Collaborating on LifeLong Learning within ChipTech Twente Talent

Explanatory note for UT colleagues involved or interested in contributing

ChipTech Twente Talent in brief

The Dutch semiconductor sector is growing rapidly. To enable this growth, not only more students are needed, but also professionals who continue to develop throughout their careers.

ChipTech Twente Talent is the Twente talent programme within the national Beethoven programme. Within this programme, the University of Twente, Saxion, vocational (mbo) institutions in Twente, companies and regional partners work together to strengthen talent for the semiconductor sector.

We do this along three lines:

1. Increased inflow of new talent.
2. Improved progression and retention of talent.
3. LifeLong Learning (LLL, or LLO in Dutch) for professionals.

LifeLong Learning forms an important link between knowledge development, education and practice.

What do we mean by ChipTech?

When we talk about the semiconductor sector, we often first think of chips, cleanrooms or chip design. However, a strong sector involves much more than that.

Behind every chip is a network of companies and professionals who together develop, produce and apply new technologies. In the Netherlands, and specifically in Twente, for example, machine builders, (high-tech) suppliers, companies in chip design and manufacturing, materials developers, software companies, system integrators and knowledge institutions work together.

Therefore, ChipTech Twente Talent is not only about specialised chip knowledge but also about equipment development. It encompasses all the knowledge, skills and competences needed to further develop chip technology and related technical sectors. Think of materials science, production technology, mechatronics, digitalisation, data, logistics, entrepreneurship and collaboration in complex value chains.

The breadth of the business community in Twente makes the semiconductor ecosystem here strong. This same breadth is reflected within the University of Twente. With our expertise in research, education and LifeLong Learning, we can contribute to many of the challenges within the semiconductor sector and its supply chain. LifeLong Learning is therefore also part of the ChipTech Talent programme. The LLO line runs from early 2026 to 2030. The plan includes phases, ultimately resulting in a learning ecosystem in the region. The first - current - phase focuses on designing and developing demand-driven LLO offerings for industry, in co-creation between educational institutions and industry.

What do we mean by LLL within ChipTech Twente Talent?

The semiconductor sector is developing rapidly. New technologies, materials and applications require new knowledge and skills, which can be developed through lifelong learning (LLL, LLO in Dutch). Technological specialisations, digitalisation and automation, and multidisciplinary collaboration (social innovation) are key themes.

Within ChipTech Twente Talent, educational institutions and companies therefore work together to make this knowledge available to professionals. We identify current needs in practice and determine which learning activities - to be developed - align with them to enable the required steps forward.

We do this in various forms:

- courses and modules;
- tailor-made programmes for companies;
- events for knowledge sharing and networking;
- learning communities in which professionals from companies and experts from educational / research institutes work together on a specific challenge.

Where are the opportunities for LLL?

Within ChipTech Twente Talent, partners jointly develop learning activities that align with the needs of the semiconductor sector and its supply chain.

The central questions may relate to technology, digitalisation, production processes, collaboration, innovation or other challenges that companies encounter in practice.

Within the programme, we also see opportunities to connect expertise. Sometimes between research groups, departments or faculties within the University of Twente. Sometimes with partners from vocational (mbo) or higher professional education (hbo). For certain challenges, this combination of expertise can be valuable: together, the knowledge and skills provide integrated solutions for companies facing issues that span multiple subdomains.

Many researchers, lecturers and programmes within the University of Twente already collaborate with industry partners. ChipTech Twente Talent offers opportunities to develop new LLL activities based on these existing relationships. The programme provides support, for example through didactic expertise, development capacity and teacher professionalisation.

Depending on the issue, this can lead to different forms of LLL.

For example:

- a microcredential on advanced materials for high-tech applications;
- a course on additive manufacturing (3D printing) or production automation;
- a tailor-made programme on systems engineering or quality management;
- a series of webinars, on-site workshops at companies on digitalisation and new production technologies;
- a learning community in which companies, researchers and professionals collaborate on challenges related to logistics, collaboration or innovation.

For us as the University of Twente, this offers the opportunity to connect knowledge from research with questions from practice and to work together with industry partners and other educational institutions on the development of professionals.

The ChipTech LLL approach is based on close collaboration between industry and education. Consultations with industry are to identify and articulate competence needs, that guide the design of educational activities, and link to expertise from research groups and educational programmes. Learning solutions are developed in co-creation, in which stakeholders jointly design, test, evaluate, and refine the educational offering, for effective implementation.

In the pre-analysis for the LLL plan for ChipTech Talent (Beethoven), an exploration was conducted of topics relevant to companies. This serves as a starting point; further identification and deepening of topics will take place through ongoing dialogue with industry. Below is an overview of the main themes and topics:

Main themes ChipTech Talent LLL plan	Potential topics (academic level)
1. Technological specialisations Companies in chip technology and supply chain require highly specific technical skills.	• Cleanroom and nanotechnology • Process engineering and production automation • Mechatronics and embedded systems • Materials science and chemical engineering • Digitalisation and data analysis • Optoelectronics and photonics • Robotics and automation • Systems engineering • System integration • Project management • Human-technology interaction • Data-driven collaboration • Cross-sector collaboration • Internationalisation and cultural differences • Interdisciplinary research teams • Design-oriented collaboration • Supply chains and logistics • Ethics and Responsibility
2. Digitalisation & automation The sector is characterised by advanced production, robotics, data analysis and automation.	
3. Multidisciplinary collaboration (social innovation) In high-tech value chains, bottlenecks arise in communication, collaboration and process alignment across disciplines and levels.	

Contact us!

Want to know more about de UT's role in the ChipTech Talent programme?

- Information about the ChipTech Talent programme: UT dossier - ChipTech Talent Reinforcement Plan
- Information about ChipTech Talent Lifelong Learning: UT dossier – ChipTech Talent – Lifelong Learning
- Contact details: UT team – ChipTech Talent programme
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