Work Package 2 – Activity 2.4

Curriculum Design and Evaluation

Project Title	CEMforSMEs
Contract No.	2022-1-PT01-KA220-VET-000087031
Start of Project	January 2023
Duration	**24 months**

consortium

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Deliverable title	CEM CURRICULUM
Deliverable number	A2.4
Deliverable version	2nd
Previous version(s)	1
Contractual date of delivery	28/02/2024
Actual date of delivery	28/02/2024
Deliverable filename	Development Curriculum FINAL
Nature of deliverable	Report
Dissemination level	Public
Number of pages	36
Work Package	WP 2
Task(s)	A2.4 Curriculum Design and Evaluation
Partner responsible	Progressus Research & Counselling
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Revision History

Version	Date	Reviewer	Modification
Final	04/06/2024	João de Sousa	Formatting

Introduction

The Circular Economy Manager curriculum, it's imperative to reflect on the transformative potential this educational pathway holds not only for students and professionals but for the entire fabric of our global economy. The journey towards creating this curriculum has been one of meticulous planning, interdisciplinary collaboration, and a deep commitment to sustainability and innovation. By integrating principles of the circular economy into the core of managerial education, we lay the groundwork for a future where economic activities are inherently sustainable, regenerative, and beneficial to both society and the environment.

The Circular Economy Manager curriculum is designed to equip aspiring Circular Economy Managers with a robust set of competencies, including systems thinking, resource efficiency, sustainable business modeling, and the ability to drive organizational change towards circularity. These competencies are not just academic ideals but are essential tools for navigating the complexities of today's global challenges. Climate change, resource scarcity, and social inequity demand a new breed of leaders, ones who are prepared to rethink traditional economic models and champion a shift towards sustainability.

Throughout this curriculum, we try to highlight several key components, from foundational courses on environmental science and economics to specialized modules on circular design, policy advocacy, and digital technologies for circularity. The importance of experiential learning through internships, project-based courses, and collaborations with industries and communities is also emphasized. These components are not standalone elements but parts of a cohesive whole, designed to foster a deep understanding of the circular economy and the skills to implement its principles effectively.

Looking ahead, the impact of this curriculum extends far beyond the classroom. Graduates equipped with this knowledge and these skills are poised to become leaders in their fields, driving sustainable practices across industries, influencing policy, and inspiring a cultural shift towards circularity. They will play a pivotal role in addressing some of the most pressing environmental challenges of our time, from reducing waste and pollution to conserving natural resources and enhancing biodiversity. Moreover, by embedding circular economy principles into the heart of business and economic systems, they will also contribute to creating more resilient and adaptive economies capable of withstanding future shocks.

The development of the Circular Economy Manager curriculum is, therefore, a critical step towards a sustainable future. It represents a bold reimagining of education for sustainability, one that prepares students not just to participate in the world as it is but to envision and create the

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world as it could be. As this curriculum evolves and adapts to new challenges and discoveries, it will continue to inspire and equip the next generation of leaders with the vision, knowledge, and tools to build a more sustainable, circular world.

A Circular Economy Manager curriculum is a comprehensive guide for relevant training development and cover a range of topics to equip individuals with the knowledge and skills necessary to effectively lead and manage circular economy initiatives within organizations and enterprises in the agrifood sector. Economy Manager of today, by defining a common training model, which will cover all the requirements and be able to adapt to current needs. This blended training course is defined in terms of contents and material in order to contain a course syllabus, a provisional training plan, specific training material.

In sum, the development of the Circular Economy Manager curriculum marks a significant milestone in our journey towards sustainable development. It encapsulates the collective wisdom, aspirations, and commitment of educators, professionals, and students to a future where economic prosperity and environmental stewardship go hand in hand. As we move forward, let us carry the lessons learned and the insights gained from this endeavor into our continued efforts to educate, innovate, and lead in the pursuit of a circular, sustainable economy.

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Transformation of the Circular Economy Manager Profile to a Circular Economy Manager Curriculum

The Circular Economy Manager profile outlines essential skills, responsibilities, and training needs for professionals in SMEs to drive and implement circular economy initiatives. It integrates the EntreComp framework and insights from CEMforSMEs research, serving as a comprehensive guide for enhancing circular practices within organizations. The profile comprises a set of indicators to cover the essential skills, responsibilities, and training needs for Circular Economy Managers, taking into account both the EntreComp framework and the insights from the CEM for SMEs research.

The CEM profile serves as a foundation and a comprehensive guide for the development of training, professional development, and performance assessment of CEM professionals in SMEs. As indicated in the CEM profile key Competences for Circular Economy Managers include: Circular Economy Principles and Practices, Systems Thinking, Sustainable Supply Chain Management, Innovation and Design Thinking, Business Model Development, Stakeholder Engagement and Collaboration, Regulatory Knowledge and Compliance, Data Analysis and Metrics, Project Management, Communication and Change Management.

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A direct adaptation of the Circular Economy Manager Profile to the Circular Economy Manager Curriculum and relevant Learning Modules is presented below:

Circular Economy Manager Competences to Learning Modules

CORE COMPETENCIES, SKILLS AND RESPONSIBILITIES			KNOWLEDGE *and Understanding*	LEARNING MODULES	INDICATIVE LEARNING CONTENT
A. Foundational	B. Intermediate	C. Advanced			
- Circular Economy Principles	- Sustainability Integration	- Global Context Mastery	*- Advanced Circular Economy Concepts and Emerging Trends*	***Introduction to Circular Economy***	● Fundamentals of the circular economy ● Circular Economy Principles and Practices ● Key concepts: Reduce, Reuse, Recycle, and Recovery
- Sustainability Basics	- Local Environmental Regulations	- Circular Supply Chain Optimization	*- Circular Economy Certification (e.g., CE100, Cradle to Cradle)*		
- Local Environmental Regulations	- Circular Business Model Development	- Circular Supply Chain Innovation	*- Sustainability Reporting Frameworks (e.g., GRI)*		
- Basic Data Analysis	- Advanced Data Analysis	- Systems Thinking Expertise	*- Advanced Data Analytics Tools (e.g., Data Visualization, AI)*	***Circular Economy Business Models***	● Circular Business Models Development ● Types of circular business models (e.g., product-as-a-service, sharing economy) ● Developing and testing business models ● Value proposition in a circular economy
- Systems Thinking Principles	- Circular Opportunity Identification	- Circular Business Model Simulation	*- Circular Economy Performance Metrics*		
- Circular Product and Service Design	- Innovative Circular Solutions	- Advanced Circular Design and Innovation Strategies	*- Circular Design and Innovation Training*	***Circular Design and Innovation – Focus in the agrifood sector***	● Importance of circularity in the agrifood sector. ● Global trends and challenges in agrifood sustainability. ● Sustainable Agricultural Practices ● Agroecology and regenerative farming techniques. ● Soil health and biodiversity conservation ● Water management and conservation practices.
- Communication Basics	- Stakeholder Engagement	- Inspirational Leadership	*- Advanced Communication Strategies (e.g., Stakeholder Mapping)*		
- Collaboration Fundamentals	- Effective Cross-Functional Coordination	- Conflict Resolution Skills	*- Leadership and Change Management Training*		
- Adaptability and Flexibility	- Leading Circular Projects	- Change Management Expertise	*- Leadership in a Circular Economy Context*		

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- Basic Leadership Principles	- Adaptability to Evolving Circular Landscape	- Strategic Vision for Circular Transition	*- Stakeholder Engagement and Management*		● Use of renewable energy in agriculture.
- Circular Strategy Development	- Resource Optimization	- Circular Innovation and Experimentation	*- Regulatory Compliance and Circular Reporting*	**Circular Supply Chain Management in the agrifood sector**	● Benefits and challenges of circular supply chains in the agrifood sector. ● Global trends and case studies highlighting successful circular supply chains. ● circular business models applicable to the agrifood sector. ● Exploring models like product-as-a-service, sharing economy, and closed-loop systems. ● Role of technology in enabling circular supply chains.
- Material Flows Analysis	- Circular Performance Monitoring	- Sustainable Product Design	*- Circular Economy Policy and Regulation Updates*		
- Cross-Functional Coordination	- Circular Training and Awareness-Raising	- Circular Business Model Implementation	*- Circular Economy Project Management*		
- Training on Basic Circular Concepts	- Stakeholder Engagement Strategies	- Regulatory Compliance Mastery	*- Sustainable Supply Chain Management*	***Waste Reduction and Resource Optimization***	● Definition and significance of waste reduction and resource optimization. ● Overview of the waste hierarchy: prevention, reduction, reuse, recycling, recovery, and disposal. ● Key sources of waste in agrifood production, processing, distribution, and consumption ● Strategies for Waste Reduction ● Benefits of waste reduction and resource optimization in the agrifood sector. ● Global trends and examples of successful waste reduction initiatives.
- Basic Stakeholder Communication	- Regulatory Compliance	- Circular Economy Advocacy and Policy Influence	*- Advanced Stakeholder Engagement Strategies*		
- Relationship Building Skills	- Circular Partnerships and Collaborations	- Circular Economy Network Development	*- Regulatory and Policy Engagement*		
- Basic Circular Reporting	- Reporting on Circular Achievements	- Circular Economy Corporate Reporting	*- Sustainability Reporting and Assurance*		
- Internal Circular Education and Awareness	- External Circular Communication	- Circular Impact Measurement	*- Circular Economy Reporting Frameworks*		
- Basic Circular Economy Communication	- Internal Circular Economy Training	- Circular Economy Marketing	*- Advanced Circular Economy Communication Strategies (e.g., Storytelling)*	***Circular Economy Case Studies in the agrifood sector***	● Example of a farm using regenerative agriculture techniques. ● Challenges faced and solutions implemente
- Basic Circular Reporting	- Reporting on Circular Achievements	- Circular Economy	*- Sustainability Reporting and Assurance*		

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		Corporate Reporting			● Case study of a company implementing food waste reduction strategies. ● Example of an agrifood business adopting sustainable packaging ● Example of a food processing company optimizing resource use ● Case study of a company implementing circular supply chain practices ● Example of a business converting agricultural by-products into valuable products
- Internal Circular Education and Awareness	- External Circular Communication	- Circular Impact Measurement	*- Circular Economy Reporting Frameworks*		

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Transforming the Circular Economy Manager profile into a comprehensive curriculum provides a structured educational pathway that encompasses all essential competences required for the role. The CEM curriculum should cover key areas such as circular design principles, sustainable sourcing and procurement, waste reduction and resource optimization, innovative business models, and circular supply chain management. Each module within the curriculum will include theoretical knowledge, practical case studies, and hands-on projects to ensure learners can apply concepts in real-world scenarios. Additionally, the curriculum should integrate current technological advancements, regulatory frameworks, and collaborative strategies to prepare managers for the dynamic challenges of implementing circular economy practices in the agrifood sector and beyond. This holistic approach ensures that learners not only understand the principles of circular economy but also develop the practical skills and strategic thinking needed to drive sustainable transformation within their organizations. The CEM Learning Modules will focus on the gradual development of skills, responsibilities, and training needs for Circular Economy Managers (CEMs) in SMEs, enabling the development of foundational to intermediate and advanced competencies. The overall curriculum supports a structured pathway for CEMs to enhance their expertise and contribute effectively to their organization's circular economy practices towards sustainability.

Upon completing the curriculum, participants will achieve the following overall learning outcomes:

- Demonstrate a thorough understanding of the fundamental principles and concepts of the circular economy, including closed-loop systems, lifecycle thinking, and resource efficiency.
- Apply these principles to real-world scenarios to create sustainable business strategies and practices.
- Understand the principles of sustainable design and the role of innovation in driving circular economy practices.
- Develop and implement circular design strategies that enhance product longevity, reparability, and recyclability.
- Identify key sources of waste and inefficiency within agrifood supply chains and other industries.
- Implement effective waste reduction and resource optimization techniques to enhance sustainability and operational efficiency.
- Understand the principles and practices of circular supply chain management, including sustainable sourcing, traceability, and transparency.

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- Design and manage supply chains that minimize waste, enhance resource use, and foster collaboration among stakeholders.
- Explore various circular business models such as product-as-a-service, sharing economy, and closed-loop systems.
- Develop and evaluate innovative business models that support circular economy goals and drive organizational sustainability.
- Gain insights into the role of technology in enabling circular economy practices.
- Utilize digital tools and technologies to enhance traceability, transparency, and resource efficiency.
- Develop methods for evaluating and reporting the performance and impact of circular practices.
- Understand the importance of leadership and strategic thinking in driving circular economy transformation.
- Develop and apply leadership skills to inspire and manage teams, stakeholders, and projects focused on sustainability.
- Recognize the importance of collaboration and stakeholder engagement in implementing circular economy practices.
- Application: Build and manage partnerships with suppliers, customers, and other stakeholders to achieve circular economy goals.
- Gain practical experience through case studies, workshops, and field visits.
- Develop and implement circular economy projects, applying learned concepts to real-world challenges.
- Embrace a mindset of continuous improvement and innovation in circular economy practices.
- Stay updated with emerging trends and technologies to continually enhance sustainability efforts.

By achieving these learning outcomes, participants will be well-equipped to lead and manage circular economy initiatives, driving sustainability and resilience within their organizations and contributing to the broader transition to a circular economy.

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Circular Economy Manager training curriculum specifications

The Circular Economy Manager curriculum is designed to equip professionals with the knowledge, skills, and competencies required to lead and implement circular economy initiatives within organizations, particularly in the agrifood sector.

The Circular Economy Manager curriculum supports a hybrid training delivery, enabling both online and offline as well as synchronous and asynchronous e-learning, in order to accommodate the needs of the SMEs and open the training course to companies of different regions. Moreover, the learning outcomes are clearly defined for every unit, and assessment criteria are developed, contributing to an easier validation and self-assessment process. Face to face (or distance) synchronous training is an important part but also in critical points of the training program, so that the learners get a foundation knowledge of each module and be prepared to engage into self-Learning Activities for Circular Economy Managers. To facilitate self-learning and ensure a deep understanding of circular economy principles and practices, the curriculum includes a variety of self-directed activities. These activities encourage continuous learning, critical thinking, and practical application of knowledge.

Face to face (or distance) synchronous training is combined with the asynchronous distance training, in which learners have the opportunity to study a specially designed material. At the same time, the use of specialized technological applications in the context of the e-learning platform can support a learning community during asynchronous education. The proposed educational methodology – which primarily supports in-person but also distance asynchronous education – derives its practices and orientation from the central principles of the field of adult education.

The training course will be available in all the languages of partner organizations, through the project e-learning platform ATHENA, to enable the distance learning processes for the pilot implementation of the training, including the structured training material.

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MODULE TITLE	HOURS/ SYCHRONOUS FACE TO FACE OR E-LEARNING	HOURS ASYNCHRONOUS DISTANCE LEARNING	TOTAL HOURS
Introduction to Circular Economy	1	4	5
Circular Economy Business Models	1	3	4
Circular Design and Innovation in the agrifood sector	1	3	4
Circular Supply Chain Management in the agrifood sector	1	3	4
Waste Reduction and Resource Optimization	1	3	4
Circular Economy Case Studies in the agrifood sector	1	3	4
TOTAL	**6**	**19**	**25**

TOTAL HOURS: 25 - ECVET: 1

For a continuing training program ECVET credits are determined based on the total learning hours, according to the measure (1 hour of learning corresponds to 0.04 ECVET or conversely 25 hours of total teaching corresponds to 1 ECVET)

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Educational techniques / Suggested educational activities related to the teaching of the subject

Teaching the subject of circular economy effectively requires a variety of educational techniques and activities to engage learners, promote understanding, and foster practical application of knowledge.

Suggested educational techniques and activities for teaching the circular economy may include:

- Interactive Lectures, to introduce key concepts and principles of circular economy, encouraging active participation through discussions, polls, and questioning.
- Real-world case studies to illustrate concepts and demonstrate the application of circular economy principles in different contexts.
- Group Discussions and Debates to explore complex topics, analyze challenges, and brainstorm solutions related to circular economy practices.
- Hands-On Workshops and Simulations, to engage learners in design thinking exercises to ideate and prototype circular economy solutions for specific challenges or scenarios.
- Business Simulations, where learners play different roles within a circular economy ecosystem, making decisions and experiencing the consequences of their actions.
- Case-Based Learning, by presenting learners with real-world problems or challenges related to circular economy and guide them through the process of problem-solving and decision-making.
- Project-Based Learning, by assigning projects that require learners to research, design, and implement circular economy initiatives, fostering creativity and collaboration.
- Experiential Learning, visiting sustainable farms, recycling facilities, or circular economy startups to provide firsthand exposure to circular practices and technologies.
- Peer Learning or Group Projects: Encourage peer-to-peer learning through activities such as peer reviews, group presentations, and knowledge sharing sessions.
- Technology Integration, using online platforms, videos or online resources and tools to facilitate discussions, or VR experiences that simulate circular economy environments or showcase innovative technologies and practices.

By incorporating these educational techniques and activities into teaching practices, educators can create engaging, experiential learning experiences that empower learners to understand, apply, and advocate for circular economy principles and practices effectively.

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Training material, equipment and teaching aids

To effectively teach circular economy principles and practices, it's important to utilize a variety of training materials, equipment, and teaching aids that cater to different learning styles and preferences. The trainer, should take into account the expected learning outcomes and utilizing a variety of educational techniques, uses the supervisory material, adapting it to the needs of the group of trainees, with the aim of activating it during the educational process.

Recommended resources supervisory tools and teaching aids may include:

- Textbooks and Guides on circular economy theory, applications, and case studies.
- Articles and Research Papers that explore current trends, challenges, and innovations in circular economy.
- Educational Videos, documentaries, and TED Talks that illustrate key concepts and showcase real-world examples.
- Circular economy software and tools (for life cycle assessments and impact measurement)
- Presentation Software like PowerPoint, Prezi, or Google Slides to create visually engaging presentations that reinforce key concepts and facilitate discussions.
- Whiteboards and Markers for brainstorming, concept mapping, and problem-solving exercises during class sessions.
- Visual Aids, such as diagrams, infographics, and charts to illustrate complex concepts and processes in a clear and memorable way.
- Posters related to circular economy principles, case studies, and success stories for visual reinforcement.
- Printed Materials: Provide handouts, worksheets, and study guides that summarize key concepts, provide practice exercises, and encourage self-directed learning.

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E- learning platform

The CEM curriculum and training content will be hosted on the ATHENA platform, an innovative and customized e-learning environment developed by the Institute of Entrepreneurship Development (iED). The ATHENA platform offers a comprehensive framework for delivering the training course designed for the Circular Economy Manager profile. This hybrid course will integrate theoretical knowledge with entrepreneurial skills development, providing a comprehensive syllabus, a detailed training plan, specific materials for each unit, valuable resources for VET trainers, and effective evaluation tools. With its advanced features such as adaptive learning, microlearning, mobile learning, social and collaborative learning, progress measurement, self-assessment, and certification, the ATHENA platform ensures an engaging and effective learning experience for trainees.

CEM mini games

The Circular Economy Manager mini games will serve as an innovative interactive component within the training course, enhancing the overall outcomes of the CEM training. Developed as part of WP4, these mini games aim to provide trainees with the opportunity to apply and consolidate the knowledge gained throughout the course in a gamified, practical setting. Central to the training course, these games will offer significant pedagogical benefits, transforming the traditional, passive learning process into an engaging, active experience. Designed to function both within and outside the training context, these stand-alone applications ensure transferability and adaptability, key elements of the project.

Available on the ATHENA platform, a customized product of AB iED, the mini games will be integrated into the course and accessible for download by users. Their primary objective is to immerse learners in a game-based experience, reinforcing the knowledge acquired during the training.

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CEM trainers' profile

The profile of trainers for a Circular Economy Manager curriculum is crucial to the effectiveness of the program. They play a pivotal role in shaping the knowledge and skills of future circular economy professionals. Their qualifications and expertise should not only impart theoretical knowledge but also provide practical insights and inspire Managers and other employees to become champions of sustainability and circularity within their organizations.

CEM Trainers should have a combination of academic qualifications, practical experience, and a passion for sustainable and circular economy practices. The CEM trainers' profile should ideally involves:

- EQF level 4 qualification in fields related to sustainability, circular economy, environmental science, business management, or a related discipline.
- Expertise in Circular Economy, possessing a deep understanding of circular economy principles, strategies, and best practices and stay updated with the latest research, trends, developments and real-world examples and case studies in the field.
- Professional Experience in circular economy initiatives, either as consultants, practitioners, or managers within organizations, is highly valuable.

CEM trainees' profile

Circular Economy Manager (CEM) training is typically targeted to SMEs professionals (managers or employees) who are involved in sustainability, environmental management, supply chain management, innovation, or business strategy within organizations. The target audience may include:

- Environmental Professionals responsible for overseeing environmental sustainability initiatives within organizations, including waste reduction, resource optimization, and circular economy strategies.
- Sustainability Managers: Individuals tasked with developing and implementing sustainability strategies, goals, and programs to enhance environmental and social performance.
- Supply Chain Managers: Professionals involved in managing supply chain operations, procurement, and logistics, with a focus on enhancing sustainability and circularity throughout the supply chain.

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- Innovation & Quality Assurance Managers: Individuals responsible for driving innovation and new product development processes, with an emphasis on incorporating circular design principles and sustainable practices.
- Consultants and Advisors: Sustainability consultants, advisors, and experts who work with organizations to develop and implement circular economy strategies, initiatives, and best practices.
- Entrepreneurs and Startups: Founders and leaders of startups or small businesses seeking to embed circular economy principles into their business models, products, and operations.

The training may be tailored to meet the specific needs and interests of these target audiences, providing relevant knowledge, tools, and strategies to advance circular economy initiatives within their respective roles and organizations.

The CEM candidate trainees should possess:

- EQF 4 qualification in sustainability, environmental management, supply chain management, innovation, or business management and strategy within organizations
- 2 years minimum professional experience

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Evaluation of the CEM training Learning Outcomes / assessment criteria and procedures

Assessing a Circular Economy Manager curriculum is essential to ensure that the learning objectives are met, and participants acquire the necessary knowledge and skills. Incorporating a variety of assessment methods during the learning process ensures that the Circular Economy Manager curriculum effectively supports learners' understanding of circular economy principles and their ability to apply them in practical settings.

Suggested assessment methods during the learning process may include:

- Class Discussions: Encourage active participation in discussions and debates to upgrade learners' ability to apply their knowledge to real-world scenarios.
- Group Projects: Assign work in teams to develop circular economy strategies for real or hypothetical organizations. Assess their ability to apply circular economy principles to practical situations.
- Class experiential activities - Analysis of Real-world Cases: Assign case studies related to successful or failed circular economy initiatives.

To **evaluate the learning outcomes of Circular Economy Manager (CEM) training** effectively, it's essential to establish clear assessment criteria and procedures aligned with the objectives of the training program. Suggested evaluation methods for assessing the learning outcomes of CEM training course, upon completion of the training include:

Suggested criteria & evaluation methods for the assessment of CEM training learning outcomes	
1. Knowledge Acquisition	• Assessment Criteria: Demonstrated understanding of circular economy principles, practices, and relevant concepts. • Evaluation Procedures: Conduct written exams, quizzes, or online assessments to test theoretical knowledge and comprehension of key concepts.
2. Practical Application	• Assessment Criteria: Ability to apply circular economy principles and strategies to real-world scenarios and case studies. • Evaluation Procedures: Assign practical projects, case studies, or simulations where participants develop and implement circular

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	economy initiatives, followed by evaluation based on predefined criteria and rubrics.
3. Critical Thinking and Problem-Solving	• Assessment Criteria: Capacity to analyze complex problems, identify opportunities, and propose innovative solutions within the context of circular economy. • Evaluation Procedures: Facilitate problem-based learning activities, group discussions, or debates where participants engage in critical analysis, brainstorming, and decision-making.
4. Collaboration and Communication	• Assessment Criteria: Ability to collaborate effectively with diverse stakeholders and communicate ideas, strategies, and findings clearly and persuasively. • Evaluation Procedures: Assess participation in group projects, presentations, or role-playing exercises, focusing on teamwork, leadership, and communication skills.
5. Ethical and Sustainable Decision-Making	• Assessment Criteria: Consideration of ethical, social, and environmental implications in decision-making processes related to circular economy initiatives. • Evaluation Procedures: Integrate ethical dilemmas and sustainability challenges into case studies and discussions, followed by reflection and analysis of decision-making approaches.
6. Leadership and Change Management	• Assessment Criteria: Ability to lead and manage change processes effectively, mobilizing stakeholders and driving organizational transformation towards circularity. • Evaluation Procedures: Evaluate leadership skills through role-playing scenarios, self-assessment tools, or 360-degree feedback assessments, focusing on leadership competencies and behaviors.

Final Assessment:

Assess overall comprehension of course materials and concepts will be performed at the end of the course. The trainee is required to complete the corresponding assessment test, including 10 multiple choice questions/true/false statement, etc. per module. The CEM training self-

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assessment tool will be provided on the ATHENA platform, enabling assessing the level of achievements in learning, according to the following scale:

A. Excellent: over 90% of right answers

B. Very Good: over 70% of right answers

C. Good: over 60% of right answers

D. Sufficient: 50% of right answers

E. Fail: below 50% of right answers

Only trainees who reach Evaluation A, B, C and D will pass the test. Trainees who reach Evaluation E will be able to try again the test 3 times.

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ANALYSIS OF THE CIRCULAR ECONOMY MANAGER CURRICULUM

Module 1: Introduction to Circular Economy

Module 1, "Introduction to Circular Economy," is the foundational module of the Circular Economy Manager curriculum. This module aims to provide learners with a comprehensive understanding of the core principles, concepts, and applications of the circular economy. It serves as an essential introduction to the broader curriculum, setting the stage for deeper exploration of circular economy practices in subsequent modules.

Module Objectives:

- To introduce learners to the fundamental principles and concepts of the circular economy.
- To foster an appreciation for the economic, environmental, and social drivers behind circular practices.
- To provide an overview of key frameworks, models, and strategies used in the circular economy.
- To instill an understanding of the benefits, challenges, and opportunities associated with the circular economy.
- To prepare learners for advanced topics and applications in circular economy management.
- To prepare learners to gain Understanding the basics of the circular economy concept
- To introduce learners to Historical context and evolution of the circular economy
- To enable learners to identify benefits and challenges of circular economy practices

Expected Learning Outcomes:

- Define the circular economy and explain its key principles.
- Differentiate between the circular economy and the traditional linear economy.
- Identify the economic, environmental, and social drivers that promote the adoption of circular economy principles.
- Understand the role of sustainability and resource scarcity in driving circularity.
- Explore and analyze various circular economy models and frameworks, such as the 3R (Reduce, Reuse, Recycle) model, the Cradle to Cradle design, and the butterfly diagram.

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By the end of Module 1, learners should have a solid understanding of the circular economy, its principles, and the potential benefits and challenges associated with its adoption. They should be equipped with the foundational knowledge needed to explore more advanced topics and applications in subsequent modules of the Circular Economy Manager curriculum.

Key words: Circular Design, Innovation, Agrifood Sector, Soft Skills, Regenerative Agriculture, Sustainable Practices

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Module 2: Circular Economy Business Models

Module 2, "Circular Economy Business Models," is a core component of the Circular Economy Manager curriculum. This module focuses on equipping learners with the knowledge and skills necessary to understand, develop, and implement circular business models. Circular business models are essential for transitioning from traditional linear models to more sustainable and resource-efficient approaches, contributing to the broader goals of the circular economy. This module provides a comprehensive understanding of circular business models and their practical application

Module Objectives:

- To introduce learners to the principles and concepts of the circular economy.
- To explore various types of circular business models and their advantages.
- To equip learners with the tools and strategies needed to design and implement circular business models.
- To foster an understanding of the economic, environmental, and social benefits of circular business models.
- To prepare learners to develop and lead circular business model initiatives within their enterprises
- To foster Exploring various circular business models (product-as-a-service, remanufacturing, sharing platforms)
- To introduce Case studies of organizations successfully implementing circular business models
- To enable Identifying the right circular business model for specific industries and products

Expected Learning Outcomes:

- Evaluate traditional linear business models and their limitations in terms of resource use and waste generation.
- Analyze the potential benefits of adopting circular business models.
- Explore different types of circular business models, including product-as-a-service, remanufacturing, sharing platforms, and waste-to-value models.
- Understand the advantages and challenges associated with each model type.
- Identify and design revenue streams that align with circular business models.

By the end of Module 2, learners should have a strong grasp of circular business models, their benefits, and the strategies required for their successful implementation. They should be capable

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of developing and executing circular business models that contribute to resource efficiency, sustainability, and long-term business success.

Key words: Circular Business Models, Product-as-a-Service, Remanufacturing, Sharing Platforms, Waste-to-Value, Linear models, Circular Models, Sustainability, Resource Efficiency, Innovation, Revenue Streams

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Module 3: Circular Design and Innovation in the agrifood sector

Module 3, "Circular Design and Innovation in the agrifood sector," is an integral part of the Circular Economy Manager curriculum. This module focuses on equipping learners with the knowledge and skills necessary to apply circular design and innovation principles to product and process development. Circular design and innovation are critical components of the circular economy, emphasizing resource efficiency, waste reduction, and sustainable product life cycles. This module provides learners with the tools and strategies needed to create innovative and environmentally responsible solutions.

Module Objectives:

- To introduce learners to the principles and practices of circular design and innovation.
- To foster creative thinking and problem-solving in the context of circularity.
- To empower learners to develop products and processes that minimize environmental impact and promote circularity.
- To encourage the integration of circular design and innovation into organizational strategies and product development processes.
- To prepare learners to address real-world circular design challenges and opportunities.
- To enable learners design thinking and eco-design principles
- To foster sustainable product design and redesign
- To introduce strategies for product lifecycle extension
- To facilitate materials selection for circularity

Expected Learning Outcomes:

- Apply eco-design principles to develop products and processes with minimal environmental impact.
- Utilize design thinking methodologies to foster innovative circular solutions.
- Develop strategies to extend the lifespan of products through repair, refurbishment, and upgrading.
- Identify opportunities to increase product durability and modularity and evaluate materials for circularity, considering recyclability, reusability, and environmental impact.

By the end of Module 3, learners should have the knowledge and skills necessary to incorporate circular design and innovation principles into their product and process development practices.

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They should be able to create more sustainable and circular solutions that reduce waste, conserve resources, and contribute to the goals of the circular economy.

Key words: *Circular Design, Innovation, Agrifood Sector, Soft Skills, Regenerative Agriculture, Sustainable Practices*

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Module 4: Circular Supply Chain Management in the agrifood sector

Module 4, "Circular Supply Chain Management in the agrifood sector," is a critical component of the Circular Economy Manager curriculum. This module is designed to provide learners with the knowledge and skills required to transition traditional linear supply chains into circular and sustainable systems. Circular supply chain management plays a pivotal role in minimizing resource waste, reducing environmental impact, and fostering resilience within organizations' supply chains. This module explores strategies, technologies, and best practices to create circular and eco-friendly supply chain networks in the agrifood sector.

Module Objectives:

- To introduce learners to the fundamental concepts of circular supply chain management.
- To equip learners with the tools and strategies necessary to analyze, design, and implement circular supply chain solutions.
- To promote the understanding of the environmental, economic, and social benefits of circular supply chains.
- To empower learners to identify and leverage opportunities for circularity within their organizations' supply chains.
- To prepare learners to develop and lead circular supply chain initiatives that align with sustainability goals.
- To foster analyzing supply chain processes for circular opportunities
- To initiate Implementing efficient reverse logistics
- To enable Circular procurement and sustainable sourcing
- To introduce Circular distribution and transportation strategies

Expected Learning Outcomes:

- Define and explain the fundamental concepts of circular supply chain management in the agrifood sector
- Analyze existing supply chain processes to identify potential areas for circularity.
- Evaluate the environmental and economic impacts of circular supply chain improvements.
- Develop strategies for agrifood product take-back, refurbishment, and remanufacturing.

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By the end of Module 4, learners should have a deep understanding of circular supply chain principles in the agrifood sector and be capable of applying these principles to transform traditional supply chain operations into more sustainable, resource-efficient, and environmentally friendly systems.

Key words: supply chain, resource efficiency, logistics, food waste

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Module 5: Waste Reduction and Resource Optimization

Module 5, "Waste Reduction and Resource Optimization," is a critical component of the Circular Economy Manager curriculum. This module focuses on equipping learners with the knowledge and skills needed to minimize waste generation, maximize resource efficiency, and promote sustainable practices within an organization. Waste reduction and resource optimization are key pillars of the circular economy, contributing to both environmental sustainability and cost savings. This module provides a comprehensive understanding of strategies and techniques to achieve these objectives.

Module Objectives:

- To familiarize learners with the principles of waste reduction and resource optimization.
- To provide practical tools and methods for identifying and minimizing waste streams.
- To explore strategies for conserving natural resources and reducing environmental impact.
- To empower learners to calculate the economic and environmental benefits of waste reduction.
- To prepare learners to develop and implement effective waste reduction and resource optimization initiatives within their organizations.
- To familiarize learners with Lean manufacturing and waste reduction techniques
- To enable learners to conduct Waste audits and analysis
- To prepare learners to develop and implement Waste-to-value conversion methods (e.g., recycling, upcycling)
- To enable learners towards optimization of resource use in agrifood production processes

Expected Learning Outcomes:

- Understand the process of waste auditing and its role in identifying waste streams.
- Learn to conduct waste assessments to quantify and categorize different types of waste generated within an agrifood enterprise.
- Explore various waste minimization strategies, including source reduction, recycling, and waste-to-value conversion.
- Examine resource-efficient practices to reduce water, energy, and raw material consumption.
- Implement strategies for conserving natural resources and reducing environmental impact.

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By the end of Module 5, learners should have the knowledge and tools to assess, plan, and implement waste reduction and resource optimization strategies within their organizations, contributing to sustainability, cost savings, and environmental stewardship.

Key words: Waste, waste reduction, resource optimization, agri-food, sustainability, environmental benefits, waste audits.

Module 6: Circular Economy Case Studies in the agrifood sector

Module 6, "Circular Economy Case Studies," is an integral part of the Circular Economy Manager curriculum. This module provides learners with the opportunity to delve into real-world examples of successful circular economy implementations across the agrifood sector. Through the analysis of these case studies, participants will gain valuable insights into the practical application of circular economy principles, strategies, and best practices. This module aims to inspire, inform, and equip learners with the knowledge and inspiration needed to drive circular economy initiatives within their own enterprises.

Module Objectives:

- To expose learners to a range of circular economy case studies in the agrifood sector
- To facilitate critical analysis of these case studies, enabling learners to extract valuable lessons and strategies.
- To identify common themes and best practices that can be applied in the agrifood sector
- To inspire innovative thinking and adaptability in the context of circular economy initiatives.
- To equip learners with a practical understanding of how organizations have successfully transitioned to circular business models.

Learning Outcomes:

- Evaluate and analyze a variety of real-world case studies related to circular economy practices in the agrifood sector.
- Identify the key components and strategies that made each case successful.
- Recognize how circular economy principles can be adapted to the agrifood sector

Extract common themes and strategies that apply across different subsectors of the agrifood industry.

By the end of this module, learners should have a comprehensive understanding of how circular economy principles have been applied in various contexts, and they should be able to draw upon the lessons, strategies, and best practices identified in the case studies to inform and improve circular economy initiatives in their own professional settings.

Key words:

Circular Economy, Case Studies, Best Practices, Common Practices, Applicable Solutions

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Suggested Format of each Module Training Content

The following format provides a comprehensive overview of CEM modules and learning methods while incorporating interactive elements to enhance learning engagement. Adjustments can be made based on specific learning objectives, audience needs, and available resources.

Theoretical background (max. 10 pages)

Provide a clear definition of basic concepts, importance CEM for businesses in today's competitive landscape. Outline the primary goals or outcomes that effective CEM aims to achieve per module.

Suggested methods and activities

Describe the educational techniques and activities to engage learners, promote understanding, and foster practical application of knowledge. It is advisable to follow the format below.

Activities - Exercises

Provide experiential activities or analysis of Real-world Cases during the learning process to support learners' understanding of circular economy principles and their ability to apply them in organisation settings. It is advisable to follow the format below.

Activity 1 – title ……..

Activity type (case study, experiential exercise etc.	
Learning Goals	
Expected Outcomes	
Specifications (Individual or group activity, number of persons in the group, duration, necessarily means and material)	
Description of task/s	
Implementation guidelines / Additional Instructions for facilitator	

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Self-evaluation Exercises per module

Provide 10 multiple choice questions/true/false statement, etc. per module to enable the CEM training self-assessment of acquiring the CEM learning outcomes. It is advisable to follow the format below.

The following multiple-choice questions will help you to reflect on the educational material of the section and evaluate your understanding on the basic relevant concepts and theoretical background. (6 questions for each section)

Question 1

Please choose the right answer to the following question

1._____ 2. _____ 3. _____ 4. (or all the above)

Question 2

Please choose right or wrong for the above-mentioned text.

Right ____ Wrong ____

Question 3

Fill in the sentence with the right word/phrase

1. _____ 2. _____ 3. _____

<u>Additional resources per module</u>

Online Interactive Resources

Resources for further reading

References

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