Project: 101140058 — ERASMUS-EDU-2023-PI-ALL-INNO

SiT
Sustainability in TCLF

ANNEX 1 to the Modular Curricula

Table of Content

Introduction

The SiT project has developed two forward-looking curricula to support the green transition in the Textile, Clothing, Leather, and Footwear (TCLF) sector. These curricula target two emerging professional roles: the **Bio-Textile Technician (EQF 5)** and the **Recycling Manager (EQF 6)**. Both were designed on the basis of comprehensive research into existing skill gaps and training needs, ensuring strong alignment with current industry challenges and future sustainability trends.

The curricula are built on a modular and interdisciplinary structure, allowing learners to tailor their training paths by selecting the modules most relevant to their personal and professional development. Each curriculum consists of **eight modules with the addition of one introductory module that explains the fundamentals of sustainability**, with 3–5 thematic units per module, combining theory with practice in an applied learning approach.

This annex presents a **summary sheet** for each module, capturing the key information in a concise format: **title, duration, objectives, learning outcomes, and assessment methods**. The aim is to provide training providers, employers, and learners with a clear and practical overview of the structure and content of the SiT training offer.

2. Introductory module- summary sheet

TITLE	Sustainability fundamentals
EQF LEVEL	5
ECTS CREDITS	1 ECTS
LEARNING METHODS AND DURATION	4 hours e-learning, 4 hours face-to-face, 18 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will be introduced to the basic concepts of sustainability and the importance of sustainability in everyday life and the textile industry. The learner will be introduced to the environmental impacts of the textile industry and simple actions that support more sustainable practices.

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge
After the completion of this module, learners will:
- recognize the basic concepts of sustainability and their relevance to the textile industry;
- describe key environmental and economic challenges related to textile production and consumption;
- recognize the growing importance of sustainable practices in the fashion and textile industry.

Skills
After the completion of this module, learners will be able to:
- carry out simple observations of sustainability-related issues;
- apply basic sustainable thinking to everyday choices related to textiles and clothing;
- use introductory terminology and examples to explain sustainability challenges in the textile industry;
- evaluate basic sustainability practices in textile products and processes at an entry level.

Competences
After the completion of this module, learners will:
- support simple sustainability practices in their personal and professional activities;
- perform simple actions that contribute to more sustainable behavior;
- demonstrate awareness and responsibility in promoting sustainable choices in textile consumption and production.

COURSE CONTENT

Unit 1: Sustainable economic practices and resource management
- Economic drivers of sustainability in the textile and fashion industry
- Resource efficiency and waste reduction in production
- Business models for sustainability: circular economy, slow fashion
- Understanding cost-benefit aspects of sustainable practices

Unit 2: Core principles of sustainability in textile industry
- Definition and dimensions of sustainability in textile industry
- Key product-level strategies for achieving sustainability in textile industry
- Basics of process and organization innovation for sustainability in textile industry

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

3. Bio-textile Technician modules - summary sheets

TITLE	Bio-based textile material properties and processing techniques
EQF LEVEL	5
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will be introduced to the status quo of the textile industry, recycling processes, bio-based materials and their properties and innovative waste-based materials and the current research trends

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the
learners will acquire with the successful completion of the module, are described.

Knowledge
After the completion of this module, learners will:
- know the status quo and challenges of the fashion industry
- identify the challenges of textile recycling
- understand the world of plant-based, animal-based, and cellulose-based materials and their advantages and limitations
- evaluate new innovative waste-based fibers and materials, how they are created and used
- appreciate why waste is not the problem, but rather a resource for solutions thanks to modern research approaches
- know the feel of the new materials

Skills
After the completion of this module, learners will be able to:
- analyze and critically reflect on the status quo and the ecological and economic challenges of the fashion and textile industry.
- apply existing recycling processes and sustainable material concepts and review their effectiveness.
- select and use innovative, waste-based fibers and materials in a targeted manner and classify their haptic and functional properties.
- evaluate the ecological, social, and economic impacts of new materials and derive recommendations for action.

Competences
After completing this module, learners will:
- actively accompany and support development processes for sustainable textile and fashion concepts by contributing in-depth knowledge of materials and recycling methods.
- properly integrate novel materials into design, development, and production processes and communicate their potential.
- classify current research approaches in the field of waste-based materials and use them for innovative product solutions.

COURSE CONTENT

Unit 1: Status quo and challenges facing the fashion and textile industry - Why don't we recycle more?
- Status quo of the industry
- Ecological and social challenges
- Fundamentals of the circular economy and sustainability
- Mechanical and chemical recycling processes
- Challenges and limitations of current systems

Unit 2: Bio-based materials and their properties
- Plant, animal and cellulosic fibres: properties, advantages and disadvantages
- Advantages and limitations of bio-based materials
- Practical examples & material tests

Unit 3: Innovative and waste-based materials – Future prospects & final presentation
- Processes for creating new fibers
- Practical examples & material tests
- Opportunities and limitations of waste-based materials
- Research and regulatory developments
- Discussion of the future of the industry
- Presentation of the concepts developed

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Chemistry for textile processing and dyeing with less environmental impact
EQF LEVEL	5
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will be introduced to application of green chemistry principles in the context of textile processing, dyeing, and printing, with emphasis on reducing the environmental and health impacts of chemical processes, comparison of natural vs synthetic dyeing technologies, focusing on fibre compatibility, environmental load, and process performance, guided by the 12 principles of green chemistry, textile printing processes, based on a low-water and low-waste concept, alternative to traditional print methods, conduct experimental and project-based activities using a process logbook or portfolio approach, connecting hands-on experience with theoretical green chemistry concepts.

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge
After the completion of this module, learners will:
- Explain the 12 principles of green chemistry and how they apply to sustainable textile dyeing, printing, and finishing processes
- Identify and describe the main environmental impacts of conventional wet processing, including water consumption, chemical load, energy use, and emissions
- Distinguish between natural and synthetic dyes, including their chemical composition, fibre compatibility, fastness properties, and ecological profiles
- List and describe sustainable pre-treatment technologies (e.g. enzymatic scouring, ozone bleaching, low-temperature processes) and their impact on energy, water, and fibre integrity
- Describe innovative dyeing technologies such as ultrasonic dyeing, foam dyeing, nebulization, and supercritical CO_2 dyeing, including their mechanisms, environmental benefits, and limitations
- Compare traditional and digital printing technologies in terms of process steps, resource consumption, and environmental sustainability
- Explain the role of auxiliaries and functional chemicals in dyeing and printing, and identify eco-friendly alternatives (e.g. low-salt systems, biodegradable binders, natural mordants)

Skills
After the completion of this module, learners will be able to:
- Select appropriate natural or synthetic dyes based on fibre type, desired shade, and environmental performance indicators.
- Apply plant-based or microbial dyes to natural fibres using appropriate mordanting and dyeing techniques, ensuring reproducibility and ecological safety.
- Prepare and execute pigment printing processes (screen or digital) using eco-friendly binders, thickeners, and auxiliaries with low environmental impact.
- Evaluate dyeing and printing quality, including colorfastness, evenness, and fixation yield, using standardized testing methods.

Competences
After the completion of this module, learners will:

- Integrate knowledge of green chemistry and textile chemistry to plan and conduct sustainable dyeing and printing operations aligned with industry standards.
- Adapt conventional dyeing or printing methods to more sustainable alternatives, balancing performance, cost, and environmental requirements.

- ● Implement environmentally conscious decisions in chemical selection and process design, minimizing waste, toxicity, and resource use.
- ● Collaborate in an interdisciplinary team to solve real-world sustainability challenges in textile coloration, including lifecycle-based
- ● Critically assess industrial dyeing and printing technologies, identifying key points for sustainability improvement based on case studies and process data.

COURSE CONTENT

Unit 1: Introduction to Sustainability in Textile Wet Processing
- ● Environmental impacts of conventional dyeing and printing
- ● The role of wet processing in global emissions, water use and pollution
- ● Basics of sustainability metrics: carbon footprint, water footprint, chemical load
- ● Introduction to cleaner production and life cycle thinking (LCT)

Unit 2: Principles of Green Chemistry in Textile Applications
- ● The 12 Principles of Green Chemistry
- ● Application to pre-treatment, dyeing, and printing
- ● Chemical selection criteria for sustainable processes
- ● Case examples: enzymatic scouring, low-temperature bleaching, and water reuse

Unit 3: Sustainable Dye Selection and Application
- ● Comparison of natural and synthetic dyes (source, structure, fastness, toxicity)
- ● Natural dyes: mordants, dye-fibre affinity, sustainability evaluation
- ● Synthetic dyes: reactive, disperse, acid – and eco-friendly auxiliaries
- ● Biodegradability, toxicity, and fixative alternatives
- ● Dyeing parameters and process optimization (liquor ratio, temperature, pH, fixation

Unit 4: Innovative Low-Impact Dyeing Technologies
- ● Foam dyeing, ultrasonic dyeing, supercritical CO_2 dyeing, plasma and ozone pre-treatments
- ● Process parameters and environmental benefits
- ● Implementation barriers: cost, fibre compatibility, scaling
- ● Industry examples (e.g. DyeCoo, Imogo, Tonello)

Unit 5: Pigments and Digital Printing as Water-Saving Technology
- ● Pigments vs dyes: chemical and ecological differences
- ● Pigment printing: binders, fixatives, waterless digital workflows
- ● Digital inkjet printing: pre-treatment, post-treatment, sustainability challenges (e.g. urea, energy)
- ● Eco-alternatives in digital pigment systems (e.g. ecosteam, sustainable binders)

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Sustainable Production of Textile/ Clothing products
EQF LEVEL	5
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will be introduced to creation and innovation of sustainable textiles using renewable resources, development of biodegradable textiles and production technologies, development of bio-fibers and application of sustainable production methods, collaboration with research institutes and industry stakeholders, while adhering to environmental standards and product life cycle principles and designing textiles that are environmentally sustainable, durable, and of high quality.

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge
After the completion of this module, learners will:
- have knowledge and distinguish materials obtained from renewable resources – plant-based, animal-based, bio-fibers, and microorganisms;
- be familiar with different technologies for the extraction and processing of renewable resources;
- acquire skills to identify types of textiles according to their production methods – weaving, knitting, nonwoven textiles;
- apply knowledge of organic and inorganic chemistry to work with different materials, especially in dyeing processes.

Skills
After the completion of this module, learners will be able to:
- perform quality control of testing methods, requiring knowledge of the testing procedure;
- apply their knowledge of biological materials from renewable resources and processing techniques to ensure sustainability, develop new materials, and optimize existing ones;
- use their knowledge of organic and inorganic chemistry to work with different materials, especially in dyeing processes;
- evaluate the life cycle of fibers and materials, enabling bio-textile technicians to make informed decisions that reduce waste and resource consumption.

Competences
After the completion of this module, learners will:
- integrate traditional textile methods into modern eco-friendly practices and optimize their properties;
- support and apply chemical safety standards and certifications for sustainable textiles;
- comply with social responsibility standards;
- acquire organizational skills and make environmentally responsible decisions when working with renewable resources, fostering innovation in their industry;
- work in teams to develop new materials and sustainable solutions;
- collaborate effectively with teams, stakeholders, and clients;
- critically evaluate the textile manufacturing industry using modern technologies.

Unit 1: Types of biological materials from renewable sources – plant-based and animal-based. Extraction and properties of fibers
- Plant-based fibers: organic cotton, flax, hemp, bamboo, nettle
- Animal-based fibers: wool, silk

Unit 2: Production and manufacturing of types of biofibers
- Bacterial cellulose (BC), Viscose / Lyocell (Tencel™), PLA (polylactic acid)
- Biodegradable polyester made from corn starch or sugarcane
- Microorganisms: from fungi (Mylo™), pineapple leaves (Piñatex®), apple and grape waste – used as a leather substitute

Unit 3: Production of fabrics from bio-renewable sources. Properties of the fabrics.
- Woven, knitted, and nonwoven textiles

Unit 4: Recycled biomaterials:
- Recycled cotton or wool, recycled cellulosic fibers.

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	**Sustainable sourcing and supply chain for bio-based textile materials**
EQF LEVEL	5
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will be introduced to strategic procurement methodologies for identifying and assessing global bio-based textile material markets, advanced transport logistics optimization techniques for sustainable materials across international supply chains, comprehensive quality management systems and regulatory compliance frameworks ensuring post-delivery excellence, and digital technologies including blockchain, IoT monitoring, and predictive analytics applications in sustainable supply chains

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge

After the completion of this module, learners will:

- Have comprehensive understanding of global bio-textile market structures, supplier landscapes, and procurement strategies
- Possess mastery of multi-modal transport optimization principles, cost modeling frameworks, and regulatory compliance requirements
- Acquire advanced knowledge of quality management systems, certification processes, and continuous improvement methodologies
- Be familiar with emerging technologies including blockchain documentation, IoT monitoring, and predictive analytics applications

Skills:

After the completion of this module, learners will be able to:

- Conduct systematic market analysis using professional databases and verification methodologies
- Apply competence in designing transport logistics solutions balancing cost, sustainability, and quality requirements
- Demonstrate proficiency in implementing quality management systems with Three-Tier Verification and stakeholder communication protocols
- Utilize industry-standard software platforms for supply chain optimization and compliance monitoring

Competences:

After the completion of this module, learners will be able to:

- Think strategically for complex supply chain decision-making under uncertainty
- Drive sustainability transformation within traditional textile organizations
- Adapt for navigating technological evolution and regulatory changes in global markets
- Prepare for certification and inspection

COURSE CONTENT

Unit 1: Identification and Assessment of Relevant Procurement Markets

- Global market analysis methodologies and supplier evaluation frameworks
- Material categorization systems and sustainability assessment protocols
- Strategic procurement planning and risk diversification strategies
- Digital resources: GOTS databases, Textile Exchange reports, market intelligence platforms

Unit 2: Concept for International Transport Logistics of Sustainable Materials

- Multi-modal transport optimization and Total Cost of Ownership modeling
- Material-specific handling requirements and cold chain management protocols
- Blockchain implementation and digital supply chain visibility systems
- Regulatory compliance frameworks and customs documentation procedures

Unit 3: Quality Management, Compliance and Continuous Supply Chain Optimization

- Post-delivery quality verification and Three-Tier assessment methodologies
- Stakeholder communication systems and transparency dashboard implementation
- Predictive analytics applications and continuous improvement frameworks

- Professional certification preparation and industry standards compliance

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Basic principles of biotechnology and bioengineering for bio-based textile materials
EQF LEVEL	5
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will be introduced to basic principles of biotechnology and bioengineering, how microorganisms are used in textile material production, recent innovations in bio-fabrication processes, the integration of nanotechnology in bio-textiles, enhanced textile properties (strength, flexibility, water resistance), the role of these technologies in sustainability and practical insights for real-world application in textile production.

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge
After the completion of this module, learners will:
- Describe the basic principles of biotechnology and bioengineering applied to the textile sector.
- Explain the use of microorganisms in the production of bio-based textile materials.
- Recognize the applications of nanotechnology for improving textile properties.
- Identify recent advancements in textile biofabrication.
- Understand the environmental benefits of applying biological technologies in the textile industry.

Skills
After the completion of this module, learners will be able to:
- Apply biotechnological principles to the development of new sustainable textile materials.
- Use bioengineering knowledge to optimize textile production processes.
- Develop proposals for integrating microorganisms into biofabrication workflows.
- Analyze the technical properties of textiles enhanced with nanomaterials.
- Evaluate real-life cases of innovation in bio-textiles from a technical and sustainable perspective.

Competences
After the completion of this module, learners will:
- Demonstrate autonomy in finding innovative solutions for producing bio-based textiles.
- Collaborate in multidisciplinary teams to implement biofabrication processes in real settings.
- Manage practical activities related to the use of biotechnology in textiles.
- Execute comparative analysis tasks between traditional and enhanced bio-based textiles.
- Support sustainable decision-making in textile companies through the technical knowledge acquired.

Unit 1: Introduction to Biotechnology and Bioengineering in the Textile Sector
- Definition and difference between biotechnology and bioengineering
- Current applications in the textile industry
- Environmental advantages of biotechnological processes
- Introduction to key concepts: enzymes, microorganisms, biomaterials

Unit 2: Biofabrication and the Use of Microorganisms
- Types of microorganisms used (bacteria, fungi, algae)
- Biofabrication processes: fermentation, cell culture, bioprinting
- Examples of materials: mycelium-based vegan leather, bacterial cellulose fibers
- Innovative case studies (e.g., companies like MycoWorks, Modern Meadow)

Unit 3: Nanotechnology Applied to Bio-Based Textiles
- Basic principles of nanotechnology and nanostructured materials
- Textile applications: strength, flexibility, hydrophobicity, antimicrobial properties
- Integration of nanoparticles in bio-based textiles
- Risk assessment, sustainability, and regulation

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Quality Control and testing methods for bio-based textile products
EQF LEVEL	5
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will be introduced to quality control across different stages of production to ensure consistent performance in bio-textiles, testing methods for biodegradability and compostability of bio-textiles and international environmental certifications and their application in bio-textile production

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge
After the completion of this module, learners will:
- Understand the basic principles of quality control in bio-based textile production.
- Describe the main bio-based fibers and their properties relevant to textile production.
- Introduce and apply environmental certifications relevant to bio-based textile production.
- Apply appropriate standards and testing methods for testing the relevant properties of bio-based textiles.

Skills
After the completion of this module, learners will be able to:
- Apply quality control testing techniques in production of bio-based textiles, from raw material source to final product.
- Carry out proper sample preparation and conditioning in the testing laboratory to ensure reproducibility and comparability of results.
- Use of laboratory equipment for textile testing properties.
- Apply standard laboratory tests to assess biodegradability and compostability of bio-based textiles.
- Analyze test results, recognize deviations from standards and propose corrective actions in production.

Competences
After the completion of this module, learners will:
- Manage within established guidelines, adapting quality control procedures to address changes in production or materials.
- Take responsibility for the completion of quality control and testing tasks, ensuring compliance with environmental and safety standards.
- Review the routine work of the team, providing feedback and contributing to continuous improvement in quality assurance processes.
- Maintain accurate documentation and ensure traceability throughout the supply chain for bio-based textile products.
- Engage in ongoing professional development to stay updated with emerging standards and sustainable practices in bio-textiles.

COURSE CONTENT

Unit 1: Introduction to Quality Control and Quality Assurance

- Overview of quality control principles
- Quality assurance in sustainable textile production

Unit 2: Quality Control in the Production Chain

- Quality control checkpoints: from raw bio-based materials to final product
  - Protocols of inspection and sampling for defects evaluation in bio-based textile production

Unit 3: Environmental standards and certificates

- Introduction to Oeko-tex, EU Ecolabel, GOTS, USDA Biobased certifications.
- Certification criteria and relevance to bio-based textiles
- Documentation, traceability, audit process

Unit 4: Testing methods in laboratory for bio-based textiles

- Preparing the samples for testing and conditioning prior testing
- Testing methods of bio-based fibers relevant for textile production

Unit 5: Special Testing methods in laboratory for bio-based materials

- Biodegradability and compostability tests of bio-plastics according to standards
- Testing equipment, results interpretation and assessment impact on environment

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Digitalisation in fashion eco-system through digital design, simulation and visualisation in the fashion industry

EQF LEVEL	5
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	Learners will be introduced to, end-to-end digital workflows – from concept development and digital sketching to 3D garment simulation, photorealistic rendering, and CAD-to-manufacture patternmaking, reducing environmental impact through data-driven design, accurate digital patternmaking, and automated grading and nesting, cutting fabric waste by around 30 % and physical sampling by up to 70 %, integration of sustainability and circularity principles such as life-cycle assessment (LCA), Digital Product Passport compliance, and traceable material choices, collaboration in virtual environments using PLM systems, AR/VR showrooms, and cloud-based tools for global design and production teams, innovation and employability by mastering industry-standard software (e.g., CLO 3D, Browzwear, Lectra, Gerber AccuMark, Adobe Substance 3D, KeyShot, V-Ray) and developing project-based problem-solving skills.

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge

After the completion of this module, learners will:

- Understand the end-to-end digital fashion workflow (concept development, digital sketching, 3D garment simulation, photorealistic rendering, digital patternmaking, grading, and CAD-to-manufacture integration);
- Know principles of sustainable and circular fashion, including life-cycle assessment (LCA), material traceability, and the forthcoming EU Digital Product Passport;
- Understand core technologies such as physically based rendering (PBR), AI-driven trend forecasting, automated grading and nesting algorithms, and PLM systems;
- Know how digitalization reduces fabric waste, production time, and carbon footprint, and reshapes supply chains and market strategies.

Skills

After the completion of this module, learners will be able to:

- Design and visualize garments digitally, from 2D pattern creation to realistic 3D and AR/VR presentations using software like CLO 3D, Browzwear, Lectra, and Adobe Substance 3D;
- Develop and manage digital patterns and grading with parametric and AI-based tools, ensuring accurate multi-size scaling and minimal material waste;
- Produce photorealistic marketing assets using rendering engines such as KeyShot, V-Ray, or Arnold, and integrate them into e-commerce or virtual showrooms;
- Evaluate environmental impact using tools such as the Higg Materials Sustainability Index and digital nesting for optimal fabric use;
- Collaborate in cloud-based and PLM environments, sharing files and feedback securely across teams and production sites.

Competences

After the completion of this module, learners will:

- Plan and execute sustainable fashion projects that integrate creative design with measurable environmental and economic benefits;
- Work autonomously and in teams, applying critical thinking to choose digital tools and workflows appropriate to the project goals and company context;
- Communicate technical and environmental results (e.g., waste reduction, CO_2 savings) to supervisors, clients, and cross-functional teams;
- Adapt to industry innovation, keeping pace with emerging technologies such as AI-enhanced grading, neural physics-based draping, and metaverse-ready fashion experiences.

UNIT 1: Fundamentals of Digital Design in Fashion
- Concept development, digital sketching, CAD, and PLM integration for efficient, sustainable design workflows.

UNIT 2: 3D Garment Simulation & Virtual Sampling
- Creation of garments in 3D software, realistic fabric physics, customizable avatars, and reduction of physical prototypes.

UNIT 3: Digital Visualization & Photorealistic Rendering
- High-fidelity rendering, physically based rendering (PBR), AR/VR integration, and production of marketing-ready digital assets.

UNIT 4: Digital Patternmaking, Grading & CAD-to-Manufacture Workflows
- Precise 2D/3D pattern creation, automated grading, AI-driven nesting, and direct factory integration for waste reduction and speed.

UNIT 5: Data-driven design in the Digital Ecosystem and Circular Economy Integration
- Use of big data, AI trend forecasting, and life-cycle assessment (LCA) to optimize design decisions, ensure traceability, and support circular fashion practices.

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Adaptability, communication skills and creative thinking in fashion industry
EQF LEVEL	5
ECTS CREDITS	1

LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will be introduced to adaptability in sustainable textile innovation, technical and cross-functional communication skills, creative thinking in TCLF, sustainable values into brand and material storytelling and interdisciplinary and project-based learning

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge
After finishing this module, learners will:

- Have a practical understanding of how to respond quickly and effectively to fast-changing fashion trends, consumer preferences, and seasonal demands exploiting creative thinking.
- Be familiar with agile working methods, including how to adjust design, production, and marketing strategies in response to unexpected challenges (e.g., supply chain disruptions or market shifts).
- Be familiar with fashion-specific terminology for communication and the ability to tailor communication style to different audiences (e.g., technical language for production vs. inspirational tone for consumers).
- Understand the basic processes, channels and tools of internal and external communication.
- Have a general knowledge about organisational communication, external and internal, and basic principles of human relations.

Skills
After completing this module, learners will:
- Effectively apply creativity in creating communication about sustainability to produce high-impact in TCLF.
- Carry out procedures for internal and external communication
- Support communication processes for decision making, management and production processes.
- Adapt, implement communication activities and interactions with employees as well as external stakeholders.

Competences
After completing this module, learners will:

- Articulate creative ideas clearly to a variety of stakeholders, including clients, design teams, manufacturers, and marketing departments.
- Integrate sustainability, inclusivity, and technology into the creative process.
- Support modification of design and production plans in response to changing trends, materials, or client needs.
- Be competent to communicate effectively and successfully with all associated members of the organisation and external stakeholders.
- Be competent to participate and contribute to internal and external communication processes.

COURSE CONTENT

Unit 1: Communication for TCLF
- Fundamentals of internal and external communication, flow of communication.
- Impact communication: storytelling, data visualisation, advocacy, compelling content, networks, collection building and narrative consistency and creative branding.
- Fashion-specific terminology for communication and the ability to tailor communication style to different audiences.
- Channels and tools: interpersonal and digital channels (digital literacy) - how to utilise most efficiently, content creation.
- Fashion trends, consumer preferences, and seasonal demands.

Unit 2: Creativity in TCLF
- How to create a creative project in TCLF: Agile vs. traditional (waterfall) project management

- Agile values: flexibility, collaboration, iteration
- Application of agile in creative industries: Fibre knit 3D e Lean in Grecia, Kanban + SCRUM in a "generic" textile company
- Principles of creative thinking
- History of creative revolutions in TCLF
- Creative thinking for TCLF
- Integrating Sustainability, inclusivity and technology into the Creative process for TCLF

Unit 3: Adaptability in TCLF
- Adaptability in TCLF: Fast fashion vs. slow fashion solutions.
- Design and production plans in response to changing trends, materials, or client needs.
- Industry trends

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

4. Recycling Manager modules - summary sheets

TITLE	Sustainability and circular economy in the textile/fashion industry – An overview
EQF LEVEL	6
ECTS CREDITS	1 ECTS
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning

ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will learn methods to effectively plan, organise and implement recycling, reuse and sustainable material management strategies in the fashion industry, combine environmental principles, design thinking and management skills.

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge
After the completion of this module, learners will:
- have an understanding of sustainability in fashion and the TCLF (Textiles, Clothing, Leather, Footwear) industry, including the distinction between sustainable fashion and sustainable production systems;
- have an understanding of textile materials, their sustainability, recyclability, and environmental impacts, with focus on eco-friendly and innovative fibers;
- have knowledge of the principles of circular economy and sustainable production processes, including eco-design and life cycle extension strategies;
- understand the negative impacts of fast fashion, including overproduction, disposable culture, synthetic material dependency, and supply chain issues;
- be familiar with international and European legislation, policies, and certification schemes addressing sustainability and waste in fashion;
- have knowledge of marketing and communication strategies that support sustainable products and brand values.

Skills

After the completion of this module, learners will be able to:
- carry out analyses of textile materials, processes, and value chain stages for their environmental and social performance;
- apply sustainable practices in the design process, product development, and production systems;
- use sustainable technologies and methods for recycling, reuse, and waste reduction in textiles;
- evaluate and implement internal eco-standards within fashion companies to ensure compliance with regulations and stakeholder expectations.

Competences
After the completion of this module, learners will:
- support the sustainable management of materials, processes, and waste in the TCLF industry;
- perform decision-making that balances long-term environmental, social, and economic impacts;
- support collaboration with designers, manufacturers, suppliers, and consumers in sustainability-oriented projects;
- perform effective communication with stakeholders to promote sustainability values and adapt to emerging regulations and innovations.

COURSE CONTENT

Unit 1 – Sustainability in fashion and textiles: concept
- Introduction to sustainability in fashion and TCLF industry.
- Distinction between sustainable fashion and sustainable TCLF production.
- Environmental responsibility: eco-friendly materials, sustainable production processes, and reduced resource use.
- Ethical labor practices and social responsibility.
- Circular economy vs. linear take-make-dispose model.
- Fast fashion: definition, characteristics, and environmental/social impacts.
- Global value chain analysis: environmental and social hotspots, geographical distribution of production and consumption.
- Innovations and best practices in textile production, recycling, and waste reduction.
- Supply chain transparency, legislation, and certifications.

Unit 2 – Sustainable textiles systems, circular business models and communicating a sustainable brand

- Developing knowledge of business models that prioritise environmental, social, and economic sustainability.
- Creating products or services that deliver environmental and social benefits alongside customer value.
- Conveying sustainability efforts and impacts clearly and credibly to customers, partners, and the public.
- Understanding and influencing consumer attitudes, choices, and awareness regarding sustainable products and practices.

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Management of Recycling Process Regulatory Compliance
EQF LEVEL	6
ECTS CREDITS	1 ECTS
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will manage regulatory compliance processes for the TCLF waste recovery phases and plants, promote proper management of the TCLF waste recycling chain, identify management risks and regulatory issues across all three levels of processes: waste generation, recycling/recovery operations, and use of materials generated from waste.

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge
After the completion of this module, learners will
● Understand the principles of European waste regulations, with a particular focus on the clothing and footwear sector.
● Identify the relevant environmental regulatory context and the environmental laws applicable to the recycling process in the relevant country.

Skills
After the completion of this module, learners will be able to
● Define the processes for verifying environmental waste regulatory compliance.
● Use strategic planning tools to ensure regulatory compliance of plants and processes.
● Develop a Part I and Part II environmental audit plan and related checklists for assessing environmental regulatory compliance.
● Effectively manage non-conformities and corrective actions related to environmental regulations in line with ISO 14001.
● Guide the resolution of legislative and regulatory issues.

Competences
After the completion of this module, learners will
● Work independently or as a leader of interdisciplinary teams and environmental offices of TCLF manufacturing companies and textile waste recovery/recycling plants.
● Effectively support the assessment of the technical and economic sustainability of waste recycling or waste recovery processes.
● Support management in project decisions like choosing suppliers related to waste management law compliance

COURSE CONTENT

Unit 1 – Introduction
• End-of-Life of TCLF: International and European Context
• Waste Management Hierarchy. Focus on Textile Waste
• Trends, Operational Critical Issues, and Regulatory Obstacles

Unit 2 – Reference Environmental Legislation
• European Regulatory and Policy Framework for Waste and Textiles
• Principal EU Members Legislation Framework

Unit 3 – Reference Approach and Responsibilities
• Obligations of the Waste Producer. Focus ERP– Extended Producer Responsibility
• Recycler's Obligations
• User's Needs

Unit 4 – Monitoring Regulatory Compliance and EMS
• Environmental Management System and Risk Management
• Internal Audits and Verification of Corporate Compliance and Authorization Obligations
• Control and Monitoring of Suppliers and Subcontractors

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Closed-loop concept in Textile/Fashion Production
EQF LEVEL	6
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hour face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learners will be introduced with a comprehensive understanding of closed-loop systems in the textile and fashion industry, equipping them with the knowledge, skills, and perspectives needed to support the transition from a linear "take–make–waste" model to a circular economy approach, exploration of design strategies, material choices, enabling technologies, business models, policy frameworks, and consumer behaviour, learners will develop the ability to critically assess challenges, identify opportunities, and apply circular solutions across the value chain.

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the
learners will acquire with the successful completion of the module, are described.

Knowledge

After the completion of this module, learners will
- understand the closed-loop concept in textile and fashion production and its role in the circular economy.
- know the principles and challenges of designing for circularity, including material selection and recycling compatibility.
- be familiar with technologies and processes that enable material recovery, sorting, recycling, and reintroduction into production.
- understand how business models, policies, and consumer behaviour influence the success of closed-loop systems.

Skills

After the completion of this module, learners will be able to
- carry out analyses of textile and fashion products from a closed-loop perspective.
- apply design-for-circularity principles to materials, products, and processes.
- use knowledge of recycling technologies and production processes to propose circular solutions.
- evaluate the impact of business models, regulatory frameworks, and consumer behaviour on circularity in the TCLF sector.

Competences

After the completion of this module, learners will
- support the development and implementation of closed-loop practices in textile and fashion organizations.
- perform actions that integrate design, technology, policy, and consumer insights into holistic circular economy strategies.

COURSE CONTENT

UNIT 1: Introduction to closed-loop concept in the textile/fashion production

- The difference between the linear model ("take–make–waste") and the closed-loop model.
- Core strategies of circularity: reuse, repair, remanufacturing, and recycling.
- Principles and challenges of implementing closed-loop systems in fashion.
- The role of design for circularity in enabling material recovery and reuse.
- Practical tools to make textile systems more regenerative and less wasteful.

UNIT 2: Design and materials for closed-loop textile systems

- The importance of design for circularity as a driver of closed-loop systems.
- Selection and use of materials compatible with recycling and reuse.

- Strategies for minimizing waste through smarter design choices.
- The link between material properties and the feasibility of circular processes.
- Challenges and opportunities in developing regenerative material cycles.

UNIT 3: Technologies and production processes in closed-loop systems

- The role of technologies and processes in enabling material recovery, recycling, and reintroduction into production.
- Recycling methods relevant to textiles and fashion.
- Fibre sorting techniques and their importance for circularity.
- Infrastructure requirements for scaling closed-loop systems.
- Key technical challenges such as fibre blends, contamination, and traceability.
- Emerging innovations that could transform material flows in circular economies**.**

UNIT 4: Business models, policy, and consumer behaviour in closed-loop fashion

- New business models and supporting policies.
- Importance of EU regulations in shaping brands` businesses.
- Challenges and obstacles (greenwashing and fragmented responsibility).
- Positive initiatives (smart incentives, digital tools, clear product data).

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Textile Recycling Technologies and Supply Chain Management
EQF LEVEL	6
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will be introduced to new paradigms in textile recycling technologies and to the principles of a sustainable supply chain management in the textile industry, and be trained to develop the skills necessary to manage the logistics of a recycling supply chain.

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the
learners will acquire with the successful completion of the module, are described.

Knowledge

After completing this module, learners will:

- Understand textile recycling technologies with the look to the future and new trends;
- Manage logistics for textile waste collection, sorting, and redistribution efficiently;
  Collaborate effectively with suppliers, manufacturers, and stakeholders to strengthen the recycling supply chain;
- Develop and implement innovative methods to improve textile recycling, exploring new materials and techniques;
- Ensure transparency and compliance with ethical and environmental standards in recycling operations.

Skills

After the completion of this module, learners will be able to:
- carry out observations of sustainability-related issues;
- apply sustainable thinking to supply chain management related to textiles and clothing;
- develop soft skills to rethink the supply chain in the textile industry;
- Evaluate and propose sustainability practices in textile products and processes.

Competences

After completing this module, learners will:
- Have a grounding in existing and emerging recycling technologies;
- Be able to coordinate logistical challenges in collecting, sorting, and redistributing textile waste;
- Understand and implement broader sustainability practices in recycling processes;
- Develop transversal skills, such as critical thinking and adaptability to new recycling techniques, ensuring continuous improvement

COURSE CONTENT

UNIT 1 — Frontier Technologies and Innovation Management: Pioneering the Next Wave of Textile Recycling
- The Innovation Imperative: addressing the hard-to-recycle fraction
- Emerging technological frontiers
- Techno-Economic Assessment (TEA)
- Life Cycle Assessment (LCA)

Unit 2: Sustainable Supply Chain Management and Transparency
- Architecting the return journey: reverse logistics for textiles
- Collection systems: creating the pathways home
- The Sorting hub: the heart of a circular system
- Network optimisation: minimising footprints
- Technology and transparency: from Black Box to Glass Box

UNIT 3 — The Recycling Manager as a Systems Orchestrator: Managing the Stakeholder Ecosystem

- Introduction to systems perspectives
- Key stakeholder groups in circular textiles
- Stakeholder interests and motivations
- Operational approaches for collaboration
- Practical skills for recycling managers

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Environmental Regulations & Chemical Safety in Textile Processes
EQF LEVEL	6
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will be introduced to the environmental regulations and chemical safety standards relevant to textile processes, analyze global frameworks, industry-specific guidelines, and best practices for safe chemical management and explore how regulations impact textile production, sustainability, and worker safety.

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge

After the completion of this module, learners will

- have knowledge of different textile certifications, standards, regulations and directives
- identify major environmental regulations affecting textile processes
- explain chemical safety standards such as REACH, ZDHC, and OEKO-TEX

Skills

After the completion of this module, learners will be able to

- apply principles of safe handling, storage, and disposal of textile chemicals
- develop a compliance and safety plan for textile facility
- evaluate case studies of textile companies implementing sustainable and compliant practices

Competences

After the completion of this module, learners will

- support more transparency, safety and sustainability practices in the textile industry.
- perform actions that will develop a compliance and safety plan for a textile facility
- Interpret and implement key environmental regulations in daily operations

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COURSE CONTENT

Unit 1: Introduction to Regulations & Sustainability
- Why are regulations important in textiles?
- Environmental impacts of textile chemicals
- Overview of global frameworks: EU REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals), ZDHC (Zero Discharge of Hazardous Chemicals), OEKO-TEX Standard 100, GOTS (Global Organic Textile Standard)

Unit 2: Chemical Safety Standards & Worker Protection
- Hazard classification & labeling (GHS system).
- Safety Data Sheets (SDS): structure and interpretation.
- Personal Protective Equipment (PPE) in textile facilities.
- Safe Chemical Management in Textile Facilities.
- Emergency response procedures (spill management, first aid).

Unit 3 Implementation & Compliance in Industry
- Auditing & monitoring processes in textile factories.
- Certifications & eco-labels (Bluesign, OEKO-TEX, GOTS).

- Industry best practices & case studies (Levi's, Adidas, and others).
- Role of NGOs and watchdogs in enforcing compliance.

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Environmental Impact and Carbon Footprint of the Textile industry
EQF LEVEL	6
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will understand the full range of environmental impacts associated with textile production, use, and disposal, acquire initial knowledge as a manager for materials, life cycle assessment (LCA), and eco-design principles to improve decision-making and operational strategies in recycling, empower participants to become proactive leaders and advocates for innovation, quality improvement, and continuous environmental performance within their organizations and the wider industry and develop the ability to effectively engage and collaborate with designers, brands, policymakers, and consumers to drive systemic change in the textile value chain.

LEARNING OUTCOMES

Learning outcomes
The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge

After the completion of this module, learners will:
- Have an understanding of the full environmental impacts of textiles, including carbon footprint, water and energy consumption, chemical pollution, and waste generation.
- Understand key concepts related to life cycle assessment (LCA), eco-design, material sustainability, and circular economy principles.
- Be familiar with EU policies and strategies relevant to textile recycling, such as the Waste Framework Directive and the Ecodesign for Sustainable Products Regulation.
- Know about innovative recycling technologies and circular business models that are transforming the textile industry.

Skills

After the completion of this module, learners will be able to:
- Carry out environmental assessments of textiles using life cycle thinking and identify the main impact areas.
- Apply eco-design principles to recommend improvements for textile products to enhance recyclability and durability.
- Use practical strategies to improve sorting, material recovery, and recycling processes within their operations.
- Evaluate current business practices and recycling systems in order to identify opportunities to integrate circular economy solutions.

Competences

After the completion of this module, learners will
- Support the transition towards a circular textile economy by creating business strategies and advocate for sustainable material choices, design improvements, and new business models.
- Perform strategic planning and lead collaborations with designers, brands, policymakers, and other stakeholders to improve recyclability and material flows.
- Promote and implement consumer awareness initiatives and internal training to encourage responsible consumption, repair, reuse, and proper disposal practices.

COURSE CONTENT

Unit 1: Introduction to Environmental Impact in Textiles
- Textile consumption and global impact
- Key environmental impacts (GHG, water, chemicals, waste)
- Carbon footprint and life cycle stages
- EU policies and sustainability strategies
- Role of recycling managers

Unit 2: Materials and Their Environmental Impact
- Different textile materials (natural, synthetic, blended, bio-based)
- Specific environmental footprints
- End-of-life and recyclability challenges

Unit 3: Life Cycle Assessment (LCA)
- LCA concept and purpose
- Hotspots and impact reduction
- LCA tools (SimaPro, OpenLCA, etc.)
- Applying LCA to recycling and design

Unit 4: Sustainable Solutions and Industry Innovations
- Reducing harmful substances and microfibres
- Extending product life (reuse, repair, rental)
- Advanced recycling systems
- Resource efficiency and circular inputs
- Innovation and the recycling manager's role

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Critical Thinking and Problem-Solving in Fashion Industry
EQF LEVEL	6
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group works and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learner will be introduced to the principles and practices of critical thinking in the context of the fashion industry and textile recycling, with a focus on sustainability, the circular economy, and operational problem-solving.

LEARNING OUTCOMES

Learning outcomes
*The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the
learners will acquire with the successful completion of the module, are described.*

Knowledge

After the completion of this module, learners will
- have an understanding of the role of critical thinking and problem-solving in the fashion industry and circular textile economy
- be familiar with the main challenges related to sustainability and recycling in the fashion sector
- know methods of critical system analysis applied to textile processes

Skills

After the completion of this module, learners will be able to
- carry out structured critical thinking exercises applied to fashion and recycling scenarios
- apply problem-solving methods to real-world challenges in the textile recycling process
- use analytical tools to identify conflicting objectives and assess sustainable solutions
- evaluate existing practices in the fashion industry from the perspective of sustainability and circularity

Competences

After the completion of this module, learners will
- support decision-making processes in organizations by applying critical thinking and problem-solving
- perform systemic analyses of textile recycling operations

COURSE CONTENT

UNIT 1: Introduction to Critical Thinking in the Fashion Industry
- Understanding critical thinking - general overview
- Driving innovation and improvement in fashion industry
- Applying critical thinking for sustainability

UNIT 2: Critical Thinking in the Circular Textile Economy
- Critical thinking in recycling contexts
- Systemic thinking patterns
- Applying critical thinking to circular textile economy

UNIT 3: Why Problem-Solving is essential in Fashion and Recycling today
- Foundations of problem-solving
- Structured approaches in a changing industry
- Problem-solving as a mindset

UNIT 4: Operational Problem-Solving in the Textile Recycling process
- Systematic approaches to operational problems in textile recycling
- Using Design Thinking, Root Cause Analysis (5 Whys, Fishbone), and SWOT to address operational issues
- From analysis to action: building sustainable solutions

UNIT 5: Reflection: Critical System Analysis & conflicting objectives
- Balancing objectives in textile recycling
- Tools for critical system analysis
- Strategies for sustainable decision-making

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks

TITLE	Leadership and Management in the Textile/ Fashion Industry
EQF LEVEL	6
ECTS CREDITS	1
LEARNING METHODS AND DURATION	6 hours e-learning, 6 hours face-to-face, 14 hours work-based learning
ASSESSMENT METHODS	Formative assessment (quizzes, group work and activities) Summative assessment (projects and assignments)
GENERAL OBJECTIVE	The learners will lead teams effectively to foster a collaborative environment and ensure productivity in recycling operations, motivate and guide staff to embrace sustainability initiatives and continuously improve recycling processes and foster a culture of continuous improvement within the recycling team

LEARNING OUTCOMES

Learning outcomes

The learning outcomes, specific knowledge, skills and competences of an appropriate level, which the learners will acquire with the successful completion of the module, are described.

Knowledge
After the completion of this module, learners will:
- have an understanding of leadership principles and management practices relevant to the textile and fashion recycling sector;
- have an understanding of team dynamics, motivation strategies, and performance management;
- have an understanding of sustainability goals and how leadership can drive circular economy initiatives within textile and fashion enterprises.

Skills
After the completion of this module, learners will be able to:
- apply leadership styles and management techniques appropriate to different work scenarios in recycling operations;
- carry out team coordination and conflict resolution in a sustainable production context;
- use strategic planning tools to improve organisational effectiveness and sustainability outcomes;
- evaluate team performance and identify areas for continuous improvement.

Competences
After the completion of this module, learners will:
- support the implementation of sustainability and circularity initiatives within organisational teams;
- perform effectively as leaders in multidisciplinary teams working on textile and fashion recycling projects;
- demonstrate autonomy in managing people and processes aligned with environmental and operational objectives.

COURSE CONTENT

Unit 1: Introduction to leadership and management in the textile/fashion sector:

- Overview of leadership and management concepts
- Sector-specific challenges and opportunities in recycling operations
- The role of management in driving sustainable change

Unit 2: Leading teams for sustainability and circularity:

- Motivating and guiding teams in green transition processes
- Fostering collaboration and cross-functional communication
- Managing resistance and enabling behavioural change

Unit 3: Strategic thinking and continuous improvement:

- Setting goals and aligning team efforts with sustainability objectives
- Tools for evaluating team performance and process effectiveness
- Introducing innovations and managing change in dynamic environments

Unit 4: Responsible and ethical leadership:

- Embedding ethical principles and social responsibility into management
- Promoting diversity, equity and inclusion in team environments
- Encouraging leadership for long-term sustainability in the textile/fashion industry

E-learning: eLearning material

Face-to-face: Face-to-face activities

Work-based learning: Work-based tasks