

## BACHILLERATO 155 créditos

# Ingeniería Eléctrica

.Esta profesión a resurgido con más fuerza que nunca por la extensa utilización de electricidad en los campos de las telecomunicaciones, la transportación, la investigación y el desarrollo de las industrias. Para enriquecer aún más el proceso de aprendizaje, la Escuela de Ingeniería ofrece opciones de Ingeniería Eléctrica en Potencia, Informática y Comunicaciones (Telecomunicaciones) y Electrónica.

| <b>Cursos de Educación General</b>      |   | <b>50 créditos</b> |  |
|---|---|--------------------|--|
| <i>Código</i>                           | <i>Título del Curso</i>                                       | <i>CRS</i>         | <i>Pre-Requisito</i>                   |
| SPAN 152                                | Fundamentals of reading and writing                           | 3                  | View note 1                            |
| SPAN 250                                | Writing Techniques  | 3                  | SPAN 152                               |
| ENGL 152                                | Communicative English II                                      | 3                  | View note 1                            |
| ENGL 153                                | Advanced Communicative English                                | 3                  | ENGL 152                               |
| ENGL 231                                | Research and Writing  | 3                  | ENGL 153                               |
| ENGL 331                                | Oral Communication  | 3                  | ENGL 153                               |
| MATH 155                                | Pre-Calculus (or MATH 151 & 152)                              | 3                  | View note 1                            |
| PHSC 205                                | Physics for Engineering I                                     | 4                  | MATH 221                               |
| CHEM 203                                | General Chemistry I   | 4                  | MATH 151                               |
| HUMA 111                                | Universal Culture and Civilization I                          | 3                  |  |
|   | Humanistic Elective I   | 3                  | HUMA 111                               |
| SOSC 111                                | Individual, Community, Government and Social Responsibility I | 3                  |  |
|   | Social Sciences Elective I                                    | 3                  | SOSC 111                               |
|   | Social Sciences or Humanistic Electives II                    | 3                  |  |
| ECON 121                                | Economic Principles I   | 3                  |  |
| ENGI 100                                | Introduction to Engineering                                   | 3                  |  |
| <b>Cursos Generales Complementarios</b> |   | <b>21 créditos</b> |  |
| MATH 221                                | Calculus I  | 4                  | MATH 155                               |
| MATH 222                                | Calculus II   | 4                  | MATH 221                               |
| PHSC 207                                | Physics for Engineering I Laboratory                          | 1                  | MATH 221/<br>[PHSC 205] Co-Req         |
| MATH 223                                | Calculus III  | 4                  | MATH 222                               |
| PHSC 206                                | Physics for Engineering II                                    | 4                  | PHSC 205/PHSC 207                      |
| PHSC 208                                | Physics for Engineering II Laboratory                         | 1                  | PHSC 205/PHSC 207<br>[PHSC 206] Co-Req |
| MATH 395                                | Differential Equations  | 3                  | MATH 222                               |

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# Ingeniería Eléctrica

## Cursos Medulares

24 créditos

| <i>Código</i> | <i>Título del Curso</i>              | <i>CRS</i> | <i>Pre-Requisito</i>                             |
|---------------|--------------------------------------|------------|--|
| ENGI 122      | Introduction to Computer Programming | 3          | MATH 155   |
| ENGI 223      | Intermediate Programming             | 3          | ENGI 122/MATH 221                                |
| ENGI 244      | Engineering Materials                | 3          | CHEM 203 / PHSC 205                              |
| ENGI 277      | General Statics and Dynamics         | 3          | PHSC 205 / PHSC 207                              |
| ENGI 310      | General Thermodynamics               | 3          | CHEM 203 / ENGI 277 / PHSC 206                   |
| ENGI 398      | Engineering Mathematics              | 3          | MATH 223/ENGI 122<br>[MATH 395/ELEN 301] Co-Req  |
| ENGI 410      | Engineering Economy                  | 3          | MATH 221   |
| ENGI 478      | Fundamentals of Engineering          | 3          | ENGI 122/ENGI 244/ENGI 310/<br>ENGI 410/ELEN 302 |

## Cursos de Especialidad

57 créditos

|          |  |   |                              |
|----------|--|---|------------------------------|
| ELEN 301 | Electrical Networks I                  | 3 | PHSC 206/PHSC 208            |
| ELEN 302 | Electrical Networks I Laboratory       | 1 | PHSC 206/PHSC 208            |
| ELEN 311 | Electrical Networks II                 | 3 | ELEN 301/ELEN 302/MATH 395   |
| ELEN 312 | Digital Logic Design I                 | 3 | ENGI 223/ELEN 301            |
| ELEN 313 | Digital Logic Design I Laboratory      | 1 | ELEN 302/[ELEN 312] Co-Req   |
| ELEN 330 | Electronics I                          | 3 | ELEN 301/ELEN 302 ENGI 244   |
| ELEN 332 | Electronics I Laboratory               | 1 | ELEN 302/[ELEN 330] Co-Req   |
| ELEN 360 | Random Signals & Systems               | 3 | MATH 223/ELEN 301            |
| ELEN 414 | Linear Systems                         | 3 | ELEN 301/MATH 395 ENGI 398   |
| ELEN 370 | Electromagnetics                       | 3 | ELEN 301/ ENGI 398           |
| ELEN 416 | Control Systems                        | 3 | ELEN 414                     |
| ELEN 421 | Electromech. Energy Conversion Lab     | 1 | ELEN 302/[ ELEN 422 ] Co-req |
| ELEN 422 | Electrical Machines                    | 3 | ELEN 311                     |
| ELEN 431 | Electronics II                         | 3 | ELEN 330                     |
| ELEN 433 | Electronics II Laboratory              | 1 | ELEN 332/[ELEN 431] Co-Req   |
| ELEN 474 | Communication Systems I                | 3 | ELEN 360/ELEN 414            |
| ELEN 442 | Microprocessors I                      | 3 | ENGI 223/ELEN 312/ELEN 313   |
| ELEN 480 | Power Systems Analysis I               | 3 | ELEN 422                     |
| ELEN 491 | Electrical Engineering Design Concepts | 3 | ELEN 370/ELEN 422            |
|          | Electrical Engineering Elective I      | 3 | Depends on Selected Elective |
| ELEN 417 | Systems Laboratory                     | 1 | ELEN 416                     |

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# Ingeniería Eléctrica

## Cursos de Especialidad

| <i>Código</i> | <i>Título del Curso</i>            | <i>CRS</i> | <i>Pre-Requisito</i>   |
|---------------|------------------------------------|------------|--|
| ELEN 492      | Major Design Experience            | 3          | ENGI 310/ENGI 410/ELEN 313/<br>ELEN 416/ELEN 421/ELEN 433/<br>ELEN 442/ELEN 474/ELEN 480 |
|               | Electrical Engineering Elective II | 3          | Depends on Selected Elective   |

## Electivas Profesionales

|          |   |   |                          |
|----------|---|---|--------------------------|
| ELEN 430 | Digital Electronics                                 | 3 | ELEN 330                 |
| ELEN 434 | Instrumentation                                     | 3 | ELEN 431/ELEN 433        |
| ELEN 436 | Power Electronics                                   | 3 | ELEN 431                 |
| ELEN 441 | Digital Logic Design II                             | 3 | ELEN 312/ELEN 330        |
| ELEN 443 | Microprocessors II                                  | 3 | ELEN 442                 |
| ELEN 460 | Digital Signal Processing                           | 3 | ELEN 414                 |
| ELEN 472 | Antennas and Transmission Lines                     | 3 | ELEN 370                 |
| ELEN 475 | Communication Systems II                            | 3 | ELEN 474                 |
| ELEN 478 | RF Design   | 3 | ELEN 431/ELEN 474        |
| ELEN 481 | Power Systems Analysis II                           | 3 | ELEN 480                 |
| ELEN 484 | Power Transmission and Distribution                 | 3 | ELEN 480                 |
| ELEN 488 | Power Systems and Reliability                       | 3 | ELEN 360/ELEN 480        |
| ELEN 497 | Special Topics                                      | 3 | Chairperson's Permission |
| COMP 315 | Analysis and Design of Data Structures & Algorithms | 3 | CPEN 358/MATH 222        |
| CPEN 358 | Object Oriented Programming                         | 3 | ENGI 223                 |
| CPEN 444 | Computer Architecture and Organization              | 3 | ELEN 312                 |
| CPEN 446 | Computer Networks                                   | 3 | ELEN 312                 |
| CPEN 452 | Operating Systems                                   | 3 | ELEN 312                 |
| CPEN 455 | Introductions to Databases                          | 3 | COMP 315                 |
| CPEN 457 | Programming Languages                               | 3 | COMP 315                 |
| CPEN 458 | Introduction to Compilers                           | 3 | CPEN 452                 |
| CPEN 459 | Artificial Intelligence                             | 3 | COMP 315                 |

## Electivas Humanidades

|          |  |   |          |
|----------|--|---|----------|
| HUMA 115 | Western Civilization: A Puertorrican Perspective | 3 | HUMA 111 |
| HUMA 116 | Western Civilization: A Puertorrican Perspective | 3 | HUMA 111 |
| HIST 232 | Contemporary World Problems                      | 3 | HUMA 111 |
| HIST 251 | History of Puerto Rico I                         | 3 | HUMA 111 |
| HIST 252 | History of Puerto Rico II                        | 3 | HUMA 111 |

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## Ingeniería Eléctrica

### Electivas Humanidades

| <i>Código</i> | <i>Título del Curso</i>                    | <i>CRS</i> | <i>Pre-Requisito</i> |
|---------------|--|------------|----------------------|
| HIST 253      | History of Puerto Rico (Compendium)        | 3          | HUMA 111             |
| HIST 272      | History of the United States of America II | 3          | HUMA 111             |
| HIST 273      | History of the United States of America    | 3          | HUMA 111             |
| PHIL 201      | Introduction to Philosophy I               | 3          | HUMA 111             |
| PHIL 202      | introduction to Philosophy II              | 3          | HUMA 111             |
| ART 101       | Art Appreciation                           | 3          | HUMA 111             |
| FRCH 101      | Basic Course in French                     | 3          | HUMA 111             |
| FRCH 102      | Basic Course in French                     | 3          | HUMA 111             |
| PHIL 300      | Introduction to Ethics                     | 3          | HUMA 111             |
| HUMA 112      | Universal Culture and Civilization II      | 3          | HUMA 111             |
| MUSI 101      | Music Appreciation                         | 3          | HUMA 111             |

### Electivas Ciencias Sociales

|          |                                    |   |          |
|----------|------------------------------------|---|----------|
| SOSC 101 | Introduction to Social Sciences I  | 3 | SOSC 111 |
| SOSC 102 | Introduction to Social Sciences II | 3 | SOSC 111 |
| GEOG 205 | Global Economy and Resources       | 3 | SOSC 111 |
| PSYC 123 | Survey Course in Psychology        | 3 | SOSC 111 |
| SOCI 203 | Social Principals (Compendium)     | 3 | SOSC 111 |
| GEOG 202 | Human Geography                    | 3 | SOSC 111 |
| POSC 380 | Constitutional Law                 | 3 | SOSC 111 |
| PSYC 405 | Physiological Psychology           | 3 | SOSC 111 |
| SOCI 325 | Sociology of Deviance              | 3 | SOSC 111 |

### Cursos de Mejoramiento

|          |                             |   |                |
|----------|-----------------------------|---|----------------|
| MATH 100 | Basic Mathematics           | 3 | Placement Exam |
| MATH 120 | Elementary Algebra          | 3 | Placement Exam |
| MATH 121 | Intermediate Algebra        | 3 | Placement Exam |
| ENGL 151 | Basic Communicative English | 3 | Placement Exam |

### Important notes:

1. The freshmen will be placed in the courses of English (ENGI) and Spanish (SPAN) according with their score in the placement test. The freshmen with 490 points, or less, in the mathematic part of the College Entrance Examination Board (CEEB) must take MATH 100.
2. Some required or electives specialty courses are not offered every semester
3. The Universidad del Turabo keeps the right to change this curriculum.

### Para más información comunícate con la Vicerrectoría de Mercadeo y Reclutamiento

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