

BACHELOR ENGINEERING PROGRAM IN ELECTRONICS AND COMMUNICATIONS ENGINEERING (CODE 59EC)

ACADEMIC YEAR 2025/2026

FIRST YEAR

| CODE | COURSES | ECTS | TYPE | SEMESTER | DEPARTMENT CODE |
|-----------|---|------|------|-------------------------------------|-----------------|
| 595000002 | LINEAR ALGEBRA | 6 | Elem | 1 st | D540 |
| 595000004 | CIRCUITS ANALYSIS I | 6 | Elem | 1 st | D250 |
| 595000003 | CALCULUS I | 6 | Elem | 1 st | D540 |
| 595000006 | INTRODUCTION TO TELECOMMUNICATIONS | 3 | Comp | 1 st | D250 |
| 595000005 | PROGRAMMING I | 6 | Elem | 1 st | D230 |
| 595000001 | INTRODUCTORY WORKSHOP ON ENGINEERING | 3 | Comp | 1 st | D250 |
| 595000008 | CIRCUITS ANALYSIS II | 6 | Elem | 2 nd | D250 |
| 595000010 | CALCULUS II | 6 | Elem | 2 nd | D540 |
| 595000007 | PROFESSIONAL COMMUNICATION SKILLS | 3 | Comp | 2 nd | D240 |
| 595000009 | ELECTRONICS I | 6 | Elem | 1 st and 2 nd | D230 |
| 595000011 | PROGRAMMING II | 6 | Elem | 1 st and 2 nd | D230 |
| 595000012 | SEARCH TECHNIQUES AND INFORMATION SYSTEMS | 3 | Comp | 2 nd | D230 |

SECOND YEAR

| CODE | COURSES | ECTS | TYPE | SEMESTER | DEPARTMENT CODE |
|-----------|--|------|------|-------------------------------------|-----------------|
| 595000013 | ELECTROMAGNETISM AND WAVES | 6 | Elem | 1 st and 2 nd | D510 |
| 595000015 | ELECTRONICS II | 6 | Comp | 1 st and 2 nd | D230 |
| 595000014 | STATISTICS AND STOCHASTIC PROCESSES | 6 | Elem | 1 st and 2 nd | D540 |
| 595000016 | TELECOMMUNICATIONS NETWORKS AND SERVICES | 6 | Comp | 1 st | D230 |
| 595000017 | SIGNALS AND SYSTEMS | 6 | Comp | 1 st and 2 nd | D250 |
| 595000018 | SCIENCE, TECHNOLOGY AND SOCIETY | 3 | Comp | 2 nd | D230 |
| 595000023 | ANALOG ELECTRONICS I | 6 | Comp | 2 nd | D230 |
| 595000021 | MICROPROCESSORS | 6 | Comp | 1 st and 2 nd | D230 |
| 595000025 | DIGITAL SIGNAL PROCESSING | 4.5 | Comp | 1 st and 2 nd | D250 |
| 595000019 | WAVE PROPAGATION | 4.5 | Comp | 1 st and 2 nd | D510 |
| 595000022 | COMMUNICATION THEORY | 6 | Comp | 2 nd | D250 |

THIRD YEAR

| CODE | COURSES | ECTS | TYPE | SEMESTER | DEPARTMENT CODE |
|-----------|--|------|------|-----------------|-----------------|
| 595000027 | DIGITAL DESIGN I | 4.5 | Comp | 1 st | D230 |
| 595000024 | ECONOMICS AND BUSINESS MANAGEMENT | 4.5 | Comp | 1 st | D400 |
| 595000030 | AUDIOVISUAL SYSTEMS | 4.5 | Comp | 1 st | D250 |
| 595000028 | MICROPROCESSOR-BASED SYSTEMS | 6 | Comp | 1 st | D230 |
| 595000029 | CONTROL SYSTEMS | 6 | Comp | 1 st | D230 |
| 595000026 | OPERATING SYSTEMS | 4.5 | Comp | 1 st | D230 |
| 595000031 | DIGITAL DESIGN II | 6 | Comp | 2 nd | D230 |
| 595000032 | ANALOG ELECTRONICS II | 6 | Comp | 2 nd | D230 |
| 595000020 | COMPUTER NETWORKS | 4.5 | Comp | 2 nd | D230 |
| 595000033 | PRODUCTION TECHNOLOGIES OF ELECTRONICS SYSTEMS | 4.5 | Comp | 2 nd | 0910 |
| | ELECTIVE SUBJECTS/INTERNSHIP CREDITS | 9 | Elec | 2 nd | |

FOURTH YEAR

| CODE | COURSES | ECTS | TYPE | SEMESTER | DEPARTMENT CODE |
|-----------|---|------|------|-------------------------------------|-----------------|
| 595000034 | ENGLISH FOR PROFESSIONAL AND ACADEMIC COMMUNICATION (*) | 6 | Comp | 1 st and 2 nd | D240 |
| 595000035 | ELECTRONIC INSTRUMENTATION | 6 | Comp | 1 st | D230 |
| 595000036 | ELECTRONIC POWER SYSTEMS | 4.5 | Comp | 1 st | D230 |
| | ELECTIVE SUBJECTS/INTERNSHIP CREDITS | 13.5 | Elec | 1 st | |
| 595000037 | PROJECT MANAGEMENT | 4.5 | Comp | 2 nd | D400 |
| 595000038 | ELECTRONIC SYSTEMS ENGINEERING | 4.5 | Comp | 2 nd | D230 |
| 595000040 | FINAL DEGREE PROJECT * | 12 | Comp | 1 st and 2 nd | ALL |
| | ELECTIVE SUBJECTS/INTERNSHIP CREDITS | 9 | Elec | 2 nd | |

(*) A B2 English certificate is required for the enrolment.

TYPE OF COURSES:

- "*Elem*" – Elementary.
- "*Comp*" – Compulsory.
- "*Elec*" – Elective.

ELECTIVE COURSES

| TYPE | SPEC | SEMESTER | YEAR | CODE | COURSES | ECTS | REQUIREMENTS | DEPT. CODE | |
|-----------------|-----------|---------------------------------|----------------------------------|-----------|--|-----------------------------------|--------------|---------------|------|
| A | EC | 1 st | 4 th | 595010044 | PRODUCT ENGINEERING | 4.5 | -- | D510 | |
| | | | 4 th | 595040048 | HARDWARE FOR INTERNET OF THINGS (IoT) | 4.5 | -- | D510 | |
| | | | 4 th | 595040049 | PROGRAMMING IN LABVIEW | 4.5 | -- | D510/ D230 | |
| | | 2 nd | 3 st | 595040041 | INDUSTRIAL AUTOMATION | 4.5 | -- | D230 | |
| | | | 3 st | 595040047 | EMBEDDED SYSTEMS DESIGN USING RASPBERRY PI | 4.5 | -- | D230 | |
| | | | 4 th | 595040042 | PHOTOVOLTAIC ENGINEERING | 4.5 | -- | D510/ D230 | |
| | | | 4 th | 595040050 | FUNDAMENTALS OF ENERGY HARVESTING | 4.5 | -- | D230 | |
| B | ID | 1 ^o | | 595040503 | MULTI-PARADIGM PROGRAMMING FOR DATA SYSTEMS | 6 | -- | D230 | |
| | | | | 595040506 | RELATIONAL DATABASES AND STRUCTURED DATA | 6 | -- | D230 | |
| | | 2 ^o | | 595040507 | MATHEMATICAL MODELS AND DISCRETE MATHEMATICS | 6 | -- | D540 | |
| | | | | 595040508 | OPTIMIZATION | 6 | -- | D540 | |
| | SC | 1 st | | 595024327 | WAVE TRANSMISSION AND PROPAGATION | 6 | -- | D250 | |
| | | | | 595024328 | COMMUNICATIONS ELECTRONICS I | 6 | -- | D250 | |
| | | 2 nd | | 595024322 | ANALOG ELECTRONICS | 6 | -- | D250 | |
| | | | | 595024331 | COMMUNICATIONS ELECTRONICS II | 6 | 24328 | D250 | |
| | SO | 1 st | | 595024126 | AUDIO ENGINEERING I | 4.5 | 240122 | D250 | |
| | | | | 595024128 | IMAGE AND VIDEO TECHNOLOGIES | 6 | 24122 | D250 | |
| | | 2 nd | | 595024122 | SOUND AND IMAGES FUNDAMENTALS | 6 | -- | D250 | |
| | | | | 595024131 | AUDIO ENGINEERING II | 6 | 24122 | D250 | |
| | TL | 1 st | | 595024228 | TRANSMISSION SYSTEMS | 6 | -- | D230 | |
| | | | | 595024234 | MOBILE COMMUNICATIONS NETWORKS | 6 | -- | D230 | |
| | | 2 nd | | 595024222 | ADVANCED APPLICATION PROGRAMMING | 6 | -- | D230 | |
| | | | | 595024231 | NETWORKS AND SERVICES SECURITY | 6 | -- | D230 | |
| | C | | 1 st /2 nd | | 595040064 | AIMING AT B2 IN ENGLISH | 3 | -- | D240 |
| | | | | | 595040341 | COMMUNICATION SYSTEM ARCHITECTURE | 4.5 | -- | D250 |
| | | | 1 st | | 595040066 | INTRODUCTION TO MACHINE LEARNING | 3 | -- | D230 |
| | | | | | 595040060 | RENEWABLE ENERGY | 3 | -- | D510 |
| | | | | 595040062 | TELECOMUNNICACION COMMON INFRASTRUCTURES | 3 | -- | D250 | |
| 2 nd | | | | 595040074 | CIS TO DEFENCE | 3 | -- | D250 | |
| | | | | 595040254 | EMERGING ICT FOR SUSTAINABILITY | 4.5 | -- | D230 | |
| | | | | 595040067 | INTERNATIONAL PROJECT | 3 | -- | D250 | |
| | | | | 595040537 | INTRODUCTION TO QUANTUM COMPUTING | 4.5 | -- | D540 | |
| | | | | 595040070 | MANAGEMENT OF TECHNOLOGICAL INNOVATION | 3 | -- | D230 | |
| | 595040063 | THIN WEB CLIENT PROGRAMMING | 6 | -- | D230 | | | | |
| | 595040065 | WOMEN IN SCIENCE AND TECHNOLOGY | 3 | -- | D510 | | | | |

| TYPE | SEMESTER | CODE | COURSES | ECTS |
|------|----------|-----------|------------------------|------|
| PE | 1º y 2º | 595030075 | P1 INTERNSHIP CREDITS | 3 |
| | | 595040090 | P1B INTERNSHIP CREDITS | 3 |
| | | 595040093 | P1C INTERNSHIP CREDITS | 3 |
| | | 595030076 | P2 INTERNSHIP CREDITS | 4.5 |
| | | 595040091 | P2B INTERNSHIP CREDITS | 4.5 |
| | | 595040094 | P2C INTERNSHIP CREDITS | 4.5 |
| | | 595030077 | P3 INTERNSHIP CREDITS | 6 |
| | | 595040092 | P3B INTERNSHIP CREDITS | 6 |
| | | 595030078 | P4 INTERNSHIP CREDITS | 9 |
| | | 595030079 | P5 INTERNSHIP CREDITS | 12 |
| | | 595030087 | P6 INTERNSHIP CREDITS | 15 |

ELECTIVE COURSES

- Each student must pass at least 31.5 elective ECTS to complete the degree.

TYPES OF ELECTIVE COURSES

Each academic year, the School Board will establish the range of optional courses.

A Type - Elective courses to strengthen the specialty.

B Type - Elective courses to strengthen other specialties.

C Type - Elective courses for the four degrees.

PE - Internship credits.

ADMISSION REQUIREMENTS FOR ELECTIVE COURSES

To enroll on an elective course, every student must have taken or passed the course(s) shown in the **REQUIREMENTS** box.

SPEC.:

EC: Electronics for Communications.

SC: Telecommunications Systems.

SO: Image and Sound.

TL: Telematics.

DEPARTMENT CODES

D230: Telematics and Electronic Engineering.

D240: Linguistics Applied to Science and Technology.

D250: Audiovisual and Communications Engineering

D400: Organization Engineering, Business Management and Statistics.

D510: Physical Electronics, Electrical Engineering and Applied Physics.

D540: Mathematics Applied to Information and Communication Technologies.