Universidad Rey Juan Carlos

TEACHING GUIDE

ENTREPRENEURSHIP AND INNOVATION IN BIOMEDICAL ENGINEERING

GRADO EN INGENIERÍA BIOMÉDICA (INGLÉS) (3º y 4º curso) (2374)

ACADEMIC YEAR 2026-27

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I.-Subject Identification	
Type	OBLIGATORIA
Teaching period	3 course, 2Q semester
Nº of credits	3
Language in wich the subject is taught	English

II.-Presentation

The main goal of the subject is to provide students with a clear understanding of innovation and entrepreneurship in the biomedical engineering sector. To stimulate technological innovation in the field of health and promote entrepreneurship, as well as provide a knowledge base that enables students to transform biomedical innovations into feasible business solutions.

III.-Learning outcomes

CG01 . Analyze and synthesize problems related to biomedical engineering, solve them and communicate them efficiently.
CG04. Know and apply the procedures and techniques for planning biomedical engineering projects, as well as analyze the risks involved in the implementation of such projects.
CB1. Proven knowledge and understanding of an area of study based on general secondary education and at a level which, although supported by advanced text books, also includes certain aspects that imply knowledge from the forefront of the field of study.
CB4 . That students are able to transmit information, ideas, problems and solutions to both specialized and non-specialized audience.
CE25. Understand and implement healthcare projects and optimally use the results to review production processes.
CE26. Apply business knowledge for the creation and management of biotechnology-based companies and knowledge transfer in the field of bioengineering

- Key for degrees not adapted to RD 822/21: **CB** - basic competences, **CG** - generic competences, **CE** - specific competences, **CT** - transversal competences.
- Key for degrees adapted to RD 822/21: **CON** - knowledge, **COM** - competences, **HAB** - skills.

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IV.-Contents

IV.A.-Syllabus

1. Business Plan
1.1 The company
1.2 Business model
1.3. Marketing plan and business plan
2. The entrepreneurship process
2.1. The act of undertaking
2.2. The figure of the entrepreneur
3. Innovation in the health sector
3.1. Business opportunities: from ideation to innovation
3.2. Innovative products and services in the health sector
3.3. Innovative ICTs in the health sector
4. Innovation project management
4.1. Introduction to project management
4.2. Project management methodologies
4.3. Innovation management methodologies in companies
5. Health entrepreneurship ecosystem
5.1. Entrepreneurship support ecosystem
5.2. Getting funds
5.3. Communicating the entrepreurship project

IV.B.-Training activities

Type	Title
Theoretical sessions	The student must solve theoretical and practical questions
Lectures	Readings will be proposed for critical analysis
Group work	Practical cases to analyze and to be solved by the student
Individual work	Practical cases to analyze and to be solved by the student

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V.-Student workload	
Theoretical sessions	14
Resolution of exercises, problems, case studies, etc.	14
Practical sessions in experimental, technological and clinical laboratories, fieldwork, etc.	0
Tests and/or exams	2
Academic tutorials	22
Related activities: conferences, seminars, etc.	2
Preparation of theoretical sessions and self-study	3
Preparation of practical tasks, exercises, case studies, projects, etc.	25
Preparation for tests and/or exams	8
Total student workload	90

VI.-Methodology and academic programme

Type	Period	Content
Practical sessions	Week 1 to Week 15	The practical exercises will consist of solving problems individually or in groups, by the student outside or inside the classroom.
Tests and/or exams	Week 1 to Week 15	Practical exercises 1 and 2 will be completed and submitted on the date established by the instructors, during the academic term. The knowledge assessment tests will be administered on the date set by the Faculty.
Academic tutorials	Week 1 to Week 15	Check the tutoring schedule set by the teacher.
Theoretical sessions	Week 1 to Week 15	On-site learning activity. In general, the basic theoretical content of the subject will be developed in class by the professor and can be supplemented with the use of the basic reference manuals included in the bibliography.

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VII.-Assessment methods

The general assessment method is continuous as established in the *Regulation for the Assessment of Learning Outcomes* of Rey Juan Carlos University.
All the assessment systems established in the degree report must be employed, except for those that have a minimum weight of 0%, which can be used by professors in the academic years they consider relevant. Each assessment system may be applied through one or more assessment activities, consistent with the system. No assessment activity can exceed individually 60% of the overall grade for the subject.
The sum of non re-evaluable activities cannot exceed 40% of the overall grade for the subject and, in general, should not have an established minimum grade (except for practical activities in which, strictly speaking, the conditions of the ordinary call cannot be reproduced in the extraordinary call).
Those students who do not manage to pass the subject in the ordinary call, or do not attend this first call, may attend the extraordinary call only for failed re-evaluable assessment activities.
The distribution and characteristics of the assessment activities are described below.

VII.A.-Description and weight of the assessment activities

The final grade for the course will be determined by the marks obtained in the theoretical-practical test and in the activities completed by the student, according to the established weighting criteria.

- Theoretical-practical test. Lessons 1 to 5. REASSESSABLE. Weighting: 60%

60% of the final grade will correspond to the theoretical-practical test. A minimum grade of 5 points out of 10 is required. The test will take place on the date established by the Faculty in the academic calendar, during the ordinary assessment period. It will be reassessable in the extraordinary call.

- Practical activities. REASSESSABLE. Weighting: 40%

• **Activity 1** (Lessons 1 and 2): minimum grade of 5 points out of 10. Weighting: 20%.
• **Activity 2** (Lessons 3, 4 and 5): minimum grade of 5 points out of 10. Weighting: 20%.

40% of the final grade will correspond to the practical activities carried out during the course and, therefore, as part of the continuous assessment process. These practical activities will be REASSESSABLE in the extraordinary call if they have not been passed by the students in the ordinary assessment period.
The content of these activities will be selected from the topics studied in the course. The activities must be completed on the date established by the teaching staff during the teaching period. The grade obtained by the student in these activities may be carried over to the extraordinary call if the student does not pass the course in the ordinary call. They may also be completed or reassessed in the extraordinary call.
Under no circumstances may the course be passed without obtaining a minimum grade of 5 points out of 10 in the overall final grade for the course. In order to pass the course, all components of the assessment activity must have been passed, either in the ordinary call or in the extraordinary call. Specifically, to pass the course, Activity 1, Activity 2 and the theoretical-practical test must each be passed with a minimum grade of 5 points out of 10.

VII.B. Assessment of students with academic exemption from class attendance

Having Academic Exemption from Class Attendance (DAAC) does not imply that students are automatically exempt from participating in the continuous assessment activities or in the training activities of compulsory attendance as established in the teaching guide. Once the exemption has been granted, students must contact the subject's teaching staff, who will propose the adaptations he/she may consider relevant, as long as they guarantee the acquisition and adequate assessment of the learning goals established. Students must maintain adequate communication with the teaching staff so that they may provide information on the dates for training and assessment activities, if these are not established in the programme and available for students at the time of achieving the exemption.
Subject with possibility of academic exemption: Yes.

VII.C. Review of assessment activities

In accordance with the Regulation for the Assessment of Learning Outcomes of Rey Juan Carlos University.

VII.D.-Students with a disability or special educational needs

In order to guarantee equal opportunities, non-discrimination, universal accessibility and academic success, students with disabilities or especial education needs may request curricular adaptations to follow their studies. These adaptations will be provided by the Unit of Attention to People with Disabilities of Rey Juan Carlos University, in accordance with the regulation which regulates the service for the Attention of People with Disabilities at the University. This Unit will issue a report for curricular adaptations, so that students with disabilities or special education needs must contact the service (at e-mail discapacidad.programa@urjc.es) in order to provide relevant information for different educational alternatives.

VII.E.-Academic behaviour, academic integrity and honesty

Rey Juan Carlos University is fully committed to the highest standards of academic integrity and honesty, so studying at the URJC means assuming and subscribing to the values of integrity and academic honesty set out in the University's Ethical Code. To support this process, the University has Rey Juan Carlos University's Academic Conduct Regulation as well as different tools (anti-plagiarism, supervision...) that offer a collective guarantee for the full development of these essential values.

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VIII.-Teaching resources and materials
Basic bibliography
Castro Abancéns, I.; Rufino Rus, J.I. (2010). Creación de empresas para emprendedores. Guía para la elaboración de un plan de negocios. Pirámide: Madrid. Fernández, E. (2005). *Estrategia de Innovación.* Thomson, Madrid. González, F.J. (2012). Creación de empresas. Guía del emprendedor. (4ª edición) Pirámide: Madrid. Mitra, J. (2017). *The Business of Innovation*. Sage. Tidd, J.; Bessant, J. (2009). *Managing innovation. Integrating technological, market and organizational change*. John Wiley & Sons.
Consultation bibliography
Chesbrough, H. W. (2006). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business Press, Boston. Jimenez Quintero, J.A. (Coord.) (2012). Creación de empresas. Viabilidad estratégica en la práctica. Pirámide: Madrid. Nieto, M. (2008). "La dirección estratégica de la innovación en entornos dinámicos". *Madri*+d, monografía núm. 20. Osterwalder, A.; Pigneur, Y. (2016). Generación de modelos de negocio. (16ª edición) Deusto: Barcelona. Osterwalder, A.; Pigneur, Y; Bernarda, G; Smith, A. (2015). Diseñando la propuesta de valor. Deusto: Barcelona. Swann, G.M.P. (2009). *The economics of innovation. An introduction.* Edward Elgar, Cheltenham. Todolí Cerver, F. (2011). Creación de empresas paso a paso. CISS.

IX.-Professors	
Name and surname	ALFONSO ANTOLÍNEZ GARCÍA
E-mail address	alfonso.antolinez@urjc.es
Department	Economía de la Empresa
Campus	Fuenlabrada
Category	Profesor/a Ayudante Doctor/a
Academic degree	Doctor
Person responsible for the subject	No
Tutorial timetable	Para consultar las tutorias póngase en contacto con el/la profesor/a a través de correo electrónico
Number of quinquennia	0
Number of sexennia	0
No. of positive evaluations by Docentia	0
Name and surname	ROBERTO BRAVO CABAÑAS
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Department	Teoría de la Señal y Comunicaciones y Sistemas Telemáticos y Computación

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Campus	Fuenlabrada
Category	Profesor/a Asociado/a
Person responsible for the subject	Yes
Tutorial timetable	Para consultar las tutorias póngase en contacto con el/la profesor/a a través de correo electrónico
Number of quinquennia	0
Number of sexennia	0
No. of positive evaluations by Docentia	0

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