



## IDENTIFYING DATA

### Externships: Internships I

|                     |  |          |      |
|---------------------|--|----------|------|
| Subject             | Externships:<br>Internships I  |          |      |
| Code                | V05G300V01981  |          |      |
| Study programme     | Degree in<br>Telecommunications<br>Technologies<br>Engineering   |          |      |
| Descriptors         | ECTS Credits   | Choose   | Year |
|                     | 6  | Optional | 4th  |
| Teaching language   | Spanish  |          |      |
| Department          |  |          |      |
| Coordinator         | Marcos Acevedo, Jorge  |          |      |
| Lecturers           | Marcos Acevedo, Jorge  |          |      |
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| Web                 | http://fatic.uvigo.es  |          |      |
| General description | (*)Estancia nunha empresa desenvolvendo funcións propias dun/a Enxeñeiro/a Técnico/a de Telecomunicación relacionadas co perfil profesional cursado polo alumno (Sistemas de Telecomunicación, Telemática, Sistemas Electrónicos ou Son e Imaxe) e supervisado por profesorado do Centro e persoal da empresa. |          |      |

## Competencies

|      |   |
|------|---|
| Code |   |
| B4   | CG4: The ability to solve problems with initiative, to make creative decisions and to communicate and transmit knowledge and skills, understanding the ethical and professional responsibility of the Technical Telecommunication Engineer activity.  |
| B5   | CG5: The knowledge to perform measurements, calculations, assessments, appraisals, technical evaluations, studies, reports, task scheduling and similar work to each specific telecommunication area.   |
| B12  | CG12 The development of discussion ability about technical subjects   |
| B13  | CG13 The ability to use software tools that support problem solving in engineering.   |
| C21  | CE21/ST1 The ability to construct, exploit and manage telecommunication networks, services, process and applications, considered as systems of receiving, transporting, representation, processing, storage, management and presentation of multimedia information from the point of view of transmission systems.  |
| C22  | CE22/ST2 The ability of applying the basic techniques of telecommunication networks, services and applications for mobile and fixed environments, personal, local or long distance, with different bandwidth, including telephony, radio broadcasting, TV and data, from the point of view of transmission systems.   |
| C23  | CE23/ST3 The ability to analyze the components and their specifications for guided and non-guided communications systems  |
| C24  | CE24/ST4 The ability to select circuits, subsystems and systems of radiofrequency, microwaves, broadcasting, radio link and radio determination.  |
| C25  | CE25/ST5 The ability to select transmission antennas, equipment and systems, propagation of guided and non-guided waves, with electromagnetic, radiofrequency and optical media, and their corresponding radio electric spectrum management and frequency designation.  |
| C26  | CE26/ST6 The ability to analyze, codify, process and transmit multimedia information using analogical and digital signal processing techniques.   |
| C27  | CE27/TEL1 The ability to construct, operate and manage telecommunication networks, services, processes and applications considered as systems to receive, transport, represent, process, store, manage and present multimedia information from the computer services point of view.   |
| C28  | CE28/TEL2 The ability to apply the techniques that are basis of computer networks, services and applications, such as management, signaling and switching, routing and securing systems (cryptographic protocols, tunneling, firewalls, charging mechanisms, authentication and content protection) traffic engineering (graph theory, queuing theory and teletraffic) rating, reliability and quality of service in both fixed, mobile, personal, local or long distance environments with different bandwidths, including telephony and data. |
| C29  | CE29/TEL3 The ability to build, operate and manage computer services using planning, sizing and analytical tools  |

- C30 CE30/TEL4 The ability to describe, program, assess and optimize communication protocols and interfaces at different network architecture layers .
- C31 CE31/TEL5 The ability to follow the technological progress of transmission, switching and processing to improve computer networks and services.
- C32 CE32/TEL6 The ability to design networks and service architectures.
- C33 CE33/TEL7 The ability to program network and distributed applications and services.
- C34 CE34/SI1 The ability to construct, exploit and manage telecommunication services and applications, such as receiving, digital and analogical treatment, codification, transporting and representation, processing, storage, reproduction, management and presentation of audiovisual and multimedia information services.
- C35 CE35/SI2 The ability to analyze, specify, carry out and maintain systems, equipments, heads and installations of TV, audio and video for mobile and fixed environments.
- C36 CE36/SI3 The capacity to implement projects at places and installations for the production and recording of audio and video signals.
- C37 CE37/SI4 The ability to carry out acoustic engineering projects related to: acoustical isolation and conditioning of rooms, loudspeaker installations, specification, analysis and selection of electro acoustical transducers, measurement, analysis and control of radio vibration systems, environmental acoustics, submarine and acoustical systems.
- C38 CE38/SI5 The ability to create, modify, manage, broadcast and distribute multimedia contents taking into account the use and accessibility criteria to audiovisual, broadcasting and interactive services.
- C39 (CE39/SE1): The ability to construct, exploit and manage the receiving, transporting, representation, processing, storage, manage and presentation multimedia information from the electronic systems point of view.
- C40 (CE40/SE2): The ability to select electronic circuits and devices specialized in transmission, forwarding or routing, and terminals for fixed and mobile environments.
- C41 (CE41/SE3): The ability to make the specification, implementation, documenting and tuning of electronic systems and equipment ( both instrumentation and control oriented), considering the corresponding technical aspects and the regulations.
- C42 (CE42/SE4): The ability to apply electronics as support technology in other fields and activities and not only in information and communication technologies.
- C43 (CE43/SE5): The ability to design analogical and digital electronics circuits of analogical to digital conversion and vice versa, of radiofrequency, of feeding and electrical energy conversion for computing and telecommunication engineering.
- C45 (CE45/SE7): The ability to design interface, data capturing and storage devices, and terminals for services and telecommunication systems.
- C46 (CE46/SE8): The ability to specify and use electronic instrumentation and measurement systems.
- C47 (CE47/SE9): The ability to analyze and solve interference and electromagnetic compatibility problems .
- D2 CT2 Understanding Engineering within a framework of sustainable development.

### Learning outcomes

| Expected results from this subject   | Training and Learning Results |     |    |
|--|-------------------------------|-----|----|
| Experience in the exert of the profession of Technical Engineer of Telecommunication and of his more usual functions (according to the programme of the student) in some real surroundings of company. | B4                            | C21 | D2 |
|  | B5                            | C22 |    |
|  | B12                           | C23 |    |
|  | B13                           | C24 |    |
|  |                               | C25 |    |
|  |                               | C26 |    |
|  |                               | C27 |    |
|  |                               | C28 |    |
|  |                               | C29 |    |
|  |                               | C30 |    |
|  |                               | C31 |    |
|  |                               | C32 |    |
|  |                               | C33 |    |
|  |                               | C34 |    |
|  |                               | C35 |    |
|  |                               | C36 |    |
|  |                               | C37 |    |
|  | C38                           |     |    |
|  | C39                           |     |    |
|  | C40                           |     |    |
|  | C41                           |     |    |
|  | C42                           |     |    |
|  | C43                           |     |    |
|  | C45                           |     |    |
|  | C46                           |     |    |
|  | C47                           |     |    |

### Contents

|       |  |
|-------|--|
| Topic |  |
| Item  | To define by the company advisor and the academic advisor. |

### Planning

|  | Class hours | Hours outside the classroom | Total hours |
|--|-------------|-----------------------------|-------------|
| External practises                             | 147         | 0                           | 147         |
| Reports / memories of internships or practicum | 0           | 3                           | 3           |

\*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

### Methodologies

|                    | Description  |
|--------------------|--|
| External practises | The student develops own functions in a company as an Telecommunication Engineer with determinate profile by the technology that the student have studied (Systems of Telecommunication, Electronic Systems, Telematic or Sound and Image) |

### Personalized attention

#### Methodologies Description

|                    |   |
|--------------------|---|
| External practises | The student will have a advisor inside the company that will guide him and will supervise in the specific tasks that it will have to develop inside the company; and an academic advisor -professor of the University of Vigo that will define together with the advisor of the company the general frame of the activity of the student, checking that it adjusts to the profile studied by the student. |
|--------------------|---|

### Assessment

|                    | Description   | Qualification | Training and Learning Results |     |    |
|--------------------|---|---------------|-------------------------------|-----|----|
| External practises | It will value so much the aptitude like the attitude of the student in the development of the activities entrusted. | 90            | B4                            | C21 | D2 |
|                    |   |               | B5                            | C22 |    |
|                    |   |               | B12                           | C23 |    |
|                    |   |               | B13                           | C24 |    |
|                    |   |               |                               | C25 |    |
|                    |   |               |                               | C26 |    |
|                    |   |               |                               | C27 |    |
|                    |   |               |                               | C28 |    |
|                    |   |               |                               | C29 |    |
|                    |   |               |                               | C30 |    |
|                    |   |               |                               | C31 |    |
|                    |   |               |                               | C32 |    |
|                    |   |               |                               | C33 |    |
|                    |   |               |                               | C34 |    |
|                    |   |               |                               | C35 |    |
|                    |   |               |                               | C36 |    |
|                    |   |               |                               | C37 |    |
|                    |   |               |                               | C38 |    |
|                    |   |               |                               | C39 |    |
|                    |   |               |                               | C40 |    |
|                    |   |               |                               | C41 |    |
|                    |   |               |                               | C42 |    |
|                    |   |               |                               | C43 |    |
|                    |   |               |                               | C45 |    |
|                    |   |               |                               | C46 |    |
|                    |   |               |                               | C47 |    |

|  |  |    |                        |  |
|--|--|----|------------------------|--|
| Reports / memories of internships or practicum | The memory presented by the student will have to adjust to the indications collected in the rules of practices in valid company (University of Vigo and intern of the degree in Engineering of Technologies of Telecommunication). | 10 | B4<br>B5<br>B12<br>B13 | C21<br>C22<br>C23<br>C24<br>C25<br>C26<br>C27<br>C28<br>C29<br>C30<br>C31<br>C32<br>C33<br>C34<br>C35<br>C36<br>C37<br>C38<br>C39<br>C40<br>C41<br>C42<br>C43<br>C45<br>C46<br>C47 |
|--|--|----|------------------------|--|

### **Other comments on the Evaluation**

The tutor of the company will deliver a report valuing appearances related with the practices realised by the student: punctuality, assistance, responsibility, capacity of work in team and integration in the company, quality of the work realised, etc.

The student/to will have to deliver an explanatory memory of the activities realised during the practices, specifying his length, the units or departments of the company in that they realised, the training received (courses, computer programs, etc.), the level of integration inside the company and the relations with the personnel.

The memory has to include also a section of conclusions, that will contain a reflection on the suitability of the educations received during the career for the exert of the practice (positive and negative appearances more significant related with the development of the practices). It will value, besides, the inclusion of information on the professional and personal experience obtained with the practices (personal assessment of the learning achieved along the practices, and suggestions or own contributions on the structure and operation of the company visited).

If the memory presented by the student does not reach the quality and minimum requirements, the student will have opportunity to rectify it for his \*re-evaluation in the extraordinary announcement of July.

### **Sources of information**

#### **Basic Bibliography**

#### **Complementary Bibliography**

### **Recommendations**

### **Other comments**

It recommends have studied the three first courses of the degree.