IDENTIFYING DATA

The Didactics of Technology and Computer Science in Secondary Education

Subject	The Didactics of Technology and Computer Science in Secondary Education
Code	V02M066V02211
Study programme	(*)Máster Universitario en Profesorado en Educación Secundaria Obrigatoria, Bacharelato, Formación Profesional e Ensino de Idiomas. Especialidade (Vigo): Ciencias Experimentais. Matemáticas e Tecnoloxía

Descriptors	ECTS Credits		Choose	Year	Quadmester
	6		Optional	1st	2nd

Teaching language	Spanish Galician
Department	
Coordinator	Rodríguez Liñares, Leandro
Lecturers	Pintos Testa, Peregrina Rodríguez Liñares, Leandro Rodríguez Pizarro, Daniel
E-mail	leandro@uvigo.es
Web	http://faitic.uvigo.es
General description	

Competencies

Code	
B13	
C17	(*)Coñecer contextos e situacións en que se usan ou aplican os diversos contidos curriculares
C18	(*)Coñecer os desenvolvementos teórico-prácticos do ensino e a aprendizaxe das materias correspondentes.
C19	(*)Transformar os currículos en programas de actividades e de traballo.
C20	(*)Adquirir criterios de selección e elaboración de materiais educativos.
C22	(*)Integrar a formación en comunicación audiovisual e multimedia no proceso de ensino-aprendizaxe.
C23	(*)Coñecer estratexias e procedementos de avaliación e entender a avaliación como un procedemento de regulación da aprendizaxe e estímulo ao esforzo.
C24	(*)Coñecer e aplicar propostas docentes innovadoras no ámbito da especialización cursada.
C26	(*)Identificar os problemas relativos ao ensino e a aprendizaxe das materias da especialización e expor alternativas e solucións.
C27	(*)Coñecer e aplicar metodoloxías e técnicas básicas de investigación e avaliación educativas e ser capaz de deseñar e desenvolver proxectos de investigación, innovación e avaliación.
C28	(*)Adquirir experiencia na planificación, na docencia e na avaliación das materias correspondentes á especialización.
D1	(*)Utilizar bibliografía e ferramentas de procura de recursos bibliográficos xenerais e específicos, incluíndo o acceso por Internet.

D2 (*)Xestionar de forma óptima o tempo de traballo e organizar os recursos dispoñibles, establecendo prioridades, camiños alternativos e identificando erros lóxicos na toma de decisións.

D3 (*)Potenciar a capacidade para o traballo en contornas cooperativas e pluridisciplinarios

Learning outcomes

Expected results from this subject	Training and Learning Results
(*)Comprender os conceptos básicos que describen e explican a práctica docente	C26
(*)Analizar os modelos didácticos existentes desenvolvendo criterios persoais sobre os diferentes modelos	C18 C24 D1
(*)Abordar e aplicar as metodoloxías didácticas máis apropiadas en cada momento	C19 C20 C24
(*)Ser quen de elaborar actividades de ensinanza-aprendizaxe de acordo cos obxectivos e criterios de avaliación propostos	C17 C27 C28
(*)Ser quen de elaborar un modelo de avaliación para unha unidade didáctica.	C23 C27 C28
(*)Ser quen de atopar, seleccionar e transformar recursos didácticos de diferente tipo	C19 C20 D1 D3
(*)Elaborar actividades e tarefas de profesor e alumnado	C19 C20 C27 D2 D3
(*)Coñecer a normativa sobre a organización dos departamentos.	B13
(*)Utilizar as novas tecnoloxías como soporte e apoio dos traballos realizados	C22 D1 D3

Contents

Topic	
Technology, science and technique	History of the education of the technology Justification for the introduction of technology in the curriculum
The curriculum	Elements of the curriculum: aims, competences, contents, criteria and evaluation standards
Education and learning: how students learn	Teaching/learning activities. Sequences
Methodology	Didactic methods Project-based learning Other methodological strategies: flipped classroom, gamification
The didactic programation, preparation of didactic units	Preparation of didactic units Didactic resources
Evaluation in technology	Initial evaluation Evaluation and instruments of evaluation, procedural and formative evaluation Final evaluation
The organization of the department	The organization of the department
The teacher as researcher	The teacher as researcher

Planning

	Class hours	Hours outside the classroom	Total hours
Presentations / exhibitions	8	32	40
Master Session	10	13	23
Troubleshooting and / or exercises	12	75	87

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

Methodologies

	Description
Presentations / exhibitions	Presentation of individual or collective works done by the students followed or preceded by debate in small or big groups

Master Session	Introduction by the teachers of the conceptual frame with proposals of debate on supposed situations in the classroom
Troubleshooting and / or exercises	Preparation of proposals of planning, material and resources to solve problems in the educational practice. These can adopt different forms: written essays, on-lilne publications or presentations.

Personalized attention

Methodologies	Description
Troubleshooting and / or exercises	Exercises and problems realised along the course that will show the acquisition of the competences and basic knowledge, both theoretical and practical, related to the subject
Presentations / exhibitions	Presentation by the teacher of the conclusions extracted from the realisation of works that will show the acquisition of the competences and basic knowledge related to the subject

Assessment

	Description	Qualification	Training and Learning Results		
Presentations / exhibitions	Using a tabulated criteria, two presentations will be evaluated (one collective and another individual) valuing contents organisation, conceptual clarity and usage of multimedia resources. The collective work will be evaluated by using co-evaluation table by the rest of the students	40		C20 C22 C24 C26 C27	D1 D3
Master Session	By using a log, we will evaluate participation in the classroom activities.	20			D2 D3
Troubleshooting and / or exercises	We will evaluate a selection of the works both written and on-line published taking into account: research for information, contents organisation and usage of multimedia resources	40	B13	C17 C18 C19 C23 C24 C28	D1

Other comments on the Evaluation

Students that have to attend to the final examinations due to not fulfilling the requirements of participation along the course, will have to do a written test and a brief oral exposition.

In the faitic platform the students will be able to access the contents and the activities

Sources of information

Basic Bibliography

Carrasco, J. B., **Una didáctica para hoy**, Ediciones Rialp, 2004

De la Herrán, A. e Paredes, J., **Didáctica general: la práctica de la enseñanza en Educación Infantil, Primaria y Secundaria**, McGraw-Hill, 2008

Sevillano, M.L., **Didáctica en el siglo XXI**, McGraw-Hill, 2005

DECRETO 86/2015, do 25 de xuño, polo que se establece o currículo da educación secundaria obrigatoria e do bacharelato na Comunidade Autónoma de Galicia,

José A. Fidalgo y otros, **Tecnología industrial**, Everest,

Jesús Cabrerizo, Julia Rubio Roldán, Santiago Castillo Arredondo, **Programación por competencias**, Pearson,

David Cervera, **Didáctica de la tecnología**, Ed. Graó, 2010

David Cervera, **Tecnología: Investigación, innovación y buneas prácticas**, Ed. Graó, 2010

Complementary Bibliography

Aula Abierta,

Aula de Innovación Educativa,

Contextos Educativos,

Cuadernos de Pedagogía,

Escuela Abierta,

Educación XXI,

Enseñanza & Teaching: Revista interuniversitaria de didáctica,

Estudios Sobre Educación,

Praxis Educativa,

Profesorado: Revista de curriculum y formación del profesorado,

Qurriculum,

Revista Complutense de Educación,

Revista de Educación,

Revista Iberoamerica de Educación,

Banco de imaxes e sons do MEC,

Recursos para a Educación Secundaria Obrigatoria,

Recommendations

Subjects that are recommended to be taken simultaneously
Designing Research and Innovative Proposals in Experimental Sciences/V02M066V02206

The Organisation of Lecture / Workshop in Technology/V02M066V02212

Subjects that it is recommended to have taken before
Technology and Informatics for Secondary School Teachers/V02M066V02208