Midterm Faculty Retreat on Education:

Feedback on Education topics

9th January 2026

Context and Goals

In order to continue to be a global leader in the education of scientists, engineers and architects, EPFL must continually re-evaluate our education. This is particularly so in the contemporary environment given:

- Developments in AI which affect *how* students learn and *what* they should learn
- The rapid growth in scientific knowledge could lead to an ever more crowded curriculum
- Ongoing changes in teaching of mathematics and physics Swiss high school education
- Pressing social needs in terms of sustainability and the impacts of technology in society

With this in mind, at the Faculty Retreat in August 2025 the Vice Presidency for Academic Affairs began a process of reflection and re-imagining our education programs. This involved asking faculty members to reflect on and discuss a series of questions about the goals and methods of our education.

At the same time the VPA announced the ‘‘s’EPanouir – FLourish” project, to respond to these questions through providing a framework for the EPFL community to reimagine our education programs so that they continue to enable students to develop their full potential and contribute positively to society. The project is currently in the initial ‘review’ phase, with working groups looking at data from EPFL as well as practices in science and engineering education in other universities in Switzerland, Europe and beyond. Using this, the working groups are elaborating potential alternative curriculum models which can provide inspiration during the subsequent phase of the project – the co-design phase (working group members can be found here: https://www.epfl.ch/education/educational-initiatives/community-involvement/).

Some key design features for programs being considered are:

- ✓ Fewer courses, each worth more credits.
- ✓ Opportunities to work on complex questions through research and engineering design projects.
- ✓ Diversity of pathways to get to the same high standards while considering various student backgrounds.
- ✓ Connection of technology and science with societal impact.

The goal of today’s workshop is to (i) consider the issues raised by faculty members at the Faculty Retreat, (ii) reflect on the ways these have been responded to, (iii) give feedback on the steps that have been taken and (iv) suggest future steps that should be considered.

Questions addressed

Q1: What type(s) of graduates do we want to train?

Summary of the views from the faculty retreat: We should prepare excellent engineers and scientists who are also driven innovators with strong technical expertise and transversal skills, and EPFL's ethical values. We need to develop their sense of creativity and adaptability. They need a strong human dimension: an understanding of the human dimension on science, technologies and global life. We should:

- Strengthen research training
- Consider including in SHS more of the management and the psychology skills engineers and scientists need, alongside openness and choice.
- Broaden our concept of 'excellence' to include leadership, creativity etc.

How we have responded: The s'EPanouir – FLourish Working Groups (WG2 and WG3) are currently reviewing EPFL data and international practices on both complex project- and lab-based learning, and on learning of transversal skills of teamwork and project management (see also Q3). They will outline some options for sections to consider in co-design phase of the project. Two working groups are currently exploring this issue – one (WG2) looking at curriculum models to ensure regular opportunities for students to experience complex projects and one (WG3) looking at how the SHS credits are used to ensure that we enable students to develop skills in teamwork and project management, but also enable some openness and choice.

Q2: If you had to change the first year, what would you do?

Summary of the views from the faculty retreat: Strengthen the foundations in mathematics, physics and computer science, through rethinking the relationship between theoretical training, applications (with clear links to their discipline of choice) and computational tools. Provide more inclusive pathways to better serve our increasingly heterogeneous student backgrounds (in terms of *maturité* specialisation, gender, financial resources…). Fewer but fundamental courses which include a focus on learning how to work study effectively.

How we have responded*:* A working group (WG1) is currently reviewing data on the existing curriculum model in first year and is exploring how we could provide more inclusive pathways to ensure all students have a good chance of achieving the required high standards in mathematics, physics and computer science. The WG will also identify possibilities for alternatives in how these disciplines could be taught. These will be brought back to the section directors, teaching commissions and the wider EPFL community, in Spring for discussion.

Q3: How to teach transversal skills and sustainability?

Summary of the views from the faculty retreat: The challenge in teaching transversal skills is not in having time to 'explain' them but rather to have opportunities to practice them and to reflect on that practice so that these skills can be developed (see also Q4, below). Reflection could be supported by a reflective diary maintained across several years as part of SHS. The practice opportunities come from across and beyond the curriculum: group project-based courses, projects in labs, MAKE project, associations…

How we have responded*:* A working group (WG3) is exploring how SHS credits are used to ensure that we enable students to develop competence in ethics and sustainability as well as skills in teamwork and project management. This could involve linking SHS credits to disciplinary labs and projects to support learning of transversal skills. These ideas will be brought back to sections, teachers, and students for their consideration and feedback.

Q4: Why is there a decrease in course attendance? How to bring students back?

Summary of the views from the faculty retreat: There is some decline in student attendance in lectures and particularly in exercises. Students appear to be overwhelmed with courses and projects and respond by trying to 'optimise', i.e. learning in a way they see as being 'efficient'. But *efficiently* producing work for projects and courses is not the same as learning *effectively*. Sometimes the problem is that each teacher tries to optimise for their course, but there is no coordination across courses. We should consider structural change of curriculum (fewer courses), different teaching (interactivity, peer correction of exercises). We are losing a very important aspect of the learning process: learning together.

How we have responded: A working group (WG2) is currently exploring with multiple sections how they might structure their program so that students have fewer courses each semester each worth more credits (it is interesting to note that multiple sections have already moved in this direction so there are good local examples that can inspire). The WG will also consider how to strengthen coordination of assessments across a semester.

Q5: How to include AI?

Summary of the views from the faculty retreat: We need to recognise that there is no going back to the kinds of educational forms that were used in a pre-AI era. While AI tools are currently excellent in some tasks (coding, aiding writing, some data analysis) there are still considerable areas of skill that require human ingenuity. We need to enable students to learn how to use AI intelligently, and to recognise that learning this sometimes requires learning to do tasks that an AI can also complete. There are multiple use cases in which AI tools could help teachers to make classes more interactive and could use them to give more feedback to students.

How we have responded*:* A working group (WG4) is charged with exploring how AI tools can help teachers to adapt their teaching in ways that provide increased learning and well-being for students while also reducing pressure and stress on teachers. This is also aligned with the approach for AI in Education which has been developed by the VPA and VPS (including CEDE, LEARN, and the AI Centre). Financial supports are now in place (DRIL program) to help teachers develop AI supported teaching approaches, with a view to sharing/ generalizing those that are found to be most effective.

s'EPanouir – FLourish: Responding to a changing world

- **Be challenging**: Develop deep mastery of mathematics, physics and computer science.
- **Provide a compass, not a map**: Teach adaptable methods and problem-solving skills (rather than trying to cover all topics and content).
- **Give time to think deeply**: Allow time to explore, think, test, fail, reflect and develop.
- **Encourage creativity and collaboration**: Provide opportunities to creatively solve complex problems, with other students and with world-class labs and researchers.
- **Cultivate conscious social impact**: Develop an understanding of how technology shapes lives, society, and the environment.

Key features of our reformed programs:

- ✓ Fewer courses, each worth more credits.
- ✓ Opportunities to work on complex questions through **research and engineering design projects**.
- ✓ **Diversity of pathways** to get to the same high standards.
- ✓ Connection of **technology and science with societal impact**.

Next Steps

The output of today's workshop will be fed back into the Working Groups.

- The Working Groups will complete a draft report, to be discussed with Section Directors, Teaching Commissions as well as teachers and students who wish to engage between March and May 2026.
- The report of the Working Groups will be finalised in light of this feedback.

The second phase of the s'EPanouir -FLourish project is the co-design of Bachelor programs.

- From June to December 2026, sections (with input from section management and Teaching Commissions – involving professors, other teachers and students) develop proposed outlines of their Bachelor program.
- The introduction of a reformed first year program is envisaged as taking place in September 2027, with subsequent roll out of reforms in later years.