

**COURSE DATA****Data Subject**

Code	40539
Name	Learning and teaching subjects in the specialties of technology and industrial processes
Cycle	Master's degree
ECTS Credits	16.0
Academic year	2020 - 2021

Study (s)

Degree	Center	Acad. year	Period
2024 - M.U. en Profesor/a de Educación Secundaria 09-V.1	Faculty of Teacher Training	1	Annual

Subject-matter

Degree	Subject-matter	Character
2024 - M.U. en Profesor/a de Educación Secundaria 09-V.1	47 - Learning and teaching subjects in the specialties of technology and industrial processes	Optional

Coordination

Name	Department
LLOPIS ALONSO, FRANCISCO	245 - Chemical Engineering

SUMMARY

This subject deals with the study of the Spanish education system and its development and regulations. The organization of schools in secondary education within the specialty of Technology and Vocational Training. The secondary curriculum, educational and cultural value of Technology. We will work to deepen and reformulation of the contents of the materials in the context of the curriculum of high school, contemplating his interest and relevance and implications in different areas, and mainstreaming in the areas of specialty.



PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

OUTCOMES

2024 - M.U. en Profesor/a de Educación Secundaria 09-V.1

- Saber aplicar los conocimientos adquiridos y ser capaces de resolver problemas en entornos nuevos, o poco conocidos dentro de contextos más amplios (o multidisciplinares) relacionados con su área de estudio.
- Saber comunicar sus conclusiones y los conocimientos y razones últimas que las sustentan a públicos especializados y no especializados de un modo claro y sin ambigüedades.
- Poseer las habilidades de aprendizaje que les permitan continuar estudiando de un modo que habrá de ser en gran medida autodirigido o autónomo.
- Be able to integrate knowledge and handle the complexity of formulating judgments based on information that, while being incomplete or limited, includes reflection on social and ethical responsibilities linked to the application of knowledge and judgments.
- Planificar, desarrollar y evaluar el proceso de enseñanza y aprendizaje potenciando procesos educativos que faciliten la adquisición de las competencias propias de las respectivas enseñanzas, atendiendo al nivel y formación previa de los/as estudiantes así como la orientación de los mismos, tanto individualmente como en colaboración con otros docentes y profesionales del centro.
- Diseñar y desarrollar espacios de aprendizaje con especial atención a la equidad, la educación emocional y en valores, la igualdad de derechos y oportunidades entre hombres y mujeres, la formación ciudadana y el respeto de los derechos humanos que faciliten la vida en sociedad, la toma de decisiones y la construcción de un futuro sostenible
- Conocer los procesos de interacción y comunicación en el aula, dominar destrezas y habilidades sociales necesarias para fomentar el aprendizaje y la convivencia en el aula, y abordar problemas de disciplina y resolución de conflictos
- Conocer la normativa y organización institucional del sistema educativo y modelos de mejora de la calidad con aplicación a los centros de enseñanza.
- Buscar, obtener, procesar y comunicar información (oral, impresa, audiovisual, digital o multimedia), transformarla en conocimiento y aplicarla en los procesos de enseñanza y aprendizaje en las materias propias de la especialización cursada. Adquirir los conocimientos y las estrategias para poder programar las áreas, materias y módulos propios de su responsabilidad docente.



- Adquirir estrategias para estimular el esfuerzo del alumnado de la etapa o área correspondiente y promover su capacidad para aprender por sí mismo y con otros, y desarrollar habilidades de pensamiento y de decisión que faciliten la autonomía, la confianza e iniciativa personales.
- Diseñar y realizar actividades formales y no formales que contribuyan a hacer del centro un lugar de participación y cultura en el entorno donde esté ubicado.
- Desarrollar las funciones de tutoría y de orientación del alumnado de la etapa o área correspondiente, de manera colaborativa y coordinada; informar y asesorar a las familias acerca del proceso de enseñanza y aprendizaje y sobre la orientación personal, académica y profesional de sus hijos.
- Participar en la evaluación, investigación y la innovación de los procesos de enseñanza y aprendizaje. Dominar estrategias y procedimientos de evaluación de los procesos de aprendizaje del alumnado, así como los propios para la evaluación de los procesos de enseñanza.
- Adquirir criterios de selección y elaboración de materiales educativos.
- Fomentar un clima que facilite el aprendizaje y ponga en valor las aportaciones del alumnado de la etapa o área correspondiente.
- Integrar la formación en comunicación audiovisual y multimedia en los procesos de enseñanza y de aprendizaje.
- Conocer estrategias y técnicas de evaluación y entender la evaluación como un instrumento de regulación y estímulo al esfuerzo.
- Concretar el currículo que se vaya a implantar en un centro docente participando en la planificación colectiva del mismo; desarrollar y aplicar metodologías didácticas tanto grupales como personalizadas, adaptadas a la diversidad de los estudiantes
- Conocer los desarrollos teórico-prácticos de los procesos de enseñanza y aprendizaje de las materias de la especialidad de Tecnología y Procesos Industriales.
- Conocer los currículos de las materias de la especialidad de Tecnología y Procesos Industriales, así como el cuerpo de conocimientos didácticos en torno a los procesos de enseñanza y aprendizaje correspondientes. Saber convertir los contenidos de los currículos en herramientas programas de actividades y de trabajo al servicio de los objetivos educativos y formativos de las materias. Identificar los problemas de aprendizaje básicos y comunes de las materias e idear estrategias para superarlos.



LEARNING OUTCOMES

Common =====

Acquire the ability to apply knowledge to solve problems in the context of teaching and learning.
Develop the skills and abilities of analysis and synthesis and critical reflection on the different educational situations.

Improving own learning strategies, with particular emphasis on independent learning and meaningful.
Develop attitudes and skills for cooperative learning.
Properly handle communication skills

Specific =====

Understand the organizational structure and functioning of secondary schools and the implications for teachers.

Understand the organization, functioning and responsibilities of departmental units.

Understand the basic concepts in Technology and know how to adapt this content to teaching

Meet the educational and cultural value of the relevant areas of Technology.

Knowing the history and recent developments in the specialty and perspectives in order to convey a dynamic view of the same.

Know contexts and situations that are used or applied the various specialty curricula of Technology.

Acquire a sense of professionalism with an emphasis on teacher training models and relationship with society.

To acquire knowledge and skills necessary to practice the tutoring and mentoring of students.

DESCRIPTION OF CONTENTS

1. Theories about teaching and learning.

Conceptions of teachers and teaching models in technology.

Teaching and learning in the specialties of the Vocational Training (FP).

Learning styles.

Advantages of an adequate education to the student's learning style.

2. Methodologies to promote learning.

Creative teaching and student motivation. Attracting student interest.

Methods of collaborative learning. Group work. Principles and practical guide.

3. Evaluation. The concept of evaluation

Assessment strategies. Assessment and evaluation. Strategic use of education in learning.

The concept of innovation. Why evaluate an innovative way. Experiences in innovative assessment.

Quality and objectivity in the correction.

Evaluate practice or project.

Evaluation of procedures and skills.

Development of practical tests for the evaluation of professional achievements.



Attitudinal content related to employment.

4. Teaching Strategies for the integration and attention to diversity

Curricular adaptations.

Adult Training.

5. Learning Resources in Technology

Audiovisual activities outside the classroom, seminars, group work, laboratory and workshop rooms.

Proper use of teaching resources: Blackboard, transparencies, multimedia equipment, Other resources.

Video search sites, tutorials, and transparencies.

Spaces and equipment for ESO and Bachelor.

6. Teaching of Technology Subjects.

Course objectives. Comparison table for different courses. ESO and Bachelor.

Contents to be developed in each of the levels, noting the differences between them.

A concept map or outline of a teaching unit.

Working the teaching unit in the workshop: relationship of the unit worked with the project being undertaken, to address general issues such as the use of materials, reuse, recycling

7. Teaching Programming

Educational materials: methods development and selection criteria.

Teaching Programming to the Subject of Technology.

8. Professional Teaching Modules in Vocational specialties.

Sequencing and timing.

Teaching in the classroom. Teaching in the laboratory or workshop.

Spaces and equipment for vocational training.

Training Centres and Innovation. Teacher Resources (CEFIRE)

9. Programming Teaching in Vocational Training

How to Develop a Teaching Programming from the curriculum in the vocational modules.

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Classroom practices	50,00	100
Theory classes	50,00	100
Tutorials	20,00	100
Group work	20,00	100
Other activities	8,00	100
Attendance at events and external activities	20,00	0
Development of group work	60,00	0
Development of individual work	40,00	0
Study and independent work	40,00	0
Readings supplementary material	47,00	0
Preparation of evaluation activities	42,00	0
Resolution of case studies	23,00	0
TOTAL	420,00	

TEACHING METHODOLOGY

Depending on the skills, learning objectives and content is used several methods: narrative methodology, cooperative work, group discussion, text analysis, practical activities and individual and group application, etc.. The methodology will be participatory and dynamic in order to promote the involvement and participation of pupils and students in classrooms, including teacher explanations to clarify the theoretical assumptions. Discussion will be used where appropriate and develop practical work, exhibitions and different projects related to the teaching profession and to the discussion of the subject.

EVALUATION

The evaluation of the acquisition of competences by students will be done by combining different types of information, linked to the different activities that students will develop in the subject. The evaluation procedures will be:

Minimum requirements: Assistance and active participation in face-to-face sessions is an essential requirement (at least 80%). Those students whose attendance is lower will be classified as Suspended in the 1st Call.

For the assessment of the different aspects of the subject, the following will be taken into account:



Activities: The activities developed in the face-to-face sessions will grant 50% of the final grade. It includes oral presentations, active involvement in learning, debates, reflections on the concepts raised, participatory attitude, punctuality. This part of the subject has the character of NOT recoverable.

Reports: Students will develop practical or theoretical reports of mandatory nature of parts of the subject. The joint value of the same will be 50% of the final grade. Regarding the work delivered out of date, the teacher will admit them by own will, not by obligation. In this case, the grade will be 5.0 (although the work would have deserved a higher grade if it was submitted on time).

Global Qualification: Each of the professors who teach the subject will issue a rating of the activities and reports assessed. The overall score will result from a weighted average based on your dedication in hours. This average can only be done if the students have followed the subject regularly, according to the minimum requirements already commented.

Global Qualification: Each of the professors who teach the subject will issue a rating of the activities and reports assessed. The overall score will result from a weighted average based on your dedication in hours. This average can only be done if the students have followed the subject regularly, according to the minimum requirements already commented.

Students who have not passed the 1st Call in the subject, for not meeting the required face-to-face attendance or not having submitted the reports, may be submitted to a final test of the whole subject, and perform a theoretical-practical exam on the date established in the school calendar. In this test you will have to reach a minimum grade of 5.0 and in the final grade the average of the reports delivered will also be taken into account.

The subject is considered overcome when the mark obtained is equal to or greater than 5 (over 10). In any case, the evaluation system will be governed by the Reglament d'Avaluació i Qualificació de la Universitat de València per a Títols de Grau i Màster (<http://links.uv.es/j0Im3ec>).

REFERENCES

Basic

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- ARIAS, M. y otros (2005) Formación para la prevención. Ministerio de Trabajo y Asuntos Sociales.
- ARBIZU, F. (1998) La Formación Profesional Específica: claves para el desarrollo curricular, Ed. Santillana.
- ASÍN, J.L.; VILLAFRANCA, F. (1996) Tecnología. Guía didáctica. ESO. Primer ciclo, Ed. Cénlit.
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- BROWN, S.; GLASNER, A. (2003) Evaluar en la Universidad. Problemas y nuevos enfoques, Edit. Narcea.
- FONT, J. (1996) La Enseñanza de la Tecnología en la ESO. Ed. EUMO-Octaedro.
- ISABEL FERNÁNDEZ, J.L. (1993) Tecnología. Proyectos en el Aula, Ed. Paraninfo
- ISABEL FERNÁNDEZ, J.L. (1994) Diseño y Tecnología, Guía didáctica, Ed. Akal.



JOHNSON, D.W., JOHNSON, R.T, SMITH, K.A. Active Learning (2006): Cooperation in the College Classroom, 3 edición, Edina, MN: International Book Company.

LAMA RUIZ, J. R.; AGUAYO GONZÁLEZ, F. (1998) Didáctica de la Tecnología, Ed. Tébar.

LÁZARO LORENTE, L.M.; MARTÍNEZ USARRALDE, M.J. (1999) Educación, empleo y formación profesional en la Unión Europea, Ed. Univ. València.

LÓPEZ CUBINO, R. (2001) El área de Tecnología en Secundaria. Madrid: Narcea.

MARPEGÁN,C.M.; MANDÓN, M.J.; PINTOS, J.C. (2009) El placer de enseñar Tecnología, Ed. CEP.

Additional

- www.tecno12-18.com
- www.catedu.es/aratecno/
- www.aulataller.es/
- www.aulatecnologia.com
- <http://clic.xtec.cat/es/jclic/index.htm>
- <http://lliurex.net/home/>

ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

Contents

The contents initially collected in the course guide are maintained.

Workload and temporary teaching planning

The different activities described in the Course Guide are maintained with the planned dedication.

The material for the follow-up of the theory/practical lessons allows to continue the temporary teaching planning both in days and hours, both if the teaching is in the classroom or not.

Teaching methodology

In theory and practical lessons in the classroom, maximum possible attendance will be the rule, always respecting the sanitary restrictions that limit the capacity of the classrooms to 50% of their usual occupation. Depending on the capacity of the classroom and the number of students enrolled, it may be necessary to distribute the students into two groups. If this situation arises, each group will attend theory and practical sessions with physical presence in the classroom by rotating shifts, thus ensuring compliance with the criteria for occupying spaces. The rotation system will be established once the enrolment data is known, guaranteeing, in any case, that the attendance percentage of all the students enrolled in the subject is the same. For classroom sessions and theory sessions that are not face-to-face, there will be a preferably synchronous online teaching model if compatibility with other scheduled activities allows. Online teaching will be carried out by synchronous videoconference respecting the schedule, or, if not possible, asynchronous. Once the enrolment data is available and the availability of spaces is known, the Academic Committee of the Degree will approve the Teaching Model of the Degree



and its adaptation to each subject, establishing the specific conditions in which it will be taught.

If there is a closure of the facilities for sanitary reasons that totally or partially affects the classes of the course, they will be replaced by online sessions following the established schedules.

Evaluation

The evaluation system described in the Course Guide is maintained. In it the various evaluable activities have been specified as well as their contribution to the final grade of the course is maintained. If there is a closure of the facilities for sanitary reasons that affect the development of any face-to-face evaluable activity of the subject, it will be replaced by a test of a similar nature that will be carried out in virtual mode using the computer tools licensed by the University of Valencia. The contribution of each evaluable activity to the final grade of the subject will remain unchanged, as established in this guide.

References

The literature recommended in the Course Guide is maintained since part of it is accessible and is complemented by notes, slides and problems uploaded to Virtual Classroom as material of the course.