

# CURRENT DIGITAL AND SUSTAINABILITY COMPETENCY TEACHING PRACTICES IN FOOD AND HEALTH CURRICULA ACROSS EUROPE

AN EU ERASMUS+ FUNDED PROJECT TO DIGITALLY  
UPSKILL VET EDUCATORS AND TRANSFORM FOOD  
AND HEALTH EDUCATION TO MEET SUSTAINABILITY  
AND LABOUR MARKET NEEDS.



**Authors:**

Lina Baltrūnė, Raimonda Makaveckė, Aurelija Paltanavičienė  
*Kaunas Food Industry and Trade Training Centre, Lithuania*

**Acknowledgements:**

The authors would like to thank the partners for their contribution to this report by contributing to the data collection:

Dr Sarah O'Donovan, Aisling Moran, Dr Lisa Ryan, Maria McDonagh  
*Atlantic Technological University, Galway, Ireland*

Natalia Truszkowska, Daria Zebrowska  
*The Polish Farm Advisory and Training Centre not-for-profit Sp. z o. o., Poland*

Thomas Fotiadis  
*University of Cyprus, Cyprus*

## Table of Contents

Introduction.....	4
Methodology.....	5
Data collection .....	5
Data analysis .....	5
Results.....	6
Curricula .....	6
Categories .....	6
Bridging Training Programmes with Labor Market Demands .....	13
Discussion.....	15
Conclusion .....	16
References.....	17
Annex 1 .....	19
Annex 2.....	21

## Introduction

The intersection of digital competencies and sustainability has emerged as a critical focal point in vocational education and training (VET) across Europe, particularly within the food and health sectors. The global environment confronts tremendous challenges, including climate change, resource depletion, and health crises, making it imperative for educational frameworks to adapt and provide learners with essential skills<sup>(1, 2)</sup>. The significance of the digital transition cannot be overstated; the rapid advancement of technology had transformed industries, necessitating a workforce that is adept in digital illiteracy, data management and proficient with using new technologies, software, and digital applications. This transformation closely aligns with the European Commission's Digital Education Action Plan (2021-2027), which underscores the necessity of digital skills development as part of comprehensive lifelong learning strategies<sup>(3)</sup>. Conversely, sustainability has emerged as a guiding principle for ensuring that future food systems and health practices are ecologically viable and socially responsible. The European Green Deal and Farm to Fork Strategy emphasise the vital role of sustainable practices in agriculture and health, promoting education initiatives that cultivate a culture of environmental stewardship and resilience<sup>(4)</sup>.

Ongoing curriculum reviews are essential for assessing educational practices and pinpointing areas for enhancement to successfully adapt to developing EU legislation. These reviews serve as a critical mechanism for ensuring that VET curricula are responsive to the evolving needs of industries and communities, facilitating the integration of advanced digital technologies and sustainable practices<sup>(5)</sup>. Through comprehensive analysis of existing programmes, educators and policymakers can identify pinpoint in skill development, adapt learning outcomes, and promote novel teaching methodologies. This iterative approach promotes the relevance of VET programmes and strengthens alignment with EU strategic aims, generating a more competent and flexible workforce<sup>(6)</sup>.

Within this context, various VET institutions are pioneering approaches that blend theoretical knowledge with practical application, fostering environments where students can engage with emerging technologies while cultivating a deep understanding of sustainable practices<sup>(7)</sup>. The European Council Recommendation on VET emphasises how crucial it is to incorporate sustainability and digital skills into VET programmes and promotes frequent updates to keep them current and adaptable to changes in the labour market<sup>(8)</sup>. The European Skills Agenda for Sustainable Competitiveness, Social Fairness and Resilience further supports this initiative by encouraging the integration of green and digital skills into education and training frameworks. Yet, little is known about the integration of digital and sustainability competencies within food and health education and training programmes. A systematic literature review Imara and Altinay shows that although creating Education for Sustainable Development (ESD) competencies has received more attention, little is known about how well these competencies are incorporated into teacher preparation programmes.<sup>(9)</sup>

This research conducts a thorough analysis of food and health curriculum in four European countries: Lithuania, Poland, Cyprus, and Ireland. The primary aim of this research is to investigate the current teaching practices surrounding digital and sustainability competencies within food and health curricula across European countries, offering a comprehensive overview of how these competencies are being integrated into VET. This report examines the integration of essential competences across several educational environments, highlighting strengths, uncovering deficiencies, and pinpointing potential for significant enhancement. Furthermore, it aims to provide actionable insights to inform the development of future curricula that align with the evolving demands of the labour market. This report serves as a resource for educators, policymakers, and stakeholders committed to advancing the quality and relevance of food and health education in Europe. Through the promotion of informed discussions and practical initiatives, we can collaboratively enhance curriculum that cultivates not just competent individuals but also responsible and active global citizens.

## **Methodology**

**Data collection.** To evaluate the current teaching practices related to digital and sustainability competencies within food and health curricula, a systematic approach to data collection was undertaken. The process was collaborative, involving project partners across Poland, Lithuania, Cyprus, and Ireland. The partners conducted their research, adhering to a set format that ensured consistent data collection and analysis. The data collection stages included the following steps:

1. **Creating a list of VET training programmes** - identified training programmes related to food and health in Poland, Lithuania, Cyprus and Ireland.
2. **Identification of competencies, topics and outcomes** - a comprehensive review was conducted to determine how many topics, learning outcomes and competencies focused on sustainability and digitalisation.

Such a systematic approach allowed not only to collect data, but also to assess how the training programmes respond to modern needs related to sustainability practices and the integration of digital technologies.

**Data analysis.** The actual reading of the curriculum can be characterised as qualitative content analysis<sup>10</sup>. Patterns and categories of sustainability and digitization in curricula were identified, and trends were summarized<sup>11</sup>. In the data analysis phase, the process was carried out in three key steps:

1. **Category creation** - data collected from the training programmes was categorized, grouping related topics to structure the analysis.

2. **Identification of key topics** - the topics that received the most attention within the training programmes were determined, highlighting areas of greater focus.
3. **Comparison with labor market needs** - these prioritized topics were then compared with the current needs of the labor market, revealing how well the training programmes align with industry demands and identifying potential gaps.

## Results

**Curricula.** This report examines 63 vocational training programmes related to food and health (1 Annex).

The programmes are distributed across different countries and educational fields as follows:

- Ireland - 12 training programmes, covering dietetics (1 programme), nutrition (6 programmes), food science (4 programmes), and nutraceuticals (1 programme). These programmes range from qualification levels V to VIII.
- Lithuania - 15 training programmes, covering production and processing (2 programmes), services for individuals (8 programmes), health care (2 programmes), transport services (1 programme), fishery (1 programme), and agriculture (1 programme). These programmes range from qualification levels II to IV.
- Cyprus - 17 training programmes, covering culinary arts (6 programmes), food and beverage (1 programme), hospitality and tourism management (1 programme), agriculture (2 programmes), and health and education (7 programmes). These programmes range from qualification levels IV to VIII.
- Poland - 19 training programmes, covering gastronomy (8 programmes), nutrition (7 programmes), food science (1 programme), and sports (3 programmes). These programmes range from qualification levels III to VII.

Several training programmes share the same name but correspond to different qualification levels, leading to variations in their specific curricula. This structure not only enhances skill development but also supports workforce readiness across the industry.

**Categories.** The data from the reviewed training programmes were analyzed and grouped into specific categories based on common themes and topics. These categories are the main areas of focus, and within each category, certain topics are addressed in the curricula. However, it is important to note that different curricula emphasize different aspects of each category. Some curricula may focus more on one topic within a category, while others may prioritize another aspect. The categories and the main topics associated with them are listed below (Table 1 and Table 2).

**Table 1.** Sustainability categories and topics in food and health training programmes. (Compiled by Authors, 2024)

<b>SUSTAINABILITY CATEGORIES</b>	
<b>SUSTAINABLE FOOD PRACTICES</b>	<p>Encompass various strategies aimed at reducing the environmental impact of food production, consumption, and disposal. Key topics within this category include:</p> <ul style="list-style-type: none"> <li>• Sourcing local and seasonal ingredients</li> <li>• Environmental and ethical food practices</li> <li>• Digital innovations for sustainability</li> <li>• Global food issues</li> <li>• Sustainability challenges and solutions</li> <li>• Reducing greenhouse gas emissions and protecting land</li> <li>• Climate change</li> <li>• Marine pollution prevention</li> <li>• Environmental protection procedures</li> </ul>
<b>FOOD SAFETY AND SECURITY</b>	<p>Focuses on ensuring that food is safe for consumption and that it remains secure and of high quality from production to consumption. Key topics in this category include:</p> <ul style="list-style-type: none"> <li>• Proper food handling to reduce spoilage</li> <li>• Efficient storage practices to maintain food quality</li> <li>• HACCP (Hazard Analysis and Critical Control Points) implementation</li> <li>• Compliance with social health regulations</li> <li>• Sustainable techniques in food preservation</li> <li>• Food safety laws, regulations, and quality control measures</li> <li>• Assessment of freshness of raw materials</li> <li>• Cleanliness and workplace preparation requirements</li> <li>• Sanitation and hygiene requirements for the preparation area</li> <li>• Storage conditions and expiry dates for foodstuffs</li> <li>• Causes of produce spoilage</li> </ul>
<b>NUTRITION AND DIETARY</b>	<p>Focuses on understanding the relationship between food, health, and well-being, and applying this knowledge to improve dietary habits. Key topics in this category include:</p> <ul style="list-style-type: none"> <li>• Designing balanced menus</li> <li>• Understanding dietary requirements and special diets</li> <li>• Addressing nutrition and special dietary needs in bakery offerings</li> <li>• Understanding food composition, food processing, and impact of food technology on nutrition</li> <li>• Strategies for educating individuals and communities about nutrition and healthy lifestyle choices</li> <li>• Sustainable food systems in the evidence base for sustainable healthy diets</li> <li>• Global food and health policy</li> <li>• Food additives and materials used in the preparation of semi-finished products</li> <li>• Products labels and customer information</li> <li>• Properties and nutritional value of foods and raw materials</li> <li>• Products that may cause allergies</li> </ul>

<p style="text-align: center;"><b>SUSTAINABILITY CERTIFICATIONS AND STANDARDS</b></p>	<p>Focuses on ensuring that food and hospitality practices meet established environmental, ethical, and safety standards. These standards help businesses maintain sustainable operations and provide consumers with reliable information on the sustainability of products. Key topics in this category include:</p> <ul style="list-style-type: none"> <li>• Knowledge of certifications and standards for sustainability in the hospitality industry</li> <li>• Safety standards, including local and EU regulations</li> <li>• Certifications and Standards Related to Sustainability</li> <li>• Veterinary requirements for the keeping fish and other aquatic organisms</li> </ul>
<p style="text-align: center;"><b>WASTE MANAGEMENT</b></p>	<p>Focuses on strategies and practices that minimize, manage, and recycle waste, particularly in food production and hospitality settings. The goal is to reduce the environmental impact of waste generation while maintaining operational efficiency. Key topics in this category include:</p> <ul style="list-style-type: none"> <li>• Implementing practices to reduce waste in the kitchen</li> <li>• Resource efficiency</li> <li>• Techniques for reducing, reusing, and recycling waste</li> <li>• Minimizing food waste in production</li> <li>• Environmentally friendly packaging</li> <li>• Recycling options through sustainable technologies</li> <li>• Plastic waste</li> <li>• Waste segregation in catering establishments</li> <li>• Managing medical supplies and medical waste</li> </ul>
<p style="text-align: center;"><b>SUSTAINABILITY OF FOOD PRODUCTION</b></p>	<p>Focuses on methods and practices aimed at minimizing the environmental impact of food production while promoting long-term ecological balance. This includes adopting sustainable manufacturing techniques and agricultural practices. Key topics in this category include:</p> <ul style="list-style-type: none"> <li>• Sustainable manufacturing techniques</li> <li>• Applying sustainability in food manufacturing to reduce environmental impact</li> <li>• Technologies that reduce the environmental impact of food production</li> <li>• Sustainable agriculture/animal husbandry</li> <li>• Integrated pest management</li> <li>• Use of natural water resources for production</li> </ul>
<p style="text-align: center;"><b>PUBLIC HEALTH</b></p>	<p>Focuses on the connection between food systems, environmental factors, and the overall health of communities. This category addresses issues related to food quality, consumer education, and public health regulations. Key topics include:</p> <ul style="list-style-type: none"> <li>• Environmental education</li> <li>• Food quality</li> <li>• Requirements for labelling of foodstuffs and raw materials packaging</li> <li>• The harm of alcohol to human health</li> </ul>
<p style="text-align: center;"><b>SUSTAINABLE BUSINESS MANAGEMENT</b></p>	<p>Focuses on integrating sustainable practices into business operations to create long-term value for both the organization and society. This includes developing management theories, addressing environmental and sustainability concerns, and ensuring that business practices support a sustainable future. Key topics in this category include:</p> <ul style="list-style-type: none"> <li>• Development of management theories</li> <li>• Impact of the internal and external business environment</li> <li>• Management's contribution to sustainable business futures</li> <li>• Environmental and sustainability management</li> <li>• Sustainable tourism practices</li> <li>• Skills in environmental management</li> </ul>



**Table 2.** Digitalisation categories and topics in food and health training programmes. (Compiled by Authors, 2024)

<b>DIGITALISATION CATEGORIES</b>	
<b>BASIC COMPUTER LITERACY</b>	<p>Focuses on developing foundational skills in using common software tools to improve productivity and enhance digital literacy.</p> <ul style="list-style-type: none"> <li>• Microsoft or google tools.</li> </ul>
<b>DIGITAL PLATFORMS FOR MARKETING</b>	<p>Focuses on using digital tools and platforms to enhance marketing efforts, engage customers, and promote businesses effectively. This category covers topics related to digital marketing strategies and their impact on business growth. Key topics in this category include:</p> <ul style="list-style-type: none"> <li>• Skills to effectively use digital platforms for marketing</li> <li>• Business promotion</li> <li>• Defining marketing and exploring the marketing environment</li> <li>• Key aspects of marketing</li> <li>• Sustainable digital marketing</li> </ul>
<b>E-COMMERCE</b>	<p>Focuses on using online platforms to promote products or services and facilitate transactions. This category highlights how businesses can leverage e-commerce to increase reach, enhance customer convenience.</p>
<b>DIGITAL TOOLS FOR ORDER AND COST</b>	<p>Focuses on leveraging digital technologies to streamline order taking, payment processing, and overall transaction management in businesses. This category covers tools like Point of Sale (POS) systems and digital menus that improve efficiency, customer experience, and cost management.</p>
<b>DIGITAL COMMUNICATION TOOLS</b>	<p>Focus on using digital platforms to engage with customers, provide services, and manage feedback efficiently. This category emphasizes the use of technology to improve customer interactions, enhance service quality, and streamline communication.</p>
<b>DATA INTERPRETATION AND PRESENTATION</b>	<p>Focuses on using digital tools to analyze and present data effectively, particularly in areas like nutrition, food trends, and consumer preferences. This category emphasizes transforming raw data into meaningful insights and communicating them clearly through professional reports and presentations.</p>

<b>DATA ANALYSIS SOFTWARE TOOLS</b>	Focus on using advanced digital tools and data analytics to enhance food quality, safety, and production efficiency. This category covers the application of digital innovations and technologies to monitor, analyze, and improve food production processes, ensuring higher standards of food quality and safety.
<b>STATISTICAL ANALYSIS SOFTWARE</b>	Refers to the use of specialized tools to analyze, interpret, and present data in a systematic and meaningful way, often used in food quality control, production efficiency, consumer behavior analysis. Making data-driven decisions based on quantitative analysis.
<b>DIGITAL DATA ACQUISITION AND STORAGE</b>	Involves using digital tools and systems to collect, store, and manage data in a secure, accessible, and efficient manner. Ensuring data accuracy, tracking trends, and making informed decisions.
<b>IT (INFORMATION TECHNOLOGY)</b>	Refers to the use of technology to store, process, transmit, and manage information in various forms, including digital and electronic formats. Related to operations, communications, and data management.
<b>AUTOMATION</b>	In the context of baking refers to the use of automated equipment and digital controls to streamline and improve the efficiency, consistency, and quality of the baking process. It involves the integration of technology to reduce manual labor, increase production speed, and ensure precise control over baking parameters.
<b>TECHNOLOGICAL ADVANCEMENTS IN FOOD PROCESSING</b>	Focus on utilizing modern technologies and digital tools to enhance food production, improve efficiency, ensure quality control, and support sustainable practices. This category encompasses various aspects of food processing, digital tools, and the integration of technology to optimize operations, maintain high standards, and innovate product development.
<b>DATA PRIVACY</b>	Refers to the practices and legal requirements that govern the collection, storage, and handling of personal information to protect individuals' privacy rights.

<b>LABORATORY TECHNIQUES IN FOOD ANALYSIS</b>	Involves the use of scientific methods and digital technologies to evaluate the composition, quality, safety, and nutritional value of food products. Ensuring food safety, compliance with food regulations, and understanding the biochemical processes that affect food preservation and nutrition.
<b>DIGITAL TOOLS/SOFTWARE/ APPLICATIONS</b>	Developing personalized nutrition plans, analyzing dietary data, ensuring food quality, tracking public health trends. Focuses in fields like nutrition, public health, and agriculture to improve decision-making and promote healthier lifestyles.

The categorization of sustainability and digitalization topics presented in this report allows for a better understanding of the different aspects emphasized in the curricula (Annex 2). The curricula emphasize the different skills and knowledge needed to address the contemporary challenges of sustainability and digitalization and allows for a comparison of how different sectors integrate sustainability and digitalization into their curricula.

The analysis of sustainability categories across the four countries – Ireland, Lithuania, Poland, and Cyprus – reveals notable patterns in focus and priorities within each nation. The following table summarizes the frequency of mentions for each sustainability category across the countries:

**Table 3.** Frequency of mentions for each sustainability category across the countries. (Compiled by Authors, 2024)

Sustainability categories	Country			
	Ireland (12 programmes)	Lithuania (15 programmes)	Poland (19 programmes)	Cyprus (17 programmes)
Nutrition and Dietary	6	11	7	5
Sustainable Food Practices	4	7	13	10
Sustainability of Food Production	3	1	3	1
Waste Management	2	12	10	1
Public Health	4	12	10	4
Food Safety and Security	3	7	13	6
Sustainable Business Management	2	-	-	3
Sustainability Certifications and Standards	-	2	4	-

The analysis of curricula reveals different levels of emphasis on sustainability topics across countries. Ireland and Cyprus show medium to low coverage of topics, while Lithuania places more emphasis on

waste management and public health. Poland places more emphasis on food safety and sustainable food practices. However, gaps in certain areas, such as sustainability certification and business management, indicate opportunities for more comprehensive integration of sustainability topics into curricula across countries.

The table below summarizes the frequency of mentions for each digitalization category across the countries.

**Table 4.** Frequency of mentions for each digitalisation category across the countries. (Compiled by Authors, 2024)

Digitalisation categories	Country			
	Ireland (12 programmes)	Lithuania (15 programmes)	Poland (19 programmes)	Cyprus (17 progrmas)
Basic computer literacy (Microsoft or Google tools)	8	10	-	-
Digital platforms for marketing	2	-	6	2
E-Commerce	-	-	2	1
Digital tools for order and cost	-	2	3	4
Digital communication tools	7	1	12	5
Data interpretation and presentation	8	9	2	3
Data analysis software tools	9	-	10	3
Statistical analysis software	-	1	-	4
Digital data acquisition and storage	1	14	1	-
IT (Information Technology)	-	-	-	1
Automation	-	-	2	-
Technological advancements in food processing	-	-	4	2
Data privacy	-	3	1	-
Laboratory techniques in food analysis	-	-	1	-
Digital tools/software/applications	1	5	9	4

From the data obtained, it can be stated that Ireland emphasizes basic computer literacy, data interpretation, and data analysis tools. Lithuania prioritizes data acquisition and storage, along with basic computer literacy and data interpretation. Poland stands out with a strong focus on digital communication tools, data analysis software, and technological advancements in food processing. Cyprus emphasizes topics like various digital communication tolls/applications and digital tools for order and cost.

## Bridging Training Programmes with Labor Market Demands

This part of the report explores how training programmes align with the current demands of the labor market, particularly in the areas of sustainability and digitalisation. The analysis began by establishing a clear understanding of key sustainability and digitalisation definitions and terms relevant to food and health sectors. These insights were obtained from a Survey Report on employers' needs in the current labor market<sup>12</sup> conducted at the start of the project, ensuring that the programme analysis is both relevant and aligned with industry demands.

Key terms related to sustainability and digitization, such as environmental protection, climate change mitigation, promotion of healthy and green products, digital skills required, helped to understand how widely sustainability and digitization topics, outcomes and competencies are covered in curricula. By examining these concepts within the context of food and health education, the analysis aimed to uncover how well current curricula align with industry needs and standards. The following tables illustrate the correspondence between the curricula and the labor market's need for skilled professionals in sustainability and digitalisation.

**Table 5.** Comparison of sustainable development aspects and labor market priorities with sustainability categories of curricula (Compiled by Authors, 2024)

Sustainable development aspects and labor market priorities	Ireland	Lithuania	Poland	Cyprus
Protecting the environment, reducing negative environmental impacts, reducing climate change and climate warming, air pollution (Priority - Net Zero, zero carbon emissions, Reducing CO2 emissions)	Medium	Medium	High	High
Use of healthy, safe, high-quality, organic products (Priority - producing high quality and safe products)	Low	High	High	Medium
Reducing the carbon, negative footprint of production (Priority - use of renewable resources)	Low	Low	Low	Low
Rational use of resources activities (Improve the management of energy and other resources, energy saving)	Low	Low	Low	Low
Ensuring public health (Priority - promoting a culture of sustainability)	High	High	High	Low

Waste reduction, recycling (Priority - waste management and rationalisation, use of recycled and biodegradable materials)	Low	High	High	Low
Balanced development (economic, social) (Priority - possession of the sustainable brand index)	Low	Low	Low	Low

The table 5 reveals differences in sustainability priorities across Ireland, Lithuania, Poland, and Cyprus. Ireland and Cyprus focus strongly on environmental protection and public health, while Poland and Lithuania prioritize the use of high-quality products and waste reduction. All countries show low emphasis on reducing production's carbon footprint, resource management, and balanced development, suggesting these areas are less prominent in their curricula.

**Table 6.** Comparison of digital learning subjects required by employers with digital categories of curricula (Compiled by Authors, 2024)

Sustainable development aspects and labor market priorities	Ireland	Lithuania	Poland	Cyprus
Basic computer literacy (Microsoft or Google tools)	High	High	Low	Low
Data analysis and interpretation, basic training with Database	High	High	High	Medium
Basic programming skills, coding	Low	Low	Low	Low
Digital marketing training, e-commerce, digital content creation and Web Design	Low	Low	Medium	Medium
Digital citizenship, network etiquette	Low	Low	Low	Low
Operating and marketing on social media and engaging customer online	High	Low	High	Medium
Proficiency in the use of digital tools and technologies. Software training.	Medium	Medium	High	Medium
Understanding of digital tools and technologies that help reduce the environmental impact of agriculture.	Medium	Low	Medium	Low

The table 6 reveals both strengths and limitations in aligning digital skills with labor market demands. The emphasis on basic computer literacy, data analysis, and proficiency with digital tools aligns well with general labor market needs. However, there is a gap in advanced skills, such as programming, digital

marketing, and content creation, which are increasingly in demand. Additionally, the focus on digital tools for sustainability is limited, even though such expertise is becoming more relevant in the green economy<sup>13</sup>.

## **Discussion**

A general understanding of sustainability and the impact within the food industry is covered across most programmes. However, this was often only identified in one module within the learning outcomes, module descriptor or theme. Employers have acknowledged the complexity of the topic and ongoing research into sustainability and sustainable practices were reported as a challenge for education. Educators and programme coordinators should be encouraged to map their modules across a course to the SDGs to identify where their teaching and learning practices already align with the SDGs and identify areas for improvement across a module or an entire curriculum.

Certain gaps remain between current vocational education and training (VET) offerings and the full spectrum of industry demands, particularly in advanced digital skills. While programmes incorporate practical digital tools like online ordering systems, there is limited focus on more sophisticated technologies, such as data management or AI applications, which are becoming increasingly relevant. Additionally, sustainability education is largely focused on basic practices like waste reduction, with less emphasis on comprehensive topics such as renewable energy or sustainable sourcing. Addressing these gaps could further enhance the programmes' relevance to modern labour market requirements.

One of the main obstacles is the limited resources available for upskilling educators in advanced digital technologies, which hampers their ability to teach these skills effectively. Additionally, there is often a lack of infrastructure to support the adoption of new technologies, particularly in smaller institutions. Regular curriculum updates are also challenging due to resource constraints and the need for alignment with both industry standards and educational policies.

**Curriculum Limitations:** Many existing VET curricula may not adequately incorporate sustainability and digital skills. Updating programmes to reflect current practices and technologies is often slow.

**Lack of Resources:** Institutions may lack the funding, technology, or materials necessary to implement new training programmes that focus on sustainability and digitalization.

**Training of Educators:** Educators may require additional training to effectively teach sustainability and digital skills. Without proper professional development, instructors may struggle to deliver updated content.

**Industry Engagement:** Limited collaboration between educational institutions and industry can hinder the alignment of VET programmes with current sustainability practices and digital advancements.

**Regulatory Challenges:** Regulatory frameworks may not prioritize or incentivize the integration of sustainability and digitalization in VET, making it difficult for institutions to innovate.

**Cultural Resistance:** There may be resistance from educators, students, and industry stakeholders who are accustomed to traditional methods and may be skeptical of new approaches.

**Diverse Needs of Stakeholders:** Different stakeholders in the food and health sectors may have varying priorities and definitions of sustainability and digitalization, complicating the development of a cohesive training strategy.

**Assessment and Evaluation:** Developing effective assessment methods for new competencies related to sustainability and digitalization can be challenging, making it harder to measure progress and effectiveness.

Overcoming these barriers requires strategic investment in educator training and digital infrastructure, along with flexible curriculum frameworks that can be regularly revised<sup>14</sup>.

## **Conclusion**

In conclusion, although advancements have been achieved in integrating sustainability and digital skills education into VET programmes for the food sector, significant deficiencies persist that require immediate attention. The complexity of sustainability and the rapid development of digital technologies highlight the necessity for a more cohesive and thorough approach in curriculum. By aligning educational programmes with the Sustainable Development Goals (SDGs) and improving the correspondence between industrial requirements and educational methodologies, we may more effectively equip future professionals for the challenges ahead.

Significant obstacles, including insufficient resources, poor educator training, and the slow pace of curricular revisions, impede advancement towards a more effective educational framework. A coordinated effort is required to cultivate a workforce adept at fostering innovation in sustainable practices and employing new digital technologies. This entails interacting with industry partners, investing in faculty development, and cultivating a culture of flexibility within educational institutions. By confronting these difficulties directly, we can improve the significance and efficacy of VET programmes, guaranteeing that graduates are adequately prepared to contribute to a more sustainable and technologically advanced future.



## References

1. Fetting, C. (2020). “The European Green Deal”, *ESDN Report*, December 2020, ESDN Office, Vienna.
2. Zwolińska, K., Lorenc, S., & Pomykała, R. (2022). Sustainable development in education from students’ perspective—Implementation of sustainable development in curricula. *Sustainability*, 14(6), 3398.
3. European Commission: Directorate-General for Education, Youth, Sport and Culture. (2023). Digital education action plan 2021-2027: improving the provision of digital skills in education and training. *Publications Office of the European Union*.  
<https://data.europa.eu/doi/10.2766/149764>.
4. European Commission. (2020). Farm to fork strategy: For a fair, healthy and environmentally friendly food system. [Available at:  
[https://ec.europa.eu/food/sites/food/files/safety/docs/farm2fork\\_communication.pdf](https://ec.europa.eu/food/sites/food/files/safety/docs/farm2fork_communication.pdf)]
5. Cedefop (2021). The green employment and skills transformation: insights from a European Green Deal skills forecast scenario. *Luxembourg: Publications Office*.  
<http://data.europa.eu/doi/10.2801/112540>
6. National Academies of Sciences, Engineering, and Medicine. (2020). Strengthening Sustainability Programs and Curricula at the Undergraduate and Graduate Levels. *Washington, DC: The National Academies Press*. <https://doi.org/10.17226/25821>.
7. Rongmin, L., & Fah, B. C. Y. (2024). Rethinking Education and Training: Creating High-Quality Employment Opportunities for Vocational Students. *Advances in Vocational and Technical Education*, 6(2), 90-95.
8. Council Recommendation of 24 November 2020 on vocational education and training (VET) for sustainable competitiveness, social fairness and resilience 2020/C 417/01. (2020). *Official Journal*, C 417, 1-16. CELEX: [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020H1202\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020H1202(01))
9. Imara K, Altinay F. Integrating Education for Sustainable Development Competencies in Teacher Education. *Sustainability*. 2021; 13(22):12555. <https://doi.org/10.3390/su132212555>
10. Mayring, P. (2014). *Qualitative content analysis: theoretical foundation, basic procedures and software solution*.

11. Vaismoradi, M., Jones, J., Turunen, H., & Snelgrove, S.R. (2016). Theme development in qualitative content analysis and thematic analysis. *Journal of Nursing Education and Practice*, 6, 100.
12. DiSHed (2023). R1 - Survey Report on employers' needs in the current labour market. Digitalisation of Sustainable Health Education (DiSHed) Erasmus+ funded project.
13. Söderholm, P. (2020) The green economy transition: the challenges of technological change for sustainability. *Sustain Earth* 3, 6. <https://doi.org/10.1186/s42055-020-00029-y>
14. HEA Future Focus Forum. (2019). Digital transformation and empowering technologies in higher education. Discussion paper. [Available from [https://hea.ie/assets/uploads/2017/04/190212\\_FutureFocus\\_Digital-Transformation\\_Discussion-Paper.pdf](https://hea.ie/assets/uploads/2017/04/190212_FutureFocus_Digital-Transformation_Discussion-Paper.pdf)]

## Annex 1

Table 1. List of training programmes related to food and health in Poland, Lithuania, Cyprus and Ireland (Compiled by Authors, 2024).

Educational field	Name of training programme	Country	Qualification level (EQF)
Production and processing	Food industry worker	Lithuania	III
Production and processing	Food industry worker	Lithuania	IV
Services for individuals	Bread and pastry baker	Lithuania	II
Services for individuals	Bread and pastry baker	Lithuania	III
Services for individuals	Cook	Lithuania	II
Services for individuals	Cook	Lithuania	III
Services for individuals	Cook	Lithuania	IV
Services for individuals	Waiter and Bartender	Lithuania	IV
Services for individuals	Waiter and Bartender	Lithuania	III
Services for individuals	Pastry chef	Lithuania	IV
Health care	Paramedic	Lithuania	IV
Health care	Nurse assistant	Lithuania	IV
Transport services	Ship's cook	Lithuania	IV
Fishery	Aquaculture farm worker	Lithuania	IV
Agriculture	Assistant Agricultural Worker	Lithuania	III
Dietetics	Nutrition Dietetics	Ireland	NFQ Level 8 Undergraduate
Nutrition	BSc Public Health Nutrition	Ireland	NFQ Level 8 Undergraduate
Nutraceutical	Nutraceutical in Health and Nutrition	Ireland	NFQ Level 8 Undergraduate
Nutrition	BSc Nutrition and Health Science	Ireland	NFQ Level 8 Undergraduate
Nutrition	BSc Food and Nutrition	Ireland	NFQ Level 8 Undergraduate
Nutrition	BSc/PgDip Nutritional Sciences	Ireland	NFQ Level 8 Undergraduate
Nutrition	BSc Food Science and Nutrition	Ireland	NFQ Level 8 Undergraduate
Food Science	BSc Food Science and Health	Ireland	NFQ Level 8 Undergraduate
Food Science	BSc Food Science	Ireland	NFQ Level 8 Undergraduate
Food Science	Food Science	Ireland	Level 5/6
Food Science	Applied Science or Food Science, Meath	Ireland	Level 5
Nutrition/Sport	Sport, Anatomy & Nutrition (Westmeath)	Ireland	level 5
Gastronomy	Cook	Poland	III
Gastronomy	Cook	Poland	IV
Gastronomy	Waiter	Poland	III
Gastronomy	Waiter	Poland	IV
Gastronomy	Baker	Poland	III
Gastronomy	Baker	Poland	IV
Gastronomy	Pastry chef	Poland	III

Gastronomy	Catering technology and organisation	Poland	VI
Nutrition	Food technology and human nutrition	Poland	IV
Nutrition	Food technology and human nutrition	Poland	VI
Nutrition	Food technology and human nutrition	Poland	VII
Nutrition	Food quality management and analysis	Poland	VI
Nutrition	Food quality management and analysis	Poland	VII
Nutrition	Dietetics	Poland	VI
Nutrition	Dietoprophylaxis and Nutrition Therapy	Poland	VII
Food science	Food safety	Poland	VI
Sport	Physical Education	Poland	VI
Sport	Physical Education	Poland	VII
Sport	Corrective-compensatory gymnastics	Poland	VI
Culinary Arts	Culinary Arts	Cyprus	V
Culinary Arts	Culinary Arts	Cyprus	V
Culinary Arts	Culinary Arts, Bakery and Pastry	Cyprus	V
Food and Beverage	Food and Beverage Management	Cyprus	V
Culinary Arts	Culinary Arts Management	Cyprus	VI
Culinary Arts	Professional Programme Butchery	Cyprus	IV
Culinary Arts	Culinary Arts Programme	Cyprus	V
Hospitality and Tourism Management	Hospitality and Tourism Management Programme	Cyprus	V
Agriculture	Food Science and Technology	Cyprus	VI
Agriculture	Plant Production Science and Technology	Cyprus	VI
Health and Education	Diploma in Nursery	Cyprus	V
Health and Education	Paramedic – Ambulance Crew	Cyprus	V
Health and Education	Applied Nutrition and Dietetics	Cyprus	VII
Health and Education	Exercise, Health and Nutrition	Cyprus	VIII
Health and Education	Nursing	Cyprus	VI
Health and Education	Nursing	Cyprus	VII
Health and Education	Nursing	Cyprus	VIII

## Annex 2

Table 2. Training programme with corresponding sustainability and digitalization categories by country (Compiled by Authors, 2024).

Programme name and level	Sustainability categories	Digitalisation categories
<b>POLAND</b>		
Cook (III)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> <li>• Food safety and security</li> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Digital platforms for marketing</li> <li>• Digital communication tools</li> <li>• E-Commerce</li> </ul>
Cook (IV)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> <li>• Food safety and security</li> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Digital platforms for marketing</li> <li>• Digital communication tools</li> <li>• E-Commerce</li> </ul>
Waiter (III)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Sustainability certifications and standards</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Data privacy</li> <li>• Digital tools for order and cost</li> <li>• Digital communication tools</li> </ul>
Waiter (IV)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> <li>• Food safety and security</li> <li>• Waste management</li> <li>• Public Health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital communication tools</li> <li>• Digital tools for order and cost</li> </ul>
Baker (III)	<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Sustainable food practices</li> </ul>	<ul style="list-style-type: none"> <li>• Digital platforms for marketing</li> <li>• Digital communication tools</li> <li>• Automation</li> <li>• Digital tools/software/applications</li> </ul>
Baker (IV)	<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Sustainable food practices</li> <li>• Food safety and security</li> <li>• Nutrition and Dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Digital communication tools</li> <li>• Digital platforms for marketing</li> <li>• Digital tools for order and cost</li> <li>• Digital tools/software/applications</li> </ul>
Pastry chef (III)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Sustainable food practices</li> <li>• Waste management</li> </ul>	<ul style="list-style-type: none"> <li>• Automation</li> <li>• Digital tools/software/applications</li> <li>• Digital communication tools</li> <li>• Digital platforms for marketing</li> </ul>
Catering technology and organisation (VI)	<ul style="list-style-type: none"> <li>• Sustainability certifications and standards</li> <li>• Sustainable food practices</li> <li>• Food safety and security</li> <li>• Waste management</li> </ul>	<ul style="list-style-type: none"> <li>• Digital platforms for marketing</li> <li>• Digital tools/software/applications</li> <li>• Digital tools for order and cost</li> </ul>
Food technology and human nutrition (IV)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Sustainability of food production</li> <li>• Sustainable food practices</li> <li>• Waste management</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital tools/software/applications</li> <li>• Data analysis software tools</li> <li>• Technological advancements in food processing</li> </ul>
Food technology and human nutrition (VI)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Sustainable food practices</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital data acquisition and storage</li> <li>• Data interpretation and presentation</li> <li>• Data analysis software tools</li> </ul>

		<ul style="list-style-type: none"> <li>• Digital tools/software/applications</li> <li>• Laboratory techniques in food analysis</li> </ul>
Food technology and human nutrition (VII)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> <li>• Waste management</li> <li>• Nutrition and dietary</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Technological advancements in food processing</li> <li>• Data Interpretation and presentation</li> <li>• Digital data acquisition and storage</li> <li>• Data analysis software tools</li> <li>• Digital platforms for marketing</li> <li>• Digital communication tools</li> </ul>
Food quality management and analysis (VI)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> <li>• Food safety and security</li> <li>• Sustainability certifications and standards</li> <li>• Sustainability of food production</li> </ul>	<ul style="list-style-type: none"> <li>• Data analysis software tools</li> <li>• Technological advancements in food processing</li> <li>• Digital tools/software/applications</li> </ul>
Food quality management and analysis (VII)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> <li>• Sustainability certifications and Standards</li> <li>• Sustainability of food production</li> <li>• Waste management</li> <li>• Food safety and security</li> </ul>	<ul style="list-style-type: none"> <li>• Data analysis software tools</li> <li>• Digital tools/software/applications</li> </ul>
Dietetics (VI)	<ul style="list-style-type: none"> <li>• Nutrition and dietary</li> <li>• Waste management</li> <li>• Food safety and security</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital tools/software/applications</li> <li>• Digital communication tools</li> <li>• Data analysis software tools</li> </ul>
Dietoprophyllaxis and Nutrition Therapy (VII)	<ul style="list-style-type: none"> <li>• Nutrition and dietary</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Data analysis software tools</li> <li>• Digital communication tools</li> </ul>
Food safety (VI)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Sustainable food practices</li> <li>• Waste management</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Data analysis software tools</li> <li>• Technological advancements in food processing</li> </ul>
Physical Education (VII)	<ul style="list-style-type: none"> <li>• Nutrition and dietary</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Data analysis software tools</li> <li>• Digital communication tools</li> </ul>
Corrective-compensatory gymnastics (VI)	<ul style="list-style-type: none"> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital data for client management</li> <li>• Data analysis software tools</li> <li>• Digital communication tools</li> </ul>
<b>IRELAND</b>		
BSc Public Health Nutrition (NFQ Level 8 Undergraduate)	<ul style="list-style-type: none"> <li>• Nutrition and dietary</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital communication tools</li> <li>• Data interpretation and presentation</li> <li>• Digital tools and data analytics</li> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Data analysis software tools</li> </ul>
BSc Public Health Nutrition (NFQ Level 8 Undergraduate)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> <li>• Nutrition and dietary</li> <li>• Food safety and security</li> <li>• Sustainability of food production</li> </ul>	<ul style="list-style-type: none"> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Data analysis software tools</li> <li>• Digital platforms for marketing</li> <li>• Digital communication tools</li> </ul>

	<ul style="list-style-type: none"> <li>• Public health</li> </ul>	
BSc Human Nutrition (NFQ Level 8 Undergraduate)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Sustainability of food production</li> </ul>	<ul style="list-style-type: none"> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Data analysis software tools</li> <li>• Data interpretation and presentation</li> </ul>
Human Nutrition (NFQ Level 8 Undergraduate)	<ul style="list-style-type: none"> <li>• Nutrition and dietary</li> <li>• Waste management</li> <li>• Sustainable food Practices</li> </ul>	<ul style="list-style-type: none"> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Data analysis software tools</li> <li>• Digital communication tools</li> <li>• Data interpretation and presentation</li> </ul>
BSc Nutrition and Health Science (NFQ Level 8 Undergraduate)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Data analysis software tools</li> <li>• Digital communication tools</li> <li>• Data interpretation and presentation</li> </ul>
BSc Nutrition and Health Science (NFQ Level 8 Undergraduate)	<ul style="list-style-type: none"> <li>• Nutrition and dietary</li> <li>• Public health</li> <li>• Sustainable food practices</li> <li>• Food safety and security</li> </ul>	<ul style="list-style-type: none"> <li>• Data analysis software tools</li> <li>• Digital data acquisition and storage</li> <li>• Basic computer literacy (Microsoft or Google tools)</li> </ul>
BSc Food and Nutrition (NFQ Level 8 Undergraduate)	<ul style="list-style-type: none"> <li>• Sustainable business management</li> </ul>	<ul style="list-style-type: none"> <li>• Data interpretation and presentation</li> <li>• Digital platforms for marketing</li> </ul>
BSc Nutritional Sciences (NFQ Level 8 Undergraduate)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Digital communication tools</li> <li>• Data interpretation and presentation</li> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Data analysis software tools</li> </ul>
BSc Food Science and Nutrition (Level 5/6)	-	<ul style="list-style-type: none"> <li>• Data interpretation and presentation</li> <li>• Data analysis software tools</li> <li>• Digital communication tools</li> </ul>
BSc Food Science and Health (Level 5)	<ul style="list-style-type: none"> <li>• Sustainable business management</li> <li>• Waste management</li> <li>• Sustainability of food production</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Data analysis software tools</li> <li>• Digital tools/software/applications</li> </ul>
BSc Food Science (Level 5)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> </ul>	<ul style="list-style-type: none"> <li>• Digital communication tools</li> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Data interpretation and presentation</li> </ul>
<b>CYPRUS</b>		
Culinary Arts (V)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> <li>• Food safety and security</li> <li>• Sustainable business management</li> </ul>	<ul style="list-style-type: none"> <li>• Digital platforms for marketing</li> </ul>
Culinary Arts (V)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Nutrition and dietary</li> <li>• Sustainable food practices</li> </ul>	<ul style="list-style-type: none"> <li>• Digital tools for order and cost</li> </ul>

Culinary Arts, Bakery and Pastry (V)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> <li>• Food safety and security</li> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Digital tools for order and cost</li> <li>• Digital communication tools</li> </ul>
Food and Beverage Management (V)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Sustainable food practices</li> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Digital tools for order and cost</li> </ul>
Culinary Arts Management (VI)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> </ul>	<ul style="list-style-type: none"> <li>• Digital tools for order and cost</li> <li>• Digital communication tools</li> </ul>
Professional Programme Butchery (IV)	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> </ul>	<ul style="list-style-type: none"> <li>• Technological advancements in food processing</li> </ul>
Culinary Arts (IV)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Sustainable food practices</li> </ul>	-
Hospitality and Tourism Management (V)	<ul style="list-style-type: none"> <li>• Sustainable business management</li> </ul>	<ul style="list-style-type: none"> <li>• Digital tools/software/applications</li> <li>• E-Commerce</li> <li>• Digital platforms for marketing</li> </ul>
Food Science and Technology (VI)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Waste management</li> <li>• Sustainable food practices</li> <li>• Sustainable business management</li> </ul>	<ul style="list-style-type: none"> <li>• Software and digital tools for production management</li> </ul>
Plant Production Science and Technology (VI)	<ul style="list-style-type: none"> <li>• Sustainability of food production</li> </ul>	<ul style="list-style-type: none"> <li>• Technological advancements in food processing</li> <li>• Digital applications</li> </ul>
Nursery (V)	<ul style="list-style-type: none"> <li>• Public health</li> <li>• Sustainable practices</li> </ul>	<ul style="list-style-type: none"> <li>• Digital communication tools</li> <li>• IT</li> </ul>
Paramedic – Ambulance Crew (V)	<ul style="list-style-type: none"> <li>• Sustainable practices</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital communication tools</li> <li>• Digital tools/software/applications</li> </ul>
Applied Nutrition and Dietetics (VII)	<ul style="list-style-type: none"> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Digital communication tools</li> <li>• Data analysis software tools</li> </ul>
Exercise, Health and Nutrition (VIII)	<ul style="list-style-type: none"> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Statistical analysis software</li> <li>• Data analysis software tools</li> <li>• Digital tools/software/applications</li> </ul>
Nursing (VI)	<ul style="list-style-type: none"> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital technologies in public health</li> <li>• Statistical analysis software</li> <li>• Data interpretation and presentation</li> </ul>
Nursing (VII)	<ul style="list-style-type: none"> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Data interpretation and presentation</li> <li>• Statistical analysis software</li> <li>• Digital tools/software/applications</li> </ul>
Nursing (VIII)	-	<ul style="list-style-type: none"> <li>• Data interpretation and presentation</li> <li>• Statistical analysis software</li> <li>• Data analysis software tools</li> </ul>
<b>LITHUANIA</b>		
Food industry worker (III)	<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Food safety and security</li> <li>• Sustainable food practices</li> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Digital data acquisition and storage</li> </ul>
Food industry worker (IV)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Nutrition and dietary</li> <li>• Waste management</li> </ul>	<ul style="list-style-type: none"> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Digital data acquisition and storage</li> <li>• Data Interpretation and presentation</li> </ul>



	<ul style="list-style-type: none"> <li>• Sustainable food practices</li> </ul>	<ul style="list-style-type: none"> <li>• Digital tools/software/applications</li> <li>• Data Privacy</li> </ul>
Bread and pastry baker (II)	<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Public health</li> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Digital data acquisition and storage</li> <li>• Digital tools/software/applications</li> </ul>
Bread and pastry baker (III)	<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Public health</li> <li>• Food safety and security</li> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Digital tools/software/applications</li> <li>• Data interpretation and presentation</li> </ul>
Cook (II)	<ul style="list-style-type: none"> <li>• Food safety and security</li> <li>• Waste management</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital communication tools</li> <li>• Digital data acquisition and storage</li> </ul>
Cook (III)	<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Nutrition and dietary</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Data interpretation and presentation</li> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Digital data acquisition and storage</li> <li>• Digital tools/software/applications</li> </ul>
Cook (IV)	<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Nutrition and dietary</li> <li>• Public health</li> <li>• Food safety and security</li> <li>• Sustainable food practices</li> </ul>	<ul style="list-style-type: none"> <li>• Data Interpretation and presentation</li> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Digital data acquisition and storage</li> <li>• Digital tools/software/applications</li> </ul>
Waiter and Bartender (IV)	<ul style="list-style-type: none"> <li>• Nutrition and dietary</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital tools for order and cost</li> <li>• Digital data acquisition and storage</li> <li>• Data privacy</li> </ul>
Waiter and Bartender (III)	<ul style="list-style-type: none"> <li>• Nutrition and dietary</li> <li>• Public health</li> </ul>	<ul style="list-style-type: none"> <li>• Digital tools for order and cost</li> <li>• Digital data acquisition and storage</li> <li>• Data privacy</li> <li>• Data interpretation and presentation</li> </ul>
Pastry chef (IV)	<ul style="list-style-type: none"> <li>• Public health</li> <li>• Food safety and security</li> <li>• Waste management</li> </ul>	<ul style="list-style-type: none"> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Digital data acquisition and storage</li> <li>• Data interpretation and presentation</li> <li>• Digital tools/software/applications</li> </ul>
Paramedic (IV)	<ul style="list-style-type: none"> <li>• Public health</li> <li>• Nutrition and dietary</li> </ul>	<ul style="list-style-type: none"> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Digital data acquisition and storage</li> <li>• Data interpretation and presentation</li> </ul>
Nurse assistant (IV)	<ul style="list-style-type: none"> <li>• Nutrition and dietary</li> <li>• Public health</li> <li>• Waste management</li> <li>• Sustainable practices</li> </ul>	<ul style="list-style-type: none"> <li>• Data interpretation and presentation</li> <li>• Digital tools and data analytics</li> <li>• Digital data acquisition and storage</li> <li>• Statistical analysis software</li> </ul>
Ship's cook (IV)	<ul style="list-style-type: none"> <li>• Sustainable practices</li> <li>• Nutrition and dietary</li> <li>• Public health</li> <li>• Waste management</li> </ul>	<ul style="list-style-type: none"> <li>• Data Interpretation and presentation</li> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Digital data acquisition and storage</li> <li>• Software and digital tools for production management</li> </ul>
Aquaculture farm worker (IV)	<ul style="list-style-type: none"> <li>• Sustainable practices</li> <li>• Sustainability of food production</li> <li>• Waste management</li> </ul>	<ul style="list-style-type: none"> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Digital data acquisition and storage</li> </ul>

	<ul style="list-style-type: none"> <li>• Sustainability certifications and standards</li> </ul>	<ul style="list-style-type: none"> <li>• Data interpretation and presentation</li> </ul>
Agricultural worker (III)	<ul style="list-style-type: none"> <li>• Sustainable practices</li> <li>• Food safety and security</li> <li>• Public health</li> <li>• Waste management</li> <li>• Sustainability certifications and standards</li> </ul>	<ul style="list-style-type: none"> <li>• Basic computer literacy (Microsoft or Google tools)</li> <li>• Digital data acquisition and storage</li> </ul>