



## Teaching Guide

Identifying Data				2024/25
Subject (*)	Data Engineering Project Management	Code	614G02024	
Study programme	Grao en Ciencia e Enxeñaría de Datos			
Descriptors				
Cycle	Period	Year	Type	Credits
Graduate	1st four-month period	Third	Obligatory	6
Language	SpanishGalician			
Teaching method	Face-to-face			
Prerequisites				
Department	Ciencias da Computación e Tecnoloxías da Información			
Coordinador	Rodríguez Castiñeira, Hadriana	E-mail	hadriana.rodriguez@udc.es	
Lecturers	Rodríguez Castiñeira, Hadriana	E-mail	hadriana.rodriguez@udc.es	
Web				
General description	Este curso aborda aspectos moi relevantes para calquera graduado en enxeñaría de datos: planificación e seguimento de proxectos. Explicanse as metodoloxías de xestión de proxectos predictivos e orientadas ao cambio e as áreas relacionadas coa xestión de alcance, xestión de riscos e xestión de partes interesadas.			

## Study programme competences / results

Code	Study programme competences / results
A16	CE16 - Capacidade para concibir, planificar, xestionar riscos, despreñar e dirixir proxectos en enxeñaría de datos, liderando a súa posta en marcha e a súa mellora continua e valorando a súa calidade e impacto económico.
B2	CB2 - Que os estudantes saiban aplicar os seus coñecementos ao seu traballo ou vocación dunha forma profesional e posúan as competencias que adoitan demostrarse por medio da elaboración e defensa de argumentos e a resolución de problemas dentro da súa área de estudo
B3	CB3 - Que os estudantes teñan a capacidade de reunir e interpretar datos relevantes (normalmente dentro da súa área de estudo) para emitir xuízos que inclúan unha reflexión sobre temas relevantes de índole social, científica ou ética
B4	CB4 - Que os estudantes poidan transmitir información, ideas, problemas e solucións a un público tanto especializado como non especializado
B7	CG2 - Elaborar adecuadamente e con certa orixinalidade composicións escritas ou argumentos motivados, redactar plans, proxectos de traballo, artigos científicos e formular hipóteses razoables.
B8	CG3 - Ser capaz de manter e estender formulacións teóricas fundadas para permitir a introdución e explotación de tecnoloxías novas e avanzadas no campo.
B9	CG4 - Capacidade para abordar con éxito todas as etapas dun proxecto de datos: exploración previa dos datos, preprocesado, análise, visualización e comunicación de resultados.
B10	CG5 - Ser capaz de traballar en equipo, especialmente de carácter multidisciplinar, e ser hábiles na xestión do tempo, persoas e toma de decisións.
C1	CT1 - Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida.
C3	CT3 - Capacidade de xestionar tempos e recursos: desenvolver plans, priorizar actividades, identificar as críticas, establecer prazos e cumprilos.
C4	CT4 - Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade.

## Learning outcomes

Learning outcomes	Study programme competences / results



Saber planificar un proxecto, a xestión dos seus recursos e os seus riscos, así como o seu seguimento.	A16	B2 B3 B4 B7 B8 B9 B10	C1 C3 C4
Coñecer técnicas de modelización e optimización de proxectos, determinación do camiño crítico, nivelación e asignación de recursos.	A16	B2 B3 B4 B8 B9 B10	C1 C3 C4
Saber utilizar ferramentas de apoio á planificación e xestión de proxectos.		B2 B3 B7 B9 B10	C1 C3 C4
Aprender técnicas de negociación e comunicación interpersonal eficaces.		B2 B3 B4 B7 B8 B9 B10	C1 C3 C4

Contents	
Topic	Sub-topic
Methodologies of management of projects TIC stop the science and the engineering of data	Definición de Proxecto. Definición e competencias do Xefe de Proxecto. O equipo. Metodoloxía predictivas o en cascada (Waterfall). Metodoloxías áxiles. Enfoque de desenvolvemento e ciclo de vida.
Management of projects of engineering of data	Estimación Planificación Seguimento Línea Base Presuposto
Xestión de recursos	Identificación de recursos (internos e externos) Adquisicións
Management of parts interested	Identificación de interesados Xestión das comunicacións
Management of risks and opportunities associated	Identificación de riscos e oportunidades Cuantificación de riscos e oportunidades Análise de riscos e oportunidades Seguimento e control de riscos/oportunidades



Management of the Quality	A calidade como función organizativa Control de calidade Garantía de calidade Modelos de calidade
Management of the configuration of the software	Elementos de configuración de software (ECS) Contornos de desenvolvemento

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student's personal work hours	Total hours
Laboratory practice	B2 B3 B4 B7 B8 B9 B10 C1 C3 C4	20	20	40
Objective test	A16 B2 B3 B4 B7 B8 B9 B10 C1 C3 C4	2	10	12
Supervised projects	A16 B2 B3 B4 B7 B8 B9 B10 C1 C3 C4	8	16	24
Oral presentation	A16 B2 B3 B4 B7 B8 B9 B10 C1 C3 C4	2	12	14
Guest lecture / keynote speech	A16 B2 B3 B4 B7 B8 B9 B10 C1 C3 C4	30	30	60
Personalized attention		0		0

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

Methodologies	
Methodologies	Description
Laboratory practice	As clases prácticas estarán dedicadas á realización de prácticas e exercicios relacionados co programa exposto a través do método da clase, utilizando ferramentas de soporte informático.
Objective test	Exame escrito para avaliar os coñecementos teóricos e prácticos adquiridos ao longo do curso.
Supervised projects	O traballo en grupo ou autónomo e supervisado permite aos estudantes poñer en práctica os coñecementos adquiridos ao longo do curso. O traballo autónomo permite fundamentalmente aos estudantes o desenvolvemento detallado de prácticas e coñecemento e xestión das mencionadas ferramentas de soporte informático.
Oral presentation	A práctica de planificación e seguimento de proxectos presentarase e defenderase diante do profesor e dos alumnos mediante unha exposición oral dos mesmos.
Guest lecture / keynote speech	O método da charla empregárase para presentar os coñecementos teóricos relacionados cos diferentes temas.

Personalized attention	
Methodologies	Description



Supervised projects Laboratory practice	<p>The method of exhibition maxistral will combine with the practical computings, in the that conxurará the autonomous work and in a group titorizado.</p> <p>The method of the talk will employ to present the theoretical knowledges related with the different subjects.</p> <p>The practical kinds will be devoted to the realization of practices and exercises related with the plan exposed through the method of the kind, using tools of bear informático.</p> <p>The work in autonomous group and supervised allows to the students put in practice the knowledges purchased along the course.</p> <p>The practice of planning and tracking of projects will present and will defend in front of the professor and of the students by means of an oral exhibition of the same. The individual part of the practice of planning and tracking of projects will present by writing.</p> <p>It Will promote the participation of the students in all moment.</p>
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Assessment			
Methodologies	Competencies / Results	Description	Qualification
Objective test	A16 B2 B3 B4 B7 B8 B9 B10 C1 C3 C4	Dominio de los conocimientos teóricos y prácticos de la materia a través de un examen escrito individual.	50
Laboratory practice	B2 B3 B4 B7 B8 B9 B10 C1 C3 C4	Se valorará: - Nivel técnico de la práctica. - Completitud, claridad y justificaciones de la práctica. - Dominio de los conocimientos adquiridos. - Participación activa en la práctica.	50

Assessment comments
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The objective of the evaluation is to verify that the students possess the necessary fundamental competences and it will be carried out at several different moments in time:

During the project planning and monitoring practice, by means of objective tests in which the mastery of the knowledge put into practice up to that moment and its presentation and final defense will be evaluated.

At the end of the course, through an individual written exam.

**Punctuation**

The final mark of each student will be obtained as indicated below, to which the mark obtained by optional practices will be added linearly (up to 1 point):

Individual written exam: 50%

Project planning and monitoring practice: 30%.

Project planning and monitoring practice (individual): 20%.

To pass the subject it is necessary to obtain a minimum overall score of 5 points out of 10 and meet the following restrictions:

It is necessary to have a minimum of 5 points out of 10 in the practice of project planning and monitoring.

It is necessary to have a minimum of 5 points out of 10 in the project planning and monitoring practice (individual).

It is necessary to have a minimum of 4.5 points out of 10 in the individual written exam.

In the event that some minimum of the above is not met and the final grade calculated as indicated exceeds 4.0, the grade that will appear for the subject will be 4.0.

**Aspects to consider**

**Practical part:**

The groups of students to carry out the practices will be formed under the guidelines of the teachers.

The exhibition and defense of the project planning and monitoring practice will be public during the course's official timetable and all students who have said timetable must attend these acts, and they may ask questions, comments or suggestions. In this act, time will be assigned for the members of the group to speak and another time for questions, criticism, comments and/or suggestions from the teacher and the rest of the students.

In the evaluation of the project planning and monitoring practice, the technical level of the work and its completeness, clarity and exposition will be assessed.

Initially, the mark assigned to the project planning and monitoring practice will be the one received by all the members of the group that defend it, without prejudice to modifications based on the individual active participation of each one.

In the evaluation of individual project planning and monitoring practices, the ability to model a conflict situation in a project and resolve it, using the recommended software, as well as adequately interpret said solution, will be assessed.

Spelling deficiencies of punctuation and accentuation, as well as disjointed or inadequate writing, poor presentation, excessive number of crossing out, etc. will be especially taken into account, both in exams and in assignments. All this will mean a reduction in points on the grade obtained.

In the event that the teaching staff detects fraudulent performance (plagiarism) in the assessment tests, the grade will be adjusted to the provisions of article 14.4. Norms of evaluation, revision and claim of the qualifications of the university degree and master's studies: "In the accomplishment of works, plagiarism and the use of non-original material, including that obtained through the internet without express indication of its origin and, if applicable, the author's permission, may be considered cause for qualification of failure in the activity. All this without prejudice to the disciplinary responsibilities that may arise after the corresponding procedure".

In this matter, if the teacher detects plagiarism in any of the tests, it will mean a 0 in the grade. In case of repetition, it will be transferred to the Academic Commission for taking appropriate measures.

Special emphasis will be placed on caring for the environment in favor of a sustainable education and society. The works will be sent exclusively electronically, and if this is not possible, plastics will not be used in the printed documents, double-sided printing and recycled paper will be chosen, avoiding printing drafts.

A sustainable use of resources and the prevention of negative impacts on the natural environment must be made. The importance of ethical principles related to the values of sustainability in personal and professional behavior must be taken into account. To this end, whenever possible in the preparation of the works, recycling material will be used and the use of plastic materials in the delivery of the same will be avoided.

Discrimination based on gender will be avoided and actions and measures will be proposed to correct it. Non-sexist language will be used.

Students who do not pass the subject will have to demonstrate the correct acquisition of the competencies



## Sources of information

<b>Basic</b>	<p>"Guía de los Fundamentos para la Dirección de Proyectos" (PMBOK). 6ª edición. PMI "Guía de los Fundamentos para la Dirección de Proyectos" (PMBOK). 7ª edición. PMI "Ingeniería del software. Un enfoque práctico". Roger S. Pressman. 7ª edición. McGraw-Hill. "Software engineering". Ian Sommerville. 10ª edición. Pearson. "Desarrollo y gestión de proyectos informáticos". Steve McConnell. McGraw-Hill. "IEEE standard for software configuration management plans". Estándar IEEE 828-1990. "IEEE guide to software configuration management". Guía IEEE 1042-1987. "Planificación asistida por ordenador: Microsoft Project Professional 2019". Javier Andrade Garda y Sonia M. Suárez Garaboa. Repronor. 2020. "Manuales de usuario de la herramienta MS-Project 2019". "Gestión de proyectos con casos prácticos, ejercicios resueltos, Microsoft Project, Risk y hojas de cálculo". Ted Klastorin. Profit Editorial. 2010. "Investigación operativa". Quintín Martín Martín. Pearson educación. 2003. "Investigación operativa. Problemas y ejercicios resueltos". Quintín Martín Martín; Mª Teresa Santos Martín; Yanira del Rosario de Paz Santana. Pearson educación. 2005.</p>
<b>Complementary</b>	<p>"Ingeniería del software. Aspectos de gestión. Tomo 1: Conceptos básicos, teoría, ejercicios y herramientas". Román López-Cortijo y García y Antonio de Amescua Seco. Instituto Ibérico de la Industria del Software (<a href="http://www.iiis.es">www.iiis.es</a>). "Project management práctico. Técnicas, herramientas y documentos". J. Eduardo Caamaño. Ed. Círculo rojo-Docencia (<a href="http://www.pmpractico.com">www.pmpractico.com</a>). "Calidad de sistemas informáticos". Mario G. Piattini Velthius, Félix O. García Rubio e Ismael Caballero Muñoz-Reja. Ra-Ma. "La calidad del software y su medida". Jesús Mª Minguet Melián y Juan F. Hernández Ballesteros. Editorial Centro de Estudios Ramón Areces. "Interfaces, técnicas y prácticas. MÉTRICA versión 3". Ministerio de las Administraciones Públicas: <a href="http://www.csi.map.es/csi/metrica3/">http://www.csi.map.es/csi/metrica3/</a>. Software Engineering Institute (SEI): <a href="http://www.sei.cmu.edu/">http://www.sei.cmu.edu/</a>. European Software Institute (ESI-Tecnalia): <a href="http://www.tecnalia.com/es/">http://www.tecnalia.com/es/</a>. "Introducción a la Investigación de Operaciones". F. Hillier; G. Lieberman. McGraw-Hill. 2006. "Investigación de Operaciones. Aplicaciones y Algoritmos". Wayne L. Winston. Thomson. 2004.</p>

## Recommendations

### Subjects that it is recommended to have taken before

Statistical Analysis of Dependent Data/614G02022  
 Linear Algebra/614G02001  
 Fundamentals of Programming II/614G02009  
 Fundamentals of Programming I/614G02004  
 Probability and Basic Statistics/614G02003

### Subjects that are recommended to be taken simultaneously

### Subjects that continue the syllabus

### Other comments

(\*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.