

## UAprom: Plant Laboratories, Overseas Internships and R&D for Business – How Metinvest Polytechnic Is Transforming Technical Education

In June, Metinvest Polytechnic – a private technical university founded by Metinvest Group – celebrates its fifth anniversary. In an interview with UAprom, Konstantyn Moiseienko, Head of the Academic Quality and Accreditation Department, discussed work experience, trends in technical education and the specifics of attracting students to engineering disciplines.



— **Metinvest Polytechnic has already graduated two cohorts of master's students and expects its first cohort of bachelor's graduates this year. How is the educational process currently structured at the university?**

— We combine distance learning with in-person laboratory sessions held at industrial enterprises. Students learn to work with real equipment, gain practical insights from specialists and familiarise themselves with workplace processes. The university currently offers over 20 accredited programmes, ranging from pre-tertiary vocational education to postgraduate study. Our priority is engineering education. Even programmes that are not strictly engineering – such as management or economics – are oriented towards business processes and the specifics of management within industrial enterprises.

— **In Ukraine, there is growing recognition of the need for more modern approaches to specialist training and the adaptation of educational spaces and curricula to meet the needs of the economy. These priorities are also echoed by the government. What standards do you follow, and what modern approaches are you adopting?**

— We are creating laboratories directly at industrial sites. For example, in collaboration with Kamet Steel, we have opened an automation lab equipped with technology from Siemens and ABB. It is unique in Ukraine in that it combines equipment from multiple suppliers, and serves both students and enterprise staff.

We also use Cortex, an English-language digital library that provides students and lecturers with access to the latest technical literature. In place of traditional academic mobility, we are developing business internships, including placements at industrial sites abroad.

We have already arranged a visit for students to Promet Steel in Bulgaria. On 2 June, a new group of master's students departed for a month-long internship at Danieli, one of the world's leading metallurgical equipment manufacturers. The students will explore the company's technical and technological solutions, and learn how best practices are applied. They will also gain insight into how industrial culture is shaped, as the programme includes visits to European plants that use Danieli equipment.

— **How are students selected for these programmes?**

— Selection is competitive. We assess candidates' academic background, professional training and, in some cases, their industrial experience. Technical English proficiency is essential. We also ask students to record a short video introducing themselves and explaining how the internship would benefit them as future professionals. We believe that these internships are especially valuable for master's students, as they represent the cutting edge of the profession.

— **What are the outcomes of the internships? Are they practically applicable?**

— Absolutely. Internships typically form part of the final-year project, through which our master's students develop concrete recommendations for implementation in business. We also support other formats that help to turn these ideas into practice. For instance, our students took part in the Plant Games competition within Metinvest Group. This is a challenge where teams from various universities develop solutions to real production issues. This year, the Metinvest Polytechnic team won first place. Our energy efficiency project is currently being implemented at Zaporizhstal.

— **Are you planning to strengthen cooperation with industry in this area?**

— In many cases, businesses underestimate the potential of education and science to address their operational, technological or production challenges. At Metinvest Polytechnic, we are developing this area in partnership with enterprises that have very specific needs. One example is reducing the wear on grinding balls during ore beneficiation. For such cases, we form a team that includes master's students working alongside the enterprise's specialists to find solutions. Involving students in this process is a key tool for making education more effective. A problem-based approach is a major trend in modern education. This format also enables us to adapt curricula based on newly acquired knowledge.

— **So, in addition to education, Metinvest Polytechnic also acts as an R&D centre for business?**

— Yes. Not every business can afford to maintain its own R&D centre. In such cases, outsourcing is a cost-effective way to solve production problems. Within Metinvest Group, Metinvest Polytechnic is gradually becoming the main R&D division. However, this does not preclude other research, innovation or modernisation efforts taking place within enterprises independently of Metinvest Polytechnic.

— **Do companies outside Metinvest Group ever approach you?**

— This happens very rarely. I sense there may be concerns that research outcomes could be shared with Metinvest. However, despite the Group being the university's primary stakeholder, Metinvest Polytechnic operates independently and adheres to the principles of academic freedom and ethics.

— **What is your view on the government's Science City initiative? Could it become an effective tool for attracting investment and developing science?**

— We were not involved in the discussions around this initiative. That said, any effort to bridge science and practice, and to help educational and research institutions find their place in the market, is worthwhile.

The idea of science parks and shared research infrastructure is not new. What matters is how it is implemented from legal and economic perspectives. Science requires substantial funding, so we should not expect a widespread proliferation of science parks. However, two or three successful examples could provide a foundation for broader implementation.

State support – even in the form of competitive grant funding – could help to attract Science City residents. So could business interest. If entrepreneurs see potential in Ukrainian science and education for practical application or tangible results, they will get involved.

— **The admissions campaign is about to start. How do you attract applicants? Who are you targeting, and how do you adapt your strategy in light of significant migration and negative demographic trends?**

— Beyond demographic challenges, there is a general lack of understanding about engineering professions and their benefits. Engineering is often seen as outdated or unnecessary. That is why we actively engage with school pupils. At the same time, we see potential among adults, who, due to labour shortages, may be motivated to retrain in engineering.

In today's competitive education market, where employers increasingly prioritise skills over degrees, we offer flexible learning formats. Knowledge can be acquired via full degree programmes (bachelor's, master's) or through micro-credential courses. This is a global trend. Microsoft, for example, uses such models on its Credentials platform, which enables learners to earn micro-qualifications through specific courses.

We are currently promoting our micro-courses on soft skills, occupational safety, and more. Once someone

engages with a micro-credential programme, we can offer them broader degree-level options. We also plan to break large degree programmes into standalone modules that allow learners to focus on specific topics or skills. This aligns with the concept of lifelong learning.

Ultimately, Metinvest Polytechnic does not aim to enrol 30,000 students. We currently have just over 700. Our target is to reach 1,200 per year group.

— **What is the current state of the job market? What do employers need? How have the war and the destruction of industrial facilities affected demand for engineers?**

— People who see potential in engineering – as a sector that creates the tools and technologies other industries rely on – are sensitive to risk. And we must acknowledge that in a prolonged period of uncertainty, particularly smaller businesses may leave Ukraine. However, there is a counter-trend: with less competition, there may be new opportunities for growth. Those willing to accept some level of risk will continue to develop even amid military threats, as we see in Israel, for example.

Our university specialises in mining and metallurgy, so we train professionals for that sector. However, we also attract students from non-industrial regions who are interested in the management and operation of industrial enterprises more generally. We aim to scale up our flagship programme, Modernisation Management of Metallurgical Enterprises, by adapting it for other industries such as mining, robotics and industrial automation.

Together with Dnipro Polytechnic, we are also working on a joint degree project. This would provide a shared foundation in general engineering, while allowing students to specialise in areas where each partner institution has particular expertise: whether in mining, metallurgy, mechanical engineering, rail transport, equipment manufacturing or drones.

— **On that note, are you planning to develop educational programmes in MilTech and train specialists for the defence sector?**

— While we are conducting some research and development in this field, I will not comment further. I will note that the sector currently consists of a network of small manufacturers with highly specialised knowledge and skills. Because of their limited scale, they tend not to be highly visible from the standpoint of technological or industrial development.

We are incorporating individual modules into our educational programmes, such as geological mapping or the use of specialised equipment, including for security-related applications.

— **What is the overall state of engineering education in Ukraine today?**

— Interest in engineering disciplines is gradually being revived. Metinvest Polytechnic was created to preserve and develop engineering schools. And now we see other institutions, such as the Kyiv School of Economics, beginning to enter this field. Like us, they are starting from vocational pre-tertiary education, which is the foundation for a future vertical education model.

The demand for high-quality engineering education is growing. People increasingly recognise that engineering offers strong earning potential. Part of this interest stems from the development of military production, including drone design, operation and maintenance.

Parental and student attitudes towards technical specialisations are also shifting. This trend is influenced by social media, which often highlights the success of tech start-ups. This contributes to the rising popularity of engineering. I believe that Ukraine would benefit from its own STEM promotion programme, starting at school level.

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