circuits, diagrams of stairs and its conversion to mnemonics of the PLC language.

LPLC 3000 Programmable Logic Controller Units- Lab 3 credits
(Pre-requisite: Concurrent with TPLC 3000)

This is a laboratory where the student will put in practice the theory described in class TPLC 3000. The programs will settle using "handheld" and computer. Diverse connections will settle down and faults will be identified and corresponding adjustments.

ELECTRICITY WITH RENEWABLE ENERGY

This study program offers the student the technical and practical knowledge to make installation tasks, maintenance, and repair of electrical systems in residences, business, and industries. It also includes terminology, occupational safety measures, equipment operation, reading and interpretation of electrical diagrams, fundamentals of the functioning and installation of renewable energy systems. The course incorporates a computer complement: Programmable Logic Controller (PLC). Graduates from this program will be able to fill positions as: Assistant Electrician or Electrician in manufacturing industries, construction firms, electrical agencies and their own business.

CÓDIGO	TÍTULO DEL CURSO	CRÉDITOS
SEGU 1042	Occupational Safety	3
MATE 1220	Applied Mathematics	3
INGL 1106	Basic English I	3
ELED 1041	Fundamentals of Electricity	3
LATE 1201	Electrical Instrumentation-Lab	3
ELED 1093	Illumination	3
ELED 1089	Residential Electrical Systems	4
LAED 3007	Electrical Wiring- Lab	5
ELED 1099	Commercial Electrical Systems	4
LAED 3008	Commercial Electrical Equipment - Lab	5
ELED 3014	Industrial Electrical Systems	3
LAED 3014	Industrial Equipment- Lab	3
ELED 3015	Renewable Energy Systems	3
ELED 3016	Preparatory Course for Board Exam	3
TPLC 3000	Programmable Logic Controller (PLC)	3
LPLC 3000	Programmable Logic Controller Units- Lab	3
	Total Credits	54

Note: Graduates of this program who want to work as independent certified electrical contractors, master electricians or assistant electricians must pass the Exam offered by the Board of Electricians of Puerto Rico. See the Examination Boards Information section of this catalog.

COURSE DESCRIPTIONS

SEGU 1042 **Occupational Safety** 3 credits
(Pre-requisite: None)

This course emphasizes the fundamental knowledge and concepts related to occupational safety. Prevention and remedial measures to face accidents caused by electric shocks, and toxic gases inhalations, explosive, accidents with machinery and others are discussed. Regulation of the Department of Labor and OSHA, and OSHA Puerto Rico offices applicable to these industries is also covered.

MATE 1220 **Applied Mathematics** 3 credits
(Pre-requisite: None)

This course of mathematical applied it includes two parts. In first it is examined the basic operations of mathematical such as: sum, reduces, multiplication and division of whole numbers, decimal and fractions. In second part is emphasized in: the application of the basic concepts of algebra, geometry, trigonometry, the graphs and solution of numerical problems applied to the technology.

INGL 1106 **Basic English I** 3 credits
(Pre-requisite: None)

This course is intended to promote the correct use of the English language. It will reinforce the basic skills such as: listening, speaking, reading, writing, and understanding new vocabulary. Once this course is completed, the student will have a better understanding of the English language for future job opportunities.

ELED 1041 **Fundamentals of Electricity** 3 credits
(Pre-requisite: None)

This is an introductory course designed to introduce students to more advanced courses in programs of electricity, refrigeration, computer repair, plumbing, alarms and sounds. Theories, parameters and devices which are necessary to design, modify, and build electrical circuits will be studied. The relationship between energy, electric charge, voltage, current, resistance and power will be established.

LATE 1201 **Electrical Instrumentation-Lab** 3 credits
(Pre-requisite: Concurrent with ELED 1041)

This course is designed to apply the fundamentals of electricity through the construction of electrical circuits. The suitable use of measuring and tests instruments is emphasized. It is verified by means of measurements, the theories and properties of electrical circuits. The relation between energy, the electrical charges, the voltage, current, resistance and power are established.

ELED 1093 **llumination** 3 credits
(Pre-requisite: Concurrent with ELED 1041)

This course is an introduction to the theory of lighting. Design of lighting systems for interior and exterior spaces, common and public areas is included. The study of different lighting technologies such as the following fixtures: incandescent, fluorescent, LED, High Pressure Sodium, Metal Halide, magnetic induction, Mercury Vapor and internal components, among others. Review of the theory of DC and AC single phase. Study and application of electronic lighting codes.

ELED 1089 **Residential Electrical System** 4 credits
(Pre-requisite: ELED 1041)

This course includes the study of symbols of electrical wiring, schematics and diagrams, circuit analysis and troubleshooting. The student is instructed with basic safety rules and operation of electrical equipment; design of residential electrical systems, open and closed installations, electrical calculations and applications of the Puerto Rico Electrical Code

- LAED 3007 **Electrical Wiring- Lab** 5 credits
(Pre-requisite: Concurrent with ELED 1089)
This is a laboratory course in which students are instructed in reading, interpretation and proof of electric wirings. It includes the use of measuring and testing equipment and/or instruments. Furthermore, the use of pipes and conductors in electrical systems is studied.
- ELED 1099 **Commercial Electrical Systems** 4 credits
(Pre-requisite: ELED 1089)
The course is designed for students to understand the distribution system planning, design, configuration and characteristics of commercial electrical system. As well as their schemes, equipment, switches, distribution transformers, measuring transformers, protection, maintenance, insulating oils, operation systems and control of substations. Related voltages also be discussed.
- LAED 3008 **Commercial Electrical Equipments- Lab** 5 credits
(Pre-requisite: Concurrent with ELED 1099)
The course is designed to enable the student to perform the installation of transformers, switches and protections in distribution systems. The student may also offer repair and maintenance substations, operating systems, control and measurement of the electrical distribution network.
- ELED 3014 **Industrial Electrical Systems** 3 credits
(Pre-requisite: ELED 1099)
Reading and interpretation of industrial wiring diagrams and drawings. Student will get acquainted with safety and operation standards for industrial electrical equipment. Design of electrical systems for industrial buildings. Uses of the three-phase system in industrial settings, cost of equipment and quotation techniques for either repair or new installations.
- LAED 3014 **Industrial Equipment- Lab** 3 credits
(Pre-requisite: Concurrent with ELED 3014)
This course emphasizes the search and identification of electrical and mechanical failures and troubleshooting in industrial electrical systems. Testing, connections, preventive maintenance and repair of phase motors, reversible magnetic controls, variable frequency control motors (VFD) and others are performed. Safety rules applied in the laboratory for conducting exercises and teaching them in the workshop.
- ELED 3015 **Renewable Energy Systems** 3 credits
(Pre-requisite: None)
The student is introduced to the operation of energy generation systems, using wind and solar power. It includes how to calculate the size required for certain specific applications systems; how to install and connect the system (wind and /or solar) to an electrical panel and others. It is a very practical course that prepares participants to take renewable energy section of the Exam for Assistant Electrician or Certified Electrician in Puerto Rico.
- ELED 3016 **Preparatory Course for Board Exam** 3 credits
(Pre-requisite: Approved all previous courses except
SEGU 1042; MATE 1220; INGL 1106; TPLC 3000 and LPLC 3000)
This course will prepare the student for take the Puerto Rico Board of Electricians Exams, in order to become a licensed apprentice, assistant o expert electrician. Instruction includes: Description of the occupation, Description of the Electricians Board Exams, Reviewing of topic included in the exams, such as: Ohm Law, Recognition of electrical equipment and material and the study of the laws and regulations related to the occupation. Also include simulated board exam taking practices. Students will learn professionalism along with shop management and product/services sales.

TPLC 3000 **Programmable Logic Controller (PLC)** 3 credits
(Pre-requisite: None)

This course is designed to study the theory and programming of Programmable Logic Controller (PLC). It establishes the programming using logic circuits, diagrams of stairs and its conversion to mnemonics of the PLC language.

LPLC 3000 **Programmable Logic Controller Units- Lab** 3 credits
(Pre-requisite: Concurrent with TPLC 3000)

This is a laboratory where the student will put in practice the theory described in class TPLC 3000. The programs will settle using "handheld" and computer. Diverse connections will settle down and faults will be identified and corresponding adjustments.

PROFESSIONAL MASSAGE THERAPIST

This program offers the students the opportunity to acquire specific theoretical knowledge on adequate body stretching and therapeutic massage manipulating techniques to deal with different physical and/or emotional disorders existing in different kinds of clients. It includes massage-related treatments like Shiatsu Oriental Techniques, Aromatherapy, and Sport Massages. Students graduated from this program will be able to work as a Massage Therapist in institutional establishment (hotels, hospitals, clinic, etc.) or in his/her own business.

CODE	TITLE	CREDITS
MASJ 1000	Introduction to Massage Techniques	3
ESPA 1005	Basic Spanish	3
INGL 1106	Basic English I	3
EMME 1020	Anatomy and Physiology Principles	3
MASJ 1141	Swedish Massage	3
MASJ 1138	Lymphatic Massage	3
MASJ 1139	Structured Kinesiology and Biomechanics	3
MASJ 1132	Anatomy, Physiology and Pathology	3
MASJ 1140	Somatic Therapy	3
MASJ 1134	Trigger Point Therapy and Deep Tissue	3
MASJ 1135	Oriental Techniques (Shiatsu and Thailand)	4
REFL 1001	Reflexology and Music Therapy	2
MASJ 1030	Sport Massages	3
MASJ 2011	Development and Administration of Massage Business (Spa)	2
MASJ 1136	Massage to Special Populations / Hydrotherapy	4
MASJ 1137	Preparatory Course for Massage Board Exam	3
MASJ 2007	Externship*	6
Total Credits		54

* There is no guarantee of specific sites, days or schedules.

*The graduates of this program should have passed the Massage Therapists Board Exam to work in this profession in Puerto Rico.

COURSE DESCRIPTIONS

MASJ 1000 Introduction to Massage Techniques (3 credits)
(Pre-requisite: None)

This is an introductory course that offers the students basic theoretical knowledge on the origin and historical evolution process of the therapeutic massages' profession, as well as principles and techniques of chair massage and aromatherapy. In addition, it includes different topics like: required equipment, supplies, and setup procedure to begin a massage practice, applicable hygiene, sanitation, and safety measures, type of clients, relevant professional, ethical and legal aspects of the career, the professional touch, common massage procedures and their indications and contraindications and other pertinent data.

ESPA 1005 Basic Spanish (3 credits)
(Pre-requisite: None)

This course will focus on strengthening, refining and enriching the basic skills of oral and written expression. It will also put more emphasis on more basic vocabulary for a more complete, comprehensive, and controlled reading and writing skills. It will also stress on hyphenation rules, accentuation, punctuation, capitalization, and spelling.

INGL 1106 Basic English I 3 credits
(Pre-requisite: None)

This course is intended to promote the correct use of the English language. It will reinforce the basic skills such as: listening, speaking, reading, writing, and understanding new vocabulary. Once this course is completed, the student will have a better understanding of the English language for future job opportunities.

EMME 1020 Anatomy and Physiology Principles (3 credits)
Pre-requisite: None

This course explores the basic concepts of anatomy and physiology, analyzes the structure and operation of the various systems, malfunction of organs and pathological effect on the human body. It includes anatomical study, functions, anomalies and functional disorders.

MASJ 1141 Swedish Massage (3 credits)
Pre-requisite: None

Students will learn the technique and how to apply a full body massage. The course includes a training to manage everyday stress through the Swedish massage and its benefits on the various systems of the body.

MASJ 1138 Lymphatic Massage (3 credits)
Pre-requisite: None

Students will learn and apply the basic techniques of lymphatic drainage, which requires a thorough knowledge of anatomy as a fundamental understanding of the structure and function of the lymphatic system. You will then have the ability to apply gentle, rhythmic movements of lymphatic massage.

MASJ 1139 Structured Kinesiology and Biomechanics (3 credits)
Pre-requisite: EMME 1020

This course introduces the Structural Kinesiology Massage. Topics include: study of muscles as they are involved in movement science, assessment methods, massage techniques and routines designed to develop the balance and the adequate functioning of the neuromuscular system.

resources, development of the strategies for the job search; and other must-known basic aspects to manage and market a massage business.

MASJ 1136 Massage to Special Populations / Hydrotherapy (4 credits)
Pre-requisite: MASJ 1139

This course provide to students the knowledge and specific massage techniques for special groups such as pregnant women, pediatric and elder people. Also includes hot stone massage, body treatments, hydrotherapy, paraffin, infrared light and steam treatments.

MASJ 1137 Preparatory Course for Massage Board Exam (3 credits)
Pre-requisite: EMME 1020, MASJ 1030, MASJ 1132, MASJ 1136, MASJ 1139 and MASJ 1141

This course aims to review the knowledge acquired by the student to enable them to take the revalidation exam of the Massage Therapists Board of Examinations. During this course the student will be prepared to take a simulated revalidation exam which will include the basic content covered in the board exam.

MASJ 2007 Externship (6 credits)
Pre-requisite: Approved all previous courses except MASJ 1137, ESPA 1005, INGL 1106

This is the final stage of this occupational training program. The students will acquire a practical experience by integrating concepts, techniques, sanitation, and safety measures learned throughout the whole program, to be able to apply therapeutic massage. They will “work” with clients in a make believe environment under the coordination and supervision of a specialist of this field. The student will be evaluated according to established rules. The Clinical Practice is offered in external hospitals or clinical facilities. There is no guarantee of specific sites, days or schedules.

NAIL TECHNOLOGY

This program offers the student the opportunity to acquire the knowledge, skills and attitudes needed to perform successfully in the area of nail technology. The student will be exposed to real experiences and practices in manicure, pedicure and to the artificial nail industry. Management and marketing principles are included in the program to make the graduate more capable of operating their own business.

CODE	TITLE	CREDITS
COSM 1001	The Profession	3
TEDU 1006	Brush Design	6
COSM 1004	Manicure and Pedicure	3
TEDU 1003	Artificial Nails	3
LTED 2001	Acrylic Nails- Lab	3
LTED 2002	Wrap Nails- Lab	3
LTED 2005	The Creative Touch	6
COSM 1010	Salon Design and Management	3
LTED 2003	Gel Nails-Lab	3
PTED 1077	Externship *	3
	Total Credits	36

**The externship is offered in external facilities. There is no guarantee of specific sites, days or schedules.*

COURSE DESCRIPTIONS

COSM 1001 **The Profession** **(3 credits)**

Prerequisite: None

This course features the historical background of cosmetology and its evolution process to now-a-day. The dress code, make up, behavior and attitudes of the future professional are fully discussed. Different specialization and possible job opportunities for future graduates are included in this module. Identification of materials and tools commonly used and sterilization methods for preventing bacteria and infections are included. Emphasis is given to personal hygiene in a setting of beauty related work.

TEDU 1006 **Brush Design** **(6 credits)**

Prerequisite: None

Course designed to study the art of brush design and how to decorate and beautify nails. The student is encouraged to use their creativity through techniques and classroom demonstrations. Primary colors are discussed and their combination to create the secondary, tertiary and complementary colors. They will identify and appropriately use equipment for nail creation and decoration. Practical exercises for creating strokes, brush basic designs, floral, landscapes and other designs are discussed. This knowledge will help the student to provide a variety of nail decoration services to meet the needs and preferences of future customers, as well as the ability to develop their own designs, using imagination and creativity.

COSM 1004 **Manicure and Pedicure** **(3 credits)**

Prerequisite: None

This course acquaints the student with the arm and legs muscular-skeletal system, so that he/she can perform the correct massages and attain efficient manicures and pedicures. Adequate instruments, safety measures, and timing are emphasized.

TEDU 1003 **Artificial Nails** **(3 credits)**

Prerequisite: None

During this course, the student will learn to apply and provide maintenance to false nails using procedures, precautions and adequate material during the process of application, design and removal. The process of learning and practice is included through exercises and simulations about polishing natural and artificial nails.

LTED 2001 **Acrylic Nails - Lab** **(3 credits)**

Prerequisite: None

With this course, the student will learn and exercise everything related to the application, the types of maintenance and the process of removing acrylic nails. Procedures, precautions and the correct use of material and equipment through exercises and simulations with natural and artificial nails are also covered during the course, as well as safety and hygiene (aseptic) techniques and procedures during the practice.

LTED 2002 **Wrap Nails - Lab** **(3 credits)**

Prerequisite: None

This course is about the technique of Nail Wraps. The student will learn and exercise everything related to the application, the types of maintenance and the process of removing nail wraps. Hygiene and disinfection procedures, safety precautions are included. The correct use of materials and equipment for creating sculptural nails through, practical exercises in the classroom is emphasized.

LTED 2005 **The Creative Touch** **(6 credits)**

Prerequisite: None

This course introduces the student to the art of nail design, decoration, and new trending techniques for embellishment of the nails. Students will create different effects through the use of diverse techniques in classroom demonstrations. The student will learn and identify new techniques to create nail styles, during the process they will also learn the correct use of the equipment for nail decoration to further offer their clients embossed and encapsulated designs, among other styles and techniques.

COSM 1010 **Salon Design and Management** **(3 credits)**

Prerequisite: None

The course covers two fundamental aspects. The first part is devoted to the development of strategies for job search; while the second part covers the most known aspect of managing and marketing a beauty salon.

LTED 2003 **Gel Nails - Lab** **(3 credits)**

Prerequisite: None

In this course the student will learn everything related to the types of gel, application, maintenance and removal process such nails. It includes learning procedures for providing application services and drying with or without UV light, silk and fiberglass wraps, gel and nail art in gel. In addition, they will learn the correct use of materials and equipment through exercises in natural and false nails.

PTED 1077 **Externship** **(3 credits)**

Prerequisite: Approved all previous courses
except COSM 1010 and LTED 2003

The Practicum Internship offers the student an opportunity to apply all the theoretical and practical knowledge acquired during the formal training process in a real scenario of an external working environment. Our academic program establishes a work team composed of the mentor employer, the participating intern student, and the institution. This combination of efforts facilitates the teaching – learning process and collaborates with the student’s transition into the working environment. The student will go throughout the areas of manicure, pedicure, application, maintenance and removal of different artificial nails. The Externship is offered in external beauty establishments. There is no guarantee of specific sites, days or schedules.

Effective Date: March 27, 2017

The following changes have been made to the Administrative Officers of Hato Rey Main Campus:

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- Student Accounts-Mr. José Arcay
- Registrar-Vacant