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OSCAR: promoting cross-cutting digital skills through Europe-wide non-conventional learning experiences

OSCAR CODING CAMPS

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Introduction

Coding camps are short-term activities that bring together individuals from diverse backgrounds

- extracurricular activities
- collaboration is a key characteristic

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Introduction

- Businesses are now adopting hybrid and remote work models, making it crucial for students to develop skills in this area
- Organizing a high-quality coding camp, whether online or hybrid, presents a unique set of challenges – space allocation, communication tools,...

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- The OSCAR project is funded by the European Union through its Erasmus+ program

Project's full name	promoting crOss-cutting digital Skills through Europe-wide non-Conventional leARning experiences
Acronym	OSCAR
Duration	2023-2027
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Call	ERASMUS-EDU-2023-PI-FORWARD
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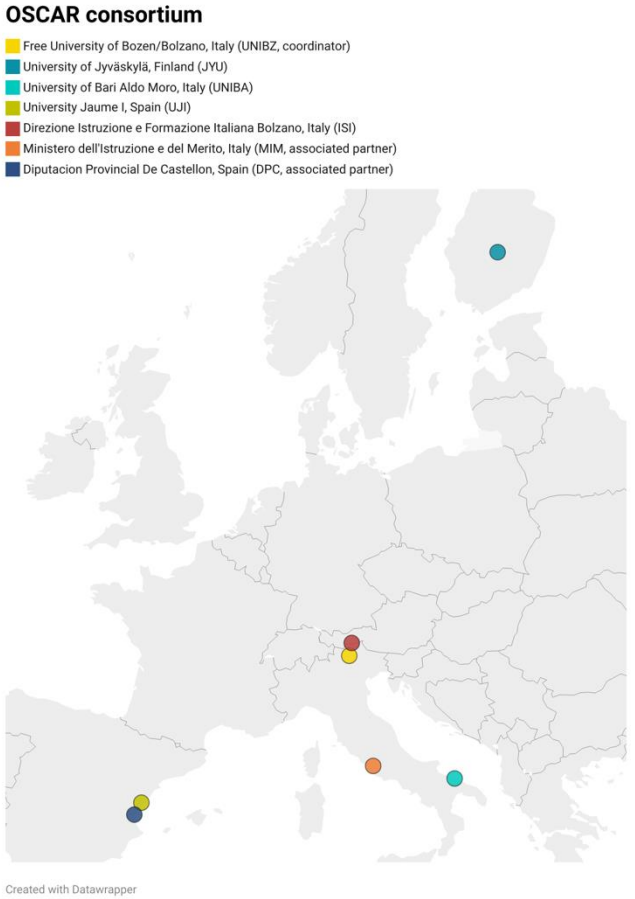
URL	https://oscar-codingcamps.eu



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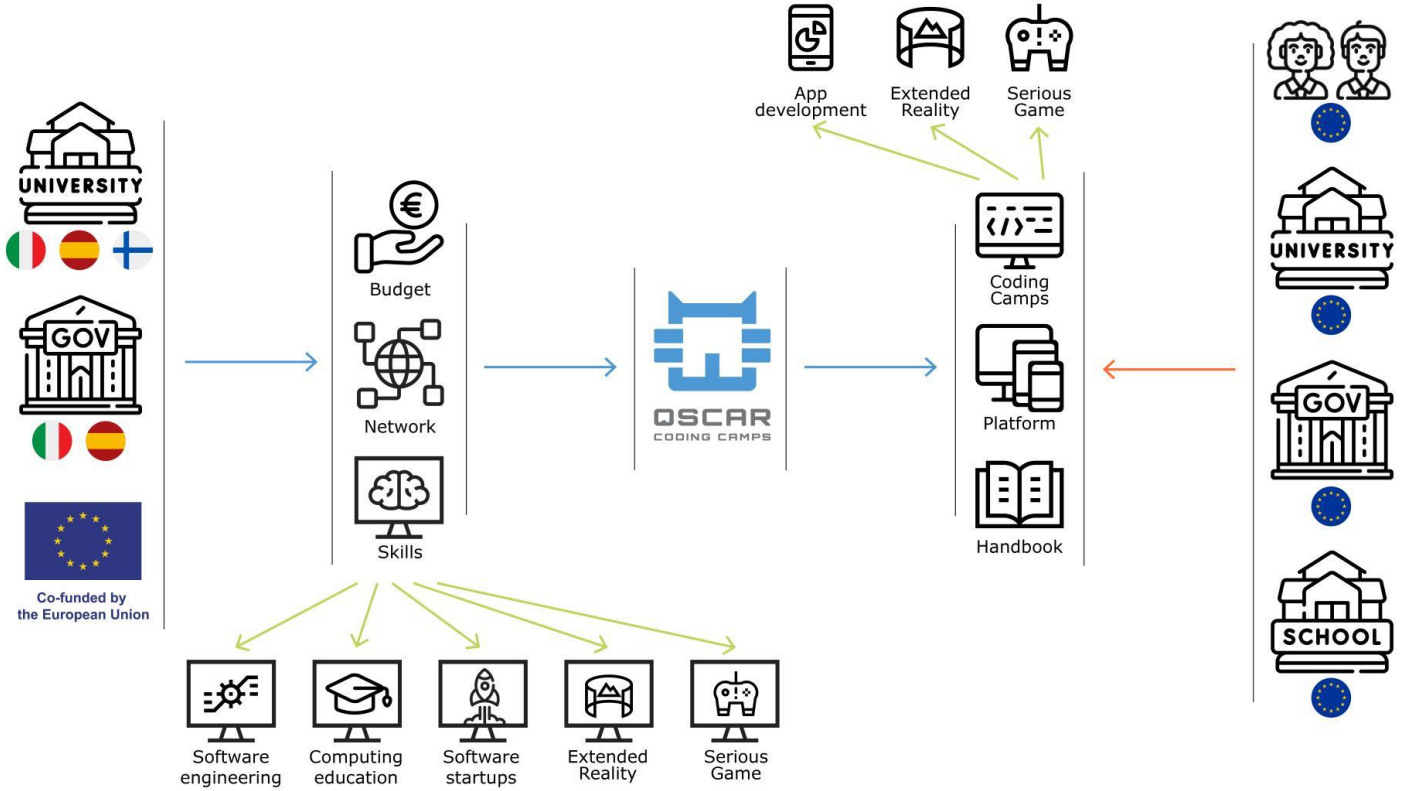
OSCAR takes a holistic approach to provide practical recommendations and guidelines for organizing online and hybrid coding camps



OSCAR platform

- Recommends specific tools and strategies for the entire software development process, with a focus on team collaboration
- Provides assessment features to help evaluate the learning outcomes of the coding camps
- It is a shared reference point for the team members in the classroom and those participating remotely

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OSCAR platform

- It is the central tool to enable the *connected coding camps* – they support the continuous development of skills (portfolio) and become building blocks for planning one's educational activities [1]

[1] I. Fronza, P. Ihantola, O.-P. Riikola, G. Iaccarino, T. Mikkonen, L. García Rytman, V. Lappalainen, C. Rebollo Santamaría, I. Remolar Quintana, and V. Rossano, "Towards s'more connected coding camps," in Proceedings of the 56th ACM Technical Symposium on Computer Science Education V. 1, ser. SIGCSE TS 2025. New York, NY, USA: Association for Computing Machinery, 2025, p. 353–359. https://doi.org/10.1145/3641554.3701849

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OSCAR platform – first release

- Participants' dashboard: a timeline, a profile section to enhance team-building, and a stepper to guide and track the progress of project work
- Facilitator's dashboard: a calendar for scheduling activities, a page for registrations, a stepper to provide instructions for assignments, assessment tools

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Relevance of the project to the ESEM community (1/3)

1. **Assessing the final product.** Parsing BBPLs can be challenging due to their visual nature and the difficulty of manipulating visual elements. Moreover, a parser may be difficult to adapt for different BBPLs.
2. **Assessing the UI component of mobile applications.** This is crucial to evaluate students' effort comprehensively
3. **Assessing civic and environmental skills by analyzing apps.** For example, we evaluate the apps to ensure they incorporate at least one strategy to minimize their environmental impact. However, the challenge lies in finding a way to do this effectively, ideally avoiding manual inspection

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Relevance of the project to the ESEM community (2/3)

4. **Assessing the software development process: defining the appropriate set of metrics.** In online and hybrid camps, it is necessary to supplement direct observation with frequent and regular analyses of the team's processes in the platform to ensure that collaboration is actually occurring. The main challenge is to identify the optimal combination of metrics – both quantitative and qualitative indicators – and the specific platform interaction data that provide the most valuable insights for evaluation

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Relevance of the project to the ESEM community (3/3)

- Indirect outcomes that have inspired ESEM related research
  - how developers collaborate in co-located and hybrid setups – paper at FSE'25, which hypotheses how closely the patterns of coding camp design reflect those of the industry [2]
  - Investigation of optimal strategies for educating participants in software development within hybrid teams [3].

[2] T. Mikkonen, M. Adil, I. Fronza, G. Iaccarino, and P. Ihantola, "To Co-locate or Not to Co-locate? On the Impact of Hybrid Work to Software Design Process," in The ACM International Conference on the Foundations of Software Engineering (FSE'25). ACM, 2025.

[3] I. Fronza, G. Iaccarino, and L. Corral, "Nurturing hybrid work literacy in upper secondary schools: Selecting the best hybrid work configuration for coding camps," in 2024 IEEE Frontiers in Education Conference (FIE), 2024, pp. 1–9.

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Discussion and conclusion

- While the project is still ongoing, and many of its goals are yet to be achieved, there are some ideas for future work
  - The OSCAR platform offers an attractive platform for AI-based educational agents and their experimentation — promote and evaluate student's skills

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Thank you!

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