



GENERAL INFORMATION

Data of the subject	
Subject name	Business Intelligence
Subject code	DTC-MIT-525
Main program	Máster Universitario en Ingeniería de Telecomunicación por la Universidad Pontificia Comillas
Involved programs	Máster Universitario en Ingeniería de Telecomunicación [First year]
Level	Postgrado Oficial Master
Credits	6,0 ECTS
Type	Compulsory
Department	Department of Telematics and Computer Sciences
Coordinator	Miguel Ángel Sanz Bobi
Office hours	Contact with Professor

Teacher Information	
Teacher	
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DESCRIPTION OF THE SUBJECT

Contextualization of the subject
Prerequisites
None

Course contents

Contents
Topic 1. Introduction to business intelligence.



Topic 2. Description of data support techniques. Multidimensionality, Big Data.

Topic 3. Pre-exploration of data. Preparation of a training set.

Topic 4. Automatic learning from examples. Methods of induction of knowledge and learning.

Topic 5. Artificial Intelligence techniques to help decision-making in business intelligence. Systems based on knowledge. Methods of representing uncertainty in knowledge

EVALUATION AND CRITERIA

Evaluation activities	Evaluation criteria	Weight
Exams	<ol style="list-style-type: none">1. Open type final exam with questions theory, problems and/or practical cases (50%). It will be evaluated both the correctness of the answer and the procedure chosen for the resolution of the problem, such as numerical results, which, although they may be incorrect, they must be consistent and logical.2. Intermediate evaluation tests (15%). It will be evaluated the simplicity of the solution reached, the ability to present acquired knowledge and mastery of the questions proposed in a short period of time.	65 %
Experimental practices	<ol style="list-style-type: none">1. Final practical project of the subject (25%). Its evaluation will consider the size of the project and the number of techniques used in the topics developed in the subject, as well as the coherence of the different parts of the project, its results, feasibility of application and depth of work.2. Subject practices (10%). It will be evaluated the application of concepts about the the topics of the subject to the development of cases (small real practical problems)	35 %

Grading

Class attendance is mandatory. According to the general rule of the Engineering School, non-attendance without justification of 15% of teaching hours eliminates the possibility of passing the subject in both calls: ordinary and extraordinary. If this happens, **Not Passed** will be recorded as grade of the subject in both calls.

The qualification in the ordinary call of the subject will be obtained as follows:

65% will be obtained from the examams part (50% final exam grade + 15% inter-semester grade).

35% will be obtained from the qualification of the subject practices (10% lsubject practices + 25% practical final work of the subject).



To pass the subject in the ordinary call it will be necessary to obtain 5 points or more out of 10 both in the qualification of the practice and exams. The qualification of the subject that will appear in the records will be obtained according to the assessment percentage enunciated before about the different parts evaluated in the subject for the ordinary call.

The evaluation mentioned above will NOT be done to obtain the qualification of the subject when in one of the parts (practices or exams) the mark of 5 points has not been exceeded, appearing in the record of the subject the lowest mark obtained between the two mentioned parts. In the event that one of the parts has passed with a score equal to or greater than 5 points but the other has not and, therefore, NOT PASSED the subject, the passed part will be kept ONLY until the extraordinary call for that academic year.

WORK PLAN AND SCHEDULE

Activities	Date of realization	Delivery date
Reading and study of the theoretical contents of the material of the subject.	after each session	
Resolution of the proposed exercises	Weekly	
Deliveries of reports of the subject practices		One week after the proposal of the subject practice
Mid-semester exam	Mid-semester	
Final Exam		May

BIBLIOGRAPHY AND RESOURCES

Basic References

Specific material of the subject developed by the teacher accessible through the resource web portal of the subject.

Further reading

- C. Howson. Successful Business Intelligence: Unlock the Value of BI & Big Data, Ed. McGrawHill, second edition, 2013
- C. Huyen. Designing Machine Learning Systems, Ed. O'Reilly Media, Inc., 2022
- R. Sharda, D. Delen, E. Turban, Business Intelligence and Analytics: Systems for Decision Support. Ed. Pearson. 10th edition, 2015
- S. Russel, P. Norvig, Artificial Intelligence: A Modern Approach. Prentice Hall, third edition, 2010
- J. Han, M. Kamber. Data Mining: Concepts and Techniques. Elsevier, second edition 2006
- M.J. Zaki, W. Meira, Data Mining. Fundamental Concepts and Algorithms, first edition, 2014
- J. Boyer, B. Frank, B. Green, T. Harris, K. Vanter, Business Intelligence Strategy. A practical guide for achieving BI excellence, MC Press, first edition 2010
- I. Goodfellow, Y. Bengio, A. Courville. Deep Learning. MIT Press 2016.



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Syllabus
2022 - 2023

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