Universidad Rey Juan Carlos

TEACHING GUIDE

PROGRAMMING IN NETWORK ENVIRONMENTS

GRADO EN INGENIERÍA BIOMÉDICA (INGLÉS)

ACADEMIC YEAR 2018-19

Date: 11-07-2018

I.-Subject Identification	
Type	OBLIGATORIA
Teaching period	1 course, 2Q semester
Nº of credits	6
Language in wich the subject is taught	English

II.-Presentation

The subject will train the student in the different techniques of programming of computerized systems in network, in the field of Biomedicine.

III.-Competences

Generic competences

Specific competences

CE11 - To identify, use and adapt telecommunication technologies that offer rational solutions to biomedical engineering problems.
CE19 - To use the fundamentals of programming for the development of computer programs in modern programming languages, as well as understand and use different operating systems, databases and hospital information systems. Apply them in networks, systems and telematic services for hospital management.

IV.-Contents

IV.A.-Syllabus

1. Service Models.
2. Programming Techniques for Client-Server and P2P Applications.
3. Distributed Application Programming Techniques.
4. Techniques of Programming of Communications Protocols.
5. Network Security.
6. Object Oriented Programming.
7. UML.
8. Programming Web Applications.
9. Cloud Computing.

IV.B.-Training activities

Type	Title
Laboratories	Practices for topic 2
Laboratories	Practices for topic 3
Laboratories	Practices for topic 5
Laboratories	Practices for topic 6
Laboratories	Practices for topic 8
Others	Master classes for topics 1-9

V.-Student worload	
Lecture classes	18
Pratical classes/problem-solving, case studies, etc.	2
Practical sessions in technological laboratories, hospitals, etc.	24
Tests	16
Academic tutorials	2
Related activities: conferences, seminars, etc.	16
Preparation of lecture classes	70
Preparation of practical classes, problem-solving, case studies,etc.	14
Test preparation	18
Total student workload	180

VI.-Teaching Methodology and Organisation

Type	Period	Content
Academic Tutorials	Week 1 to Week 14	Topics 1-9
Theoretical classes	Week 1 to Week 2	topics 6,7
Laboratories	Week 1 to Week 2	topics 6,7
Theoretical classes	Week 3 to Week 3	topics 1,9
Laboratories	Week 3 to Week 3	topics 1,9
Theoretical classes	Week 4 to Week 1	topic 3
Laboratories	Week 5 to Week 6	topic 3
Theoretical classes	Week 5 to Week 6	topic 2
Laboratories	Week 5 to Week 6	topic 2
Theoretical classes	Week 7 to Week 9	topic 4, 5
Laboratories	Week 7 to Week 9	topic 4
Theoretical classes	Week 10 to Week 12	topic 8
Laboratories	Week 10 to Week 14	topic 8 and final project

VII.-Assessment methods

VII.A.-Continuous assessment

Regular Evaluation:: If the teacher requires mandatory attendance, it should be precisely specified.
(Note: If a student is not allowed to sit for an exam because he/she has not complied with minimum attendance, this should be justified using a system of proof; for example, a list of signatures on an attendance sheet).
The distribution and characteristics of the assessment tests are the ones described next. The professor, considering the specific characteristics of each group, may announce changes during the first weeks of the course that he or she considers appropriate, previously informing the Vicerrectorate of Academic Affairs.
With the exception of laboratory and clinical practicals, the sum total of tasks which are not subject to reassessment cannot exceed 50% of the mark for the subject. Regarding said tasks, there is no minimum pass mark.
Extraordinary Evaluation: Those students who have not succeeded at the ordinary assessment, or have not taken the subject exams, will have to do a make-up exam to verify the acquisition of the tasks set out in the guide.

Description of the tests for assessment and their weights.

• Written exam on the concepts of the subject: max 20% of the final score
•Memory and presentation of practices: min 80% of the final score

VII.B. Evaluation of Students with Academic Exemption

To be assessed using this method, the student should obtain Academic Exemption for the subject, applying for it to the Dean or Director of the Faculty/School in which the subject is taught. 'Academic Exemption' may be granted only if the characteristics of the subject allow so.

Academic Exemption possible in this subject: Yes

VII.C. Revision of examinations

In accordance with the regulation of examination revision of the University Rey Juan Carlos.

VII.D.-Disabled students or students with special needs

The Assistance for the Disabled Service, according to the regulations of this Service, approved by the Governing Council of the Rey Juan Carlos University, will provide the guidelines for the curricular adaptations for students with disabilities or special needs, in order to guarantee equal opportunities, non-discrimination, universal accessibility and better academic success.
For this reason, this University is required to issue a report of curricular adaptations. In order to do so, disabled students or students with special needs must contact this service to analyze different alternatives.

VII.E.-Rules of Conduct

Rules of Conduct

VII.-Bibliography
Referecence Generic
Mark Lutz Programming Python, 4th Edition O'Reilly Media,2010 Mitchell L Model. Bioinformatics programming using python. O'Reilly 2009
Reference literature
Jason M. Kinser Python for Bioinformatics Jones and Bartlett, 2008

IX.-Lecturers/Teachers/Professors	
Lecturer/teacher/professor´s name	ALVARO DEL CASTILLO SAN FELIX
E-mail address	alvaro.delcastillo@urjc.es
Department/field	Teoría de la Señal y las Comunicaciones y Sistemas Telemáticos y Computación
Category	Profesor Asociado
Subject Coordinator	Yes
Academic tutorial timetable	Para consultar las tutorias póngase en contacto con el/la profesor/-a a través de correo electrónico
Nº of Quinquenios	0
Nº of Sexenio	0
Stretch Docentia	0
Lecturer/teacher/professor´s name	JUAN GONZALEZ GOMEZ
E-mail address	juan.gonzalez.gomez@urjc.es
Department/field	Teoría de la Señal y las Comunicaciones y Sistemas Telemáticos y Computación
Category	Profesor Ayudante Doctor
Academic qualifications	Doctor

Subject Coordinator	No
Academic tutorial timetable	Para consultar las tutorias póngase en contacto con el/la profesor/-a a través de correo electrónico
Nº of Quinquenios	0
Nº of Sexenio	0
Stretch Docentia	0