KU LEUVEN



Enhancing efficiency in food processing

Smart sensoring and data analysis

9, 16 and 23 October 2026 from 13:00 until 16:30
KU Leuven - Geel or online

PUC | CONTINUE

Explore the power of smart sensors and AI-based data analysis to enhance the effiency in food processing

In an era of rapid technological advancements and shifting market demands, the food processing industry must adapt swiftly to maintain competitiveness. Sensor technologies, increasingly affordable and precise, are revolutionizing production by enabling real-time data collection and analysis. When integrated with advanced AI and machine learning, these sensors provide actionable insights that streamline operations, reduce costs, and enhance product quality. Leveraging smart sensor technologies are important enablers to achieve operational excellence, sustainable resource management and resilience in a dynamic environment.

Target audience

This course is designed for professionals in the food processing industry, including production entities, technology providers, and integrators. It is particularly beneficial for engineers and technical experts involved in R&D, production, or quality assurance, who seek actionable insights into modern sensor technologies. A technical background is highly recommended.



Programme

1. State-of-the-art overview of sensor technology in food processing

Ensuring product quality is a top priority in the food industry and advances in sensor technology are enabling faster, more reliable and non-invasive quality assessment methods. In this session you will gain a broad yet practical overview of sensing technologies relevant to food processing and quality control. We will begin with fundamental sensing principles and then explore more recent technologies that can rapidly assess key quality attributes such as composition, freshness, contamination, and texture. Through real-world examples and industry case studies, we will discuss the strengths and limitations of different sensor systems and their suitability for various food applications. To conclude, we will introduce a technology-application matrix, a practical decision-making tool to help food companies identify the most effective sensor solutions for their specific challenges.

Lecturers:

- Bart De Ketelaere, Research Manager, MeBioS, KU Leuven
- Tim Van Meer, Technisch Directeur, Pomuni

2. System integration & data infrastructure

Collecting data in rural and harsh environments has quite some challenges. Mostly, data captured at sensors have to use non-traditional means of communication to be collected at the server, where analysis is done. In this session, you will learn how to define data, how to format it and how to send it over a very constrained environment and limited bandwidth to the server. We will discuss some common wireless communication methods and give insight into their advantages and disadvantages. Further, we will dive into the concept of edge computing, where data is analysed at the edge using embedded computing. We will conclude with the contemporary trend of machine learning at the edge and how complex analysis can be done at battery-powered constrained devices.

Lecturers:

- Prof. Hans Hallez, DistriNet, KU Leuven
- Jonathan Kesteloot, Co-founder, Captic



3. Data analysis techniques

In this session, we will delve into the complex task of transforming raw data into meaningful information, which must be delivered to the right user at the right moment. This phase of data analysis and processing presents its own set of challenges. Often, decisions need to be made swiftly in real-time during production processes, requiring the use of sophisticated, real-time AI solutions that can process data quickly and accurately. Despite these technological hurdles, when effectively implemented, sensors offer substantial advantages by improving quality, safety, and efficiency. Techniques for data analysis, including artificial intelligence (AI), machine learning, deep learning, and decision-making processes, are essential for extracting insights from sensor technology. During the session, concrete use-cases will be presented in which AI is applied to interpret acoustic or radar signals for food quality prediction and for estimating the remaining useful life of processing equipment.

Lecturers:

- Matthias De Ryck, Innovation Manager, DTAI, KU Leuven - Brugge
- Prof. Peter Karsmakers, DTAI, KU Leuven - Geel



Targets

This course offers a comprehensive exploration of cutting-edge sensor technologies and smart data analysis and how to apply them in food processing.

Participants will:

- understand the latest sensor technologies and their role in enhancing operational efficiency and adaptability;
- learn to select and implement sensor systems that align with specific production needs and cost considerations;
- develop skills to integrate sensor data with AI-driven analytics for informed decision-making and process optimization;
- recognize how improved efficiency and adaptability contribute to sustainable practices as a natural outcome.

Practical

All sessions will be in English, including lecture materials.

Dates and location

- Friday 9, 16, 23 October 2026, from 13:00 until 16:30, including coffee break.
- KU Leuven Campus Geel (Kleinhoefstraat 4, 2440 Geel) or online

Price

€ 650 ***Early bird! Register before July 1st and pay €585***

- Second participants and additional participants from the same organization receive a 10% reduction
- If you enrol as a company for the whole series, you have the flexibility to send a different employee to each session. Indicate the name of the participants and which session they will attend upon registering.
- Alimento provides a contribution of €225 for participants of Belgian food companies (max. 3 per company) falling under the Joint Committee 118 and 220.

Registration and payment

Register online before 2 October 2026

- Pay online when you register.
- Or pay by bank transfer to PUC - KU Leuven Continue's account number IBAN BE31 2850 2133 2955, quoting 400/0029/11655 + the name of the participant(s). In this case, you will not receive an invoice. Proof of payment is available on request.
- Would you like to pay by invoice? If so, please select this option when registering online and pay only after receiving your invoice.

For tax purposes, no invoice is required as these services fall under the education exemption. We cannot send an invoice if you choose to pay online or by bank transfer using the structured reference. We will also email you the payment details.

SME

As a training institution recognised by the Flemish Government, we accept payments via the SME portfolio. Our recognition number is DV.O102270. When applying, select 'Digitalisering'. As invoice reference use 400/0029/11655.

PUC - KU Leuven Continue

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Door mij in te schrijven, verklaar ik mij ermee akkoord dat de gegevens die ik verstrek gebruikt worden om mij te contacteren in de context van deze opleiding en voor alle nuttige opvolging ervan.