# General curriculum

## Framework & Proposal for Integrating Ecological Sustainability into Partner Universities' Curricula

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# General curriculum

## Framework & Proposal for Integrating Ecological Sustainability into Partner Universities' Curricula

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## Premises

The high-level Green Education in Media (GEM) curriculum concept is based on experiences gained in previous international partnerships, particularly in "Emerging Media Exploration" (EMEX) (2018-2021). Erasmus+ Strategic Partnership EMEX produced a high-level common concept of competence framework for emerging media curriculum development. https://www.emerging-media-exploration.eu/wordpress/wp-content/uploads/2021/01/EMEX_Curriculum-Framework-Draft1.pdf

GEM produced a high-level common concept for integrating ecological sustainability with media curriculum. Sustainability competences play a key role in the fight against climate change. Media field has two combined goals: on one hand it is important to make the media products and productions ecologically sustainable, and on the other hand to offer support for carbon handprint, i.e. promote products, processes or services that have climate benefits. https://www.sitra.fi/en/dictionary/carbon-handprint/

## Goals

The scope of the GEM consortium is film, interactive media and immersive media, and the target group of the common curriculum concept is universities providing education within these topics. More specifically, the students in GEM partner universities are focused on creative, artistic and design aspects of film, interactive media and immersive media, and this has also impacted on the nature of curriculum concept.
Climate change and ecological crises also have an impact on media courses and curricula. Students require new knowledge and skills in order to be ecologically sustainable in their productions and to understand the carbon footprint caused by the creation of media content.

Empathy towards nature is also needed, but current media learning environments tend towards the exclusion of nature. New learning environments should equip students with enhanced respect for the natural world, finding a good balance between the natural world and new technology. The EU's GreenComp, a reference framework for sustainability competences, mentions promoting nature as a one key competence. The competence is defined: "To acknowledge that humans are part of nature; and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems."
https://joint-research-centre.ec.europa.eu/greencomp-european-sustainability-competence-framework/greencomp-conceptual-reference-model_en

GEM courses focused on competence building blocks in support of the GEM curriculum concept. Listing and categorising competences reveals the nature of various modules that GEM courses aim to develop.

The modules are:

- Ecological sustainability basics
- Products and production
- Connection to nature
- Future visioning
- Inner and social skills

## Useful Competence framework

One of the goals of curriculum design in GEM was to develop individual environmental curriculums for partner universities. Individual curriculums were designed based on common curriculum concepts and used existing categories.

GEM project's common learning objectives were used to find the right form of expression for the competences in the curriculum. According to the GEM Course concept, the courses vary in focus but all three courses lead to the following learning objectives:

- Mutual help with challenges, learning how to co-create
- Using diversity as an inspiration for problem solving
- Identification specific ecological and climate problems
- Researching existing knowledge for problem solving
- Training of decision-making methods that factor-in sustainability goals
- Co-creation of new types of sustainable development opportunities
- Incorporation of interdisciplinary knowledge as a source for design requirements…
- and artistic inspiration
- Generation of knowledge that stimulates change
- Dissemination generated knowledge
- Awareness of the ecological and climate impact of developed designs and productions
- Working in international teams
- Familiarity with knowledge, skills and attitudes statements from the GreenComp The European sustainability competence framework

The GEM project found the "GreenComp" European sustainability competence framework" by the European Union (EU) to be useful. GreenComp is a reference framework for sustainability competences and provides a common ground for learners and guidance for educators, advancing a consensual definition of what sustainability as a competence entails. The GreenComp Framework helped to find common ground and wording for GEM curriculum competences.

# Recommendations based on course evaluations

## Feedback from GEM Courses

The detailed evaluation of feedback from the students and tutors on the GEM courses impacted on curriculum development. This section presents the main findings from course evaluations.

**Nature walks**

"Alternative Learning Spaces", the first GEM course, was held in autumn 2022. The course served as a testing of methods for integration of nature into curricula and as a prototype for further similar courses within the GEM project. One method of the course was a nature walk, where tutors and students followed a pre-planned walking route and used nature observations in various way in their design process.

In the Alternative Learning Spaces course, all participating students and tutors enjoyed the nature walks. Environment enhanced their concentration, participants had discussions during the walk in nature or in inner-city parks which contributed to the deepening of their immersion in the topic and a majority of teachers and students noted that they felt inspired after the nature walk. However, the course evaluation also pointed out that students in walks should receive support, such as detailed explanations of why nature is included in the courses.
In the GEM curriculum, nature is highlighted by creating a module in the curriculum "Connection to nature".

**Future visioning**

The workshops of the Art for Future (AFFL) aimed at developing convincing utopian-based narratives and collages by drawing on the three core principles of co-creation, interdisciplinary collaboration, and learning about artistic interventions and scientific innovations:

The methods of AFFL in GEM were successful - in course evaluation all the participants declare that the course made them want to live more sustainably in the future. The course increased professional awareness of environmental sustainability issues among all participants with the exception of one student who strongly disagreed. All participants agree that the course has intensified their will to take sustainability into consideration when creating media and all participants liked the course; however some students struggled to fully understand the course aim "expressing a positive future visually in new media formats". The Future Visioning is one module in the GEM curriculum.

**“Seeing the Green”, Data Storytelling Camp**

The aim of the Data Storytelling learning activity was to explore the potential of data-oriented storytelling in the context of environmental narratives. In this course, students learnt about sustainability through their assignments and group work in camp. One third of the students learned unexpected and surprising facts when analysing data - “I gained some unexpected insights from the data set that my group was working with (Data in move). It was shocking how much the days of ice per year have decreased during the last two centuries.” The students also reported engaging with “How much sugar is inside our food” and “Sugar is a water killer”.
Course Evaluation of the Data Storytelling Camp “ seeing the Green: https://gem-project.eu/wp/wp-content/uploads/2024/09/GEM_CourseEvaluation_SeeingtheGreenCamp.pdf

### How to integrate sustainability

In the evaluation of the “Arts for Future” course, participants were asked whether they would integrate environmental sustainability into their own degree courses. However, most of the answers were provided by tutors and teachers. They said that sustainability should be a mandatory cutting-edge theme in the courses and scientific data and collaboration with scientists should be utilized. A few students who answered these questions hoped for courses about the topic overall.

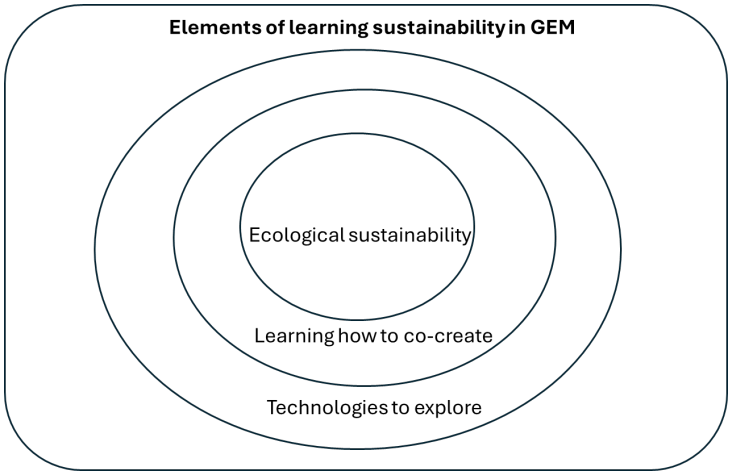
Also, in “Seeing the Green” – Data Storytelling Camp evaluation the students were asked: “In your opinion, how should sustainability topics - whether food, agriculture, climate or other topics - be integrated into the curriculum of your degree programme?” The range of answers was diverse and reflected several options. Some students suggested a workshop format similar to “Seeing the green” camp as the only way to gain personal experience. Some students wanted sustainability matters to be integrated in their existing courses. One student mentioned that there should be a lecture which could be taken as a starting point for further courses. Some students said that sustainability topics should be integrated on every level of the study program, proposing a holistic approach. In the GEM curriculum one module is dedicated to “Ecological sustainability basics”.

## Flexible curriculum concept

The GEM curriculum concept is built by small parts and building blocks (e.g. 1 cr.). The concept gives different partner universities and other media schools the possibility to create their own individual curriculum according to their focus and students’ needs. Building blocks can form separate courses or can be integrated into existing university courses.

GEM’s aim is “supporting digital and green capabilities of the higher education sector”. In GEM, ecological sustainability was taught and learnt in the context of new digital media technologies aiming to develop both skills and in addition to find and learn new innovative, collaborative and creative work processes. Similarly, the curriculum concept consists of clear ecological sustainability competences, like “low-energy technologies”, secondly media technology-oriented competences, like “augmented reality” and thirdly collaborative work process-oriented topics, such as “rapid prototyping”. For these reasons in the GEM curriculum the competences are divided in three sections: “Ecological sustainability”, “Learning how to co-create” and “Technologies to explore”. This division is used when needed inside the module to clarify why certain skills, e.g. 3D compositions in virtual environments, are listed in the category. However, the aim of all section

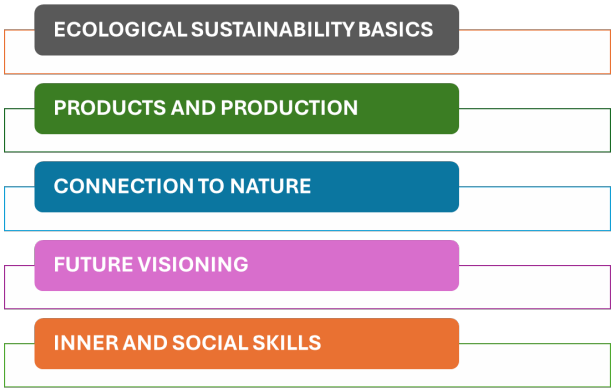
competencies is to help the students to become more ecologically sustainable in their media design and productions.




*Through the GEM courses, participants can gain knowledge and develop skills in three core thematic areas. Figure by Kirsi Karimäki*

In addition to competences, knowledge and skills, the curriculum consists of lists and links of materials and methods available in GEM. The aim is to make the concept as useful as possible for the media schools when building their own course modules.

## General concept: Curriculum modules and competencies



## Ecological sustainability basics

| **Ecological sustainability basics: building blocks** | |
|---|---|
| This module consists of ecological sustainability and media green transformation basic competences. Module competences prepare the students to take part in sustainable concepting projects. | |
| Knowledge | Basic terminology of sustainable design and climate change<br>Biodiversity<br><br>Digitisation's environmental impact<br><br>Low-energy technologies<br><br>Using renewable energy sources<br><br>Understand and engage with different possible futures, basics of Futures literacy |
| Skills | Digital collaboration basics |
| Other | Futures literacy: "To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future" is part of the EU's GreenComp competencies |

| **Ecological sustainability basics: methods and materials available in GEM** | |
|---|---|
| Basic terminology of sustainable design and climate change | https://gem-project.eu/wp/wp-content/uploads/2024/06/GEM_SustainableFuturesCamp-PrepCourses_LearningMaterial.pdf<br>Knowledge Hub – Working Definitions \| Terms (see Workshop 1). See also Sustainability aspects of New Media Formats (Workshop 4). |
| Collaborative workshop about basic terminology | https://gem-project.eu/wp/wp-content/uploads/2024/06/GEM_SustainableFuturesCamp-PrepCourses_LearningMaterial.pdf<br>(see page 6) |
| Understand and engage with different possible futures: Future literacy | https://gem-project.eu/wp/wp-content/uploads/2024/06/GEM_CourseConcept_Art-for-Futures.pdf<br>(see methods) |

## Products and production

| **Products and production: building blocks** | |
|---|---|
| This module consists of competencies that students need in order to create sustainable media designs and produce media content in a green way. | |
| Knowledge | Ecological sustainability<br><br>● Sustainable concepts<br>● Ecological sustainability in media processes<br><br>Learning how to co-create<br><br>● Basic information of visualization and data<br><br>Technologies to explore<br><br>● Augmented reality<br>● Locative media<br>● Radio technologies<br>● Working with audio (recording & processing) |
| Skills | Ecological sustainability<br><br>● Sustainable design<br>● Green production<br><br>Learning how to co-create<br><br>● Storytelling<br>● Data storytelling<br>● Design Sprint<br>● Concept and project planning for (interactive) projects<br>● Exploring the creative potential of new media technologies<br>● Rapid content and interface prototyping<br>● Working and co-working in virtual worlds<br>● Pitching and reviewing a concept |
| Other | Visualization and data and data storytelling, see more details:<br>https://gem-project.eu/wp/wp-content/uploads/2024/09/GEM-2024_Course-Description.pdf<br>https://gem-project.eu/wp/wp-content/uploads/2024/09/GEM-2024_ShortDescription-5CourseTopics.pdf |

| **Products and production: methods and materials available in GEM** | |
|---|---|
| Sustainable Design:<br>Planet as a persona | https://gem-project.eu/wp/wp-content/uploads/2023/08/GEM_Sustainable-Design-Exercise_PlanetasaPersona.pdf |
| Ecological sustainability in media processes, green production | Ecological sustainability in media processes, green production:<br>National and regional policy dimensions and the challenges of implementing green filmmaking in Poland.https://www.youtube.com/watch?v=o5lh6aAnWEs<br>Highlights of the discussion with Malwina Górecka - Producer and Robert Kwilman - Director of the award winning film Alkibiades<br>https://www.youtube.com/watch?v=804-YQoLQuE<br>Zero waste production design in film production<br>https://www.youtube.com/watch?v=U5Gh4DPJYvc&t=5s<br><br>Environmental Impact of Digital Media Distribution. Green Streaming. Focus is on Good Environmental Practices in Film Productions.<br>https://www.youtube.com/watch?v=DsDnbKlFBrE<br>Case Studies of Good Environmental Practices in university film productions<br>https://www.youtube.com/watch?v=hGP0vUJo8mU&t=19s<br><br>Sustainability in VFX<br>https://www.youtube.com/watch?v=N9kVI6ji2BU&t=208s |
| Many methods, such as Design Sprint in GEM, prototyping and pitching are described in the document GEM – Sustainable Futures Camp 2023, Daily Planner and Workshop Instructions.<br>*Material suitable for teacher training.* | https://gem-project.eu/wp/wp-content/uploads/2024/06/GEM-SustainableFuturesCamp-DailyWorkshopPlans-withInstructions.pdf |
| Data storytelling, learning materials | https://gem-project.eu/wp/data-storytelling/ |

## Connection to nature

| **Connection to nature: building blocks** | |
|---|---|
| This module consists of competencies that help students to understand the value of the natural environment and skills to step into nature in their learning, creativity and coworking processes. | |
| Knowledge | Ecological sustainability<br>● Question and redefine the role of nature in artistic and design practices<br><br>Technologies to explore<br>● Exploration of virtual and augmented reality technologies and related creative practices |
| Skills | Learning how to co-create<br>● Observation, ideation and collaboration in nature<br>● Collecting artefacts and sketching in nature walk<br>● Data walks in nature<br>● Thematic nature: Earth, Air, Water and Fire<br>● Methods of structured online ideation<br>● Ideating and prototyping for digital space<br>● Capturing and recreating nature in the digital domain<br>● Pitching ideas on virtual walk in the digital domain<br><br>Technologies to explore<br>● 3D compositions of natural elements in virtual environments<br>● Embedding 3D graphical or physical compositions in natural environments |

| **Connection to nature: methods and materials available in GEM** | |
|---|---|
| Nature walk,<br>material suitable for teacher training | https://www.youtube.com/watch?v=jwFOLDuG50E |
| Nature walks, tips for the teachers | https://gem-project.eu/wp/wp-content/uploads/2023/03/GEM_Ideation-in-nature_Tips-for-teachers.pdf |
| Nature walk with themes Earth, Air, Water and Fire | https://gem-project.eu/wp/wp-content/uploads/2024/06/GEM-SustainableFuturesCamp-DailyWorkshopPlans-withInstructions.pdf |

| | |
|---|---|
| Ideation sessions<br>Capturing nature in the digital domain<br>Establishing a space for virtual walk<br>Virtual walks | https://gem-project.eu/wp/wp-content/uploads/2023/11/GEM_Course-Concept_AlternativeLearningSpaces-and-Report.pdf |
| Nature-driven ideation<br>Nature-centric prototyping<br>Nature inspired results sharing<br><br>(these are not tested in GEM, but ideated in WP2 framework) | https://gem-project.eu/wp/wp-content/uploads/2024/09/GEM_Framework_AlternativeLearningSpaces-and-Report.pdf |

### Future visioning

| **Future visioning: building blocks** | |
|---|---|
| This module consists of competencies that help students to vision the positive future and develop practical, innovative and sustainable steps to get there. | |
| Knowledge | Ecological sustainability<br>● Impact of own actions to the society and future<br><br>Learning how to co-create<br>● Visioning future and innovating future designs<br><br>Technologies to explore<br>● New Media Technologies |
| Skills | Ecological sustainability<br>● Ability to ideate and create content based on positive future storytelling<br>● Having tools for visioning the future scenarios.<br><br>Learning how to co-create<br>● Future prototyping<br>● Worldbuilding<br>● Regnosis/Back casting<br>● Rapid content and interface prototyping for (interactive) media formats.<br>● Pitching and reviewing media vision concept<br><br>Technologies to explore<br>● Exploring the creative potential of new media technologies<br>● Content creation based on new media technologies |

| Future visioning: methods and materials available in GEM | |
|---|---|
| For instance, worldbuilding and future prototyping methods described | https://gem-project.eu/wp/wp-content/uploads/2024/06/GEM_CourseConcept_Art-for-Futures.pdf |
| Learning materials and templates for many future oriented methods, *suitable for teacher training* | https://gem-project.eu/wp/wp-content/uploads/2024/06/GEM_SustainableFuturesCamp-PrepCourses_LearningMaterial.pdf |
| Many future oriented and co-creation methods, *suitable for teacher training* | https://gem-project.eu/wp/wp-content/uploads/2024/06/GEM-SustainableFuturesCamp-DailyWorkshopPlans-withInstructions.pdf |

## Inner and social skills

| Inner and social competences: building blocks | |
|---|---|
| This module consists of individual and social competencies that students need in green transition in media. This category studies can be integrated with other categories' studies. | |
| Competences | • Self-reliance and empowerment<br>• (Transcultural) team work<br>  ◦ Building a transcultural team<br>  ◦ Working in an interdisciplinary team<br>  ◦ Collaboration between students<br>  ◦ Self-organisation within teams<br>• Creativity<br>  ◦ Creativity processes, using diversity as an inspiration for problem solving<br>• Decision making |
| Other | 'The EU's GreenComp conceptual reference model's "Collective action" and "Individual initiative" could be useful fulfilments for the competencies identified in GEM. Collective action is defined as "To act for change in collaboration with others", individual initiative as "To identify one's own potential for sustainability and to actively contribute to improving prospects for the community and the planet". https://joint-research-centre.ec.europa.eu/greencomp-european-sustainability-competence-framework/greencomp-conceptual-reference-model_en |

## Curriculum development strategies, outlines and ideas

Building blocks of the GEM curriculum can be used in many ways. For example:

- They could form one 20-25 credit (cr. or ECTS) minor module “Green Education in Media” as such.
- Media schools can create separate new courses or other learning activities out of building blocks.
- Sustainability competencies can be integrated to the existing courses.

In addition to that, GEM also developed teaching paradigms and other pedagogical approaches for the universities which want to enrich their media curriculum and teaching methods with sustainable topics.

**Different categories give an overview**

Five different dimensions (Ecological sustainability basics, Products and production, Connection to nature, Future visioning and Inner and social skills) from which GEM approached ecological sustainability gives a good starting point, a quick overview for curriculum designers.

First questions to think about might be:

- To whom should GEM competencies be offered in the university?
- Is one of the categories (or various) missing from university course offerings?

GEM learning activities focus on ecological sustainability, but sustainability can be seen through a variety of social sustainability, cultural sustainability, economic sustainability and future orientation lenses, where such aspects are intertwined with one another. Even though the GEM curriculum focuses on ecological sustainability, other aspects of sustainability should be introduced or presented, potentially via one lecture or similar in each module.

**Start from the basics**

“Ecological sustainability basics” module studies is a good starting point for all the students who begin sustainability studies. This module was added to the curriculum, because research in GEM and practical collaboration with the students and discussions with the teachers revealed that the students' knowledge about ecological sustainability in the media is low.

**Teaching skills**

In discussions with the GEM partner school lecturers, it emerged that on occasion teachers would also require education in sustainability topics. Many of the GEM learning materials, webinars, course concepts, experience reports and other documents consist of high-level knowledge and useful guidelines for the teachers and students. Ready-to-use templates for learning activities and tips for the teachers are offered as well. Additionally, some of the materials and methods in the curriculum concepts are marked with the label “suitable for teacher training” to highlight their suitability for the educators.

## Good practises in pedagogy

In GEM learning activities explorative learning was encouraged. Students explored the environment in different walks and camps and they researched climate change challenges in various ways. Students learnt to explore the challenges collaboratively and to make decisions together in the international teams. The other characteristic pedagogical method in GEM was collaborative learning, which encourages solving problems together. In GEM, it was important that the students experienced how to help each other to find creative solutions to the assignments in a short time. These collaborative methods are especially suitable for learning sustainability, because the challenges of climate change are diverse and solutions need to be quickly found.

GEM partners innovated in workshops also other ways to inspire and encourage the students to study general sustainability topics. Starting with basic knowledge with first year students and continuing with more demanding sustainability challenges in next year was seen as one of the approaches for consideration. Rewarding students, e.g. with extra credits, even with grants, about focusing on ecological sustainability was also discussed among partners.

## Good practises in learning environments

### Walks

In GEM "Nature Walks" was used as a method for inspiration and ideation in the first "Alternative Learning Spaces" learning activity. In the first onsite workshop "Art for Futures" nature walk was organised with the themes Earth, Air, Water and Fire. During the second-year workshop we used "Data Walks" as a means to focus on the notion of what data is and what can be read as data in the environment. GEM offers various guidelines and instructional materials for teachers and students to integrate walks to media studies.

### Camps

GEM's yearly mobility activities were organised as "camps". First onsite workshop was "Sustainable Futures Camp based on Art For Futures Lab" in a near nature environment where students and teachers made their own meals and some of the participants stayed in tents. Also, the second onsite workshop was organised in a location which offered for both students and teachers multiple opportunities to collaborate, work and study in nature and enjoy in many other ways as well, for example swimming in the lake and walking in the forest. The camps were successful and reaction from students and teachers were extremely positive. When compared with workshops situated inside the school building, being outside made a huge difference. However, as mentioned in the course concept of Sustainable Futures Camp, GEM recommends to ensure that the camp itself follows sustainable practices, such as reducing waste, conserving energy, and minimising environmental footprint. This serves as a practical example of sustainability in action.

# Proposals for curricular sustainability concepts in partner education

One of the aims of GEM was also that the partners will develop individual approaches to environmental curriculum development. Common curriculum concept was used as a basic model for individual curriculum concept proposals, in addition, partners discussed different development strategies, outlines, ideas and requirements in common workshops in Spring 2025.

## Tampere University of Applied Sciences

**Implementation strategy**

Tampere Universities have set their sustainability and responsibility goals. According to community vision sustainable development is integrated into all degree programmes, and related learning outcomes are defined in the curricula. https://www.tuni.fi/en/about-us/sustainable-development-at-tampere-universities/sustainability-and-responsibility-goals

Tampere University of Applied Sciences (TAMK) has renewed its study plans for study programmes for the year 2024. One part of this process has been to introduce sustainability and responsibility classification. Courses have been categorized to the sustainability and responsibility aspects under five categories. These categories are ecological sustainability, social sustainability, cultural sustainability, economic sustainability and future orientation. As sustainability and responsibility are a spectrum of these aspects, not completely individual entities, it is relevant to consider these categories together. As an example, ecological sustainability is not a viable goal if it leads to social unsustainability.

**Media and Arts, Interactive media**

TAMK's Media and Arts is a degree programme for future experts in the creative sector. The curriculum guides students in generating fresh ideas and developing them in a high-quality, artistic, technical, ethical and economically successful manner.

In the Media and Arts program's Interactive Media specialization ecological sustainability is integrated into many courses, such as the User Experience Design (UX) module, Animation module and Visual Design modules. GEM's methods and materials are suitable and useful for the courses in various ways.

Sustainability education's starting point in Interactive media is first year students' course Introduction to Design Practices. The course prepares the students to join design projects; basics of sustainable design and accessibility are part of the course content. As groups, students solve problems and create concepts and get to know each other at the same time. In Autumn 2024, inspired by GEM, the course challenge was about promoting conservation of biodiversity or circular economy, and an extra bonus was promised for the students about energy efficient solutions. Next Autumn many GEM materials, such as Basic terminology of sustainable design and climate change (included in Sustainable Futures Camp 2023 / Preparatory Course – Learning Material and Templates) will be utilized as learning materials in the course to strengthen the much-needed theoretical understanding of ecological sustainability, which was one of the topics that GEM focused on.

User Experience Design module offers for students 30 study credits on UX. Ecological sustainability is integrated into the module in many ways. GEM's content, such as Sustainable Design and Design with nature will be utilized in the course Design Process and Concepting to expand the students' view from the users and products to the environmental topics. Positive future storytelling and Future prototyping, topics whose importance in sustainability GEM successfully highlighted, will be enriching the UX course Advanced User Experience Design significantly.

Animation and VFX, similarly to the UX module, includes 30 study credits. The studies include courses on animation and visual effects production, principles of animation and project work with real clients. As the production steps of animation and VFX are computing-power-heavy, the two medium production types will benefit from GEM 3.5 sustainability guidelines on how to save energy and most importantly how to incorporate these guidelines into the pre-production, production and post-production.

Additionally Interactive media degree programme has built a common project plan and project report for the students' projects in different minor modules and, inspired by GEM, ecological sustainability is included in these general practices. These tools are impacting all the students on Interactive media by challenging not only planning design and production activities and reporting on them, but also integrating ecological sustainability thinking to the project practicalities. Sustainability guidelines and tools produced in GEM 3.5. will be used to develop sustainable project management practicalities even further.

The credit points gained from elective sustainability courses, such as GEM activities can be included into the student's study plans in different ways. For instance, into the minors that include projects studies or into the free choice professional studies. These options also provide flexibility for the students and the degree programme.

## Overview of curricular sustainability concept

### 1. Ecological Sustainability Basics

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Introduction to Design Practises (5 ECTS) | Basics of sustainable design.<br>GEM emphasised the need for basics in a complex field, for instance basic terminology of sustainable design and climate change. |

### 2. Products and production

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Design Process and Concepting (5 ECTS) | After completing the course, the student makes design decisions based on user needs and sustainability requirements.<br><br>This is a competence addressed by GEM. Many GEM materials and methods, such as Sustainable design and webinars Environmental impact of digitisation and Design with nature can be used during the course |
| User Experience Design Project (5 ECTS) | After completing the course, the student implements user needs and sustainability requirements on product concepts and demos. This is a competence addressed by GEM and sustainability guidelines and tools (produced in GEM 3.5.) can be used as materials and methods. |
| Introduction to Animation and VFX technologies (5 ECTS) | Ecological sustainability basics will be covered in introduction to Animation and VFX technologies. |
| Animation and Visual Effects Business (5 ECTS) | Animation and VFX production pipelines will be covered within this course and are big part of the sustainability<br>GEM emphasised the need for including the sustainability as a starting point for the project planning |
| Animation and Visual Effects Project (5 ECTS) | Planning and implementing sustainability into animation or VFX project, GEM has added practical input |

**3. Connection to nature**

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Introduction to Graphic Design and Design Management (5 ECTS) | Nature walk (this is a tradition in TAMK visual design)<br>GEM expanded the view of walks as a method, e.g. data walks and audio walks can be taken in use in the other minors |

**4. Future Visioning**

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Advanced User Experience Design (5 ECTS) | Future skills, such as visioning the future and innovating future designs. New topic in course, inspired by GEM (also GEM methods and materials can be used) |

**5. Inner and social skills**

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Advanced User Experience Design (5 ECTS) | Future skills, such as visioning the future and innovating future designs. New topic in course, inspired by GEM (also GEM methods and materials can be used) |

Link: https://tamk-study-guide.tuni.fi/167/en/23/49588

## Film University Babelsberg KONRAD WOLF

GEM already has a deep impact on FBKW's sustainability transition, which has been facilitated by the fact that FBKW has already recognized the need for such a transition from multiple sides, students, teachers and administration alike. Very visibly, GEM workshops have been integrated in curricular courses on new media storytelling in the BA Film & TV producing programme and the MA Creative Technologies. GEM lectures are electives university-wide, particularly addressing students of production. However, the impact goes much further, with a multitude of direct and indirect effects on the institution.

**Concrete implementation of GEM concepts to study programme BA Film and TV Producing**

Film University has updated the study programme for its BA in Film and TV Producing in February 2024 to integrate sustainability competencies into the curriculum, as well as increasing the opportunities for student engagement in the topic via electives. Concrete changes are:

- Integration of a 1 ECTS introductory course “Sustainability in Film Production” course to the first year BA module “Production Basics II”. In particular the following two new competencies were added:
    - Students have an understanding of the various dimensions of sustainability in film production.
    - Students can analyse and design production processes from a sustainability perspective.
- Integration of a 1 ECTS interdisciplinary course on “Green Production Practice” for all study programmes involved in film production at the start of the second BA year.
- Introduction of 7 ECTS Module “Media Industry Research” with electives on social and ecological sustainability in the third BA year. This module is open to recognize engagement in student initiatives on sustainability. Also, both transnational workshops and the green screen lecture series devised in GEM are recognized courses in this module. The following competencies were formulated for the module:
    - Students can discuss issues of social and ecological sustainability in the media industry from a practical and scientific point of view
    - Students can conduct independent research and reflect on the learning process
    - Students are able to analyse media productions from a sustainability perspective
    - Students are familiar with the structures of media policy interest groups and their effects on social sustainability
- The “Open Studies” module in the 3rd year comprises 10ECTS and is open for further electives, should students be interested to focus even further on sustainability topics.
- It is planned to continue both the “Green Screen International” lecture series and the transnational workshops. The latter are under the restriction of available funding for Erasmus+ short term mobility.

**Integration of GEM methods and approaches**

GEM has been a laboratory for new approaches to learning and teaching, particularly as a cross-fertilization between media design, film production and media management departments. The most impactful method has been the adapted Design Sprint methodology with input of domain experts and additional art for futures lab methods. This approach has been adopted in other courses, not related to GEM, for example the Format Development Course in BA Producing second year (5 ECTS). This was the first time, story and format development was actually enhancement with a reflection of the eco-system the story is set in. Likewise, the approach has been used in the second-year digital media storytelling course (3 ECTS), which mirrors the design sprints in the transnational courses on a local level. The “nature walk” as a method was universally perceived as a great enhancement to existing courses - however to date teachers seem hesitant to actually embrace it. World Building, Envisioning Futures and Digital Prototyping particularly enhance the emerging media courses of the MA Film and TV Producing, such as XR Producing (3 ECTS) and Realtime Workflows (2 ECTS).

### Organization-wide implementation and non-curricular structural changes

Most study programmes at Film University are currently working on changes to their curricula with respect to integration of sustainability. The open Green Screen International lecture series was certainly helpful in further establishing the need for engagement in sustainability in the organisation. All students were able to get the course recognized in their respective "open studies" modules and enjoy a half-day general introduction into sustainability as part of the first-term introductory lecture series. All seven study programmes involved in the second-year fictional film exercise have a compulsory introduction into green production practice.

In parallel to the GEM project, the Film University established an Office for Sustainability in teaching, which organized additional lectures in German under the same "Green Screen" branding. In cooperation with the student-driven "Green Initiative", the Sustainability Office offers co-funding for student projects that adhere to green production standards and continually develops a green production Good Practice Guide for students (which has been enhanced by the work in GEM WP3).

In general, two viewpoints emerged when it comes to curriculum integration of lateral competencies - enhancing existing courses and creation of dedicated courses and modules. From experience at FBKW, the latter approach is important to raise overall awareness for sustainability. Enhancing existing courses puts sustainability competencies in competition with other course goals and, more often than not, sustainability is skipped first from the syllabus when the content has to be revised because of time constraints. It also requires sensibilization and training of teaching staff.

In collaboration with the Office for sustainability we established the "Sustainable Film School Day" event, which took place in 2024 and 2025 to galvanise the national and international sustainability community at film schools.

### Overview of Curricular sustainability concept for FBKW

#### 1. Ecological Sustainability Basics

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Introduction to sustainability (4h) as part of general introductory lecture series on film production for all study programmes | General introduction on the role of sustainability in the film industry, partly building on GEM WP3 outcomes. |

## 2. Products and production

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| "Sustainability in Film Production" (1 ECTS)* | Course within first year BA Film and TV Producing module "Production Basics II", addressing the following competencies:<br>• Students have an understanding of the various dimensions of sustainability in film production.<br>• Students can analyse and design production processes from a sustainability perspective.<br>This course includes insights and approaches from WP3.3, WP3.4 and WP3.5. |
| "Media Industry Research" (7 ECTS)* | This module comprises electives on social and ecological sustainability in the third year of the BA in Producing. This module is open to recognize engagement in student initiatives on sustainability. Also, both transnational workshops and the green screen lecture series devised in GEM are recognized courses in this module. |
| "Green Production Practice" (1 ECTS)* | Interdisciplinary course for all study programmes involved in the production of the second-year student films, addressing practical issues of green production in film. This embraces insights from WP3.3 and WP3.5. |

*Ecological sustainability is main or only content on the course

## 3. Connection to nature

No existing or planned learning activities.

## 4.Future visioning

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| "XR Producing" (3 ECTS), Realtime Workflows (2 ECTS)<br><br>MA Film and TV Producing | World Building, Envisioning Futures and Digital Prototyping particularly enhance the emerging media courses of the MA Film and TV Producing.<br>This builds particularly on the methodology developed in WP4. |
| "Format Development" (5 ECTS),<br>"Digital Storytelling" (3 ECTS)<br><br>BA Film and TV Producing | The design sprint approach, including future visioning and world building, has been adopted in these courses. This was the first time, story and format development was actually enhanced with a reflection of the ecosystem the story is set in. |

**5. Inner and social skills**

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| "Open Studies" (10 ECTS) | The "Open Studies" module in the 3rd year comprises 10ECTS and is open for further electives, should students be interested to focus even further on sustainability topics.<br><br>It is planned to continue the "Green Screen International" lecture series, addressing a variety of sustainability topics. |

**Link:** https://www.filmuniversitaet.de/en/university/about-us/sustainability

## Tampere University

Tampere University plans to include parts of the curricula in its master's degree programmes in "Sustainable Digital Life" ("Sustainable Societies and Digitalisation") and "Human-Technology Interaction" (Computer Sciences). The curriculum concept built from "building blocks" (e.g., 1 ECTS) can form separate courses or be integrated into existing courses. The GEM project's overall aim is supporting the digital and green capabilities of the higher education sector, which aligns with the focus of these programmes.

"Sustainable Digital Life" ("Sustainable Societies and Digitalisation"): This programme's focus on sustainable societies and digitalisation makes Module 1 (Ecological sustainability basics) highly relevant, particularly concerning the environmental impact of digitalization. Module 2 (Products and production) could inform the design and implementation of digital solutions with lower environmental footprints. Module 4 (Future visioning) aligns well with the need to envision and plan for sustainable digital futures and societies.

"Human-Technology Interaction": This programme could draw upon aspects of Module 2 (Products and production) for incorporating sustainable design principles into interfaces and interactions. Module 3 (Connection to nature) might inspire designs that use or respond to nature, potentially leveraging digital tools like AR/VR for nature-related experiences. Module 4 (Future visioning) methods like future prototyping and worldbuilding could be used to explore sustainable human-technology futures. Module 5 (Inner and social skills) would support the collaborative and interdisciplinary nature often required in HTI design projects.

The pedagogical methods tested in the GEM project, such as explorative learning and collaborative learning, nature walks for ideation and observation, data storytelling for environmental narratives, and future prototyping or worldbuilding for visioning could be utilized in these programs as well. These methods, although primarily tested in a media/arts context, might be adaptable.

Beyond the mentioned master's degree programmes, the Tampere Universities community (which includes TAMK) has sustainability and responsibility goals. Their vision includes integrating sustainable development into all degree programmes, with related learning outcomes defined in the curricula. This indicates a general commitment within the university community to incorporating sustainability across its offerings. A clear next step would be to see how GEM results could be applied to the "Socially Sustainable Societies" B.Sc. program.

Ultimately, while the source provides the foundation and examples from other partners, Tampere University would need to undertake its own process to determine precisely how to integrate the GEM framework, modules, competencies, and pedagogical approaches into the specific structures and learning outcomes of its "Sustainable Digital Life" and "Human-Technology Interaction" master's degree programmes. This process could be guided by the Tampere Universities stated commitment to integrating sustainable development into all degree programmes. Finally, since Tampere University and TAMK are part of the same university community, we expect to work in close collaboration on this in the future.

### National and Kapodistrian University of Athens

The Department of Digital Arts and Cinema of the National and Kapodistrian University of Athens acknowledge the importance of introducing sustainability both as a concept and objective of all creative processes, in its undergraduate and postgraduate programs. GEM had indeed a significant impact so far, in educating both students and tutors of the Department who have been involved in the project's activities, with regards to sustainability issues as well as methodologies for integrating sustainability in the educational processes.

Already, the Department has decided to introduce a new elective 5 ECTS module titled "Art, ecology and sustainability", which will largely build on the lessons learned from GEM and apply them accordingly. Moreover, the Department plans to work towards introducing the concept of sustainability and related approaches to creative methodologies for producing digital and cinematic artworks to artistic laboratory modules and courses of the undergraduate program, like:

- Virtual Reality II: Design and Production
- Storytelling III: Non-Linear and Transmedia Narrative
- Technological Art in Public Space, the City and Nature

Moreover, the Department is planning to promote the Green Screen Lecture series to be followed by students of all three levels (undergraduate, postgraduate, doctoral) of the Department and to be credited through ECTS accordingly.

## Overview of Curricular sustainability concept for NKUA

### 1. Ecological Sustainability Basics

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Foundations of Advertising (4 ECTS) | Includes an introductory unit on the environmental impact of advertising. Uses GEM materials to explain sustainability terminology and concepts such as carbon footprint and handprint. |

### 2. Products and production

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Planning and Managing Advertising Campaign (5 ECTS),<br>Designing and Producing Media Campaign (5 ECTS) | Students learn how to incorporate ecological thinking into media planning. Use of GEM case studies (e.g. Green Streaming, sustainable VFX) and discussions on low-impact media formats. |

### 3. Connection to nature

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Developing Strategies of New Business/New Brand (5 ECTS),<br>Advertising workshops (5ECTS) | Nature-based ideation sessions inspired by GEM's nature walk methodology. Activities include sketching, collecting ideas in parks, and integrating nature-driven insights into brand storytelling. |

### 4. Future visioning

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Advertising workshops (5 ECTS), Planning ad Managing Advertising Campaign (5 ECTS) | Nature-based ideation sessions inspired by GEM's nature walk methodology. Activities include sketching, collecting ideas in parks, and integrating nature-driven insights into brand storytelling. |

**4. Future visioning**

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Developing Strategie of New Business/New Brand (5 ECTS) | Courses include modules on teamwork, decision-making and co-creation. GEM influenced the introduction of group-based ethical challenges and creative collaboration formats. |

## University of Malta

The University of Malta (UM), through its Centre for Environmental Education and Research (CEER) and the Committee for Sustainability, has undertaken a proactive and multi-dimensional strategy to embed sustainable practices across its institution. This initiative is anchored in the university's commitment to sustainability and environmental responsibility, aiming to cultivate a campus culture that not only understands but actively contributes to sustainable development through education, media, art and community engagement.

A central component of this initiative has been the introduction of a participatory workshop titled "Building a Sustainable University." This workshop introduces key principles of sustainability and fosters an understanding of how these concepts intersect with everyday roles within the university. Participants begin with a reflection on sustainability's importance within higher education, followed by a sustainability self-audit to evaluate their current behaviours and practices. This introspective process helps staff and students identify specific areas for improvement and prioritize actionable steps. The workshop concludes with collaborative sessions where participants share ideas and strategies for integrating sustainability into their routines. Importantly, this workshop forms part of a broader series aimed at sustaining momentum by providing continued support for the implementation of sustainability initiatives across the university community.

In addition, UM has extended its sustainability discourse to the broader public through its campus radio station. Academic staff and students have been invited to present their work and discuss its real-world impact with radio hosts. These discussions are crafted not only to showcase ongoing academic research but also to educate the public about sustainability issues and how these might influence our lives. By framing research and education within the context of societal relevance, these radio programmes serve a dual purpose: strengthening public engagement with academic knowledge and reinforcing the university's role as a hub for socially responsible innovation.

**1. Ecological Sustainability Basics**

UM has also begun integrating GEM principles directly into its curriculum, notably within two creative academic units: Designing for the Screen and Interactive Art. These units now include foundational ecological sustainability concepts. Students in these classes are introduced to ecological literacy, learning about topics such as climate change, circular design principles, and the environmental impact of digital media. In Designing for the

Screen, students examine how user interface and experience (UX/UI) design can minimize digital carbon footprints, emphasizing eco-minimalist approaches. In Interactive Art, students explore sustainable material use and create works that engage directly with ecological themes, often using recycled or natural elements.

**2. Products and production: Sustainable Media, Art & Green Production**

Sustainable media and art production is a central focus in both units, where students gain hands-on experience with environmentally responsible design processes. In Designing for the Screen, coursework includes creating app mock-ups that are efficient in data usage and server demands. Meanwhile, Interactive Art students work with installations powered by renewable energy or that decompose naturally, reflecting a deeper understanding of lifecycle and impact. Both units also incorporate data storytelling and immersive media techniques, equipping students with the skills needed to communicate sustainability issues compellingly.

**3. Connection to nature**

The importance of nature and ecological connection is emphasized throughout both units. Students are encouraged to draw inspiration from natural settings, often engaging in outdoor ideation sessions or incorporating natural systems into their creative projects. For instance, students of Designing for the Screen may develop digital experiences that replicate or respond to natural environments, while Interactive Art students create pieces that interact with local ecosystems or are influenced by environmental conditions. These experiences cultivate ecological awareness and enrich students' creative processes through direct engagement with nature.

**4. Future visioning & Scenario Building**

To foster forward-thinking creativity, both units integrate future visioning and scenario-building exercises. Students are challenged to imagine and prototype media solutions for sustainable futures. In Designing for the Screen, this might involve developing speculative applications for post-carbon societies. In Interactive Art, students may create installations that depict potential environmental futures, prompting reflection on our current trajectory and possibilities for change. These projects strengthen future literacy and promote the idea of media and art as a tool for sustainability-driven innovation.

**5. Inner & social Competences: Collective Action & Transdisciplinary Collaboration**

Collaboration and collective action are also key components of the curriculum. Both units emphasize teamwork, often requiring students from different academic backgrounds to collaborate on shared sustainability challenges. Through co-creation and interdisciplinary dialogue, students in Designing for the Screen might develop service design solutions for campus sustainability, while Interactive Art students curate collective exhibitions centred on environmental justice. This approach nurtures self-reliance, empathy, and an understanding of how diverse perspectives can lead to more effective sustainability solutions.

One of the most impactful components of UM's green education strategy is the integration of GEM principles into experiential learning initiatives like the Nature Walk. These guided walks serve as immersive educational experiences, allowing students and staff to explore

natural environments while reflecting on their ecological significance. The Nature Walks function as both a literal and metaphorical journey, enhancing participants' mental well-being and ecological empathy. They also serve as creative catalysts, with many students later developing art pieces or digital prototypes inspired by their experiences in nature. This approach reinforces a deeper connection between theoretical learning and lived environmental awareness.

University of Malta's engagement with Green Educational Media & Art practices is a comprehensive executed strategy that spans institutional capacity building, public engagement, curriculum transformation, and immersive learning. By embedding sustainability into both the academic framework and the broader cultural fabric of the university, UM is not only preparing its community to address current environmental challenges but is also cultivating a new generation of media-literate, ecologically conscious changemakers. Through initiatives like the sustainability workshops, radio broadcasts, curriculum innovation, and the Nature Walk, the University of Malta exemplifies how higher education institutions can lead the transition toward a more sustainable future.

### Academy of Dramatic Art, University of Zagreb

Academy of Dramatic Art (ADA), University of Zagreb, consisting of theatre, film, and dance departments, has taken initial steps towards development and implementation of sustainable practices in film production, but also in wider artistic pedagogy. The main aim is not only to provide basic, and advanced curricular modules dealing with topics of sustainability, inclusivity and collaboration, but also to develop sustainable teaching and learning methods and approaches. These should, as opposed to rather traditional systemic logic of producing outputs in any way feasible, stress the importance of collaborative practices, working on cooperative curriculum design and prepare students for artistic work in future conditions which will necessarily be determined, among other things, by policies largely imbued with environmental regulations. Beyond the mere pragmatic dimension of enabling film producers to successfully apply their projects to various funds, the sustainability conceived (so far only broadly) in our strategic plans presupposes a highly developed understanding of wider artistic, social and environmental issues which surround and influence artistic work in general. Some of these aspects have already been included in the institution's initial draft of the Strategic plan.

The first operative steps were made through Green Screen Lectures within the ongoing GEM project which have been promoted to all students of film and theatre studies and further discussed in comparative perspective with the situation in Croatian higher education. This practice proved useful and will be continued within particular courses in the Cinematography and Editing departments.

**1. Ecological Sustainability Basics**

ADA started implementing sustainable production principles into its curricula through modules held by Albert-licensed film producer, in the first place in the Production department. Materials provided include, among other resources, presentations and working sheets developed in the GEM program. Students are taught the basics of sustainable production, covering topics such as climate change, social change, carbon footprint, energy consumption, pitfalls of consumerist approach to natural resources.

**2. Products and production: Sustainable Media, Art & Green Production**

Students will be acquainted with environmentally beneficial working procedures, as well as recycling processes who's ecological, but also economical benefits represent a substantial aspect of film production. Production planning along sustainability lines requires detailed elaboration of every aspect of production process so the stress will be put to careful conceptualization within the sustainability guidelines, some of which have already been thoroughly elaborated in GEM materials.

**3. Connection to nature**

Departments of Dramaturgy, Dance and Acting, work within curricula which already contain significant amounts of interpersonal training in various spaces, including outdoor areas. Developing these practices further, with the clear aim of integrating ecological awareness as an essential part of artistic education, we plan to encourage and officially promote alternative teaching and learning methods which include closer interaction with natural objects outside of the classroom.

**4. Future visioning & Scenario Building**

Storytelling and worldbuilding courses on MA level of Dramaturgy and Directing departments; courses on speculative fiction, and creation of alternative worlds for post-carbon period; development of critical approaches towards extractivist models whose underlying paradigm affects even the construction of curricula.

**5. Inner & social Competences: Collective Action & Transdisciplinary Collaboration**

Development of social and interpersonal collaborative skills is a rare aspect of traditional pedagogy still strongly present at our institution. Improvement of existing practices, insistence on collaborative planning and coordination among different departments is to be implemented through the institution's strategic documents. Introduction of elective courses on interdisciplinary methodologies to further foster responsibility in curriculum planning and ‚students' artistic production.

## Jagiellonian University in Kraków

The Jagiellonian University in Kraków has significantly advanced the integration of sustainability into its media and advertising education as a direct result of participation in the GEM project. Until now, environmental issues have been largely absent from the advertising and media management curriculum at the Faculty of Management and Social Communication. The GEM initiative has provided the practical framework needed to meaningfully integrate sustainability into core academic content.

Through GEM, tutors gained access to high-quality resources, tested teaching paradigms, and innovative methods such as nature walks, data storytelling, and future prototyping. Without GEM's influence, the ecological dimension of communication strategies would likely have remained underdeveloped or treated superficially.

Thanks to GEM, selected courses have undergone substantial redesign. Tutors were introduced to the sustainability knowledge and competence framework, and were equipped to develop learning activities focused on ecological awareness, collaborative problem-solving, and the creative use of media for sustainable futures. The approach follows the flexible GEM model and addresses the need for holistic sustainability education in the communications disciplines.

At the Jagiellonian University, the master's program *Media and Advertising Management* has been enriched with content related to ecological sustainability. These changes include both the introduction of new teaching methods and the modification of existing course content. Their aim is to prepare students to design advertising and media activities with an awareness of social and environmental responsibility. An important reference point for these changes has been the materials developed within the GEM project (including recordings and transcripts of expert meetings), which have served as inspiration for many courses.

**1. Ecological sustainability basics**

As part of the Foundations of Advertising (4 ECTS) course, students explore the environmental impact of advertising. The curriculum introduces and explains key sustainability-related concepts, such as carbon footprint and handprint. In this way, participants gain not only theoretical knowledge but also awareness of how advertising—both in its production and distribution—can affect the natural environment.

**2. Products and production**

The next stage of education involves project-oriented courses, such as Planning and Managing Advertising Campaign (5 ECTS), Designing and Producing Media Campaign (5 ECTS). In these courses, emphasis is placed on the practical application of sustainability principles. Students analyse case studies provided by the GEM Project, including Green Streaming and solutions in the field of sustainable visual effects (guidelines developed under task A3.5), and then discuss the possibilities of using media formats with minimal environmental impact. The goal is to develop competencies in planning advertising campaigns that align with the idea of responsible communication and reducing environmental costs.

**3. Connection to nature**

Sustainability has also been strongly linked to creativity and brand storytelling. In the courses Developing Strategies of New Business/New Brand (5 ECTS) and Advertising workshops (5 ECTS) the GEM methodology of nature walks has been introduced as a tool for stimulating imagination and innovative thinking. Students participate in ideation sessions in natural environments, where they sketch, collect inspirations, and learn how nature-based observations can be creatively incorporated into storytelling and brand identity building.

**4. Future visioning**

Another block of courses, including Advertising workshops (5 ECTS) and Planning and Managing Advertising Campaign (5 ECTS), focuses on working with the future. Students apply methods of future-oriented storytelling, such as world-building and back casting, to prototype campaign concepts based on ecologically responsible scenarios. In this context, the idea of *Art for Futures* has been an inspiration, emphasizing the role of art and storytelling in shaping social imagination and promoting sustainability values.

**5. Inner and social skills**

The program changes are not limited to subject knowledge and project skills but also cover the development of soft skills. In Developing Strategies of New Business/New Brand (5 ECTS), students practice teamwork, group decision-making, and co-creation of concepts. GEM-inspired elements such as group ethical challenges and creative collaboration formats have been introduced, helping students develop critical thinking, responsibility, and the ability to engage in complex social processes.

As a result of these changes, the master's program in Media and Advertising Management at the Jagiellonian University combines expertise in media and advertising management with the growing need to address ecological, ethical, and social challenges in business practice. Students not only gain theoretical knowledge and practical skills but also learn to think about media and advertising in terms of responsibility for the future.

## Lodz Film School

**Context and Strategy**

As one of Europe's oldest film institutions, the Lodz Film School recognizes its responsibility in promoting ecological sustainability within the audiovisual arts. Inspired by the GEM project, the school has begun a strategic integration of sustainability principles into its education programs, emphasizing the balance between creative excellence and environmental responsibility.

**Implementation Strategy**

The sustainability curriculum at Lodz Film School builds on the school's long-standing strengths in practical film education and interdisciplinary collaboration. The implementation plan incorporates GEM's modular and flexible framework, allowing sustainability themes to be embedded across existing film production, animation, and theory courses.

Pilot initiatives have included integrating sustainability-focused assignments into script development and production design classes, and expanding the scope of student projects to include considerations of carbon footprint, green production logistics, and nature-based ideation. The GEM model inspired the development of nature-driven ideation methods in directing and set design workshops, introducing nature walks and environment-based concept development.

## Curricular Highlights by Module

### 1. Ecological Sustainability Basics

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Introduction to Audiovisual Project Development (2 ECTS) | Covers key sustainability terms, carbon handprint, and climate-conscious planning. GEM materials provide a theoretical basis. |

### 2. Products and production

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Production Planning and Budgeting (3 ECTS) | Incorporates green production guidelines, budgeting for sustainable logistics. GEM insights from WP3.5 and case studies used. |
| Set and Costume Design (3 ECTS) | Use of sustainable materials and design-for-reuse principles. Enhanced by GEM's focus on waste reduction and circular design. |

### 3. Connection to Nature

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Directing Workshop: Visual Storytelling in Natural Environments (3 ECTS) | Students engage in nature walks for visual inspiration and site-specific scene planning. Based on GEM's Alternative Learning Spaces. |

### 4. Future Visioning

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Experimental Filmmaking Lab (2 ECTS) | Projects use future visioning, back casting and positive sustainability narratives. Inspired by GEM's Art for Futures Lab. |

**4. Inner and Social Skills**

| Existing or planned learning activity | Description of learning activity and how GEM impacted on development |
|---|---|
| Integrated across all practical workshops | Emphasis on team-based sustainability challenges, decision-making, and co-creation. Supported by GEM's collective action principles. |

**Pedagogical Innovations and Institutional Impact**

Lodz Film School has embraced GEM's pedagogical strategies such as nature walks, interdisciplinary sprints, and storytelling for change. These are now part of both introductory and advanced studio practices. Additionally, plans are underway to introduce a 5 ECTS elective activity (course, workshops) titled Green Media Practices, providing students with hands-on experience in sustainable audiovisual production.

A collaboration between the departments of Film Production, Set Design, and Animation is developing a sustainability checklist for student productions, drawing on GEM's green filmmaking tools and checklists.

**Future Developments**

The school aims to gradually formalize sustainability as a transversal theme across its programs, integrating it into evaluation criteria, production protocols, and festival submissions. Continued engagement with GEM's materials and workshops, as well as planned contributions to the Green Screen lecture series, support this ongoing transformation.

## Institute for Art and Innovation

**1. Ecological Sustainability Basics**

Relevance for IFAI:

- Enhancing Art for Futures Lab workshops with foundational ecological sustainability knowledge.
- Strengthening IFAI's ability to integrate green transformation principles into art and media production.
- Providing frameworks for futures literacy, linking speculative futures with sustainable decision-making in media.

Integration into IFAI Activities:

- Expanding Art for Futures Lab by incorporating sustainability principles into media storytelling, scenario development, and co-creation labs.
- Utilizing digital collaboration tools to engage artists, media professionals, and educators in climate storytelling.
- Adapting futures literacy methodologies to media-driven sustainability narratives.

**2. Products and production: Sustainable Media & Green Production**

Relevance for IFAI:

- Strengthening IFAI's expertise in green media design and responsible production processes.
- Providing students/participants with practical, sustainability-driven design and production skills.
- Integrating data storytelling and immersive media into sustainability education.

Integration into IFAI Activities:

- Incorporating data storytelling into Art for Futures Lab workshops using AR, locative media, and interactive digital storytelling.
- Developing sustainable media formats within the Social Art Award framework.
- Using rapid content and interface prototyping to explore creative sustainability solutions in digital media.

**3. Connection to nature**

Relevance for IFAI:

- Expanding IFAI's nature-driven ideation methods, linking media creation with ecological awareness.
- Enhancing alternative learning spaces that incorporate immersive, nature-inspired media production.
- Exploring nature-based storytelling approaches for sustainable futures narratives.

Integration into IFAI Activities:

- Implementing nature walks and field-based ideation in Art for Futures Lab workshops.
- Using virtual and augmented reality to reconstruct and explore environmental storytelling.
- Encouraging students to redefine the role of nature in artistic and media design practices.

**4. Future visioning & Scenario Building**

Relevance for IFAI:

- Aligning with IFAI's future prototyping and worldbuilding methodologies.
- Equipping students with visioning and sustainability-driven innovation skills.
- Strengthening the co-creation of media-based future scenarios.

Integration into IFAI Activities:

- Strengthening future prototyping as a key method in Art for Futures Lab.
- Further developing worldbuilding techniques to explore climate-resilient societies in media narratives.
- Developing interactive media storytelling formats that engage audiences in sustainable futures.

**5. Inner & social Competences: Collective Action & Transdisciplinary Collaboration**

Relevance for IFAI:

- Empowering students and artists with self-reliance, co-creation, and team collaboration skills.
- Fostering transdisciplinary and transcultural teamwork to address sustainability challenges.
- Strengthening IFAI's role in creating spaces for cross-sectoral, impact-driven media collaborations.

Integration into IFAI Activities:

- Embedding advanced decision-making, creativity, and leadership skills into i.e. Art for Futures Lab projects.
- Facilitating team-driven sustainability challenges in media production workshops.
- Utilizing the EU's GreenComp framework to support collective action and individual sustainability leadership.