

Desarrollo de competencias transversales en la ETSEIB:

¿utopía y/o realidad?

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2a JORNADA DE **DOCÈNCIA**
MÀSTERS
A L'ETSEIB

¿Competencias transversales?



MARC PER AL DISSENY I LA IMPLANTACIÓ DELS PLANS D'ESTUDIS DE GRAU A LA UPC

DOCUMENT CG 16/4 2008

Competències genèriques (també denominades generals o transversals): aquelles que no estan orientades al desenvolupament de cap funció o tasca laboral concreta, sinó que són apropiades per a la majoria de les professions i es poden aplicar a una diversitat de situacions (la comunicació, la resolució de problemes, el raonament, la capacitat de lideratge, la creativitat, la motivació, el treball en equip i especialment la capacitat d'aprendre...).

(p. 7)

Son las que favorecen la inserción en el mercado laboral
Sirven para distintos ámbitos

Son las gran
olvidadas ...

El aplicativo VERIFICA de ANECA obliga a definir 4 tipos de competencias:
básicas, generales, transversales y específicas.

Básicas, generales y transversales = COMPETENCIAS GENÉRICAS

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La UPC considera que tots els seus plans d'estudis han d'incloure almenys les següents competències genèriques:

- o Emprenedoria i innovació
- o Sostenibilitat i compromís social
- o Tercera llengua
- o Comunicació eficaç oral i escrita
- o Treball en equip
- o Ús solvent dels recursos d'informació
- o Aprenentatge autònom



(p.10)

RESUMEN SOBRE LAS COMPETENCIAS GENÉRICAS A IMPLANTAR EN LOS PLANES DE ESTUDIOS DE POSTGRADO DE LA UPC

- EMPRENDIMIENTO E INNOVACIÓN
- SOSTENIBILIDAD Y COMPROMISO SOCIAL
- TRABAJO EN EQUIPO
- USO SOLVENTE DE RECURSOS DE LA INFORMACIÓN
- TERCERA LENGUA



NOTA: Las competencias de Trabajo autónomo y de Comunicación eficaz oral y escrita están contenidas en las competencias básicas fijadas por el MECES.

¿Cómo se definen en los Masters de la ETSEIB?



Titulació	Transversals	A destacar...
MUEO	4	Redacción diferente de los propuestos por UPC. 3 equiparables a: Trabajo en equipo, Sostenibilidad y compromiso social, Tercera lengua. 1 no equiparable: gestión y análisis de información
MUAR	7	✗ Comunicación eficaz oral y escrita ✓ Capacidad de adaptación a cambios
MUCSTyM	5	✗ Comunicación eficaz oral y escrita ✗ Aprendizaje autónomo
MUEN	7	Contempla las 7 competencias transversales UPC
MUEE	5	✗ Comunicación eficaz oral y escrita ✗ Aprendizaje autónomo
MUEA	7	Contempla las 7 competencias transversales UPC
MUEI	5	✗ Comunicación eficaz oral y escrita ✗ Aprendizaje autónomo

Nota:

Datos extraídos de las memorias de verificación de los títulos.

Accesibles en: <https://etseib.upc.edu/ca/lescola/qualitat/marc-vsma/verificacio>

¿Cómo se trasladan a asignaturas?



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Les competències genèriques s'han de desenvolupar i avaluar al llarg del procés formatiu, ja sigui integrades en diverses assignatures, constituint itineraris competencials, o bé com a assignatures específiques:

- Itineraris competencials: es configuren assignant una determinada competència a un conjunt d'assignatures corresponents a diferents cursos del pla d'estudis, en les quals es desenvolupen activitats dissenyades expressament per assolir-la. Aquesta estratègia és especialment vàlida perquè permet treballar les competències al llarg del procés formatiu, impregnant diverses assignatures o matèries. Per això cal disposar d'assignatures al llarg de la titulació que estiguin compromeses amb una determinada competència genèrica.

En el cas que s'opti per configurar itineraris competencials, és convenient graduar les competències genèriques en diversos nivells al llarg de la titulació (per exemple, tres).

¿Existen estos itinerarios en
masters?

¿Cómo desarrollarlas?





Institut de Ciències de l'Educació

Guies per desenvolupar les competències genèriques en el disseny de titulacions

Guies

- Emprenedoria i innovació
- Sostenibilitat i compromís social
- Tercera llengua
- Comunicació eficaç oral i escrita
- Treball en equip
- Ús solvent dels recursos d'informació
- Aprenentatge autònom

http://www.upc.edu/ice/ca/innovacio-docent/publicacions_ice/guies-per-desenvolupar-le-competencies-generiques-en-el-disseny-de-titulacions

¿niveles competenciales en masters?

Quaderns per treballar les competències genèriques a les assignatures

- Emprenedoria i innovació - març 2009 ([HTML](#) / [PDF](#))
- Sostenibilitat i compromís social - abril 2009 ([HTML](#) / [PDF](#))
- Aprenentatge autònom - desembre 2008 ([HTML](#) / [PDF](#))
- Comunicació eficaç oral i escrita - desembre 2008 ([HTML](#) / [PDF](#))
- Treball en equip - novembre 2008 ([HTML](#) / [PDF](#))
- Ús solvent dels recursos d'informació - desembre 2008 ([HTML](#) / [PDF](#))

http://www.upc.edu/ice/ca/innovacio-docent/publicacions_ice/quaderns-per-treballar-les-competencies-generiques-a-les-assignatures

¿formación adecuada?

Desarrollo de competencias transversales en la ETSEIB:

■ ■ ■



utopía

Del lat. mod. *Utopia*, isla imaginaria con un sistema político, social y legal perfecto, descrita por Tomás Moro en 1516, y este del gr. οὐ οὐ 'no', τόπος τόπος 'lugar' y el lat. -ia '-ia'.

1. f. Plan, proyecto, doctrina o sistema deseables que parecen de muy difícil realización.
2. f. Representación imaginativa de una sociedad futura de características favorecedoras del bien humano.

Como dicen... la utopía sirve para caminar



Desarrollo de competencias transversales en la ETSEIB:

Un caso práctico

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Asignatura: **Recursos Humanos**

Titulación: MUAR

Asignatura: obligatoria de 3 créditos ECTS

Idioma: Inglés

Actividad:

Presentación, en equipo, de un artículo académico

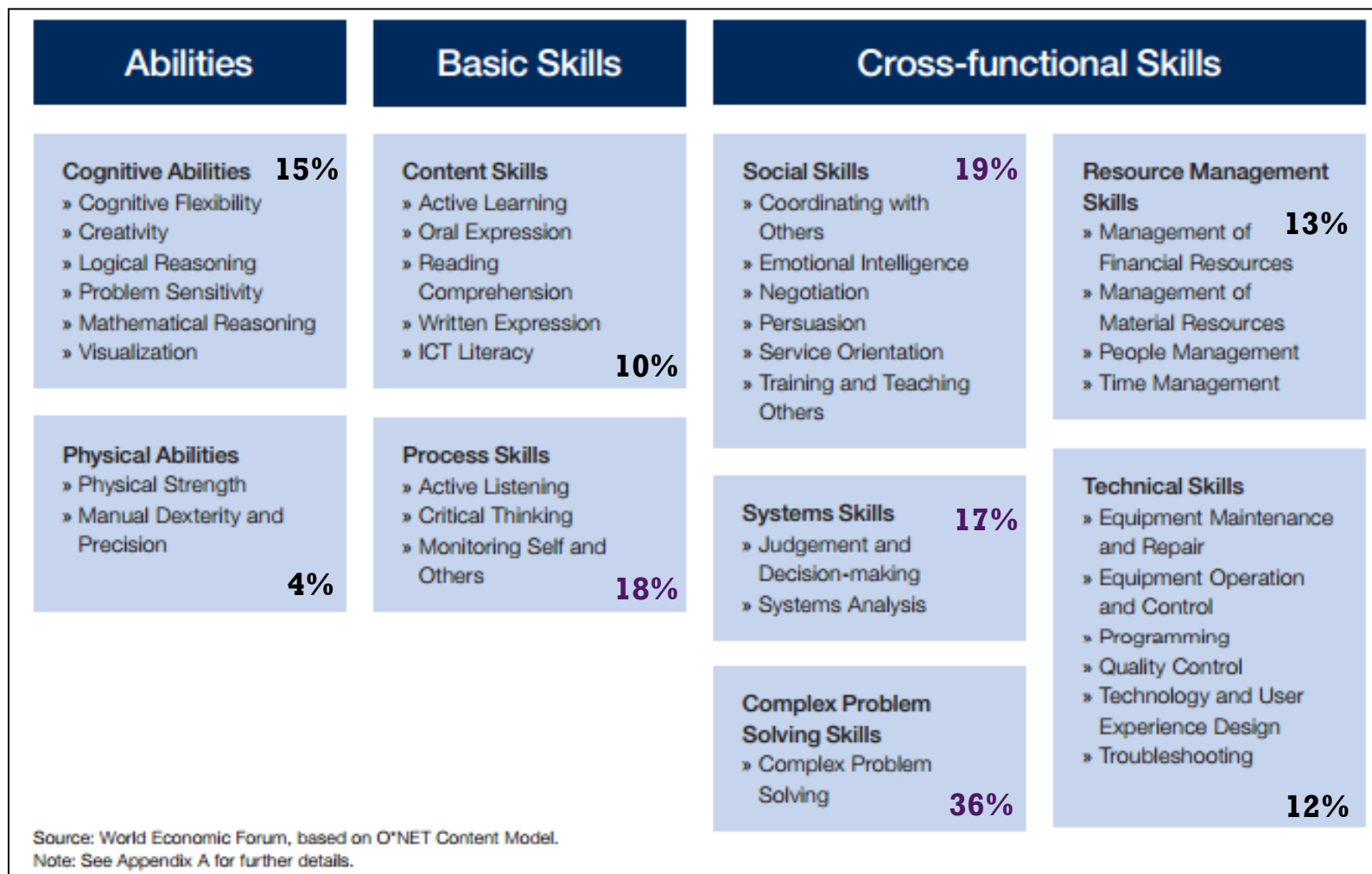
COMPETENCIAS TRABAJADAS

Trabajo en Equipo
Uso solvente de los recursos de información
(Tercera Lengua)

Comunicación eficaz oral y escrita



Necesidad de convencer sobre el valor añadido de la asignatura...y, sobre todo, de las *'soft skills'*



“**Skills demands** for core work-related skills, 2015-2020, all industries”



“Top 10 Qualities of a Great Engineer”

<http://engineeringschools.com/resources/top-10-qualities-of-a-great-engineer>

Engineers are responsible for some of the greatest inventions and technology the world depends on. Everything from space shuttles to air conditioning systems to bridges requires the work of an engineer. To be successful in the field of engineering, one must have certain qualities. Some of those top qualities include:

1. **Possesses a Strong Analytical Aptitude:** A great engineer has excellent analytical skills and is continually examining things and thinking of ways to help things work better. They are naturally inquisitive.
2. **Shows an Attention to Detail:** A great engineer pays meticulous attention to detail. The slightest error can cause an entire structure to fail, so every detail must be reviewed thoroughly during the course of completing a project.
3. **Has Excellent Communication Skills:** A great engineer has great communication skills. They can translate complex technical lingo into plain English and also communicate verbally with clients and other engineers working together on a project.
4. **Takes Part in Continuing Education:** A great engineer stays on top of developments in the industry. Changes in technology happen rapidly, and the most successful engineers keep abreast of new research and ideas.
5. **Is Creative:** A great engineer is creative and can think of new and innovative ways to develop new systems and make existing things work more efficiently.
6. **Shows an Ability to Think Logically:** A great engineer has top-notch logical skills. They are able to make sense of complex systems and understand how things work and how problems arise.
7. **Is Mathematically Inclined:** A great engineer has excellent math skills. Engineering is an intricate science that involves complex calculations of varying difficulty.
8. **Has Good Problem Solving Skills:** A great engineer has sharp problem solving skills. An engineer is frequently called upon solely to address problems, and they must be able to figure out where the problem stems from and quickly develop a solution.
9. **Is a Team Player:** A great engineer understands that they are part of a larger team working together to make one project come together successfully, and therefore, must work well as part of that team.
10. **Has Excellent Technical Knowledge:** A great engineer has a vast amount of technical knowledge. They understand a variety of computer programs and other systems that are commonly used during an engineering project.



“What skills are Engineering employers looking for?”

<https://www.monster.co.uk/career-advice/article/what-skills-are-engineering-employers-looking-for>

Regardless of the role in which you will be working, there are a common set of intangible skills that employers look for across all engineering disciplines:

- **Effective communication skills** - with an increase in the documentation and instructions that engineers use in the workplace, clear and concise communication is a requirement.
- **Interpersonal skills** - you need to know how to effectively work as part of a team and work with customers to identify needs and provide solutions.
- **Technical knowledge** - whatever technical expertise is vital to your job, you need to understand how to apply this to solving practical problems.
- **Organisational skills** - being able to prioritise tasks, manage your time effectively and resource planning are key skills for engineers.
- **Enthusiasm and commitment** - learning new skills is part of every engineer's role, so you need to be adept at assimilating a lot of new information.



“7 Essential Skills for an Engineer”

<https://www.thebalance.com/list-of-engineering-skills-2063751>

Essential Skills

1. Attention to Detail: Projects in engineering are extraordinarily complex. There are many different aspects and factors to consider and dozens, if not hundreds, of people involved. You must have a high level of detail to keep track of the different components during planning, development and construction. If some detail is forgotten, the whole project, and its workers, can be put at risk.
2. Communication Skills: Engineering is very technical, but you often will communicate with people outside of the field, such as clients, who do not have a technical background. It's important that you are able to translate your knowledge and the processes into terms they can understand. Additionally, being able to communicate concisely and firmly is essential throughout the construction process.
3. Willingness to Learn: Engineering is a constantly evolving field. There are new techniques, technologies and software that are developed every year within the industry. Engineering professionals must be willing and able to learn the latest trends to stay relevant in the field.
4. Leadership: Engineers are typically known for their technical abilities, but it's important they be able to lead, too. You need to learn how to delegate tasks, motivate employees and manage projects from start to finish.
5. Teamwork: Engineers almost never work alone; you will work with a wide range of employees, both fellow engineers and people outside your department to make projects a reality. You need to be able to work collaboratively with different types of people at every level.
6. STEM Knowledge: The foundation for a career in engineering is a strong understanding of science, technology, engineering and math. You will likely need to demonstrate your mastery of these subjects with a master's degree or doctorate in one of these subjects.
7. Management: As an engineer, you will likely be working with large groups and managing more junior engineers as your career progresses. Management skills are imperative to your success and the overall success of your projects.



“10 Essential Skills All Good Roboticists Have”

<http://blog.robotiq.com/10-essential-skills-that-all-good-roboticists-have>

7. Good Communication

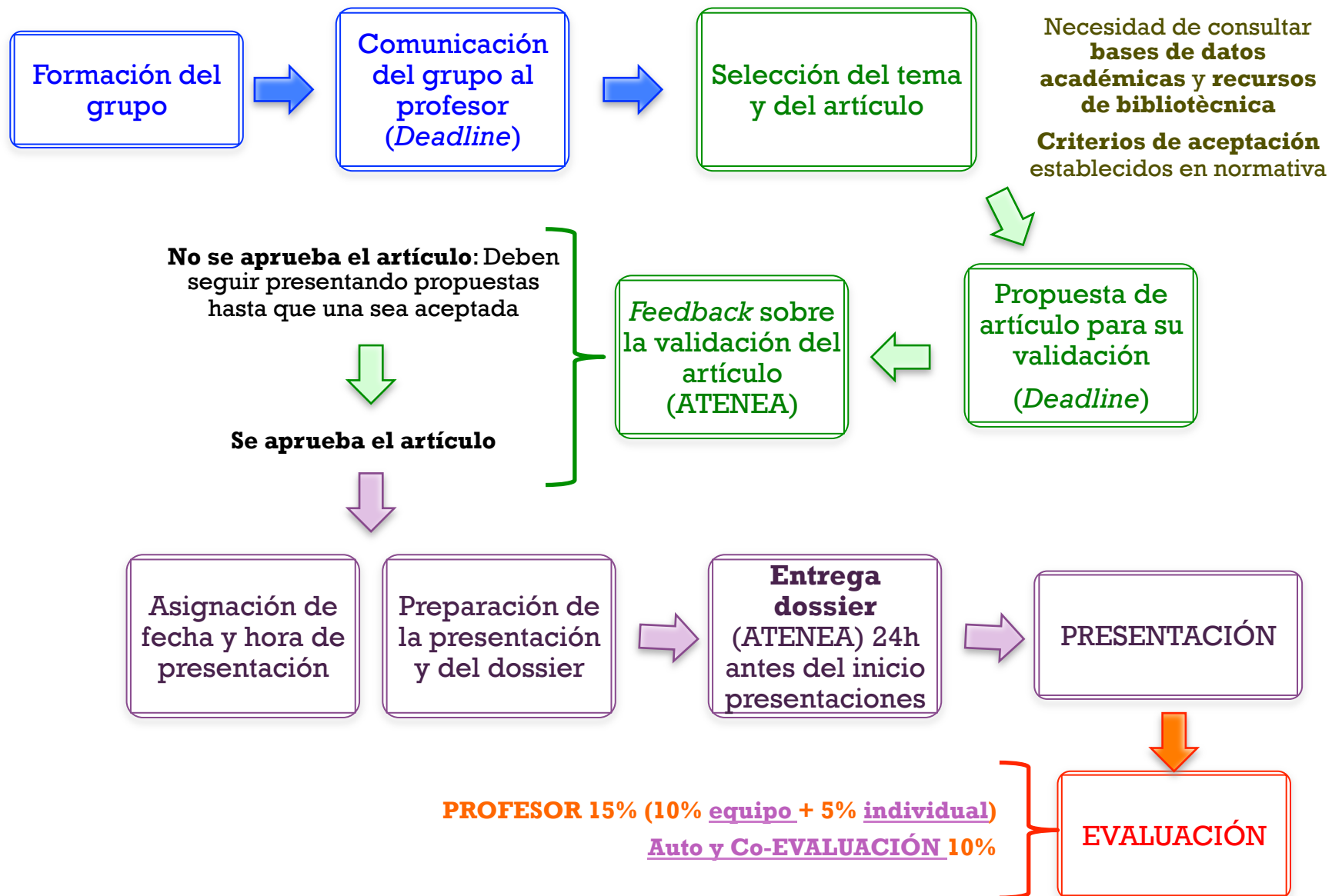
As a roboticist, your generalist knowledge will mean that you often have to explain concepts to non-specialists. For example, you might have to explain a high-level programming issue to a mechanical engineer, or a structural mechanics problem to a computer scientist. Good roboticists are a channel of communication between the different disciplines. Therefore, **Communication** skills are vital. Being able to use your **Speaking** and **Writing** skills effectively is important. Also, if you have good **Instructing** skills this is a big bonus.

1. Explicación de la actividad

Describir de forma clara la actividad,
indicando los objetivos a lograr



Resumen de la actividad



2. Feedback obtenido...

This activity has helped me to...	MEAN
a) improve my oral communication	3,4
b) lose the fear of public speaking	3,3
c) present information in a clear and concise way and in the time allotted to do it	3,4
d) improve my written communication	3,1
e) improve my way of presenting a formal document	3,4
f) improve my ability to appropriately argue (i.e. reasoning in a proper way)	3,3
g) improve my ability to work more effectively in group	3,3

Tasa de respuesta: 84,21%

Escala de 1 a 4

I believe that...	MEAN
h) my participation (i.e., the way I interacted with my mates) has facilitated the group cohesion.	3,3
i) I managed to accomplish with all the internal deadlines and the tasks assigned within the group.	3,8
j) knowing in advance the scales that were going to be used in the evaluation of the activity guarantees that we are assessed in a transparent and objective manner.	3,7
k) Peer assessment (i.e., me participating in the evaluation on my peers and me being assessed by them) had made me try and work even harder.	2,6

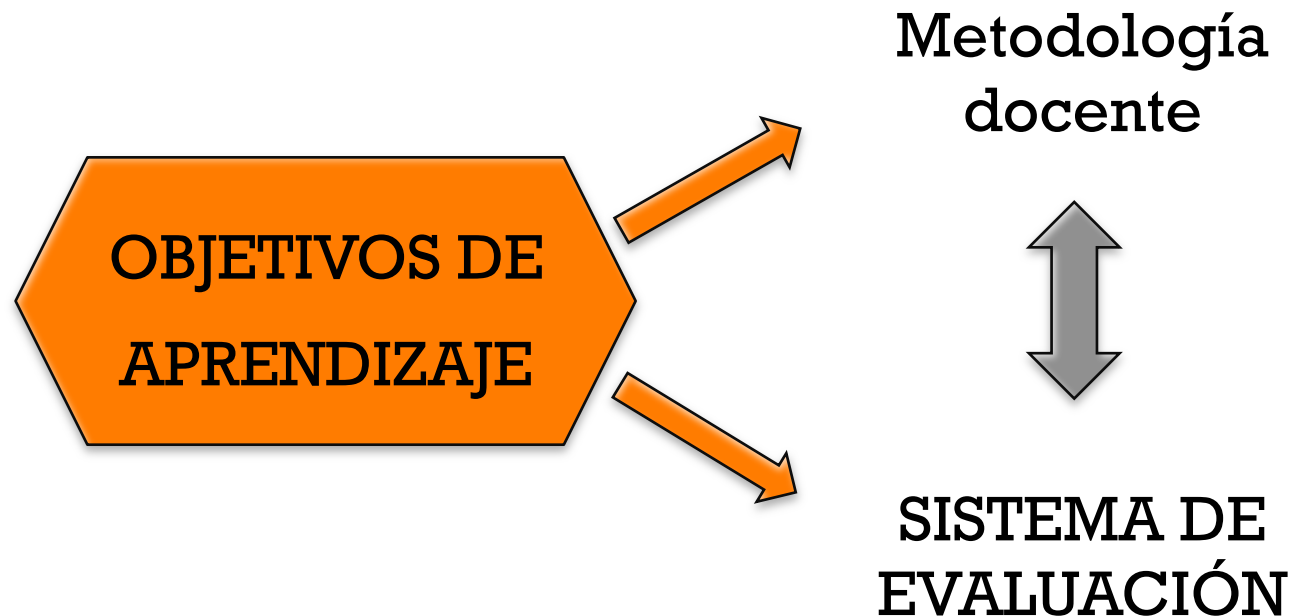


3. Cuestiones clave...

1. **Motivarles** para que realicen de forma seria la actividad →
Dejarles formar a ellos el grupo, Dejarles escoger la temática sobre la que trabajar, Seguir y respetar las reglas de juego establecidas, Facilitar toda la información desde el primer día.
2. **Transparencia**
3. **Coherencia** (entre lo que se pide y lo que se explica/trabaja en clase; entre lo que se dice que se evalúa y lo que se evalúa)
4. **Tener ganas de trabajar**
5. **Buscar asesoramiento útil**
6. **Estar dispuesto a:**
 - **dar *feedback* útil y de forma constante**
 - **Aplicar la mejora continua**



A la hora de plantearte desarrollar competencias... centra la atención en:





Y recuerda:
Si quieres, puedes



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