

## UNIVERSIDADE DE AVEIRO

Created in 1973, the University of Aveiro has quickly become one of the most dynamic and innovative universities in Portugal. As a public foundation operating under private law, it develops its mission to provide undergraduate and postgraduate education, to generate research and to promote cooperation with society. UA has achieved a significant position amongst higher education institutions in Portugal, being one of the top universities regarding the quality of its infrastructures, the strength of its research and the excellence of its staff. It is attended by some 15,000 students.

### Location

Aveiro is located in the central coastal region of Portugal, about two hours driving distance north of Lisbon. Aveiro is surrounded by a distinctive delta called the Vouga Delta, better known as Ria de Aveiro. Aveiro is served by excellent rail and road connections to Lisbon and to the inland towns as well as to the close by cities of Oporto and Coimbra. Sá Carneiro international airport, which is less than 1 hour away, provides convenient connections throughout Europe.

### Accommodation

Exchange students receive help from the International Office to find accommodation in one of the University Halls of Residence. For students who do not live at the Univer-

sity Halls there are other options. With the help of the Erasmus Student Network (ESN), many students look for flats close to the campus or in the nearby city centre. Typical prices for student accommodation range from €180 to €250 per month.

### Living costs

As an estimate, a student in Aveiro will need somewhere between €550 and €600 per month for accommodation, eating, transport, study material and other basic expenses.

### Visas

Non-EU students should check whether they need a visa and a residence permit. Students make their visa request in their home country, at the Portuguese consulate, before travelling to Portugal.

### Student Life

Students at UA have a lot of support from the University and from each other. The Students Union and the University Social Services provide shops, advice centres, medical care, sports facilities and entertainment. The University departments and central services organise hundreds of events each year, providing students with opportunities to pursue their personal interests, whether it be in science, technology, business or the arts. Counselling and career services are also available to our students and alumni.

### Applications

[www.ua.pt/grl/applications](http://www.ua.pt/grl/applications)

SEMESTER EXCHANGE IN AVEIRO

study for one semester  
at portugal's leading  
university

Electronics  
and Telecom-  
munications



universidade de aveiro  
theoria poiesis praxis

Semester exchange packages are English taught programmes at bachelor or masters level and correspond to a full semester of academic work that can be recognised at your University. We will partner with your University to ensure you gain all the benefits from your exchange at UA.

#### MAIN BENEFITS

- English taught course units
- Non-overlapping course timetable
- Support for accommodation and Visa

#### PROGRAMME FACTS

**Semester:** 1st (September-January)

**Programme workload:** 30 ECTS credits

**Language requirement:** English, B1 level

**Academic level:** master

**Prerequisites:** Bachelor – Level 2 degree in Electronics and Telecommunications or in a closely related area awarded on completion of a 1st cycle programme organised in accordance with Bologna principles.

**Fees:** EUR 553,01 (2015/2016 academic year)

#### COURSE UNITS

- **41404 Electronics III (6,0 ECTS)**

This is an introductory course on digital circuit design and associated integrated circuit technologies. It covers key issues on digital circuits quality metrics, submicron large signal transistor behaviour, combinational circuit design and optimization based on several currently relevant MOS logic solutions, sequential circuit design and timing, low-power circuits, memory and array architectures, as well as design techniques for VLSI implementation, CMOS processing and reliability issues.

- **44105 Communication Systems II (6,0 ECTS)**

This course provides the ability to understand and design communication systems. Tools are developed for designing appropriate multiplexing techniques, given particular system characteristics. Methodologies are also studied for communication systems optimization, aiming at probability of error minimization. The final part of the course concentrates on error control techniques, a way to approach the Shannon limit. The laboratory component focuses on the implementation of techniques for reliable simulation of complete communication systems.

- **41406 Power Electronics (6,0 ECTS)**

This course provides the knowledge necessary to understand the essentials of power electronic circuits. It is tailored to students mastering the basic concepts of electronic circuit analysis and design, and focused on the learning by experiment methodology. It covers the analysis and design of linear regulators, switching regulators, four layered device circuits, modern lighting systems, motors, power control and interfaces.

- **41594 Optic Communications (6,0 ECTS)**

The aim of the course is to provide students with the fundamentals of optical communication systems, presenting today's scenarios (core and access), and foreseeing next generation optical networks, in particular the advanced modulation formats to support them. It discusses several issues, covering optical fibre operation and the characteristics associated to the main components of an optical communication system, followed by optical networks issues, namely related to access networks: standards, design and installation.

#### OPTION

(choose one of the two following course units)

- **41460 Radio Frequency Electronics (6,0 ECTS)**

The course assumes a basic undergraduate-level knowledge on analogue electronics and is devoted to providing students with a basic understanding of the most common circuits used in the RF blocks of wireless communication systems. Accordingly, it starts by addressing the basic system level design rules to achieve a feasible power budget, to then look into the design of the most basic and important electronic circuits for analogue RF signal processing such as: small-signal amplifiers, low-noise and power amplifiers, frequency mixers and modulators and, finally, sinusoidal oscillators and PLL synthesizers.

- **41227 Radio Systems (6,0 ECTS)**

The course has the main objective of providing an integrated view of the radio communications field. Emphasis is given to the physical layer in the OSI model, addressing briefly the upper layers in the last chapters addressing some specific radio communications systems. It is intended that the student will be able to design and discuss a radio system for a network of wireless sensors, an RFID system, or to an emerging area of Wireless Power Transmission, as well as wireless communication solutions (Wi-Fi, Bluetooth, GSM, 4G). The course addresses two key themes: 1) how system level decisions affect component and subsystem design; 2) how the capabilities of technologies, components, and subsystems impact system design.