

## ABSTRACT of the Engineers4Europe “Skills Strategy”: September 2022 - August 2025

Europe’s engineering outlook hinges on six urgent realities:

- (1) demand is surging – especially for green-tech specialists – as sustainability and digital mega-projects scale across Europe
- (2) roles mutate rapidly, so adaptability is non-negotiable
- (3) the profession must sharpen its public image to lure wider talent pools
- (4) curricula need a hard pivot to competency-based learning and outcome-driven assessment
- (5) interdisciplinary collaboration and an entrepreneurial mindset rank alongside math and physics
- (6) only CPD and LLL keep skills globally competitive and future-proof

There are currently 15 million workers in technical and engineering jobs in the EU’s workforce. According to CEDEFOP projections, there will be around 8 million job openings (new and replacement needs) between today and 2035. Most of these jobs will be due to the replacement of current employees (six million job openings), but also around two million new jobs will be created due to the needs of the economy.

### **Who needs to do what by 2030?**

- (1) **Professional organisations** should cultivate entrepreneurial and interdisciplinary mindsets; inspire youth and support veteran engineers; drive LLL through tailored, quality-assured micro-credentials; host knowledge-sharing forums; certify cross-border competence; advocate in policy arenas and disseminate EU recognition tools in combination with project results, widely across Europe’s engineering ecosystem.
- (2) **Policy makers** must reignite youth interest in STEM, broadening diversity through awareness campaigns and inclusive, problem-based learning. Sustainably fund HEI and VET modernisation, backing micro-credentials, joint and dual programs. Simplify visas, scholarships and a central talent platform to draw global engineers. Build an EU engineering micro-credential hub, embed AI competence frameworks and promote green-skills literacy across all education levels nationwide.
- (3) **HEIs & VET providers** must overhaul training to meet 21st-century demands. Integrate SDGs, making green and digital competences core of every curriculum by 2030. Adopt Education 4.0 pedagogies, expand micro-credentials and practical, hands-on learning to close theory-practice gaps. They must diversify pathways through vocational apprenticeships, dual degrees and STEM mentorship. Embed entrepreneurship skills – strategy, finance, opportunity recognition – into programs. Forge enduring industry partnerships, co-run labs with up-to-date equipment and upskill faculty in technology and pedagogy. Promote cross-border exchanges and EQF-aligned modular qualifications for learner mobility.
- (4) **Industry** should counter talent shortages by co-designing curricula with HEIs, offering project-based apprenticeships and mentorship; funding in-house, micro-credential upskilling in renewable and digital fields; retaining senior engineers through flexible work; broadening recruitment to women, under-represented groups and career changers to build a competitive workforce.

Engineering demands outpaced supply; declining enrolments compel stronger STEM pipelines, streamlined skilled migration and lifelong up-/reskilling. Guided by the “European Engineering Skills Council”, these measures underpin sustainable growth and leadership.