# AUSTRALIA-ASIA NOMADIC CURRICULUM DESIGN

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## OVERVIEW OF THE WORKSHOP

In this one-hour interactive workshop, participants work in groups to design and co-create the structure and curriculum for a joint semester within a Master's-level engineering program, featuring significant international dimensions. The theme of the cruise is sustainability and teamwork among students. The context is a one semester expedition aboard an imagined cruise ship, equipped with dedicated learning and teaching spaces, that travels between Australia and Asia cities to visit universities and companies.

Participants in subgroups begin by proposing an itinerary for the ship on a provided map, meeting both universities and major industrial partners.. Then, collaboratively, they sketch out an original joint curriculum using the provided template or canvas consisting of nine key components. The components are: main goals and learning outcomes of the program, entry requirements, structure and contents of the program, teaching and learning methods, location of teaching and learning, training of interpersonal skills, assessment methods, language of instruction, and social and ethnical inclusivity , including diversity and equity.

## KEYWORDS

Expedition learning, student mobility, industry collaboration, collaborative design, sustainability, Standards: 3, 7, 8.

## DURATION

The workshop is flexible in duration, with 60 minutes being ideal for facilitating short group presentations and open discussions on how the content can be applied in participants' respective contexts.

## ACTIVITIES

Participants begin by proposing an itinerary on a provided map (cf. Figures 1 and 2), of a learning ship hosting up to 80 engineering students, visiting at least 5 universities and 5 companies in an itinerary around Australia and Asia (Example for EU in Figure 2).

*Fig. 1. Filled itinerary map.*

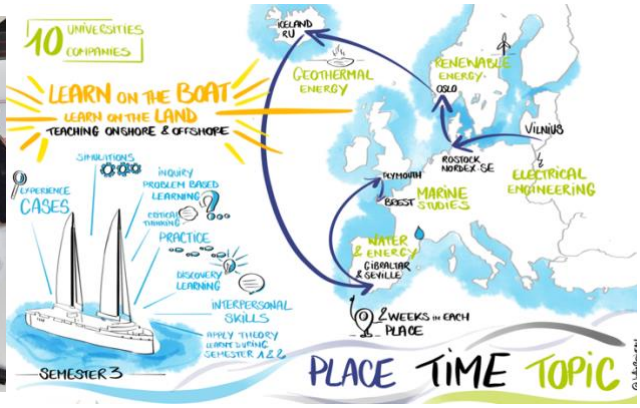


*Fig. 2. Overall workshop context.*

Then it continues with discussion on the Learning & Teaching sessions that can be held both during the travel at sea (the ship having various kind of workspaces and can invite professors and industrials on a leg), and when on stopovers during the trip. Each group is given the curriculum canvas consisting of nine key components above (cf. Figures 3 and 4) These components have been identified in the context of a European Erasmus+ project and are aligned with other models (Ornstein & Hunkins 2016; van den Akker 2004).

?This is already listed above...The components include: main goals and learning outcomes of the program, entry requirements, structure and contents of the program, teaching and learning methods, location of teaching and learning, interpersonal skills, assessment methods, language of instruction, and ethno- and sociographic aspects, including diversity and equity (cf. Figures 3 and 4).

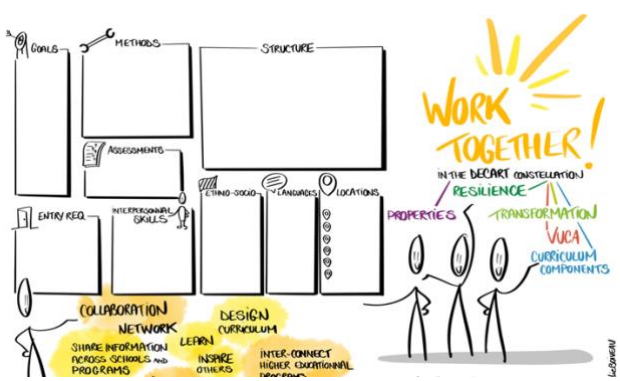


*Fig. 3. Components of the curriculum canvas.*

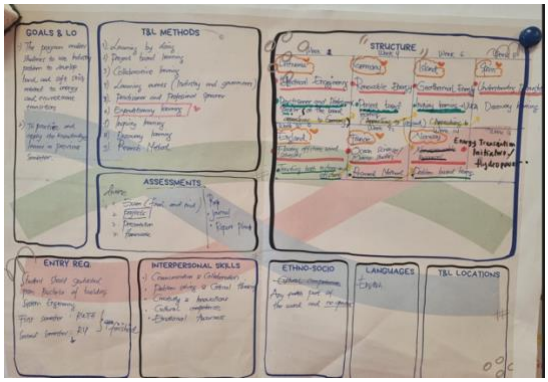


*Fig.4. A3 filled canvas example.*

The groups do not need to fill out all the component descriptions but are asked to use the structure to facilitate the design of the curriculum for the cruise.

In the end each group presents its route and curriculum draft on the wall. To close the session, participants engage in a semi-structured short discussion o on the design and what they learned during the exercise . A questionnaire (Google Form) will be sent by email to all participants.

## TARGET AUDIENCE

The workshop offers a unique opportunity for engineering program designers, pedagogical engineers or leaders, educators, students, and industry professionals to exchange innovative ideas on curriculum design. It focuses on a joint semester with an international dimension, particularly aimed at fostering student mobility and enhancing global collaboration. No prior knowledge is required. It could provide inspiration for a semester long CDIO student Academy with an expedition learning model.

## OUTCOMES

At the end of the one-hour workshop, each active participant may have enhanced his/her capacity to share and confront ideas for original engineering curriculum, understand why a multi-institution educational programme can leverage potential in driving sustainability transformation, identify a method, its entry points and main activities for abstract curriculum design.

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## DISCLAIMER

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## REFERENCES

Ornstein, A. C., and F. P. Hunkins. (2016). Curriculum: Foundations, principles, and issues. *7th edition*. Pearson publisher.

Rouvrais, S., Audunsson, H., Barus A., and Silalahi S. (2024). "Codesigning an expeditional semester around Europe for future responsible engineers". Workshop with paper in the 42nd Annual Conference of the European Society for Engineering Education (*SEFI*). EPFL, Lausanne, 2-5 September. Video ErasmusDays https://youtu.be/SsXTFPJYHyw

Van den Akker, J. (2004). Curriculum Perspectives: An Introduction. In: *Curriculum Landscapes and Trends*. Springer, Dordrecht. https://doi.org/10.1007/978-94-017-1205-7

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