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# Integrating ESG into Higher Education Curricula: Between Fragmentation and a Systemic Approach

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## Abstract

*The growing importance of Environmental, Social, and Governance (ESG) principles is reshaping the competencies required in the labour market and placing new demands on higher education institutions. This study examines how ESG can be effectively integrated into higher education curricula, addressing the tension between traditional discipline-based structures and the need for interdisciplinary, practice-oriented learning. The research is based on a qualitative thematic analysis of survey responses and semi-structured interviews with stakeholders from business and academia. The findings indicate that ESG should not be treated as a standalone subject but embedded across study programmes, supported by flexible and modular learning formats. Based on these insights, the paper proposes a hybrid model of ESG integration combining horizontal embedding, vertical competency development, and modular learning pathways. The model supports the development of relevant ESG competencies and contributes to more effective alignment between education and labour market needs.*

**Keywords:** ESG education, higher education curricula, interdisciplinary learning, curriculum integration, microcredentials

## INTRODUCTION

In recent years, Environmental, Social, and Governance (ESG) principles have become a central framework for understanding sustainable organizational development. Increasing regulatory pressures, stakeholder expectations, and labour market demands are driving the need for ESG-related competencies across sectors. In this context, higher education institutions (HEIs) play a crucial role in preparing graduates capable of addressing ESG challenges in practice.

However, a key challenge remains: how to effectively integrate ESG into higher education curricula. A fundamental dilemma concerns whether ESG should be taught as a standalone subject or embedded across existing study programmes. This paper addresses this issue by analysing stakeholder perceptions of ESG integration in higher education and proposing a hybrid model of curriculum integration.

The study is based on a qualitative thematic analysis conducted within a broader research project on ESG education and competencies in Slovenia, implemented as part of the Erasmus+ KA220 project ESG4HE (No. 2025-1-PL01-KA220-HED-000351639).

## LITERATURE REVIEW: INTEGRATING ESG INTO HIGHER EDUCATION

### Strategic and Institutional Foundations for ESG Integration

The literature consistently emphasizes that effective ESG integration requires a clear institutional strategy supported by governance structures. ESG and Sustainable Development Goals (SDGs) frameworks provide a coherent foundation for curriculum development, enabling alignment between educational objectives, competencies, and assessment approaches (Annan□Diab & Molinari, 2017; Moosavi & Bush, 2021; Sepetis et al., 2020; Langan et al., 2023).

Institutions that explicitly incorporate ESG into their mission and strategic priorities are better positioned to implement meaningful curricular changes and secure stakeholder engagement (Nicholson et al., 2023; JIA et al., 2025). Successful integration further depends on cross-faculty collaboration, institutional incentives, and leadership support. Studies highlight the importance of interdisciplinary coordination, faculty development, and flexible organizational structures in facilitating curriculum transformation (Nandan & London, 2013; Oliveira et al., 2021; Huston-Pretorius et al., 2024).

Despite these advances, a persistent gap remains between institutional ambitions and actual implementation, often due to organizational culture, competing priorities, and insufficient staff capacity (Hindley, 2022; Gupta & Singhal, 2017). Addressing these challenges requires systematic evaluation mechanisms, such as ESG course inventories and SDG mapping tools.

### Interdisciplinary and Integrated Curriculum Design

A central principle in the literature is that ESG should not be introduced as an isolated subject but embedded across disciplines. Interdisciplinary and transdisciplinary approaches are particularly effective in addressing complex sustainability challenges, as they enable students to integrate diverse perspectives and knowledge domains (Annan□Diab & Molinari, 2017; Hardy et al., 2021).

Different levels of curriculum integration—multidisciplinary, interdisciplinary, and transdisciplinary—offer varying degrees of knowledge synthesis. Evidence suggests that higher levels of integration are more suitable for addressing “wicked problems” such as sustainability and ESG-related challenges (Oliveira et al., 2021; Langan et al., 2023).

Project-based learning, design studios, and experiential approaches are widely recognized as effective methods for embedding ESG into curricula. These approaches foster systems thinking, collaboration, and real-world problem-solving skills (Moosavi & Bush, 2021; Sepetis et al., 2020; Pritchard, 2019).

Additionally, the SDGs are frequently used as an organizing framework for curriculum design. SDG-based course inventories help institutions identify gaps, map sustainability content across programmes, and support strategic curriculum development (Makrakis & Kostoulas□Makrakis, 2023; Rubio et al., 2019; Wu & Shen, 2016).

**ESG Competencies and Learning Outcomes**

The development of ESG competencies is a critical component of curriculum integration. The literature identifies several key competencies that cut across disciplines, including:

- systems thinking,
- ethical reasoning,
- stakeholder engagement,
- critical thinking,
- collaboration and leadership.

These competencies should be clearly defined and aligned with programme-level learning outcomes and assessment criteria (Painter□Morland et al., 2015; Sepetis et al., 2020; Gupta & Singhal, 2017).

Alignment with professional standards and accreditation frameworks, such as PRME or AACSB, further enhances the relevance and legitimacy of ESG education (Langan et al., 2023; JIA et al., 2025).

Assessment strategies must also evolve to capture not only knowledge acquisition but also behavioural and attitudinal change. Recommended approaches include reflective portfolios, capstone projects, and stakeholder-based evaluations (Nicholson et al., 2023; Huston-Pretorius et al., 2024).

**Pedagogical Approaches for ESG Education**

The literature strongly supports the use of transformational and experiential pedagogies in ESG education. These approaches emphasize:

- critical reflection,
- real-world engagement,
- value-based learning,
- systems thinking.

Experiential formats such as fieldwork, internships, and collaborative projects with external stakeholders significantly enhance student engagement and learning outcomes (Strachan et al., 2021; Hardy et al., 2021).

Participatory curriculum design, involving students, faculty, and external partners, further improves relevance and inclusiveness (Makrakis & Kostoulas□Makrakis, 2023). Cross-sector collaboration with industry, government, and NGOs provides practical learning opportunities and facilitates knowledge exchange (Moosavi & Bush, 2021; Nicholson et al., 2023).

**Implementation Roadmap for ESG Integration**

The literature proposes a structured and systematic approach to integrating ESG into higher education curricula, consisting of several interconnected steps. First, institutions are encouraged to conduct

curriculum mapping and inventory processes in order to identify existing ESG-related content and detect gaps, often using SDG-based tools as a guiding framework (Makrakis & Kostoulas□Makrakis, 2023; Rubio et al., 2019; Wu & Shen, 2016; Chang & Lien, 2020). Building on this, the development of a competency framework is essential, where cross-cutting ESG competencies are clearly defined and aligned with programme-level learning outcomes (Nandan & London, 2013; Painter□Morland et al., 2015; Annan□Diab & Molinari, 2017; Gupta & Singhal, 2017).

Subsequently, curricula should be redesigned to support interdisciplinarity, which involves creating integrated modules and cross-disciplinary learning pathways that enable students to address complex sustainability challenges from multiple perspectives (Oliveira et al., 2021; Hardy et al., 2021; Strachan et al., 2021). This process must be supported by faculty development initiatives, ensuring that educators are equipped with the knowledge and pedagogical skills required to deliver ESG-related and interdisciplinary content effectively (Nandan & London, 2013; Huston-Pretorius et al., 2024; Gamage et al., 2022).

In parallel, experiential learning should be systematically embedded into programmes through the expansion of project-based learning, real-world case studies, and collaboration with external stakeholders (Moosavi & Bush, 2021; Pritchard, 2019; Nicholson et al., 2023). To ensure long-term effectiveness, institutions need to establish governance and evaluation mechanisms that allow for continuous monitoring, assessment, and improvement of ESG integration efforts (Nicholson et al., 2023; Huston-Pretorius et al., 2024; JIA et al., 2025; Chang & Lien, 2020). Finally, successful practices should be scaled and institutionalized across programmes and faculties, ensuring that ESG becomes a sustained and integral component of higher education rather than a fragmented or isolated initiative (Makrakis & Kostoulas□Makrakis, 2023; Rubio et al., 2019; Wu & Shen, 2016; Chang & Lien, 2020).

**Key Challenges and Tensions**

Despite strong theoretical support for ESG integration in higher education, several challenges and tensions persist. One of the main issues is balancing the depth and breadth of ESG content, as programmes must ensure sufficient specialization while also maintaining a broad, interdisciplinary perspective. Additionally, limited faculty capacity and a lack of interdisciplinary expertise present significant barriers, as educators may not feel adequately prepared to teach ESG-related content across disciplinary boundaries. Another challenge lies in aligning ESG integration with existing professional standards and accreditation requirements, which may constrain curricular flexibility. Furthermore, measuring ESG learning outcomes remains complex, particularly when aiming to capture not only knowledge acquisition but also changes in attitudes, values, and behaviours. A key tension emerges between simply adding ESG-related content to existing courses and fundamentally transforming curricula to reflect sustainability principles. The literature consistently emphasizes that meaningful ESG integration requires systemic change rather than incremental or superficial additions (Annan□Diab & Molinari, 2017; Huston-Pretorius et al., 2024).

**Synthesis: Towards a Systemic ESG Curriculum Model**

The literature converges on a holistic approach to ESG integration in higher education, emphasizing several interconnected elements. These include strong institutional governance and clear strategic alignment, which provide the foundation for sustainable implementation. Equally important is the development of interdisciplinary and integrated curricula that reflect the cross-cutting nature of ESG

challenges. Effective integration also relies on experiential and transformative pedagogies that engage students in real-world problem solving and critical reflection. In addition, clearly defined competencies and aligned assessment methods are necessary to ensure that learning outcomes are measurable and meaningful. Finally, faculty development and active stakeholder engagement play a crucial role in supporting implementation and maintaining relevance. Taken together, this approach highlights that ESG integration is not merely a curricular adjustment, but a broader institutional transformation that requires coordinated action across multiple levels of higher education systems.

## METHODOLOGY

This study employs a qualitative research design based on thematic analysis of open-ended survey responses and semi-structured interviews . The analytical process involved several stages, including the coding of relevant textual segments, the grouping of codes into broader thematic categories, and the interpretation of patterns in stakeholder perceptions. This approach enables an in-depth understanding of meanings, experiences, and expectations related to ESG integration in higher education (Braun & Clarke, 2006). The sample consisted of 10 professionals from both the business sector and higher education in Slovenia, which allowed for a combined perspective on labour market needs and educational practices, and provided valuable insights into the alignment between these two domains

## RESULTS: THEMATIC ANALYSIS

### ESG as a Horizontally Integrated Concept

A central finding of the study is that stakeholders perceive ESG not as a standalone subject, but as a concept that should be integrated across study programmes . ESG is understood as a cross-cutting framework that is relevant to multiple functional areas and embedded in decision-making and organizational processes. Such an understanding reflects a shift from viewing ESG as an isolated topic toward recognizing it as an overarching perspective that informs various aspects of organizational and educational practice. This approach supports a more holistic understanding of sustainability-related challenges and helps reduce the fragmentation of knowledge across disciplines

### Rejection of the Standalone Course Model

Most respondents do not support the idea of ESG as a separate course . According to their views, such an approach would limit ESG to a narrow academic domain, reduce its practical relevance, and hinder its integration into real-world contexts. Instead of treating ESG as an isolated subject, stakeholders emphasize the importance of embedding ESG topics within existing courses, such as finance, management, and law. This approach enables a more meaningful connection between ESG principles and functional areas of study, thereby enhancing their applicability and reinforcing their role as an integral part of professional knowledge and practice

### Demand for Microcredentials and Flexible Learning

The analysis reveals a strong demand for more flexible and targeted forms of ESG education, particularly in the form of short educational programmes, specialized modules, and microcredentials . These formats enable the rapid acquisition of specific skills, making them especially suitable for addressing the evolving demands of the labour market. At the same time, they provide greater flexibility for working professionals, who often require opportunities for continuous learning without long-term

study commitments. Such approaches are also better aligned with the needs of small and medium-sized enterprises (SMEs), where resources for extensive training are limited and there is a preference for practical, modular, and immediately applicable knowledge .

**Combination of General and Specialized Knowledge**

Stakeholders emphasize the need for a two-level approach to ESG education, combining general ESG awareness for all students with the development of specialized ESG competencies for advanced learners. This dual structure allows higher education institutions to ensure that all graduates possess a basic understanding of ESG principles, while also enabling those with a deeper interest to acquire advanced, expert-level skills. Such an approach supports both broad dissemination of sustainability knowledge and the development of highly qualified professionals capable of implementing ESG practices in complex organizational contexts

**The Role of Interdisciplinarity**

Interdisciplinarity emerges as a key dimension of ESG education . Effective ESG learning requires the integration of economic knowledge, legal frameworks, technical understanding, and social perspectives, reflecting the complex and interconnected nature of sustainability challenges. By combining these different domains, students are better equipped to understand the multifaceted implications of ESG in real-world contexts. Such integration enables the development of comprehensive competencies that go beyond disciplinary boundaries and are essential for addressing ESG-related challenges in practice

**DISCUSSION**

The findings highlight a clear tension between traditional curriculum structures and emerging labour market needs. While higher education systems are typically organized along disciplinary lines, ESG requires a more integrated, flexible, and practice-oriented approach. This misalignment reflects a broader challenge identified in the literature, where institutions struggle to adapt established curricular models to complex, cross-cutting domains such as sustainability (Annan□Diab & Molinari, 2017; Langan et al., 2023). The persistence of discipline-based silos often limits the ability of students to develop the systemic and interdisciplinary competencies required for addressing ESG-related challenges in real-world contexts.

The study confirms that ESG cannot be effectively implemented as a standalone subject. Such an approach would likely result in the fragmentation of knowledge, reducing its relevance and limiting its transferability to practical settings. Similar concerns are raised in previous research, which warns against treating sustainability as an “add-on” rather than embedding it across curricula (Gupta & Singhal, 2017; Painter□Morland et al., 2015). When ESG is confined to isolated modules, students may fail to recognize its relevance to core disciplinary knowledge and professional practice.

Instead, the findings support the need for a systemic approach to ESG integration, combining horizontal embedding of ESG content across courses, the development of modular and flexible learning formats, and the strengthening of links between theory and practice. Horizontal integration ensures that ESG principles are consistently reinforced across different subject areas, while modular approaches—such as microcredentials and short programmes—enable responsiveness to rapidly evolving labour market demands (Rubio et al., 2019; Chang & Lien, 2020). At the same time, strong connections between theory

and practice, particularly through experiential learning and collaboration with external stakeholders, enhance the applicability of knowledge and improve graduate employability (Moosavi & Bush, 2021; Nicholson et al., 2023).

Furthermore, the importance of interdisciplinarity suggests that curriculum reform should extend beyond the inclusion of ESG content and address the structural organization of educational programmes. Interdisciplinary and transdisciplinary approaches are essential for developing competencies such as systems thinking, critical reflection, and stakeholder engagement, which are central to ESG practice (Hardy et al., 2021; Strachan et al., 2021). This implies a shift from traditional, discipline-based curriculum design towards more integrative models that facilitate collaboration across faculties and promote holistic learning experiences.

Overall, the discussion underscores that effective ESG integration requires not only curricular adjustments but also broader institutional transformation. This includes rethinking pedagogical approaches, strengthening collaboration between academia and industry, and aligning educational outcomes with societal and regulatory expectations. Such transformation is essential if higher education institutions are to play a meaningful role in supporting the transition towards more sustainable and responsible organizational practices.

## PROPOSED MODEL: HYBRID ESG INTEGRATION

Based on the findings, this paper proposes a hybrid model of ESG integration that combines structural, pedagogical, and organizational elements into a coherent framework. The model consists of three interrelated components that together address the limitations of traditional curriculum design and respond to the complexity of ESG education.

The first component is horizontal integration, which involves embedding ESG content across existing courses and integrating it within different disciplines. Rather than treating ESG as a separate subject, this approach ensures that sustainability-related perspectives are systematically incorporated into fields such as management, finance, law, and engineering. This aligns with the literature emphasizing embedded and cross-disciplinary curriculum design as essential for addressing complex sustainability challenges (Annan□Diab & Molinari, 2017; Rubio et al., 2019).

The second component is vertical development, which focuses on the gradual deepening of ESG knowledge throughout the educational pathway. At the foundational level, students are introduced to general ESG concepts, while at more advanced stages they engage with specialized modules that develop expert-level competencies. This progression supports both broad awareness and the development of highly skilled professionals, reflecting recommendations for competency-based ESG education (Painter□Morland et al., 2015; Langan et al., 2023).

The third component is a modular system, which includes microcredentials, short-term programmes, and flexible learning pathways. This element responds to the growing demand for lifelong learning and enables institutions to offer targeted, practice-oriented education that is accessible to both students and working professionals. Modular approaches also allow for greater responsiveness to labour market needs and support continuous upskilling in rapidly evolving ESG domains (Chang & Lien, 2020; Makrakis & Kostoulas□Makrakis, 2023).

Taken together, the hybrid model enables greater adaptability, strengthens the connection between theory and practice, and supports more effective development of ESG competencies. By combining embedded curriculum design, progressive learning structures, and flexible delivery formats, the model provides a practical and scalable framework for integrating ESG into higher education in a systematic and sustainable way.

## CONCLUSION

This study confirms that ESG represents a complex and inherently interdisciplinary domain that requires new and more flexible approaches within higher education. Traditional curriculum models, which are largely structured along disciplinary boundaries, are insufficient to respond to the evolving demands of the labour market, regulatory frameworks, and societal expectations related to sustainability. As ESG continues to gain strategic importance, higher education institutions must adapt by rethinking both the content and structure of their programmes.

The findings suggest that a hybrid model, combining embedded curriculum design with modular and flexible learning formats, represents the most appropriate approach for integrating ESG into higher education. By embedding ESG across disciplines and complementing this with targeted, specialized learning opportunities, institutions can ensure both broad awareness and the development of advanced competencies.

Such a model helps to overcome the fragmentation of knowledge that often characterizes traditional approaches and supports the systemic integration of ESG competencies across educational programmes. In doing so, it contributes to the development of future professionals who are not only knowledgeable about ESG principles but are also capable of applying them effectively in complex, real-world organizational contexts.

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