

TEACHER'S BROCHURE:

A Guide to



Girls
Go
Circular



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INTRODUCTION TO THE GIRLS GO CIRCULAR PROGRAMME

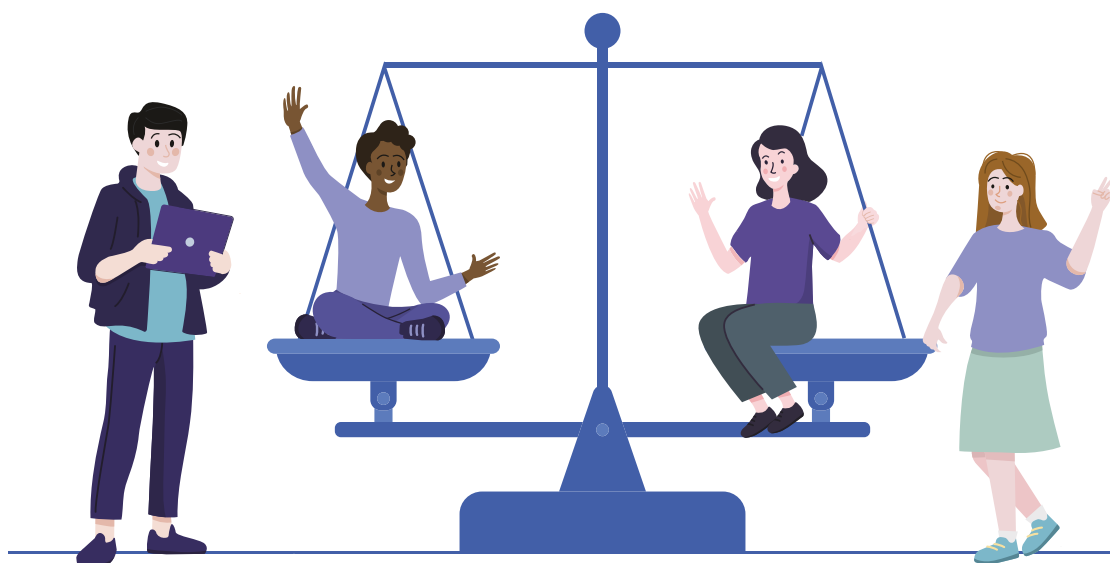
Welcome to the Girls Go Circular learning programme! We're thrilled to have you join us in exploring our educational resources and discovering how they can enhance your students' learning experience. This brochure offers a comprehensive overview of our programme, including details on our courses and the Circular Learning Space – our interactive platform that guides and supports students on their journey towards a digital and sustainable education.

Circular Knowledge, Skills and Competencies for All

Each course within our learning programme delves into a key aspect of the circular economy, equipping students with the knowledge to tackle the critical challenges of our time. By empowering students and teachers to become agents of change in the socio-ecological transition, our courses highlight how emerging, cutting-edge technologies – such as robotics, artificial intelligence, advanced materials, or advanced manufacturing – are becoming essential tools in addressing the most pressing global challenges of the 21st century.

Of course, the Girls Go Circular courses go beyond just knowledge. They are also designed to address the growing demand in the European workforce for new talent and skill sets capable of leveraging cutting-edge technologies to lead the green and digital transformation. With this in mind, our courses adopt a learning-by-doing and challenge-based approach, actively engaging students with essential 21st-century skills and competencies. These are drawn from three key EU frameworks: [GreenComp](#), [DigComp](#), and [EntreComp](#), ensuring that students gain not only theoretical insights but also practical skills for a digital and sustainable future.

Recognising the underrepresentation of women in Science, Technology, Engineering, and Mathematics (STEM) and Information Technology (IT) studies and careers, Girls Go Circular is purposefully designed to promote gender equality and empower girls aged 14 to 19 across Europe to become future leaders and entrepreneurs in these key fields. However, in the spirit of equality and inclusivity, the programme is open to all learners. We believe it is crucial for the youth to understand the vital role of women in science and technology and to become advocates and allies, both in education and the workplace, to help build a more equitable future.



ABOUT OUR COURSES

Methodology Overview

The Girls Go Circular programme is structured around three types of courses, each designed to progressively build students' knowledge and skills:

1. **Introductory Courses:** these courses serve as the onboarding stage for all students, offering essential knowledge to start the programme. Each course takes one hour to complete, and both are required before advancing to **Foundation** or **Advanced Courses**:
 - a. *A Quick Introduction: How to Stay Safe Online*: offers essential guidelines for safe and responsible online behaviour.
 - b. *Introduction to the Circular Economy*: provides an overview of key concepts on the circular economy.
2. **Foundation Courses:** these courses introduce students to specific thematic areas, helping them develop a deeper understanding of societal challenges and acquire new, emerging skills. Each course is designed to take approximately three hours, with the structure as follows:
 - a. **One hour** of content learning, where students are introduced to core concepts and relevant information.
 - b. **Two hours** of 'explorative' challenge-based learning, where students actively engage with real-world problems and apply what they have learned in practical tasks.

These courses may require greater guidance from teachers, particularly as students explore new topics or practice unfamiliar skills. Aligned with [Bloom's Taxonomy](#), foundation courses are structured to help students engage in remembering, understanding, applying, and (non-complex forms of) analysing. The focus is on building foundational knowledge and competencies while encouraging active participation and hands-on learning.

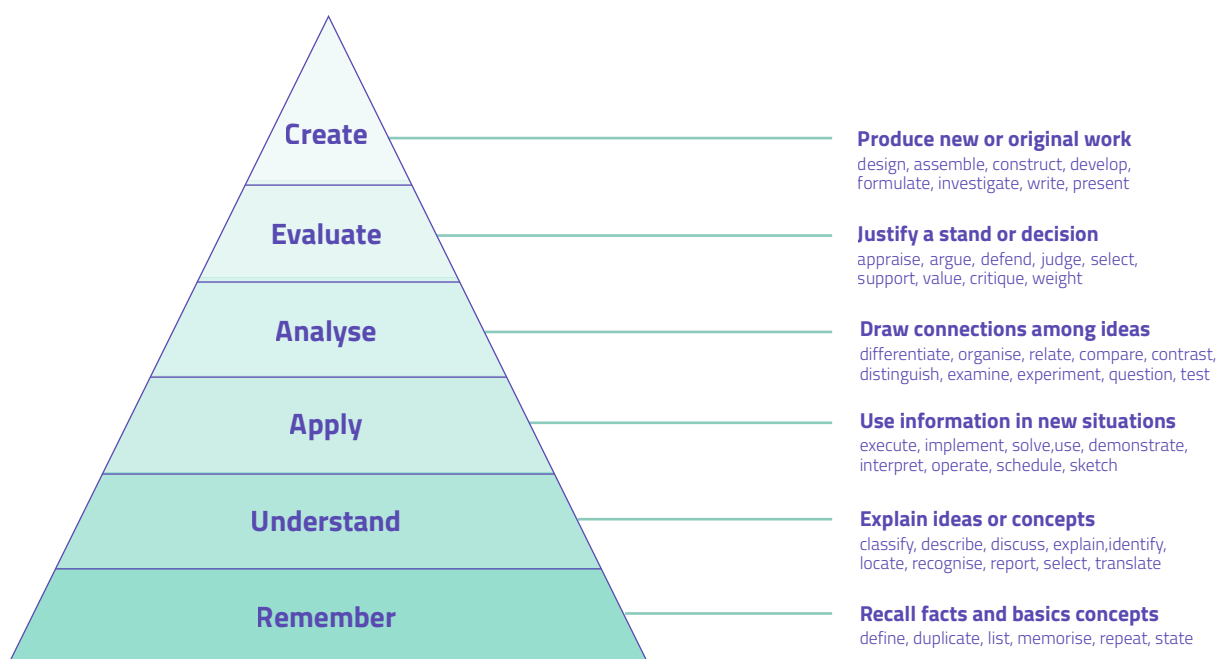
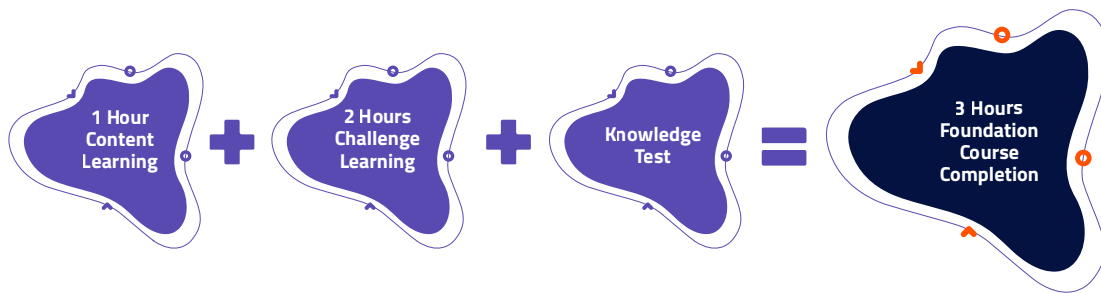


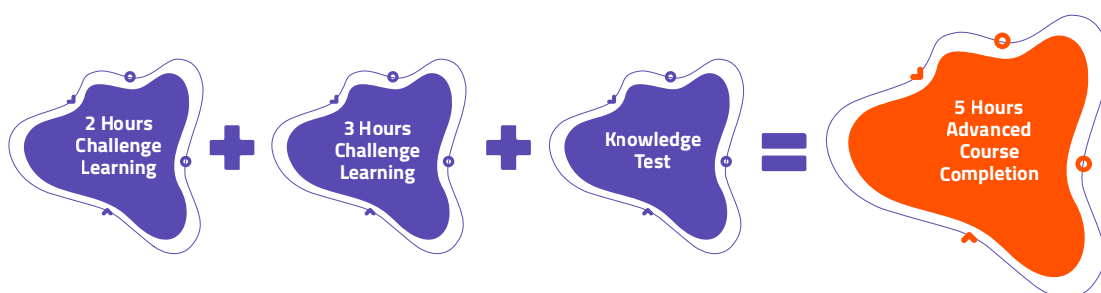
Figure 1: The levels of thinking in Blooms Taxonomy



3. **Advanced Courses:** these courses are designed to help students extend and apply their growing knowledge through small-scale simulations and projects that tackle real-world problems in an active and creative manner. Each course typically takes about five hours to complete, structured as follows:

- a. **Two hours** of content learning, where students deepen their understanding of advanced concepts and theories.
- b. **Three hours** of “creative” challenge-based learning, where students engage in practical applications of their knowledge through hands-on projects and simulations.

Aligned with Bloom’s Taxonomy, advanced courses encourage students to engage in more complex forms of *analysing*, *synthesising*, *evaluating*, and *creating*. While foundational skills are still essential, these courses provide age-appropriate opportunities for students to engage in critical and independent thinking, allowing them to explore innovative solutions to pressing challenges in the circular economy.



How Are the Courses Structured and Assessed?

The **Foundation** and **Advanced Courses**¹ are structured using a series of **30-minute learning units**. This modular design allows for flexible integration into your classroom, accommodating various teaching styles and schedules. You can choose to deliver an entire course as a focused event over one or two days, or you might prefer to integrate each learning unit into regular timetabled sessions over several weeks. You can even combine both approaches to best suit your students’ learning needs. We hope this flexibility maximises your ability to use our resources effectively.

Each course includes two distinct assessment points to evaluate student progress:

- **Teacher-Assessed Skills Challenge:** this assessment requires teachers to evaluate whether students have met the skills expectations of the course through the practical challenges and tasks.

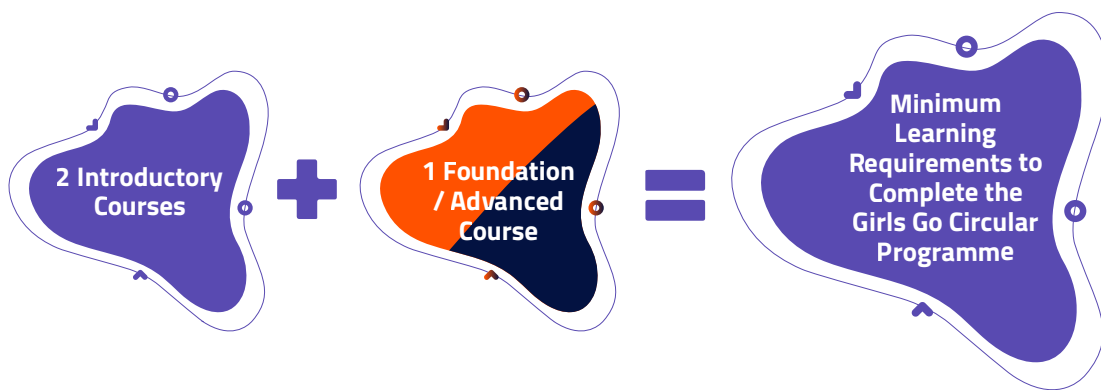
¹ For the academic year 2024-2025 three courses sit outside of the course framework: *Semiconductors: Powering Digital and Green Transformation*; *Smart and Healthy Cities*; and *Deep Tech Innovation from Farm to Fork*. These courses will be revised and updated for the academic year 2025-2026.

- **Platform-Assessed Knowledge Test:** this assessment measures students' knowledge retention and understanding, ensuring they meet the knowledge-based expectations of the course.

This dual assessment strategy provides a comprehensive overview of each student's learning journey, ensuring they develop both the skills and knowledge necessary for success in the circular economy.

What Does Successful Programme Completion Look Like?

As a **minimum learning requirement**, all students must complete the **two Introductory courses** and **at least one Foundation or Advanced course** to successfully finish the Girls Go Circular learning programme. However, you and your students are encouraged to explore beyond these minimum requirements. We believe that engaging with as many courses as possible will help build confidence and competence across a diverse range of circular economy topics.

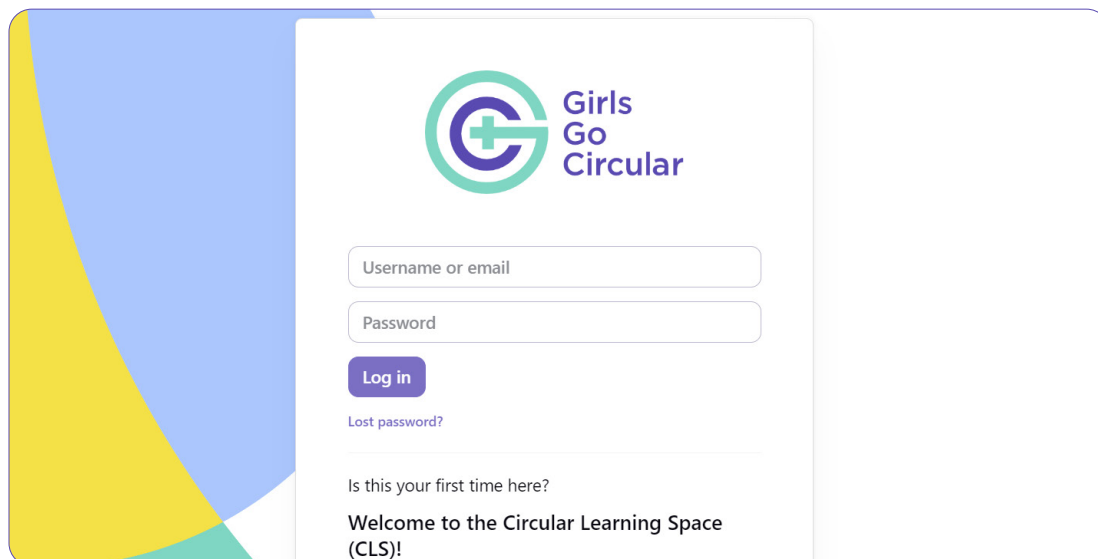


Upon successful completion of each course, students will receive **four Circular CV Statements** that highlight their competencies in key areas: **green skills**, **digital skills**, **entrepreneurial skills**, and **deep technology knowledge**. These statements provide a clear and concise way for students to showcase their expertise and readiness for future opportunities, whether in further education, job applications, or interviews. This not only enhances their CV but also empowers them to articulate their achievements in the context of sustainability and technology.

Once students meet the **minimum learning requirements**, the learning platform will automatically issue a **Programme Completion Certificate**. This certificate recognises their achievements and serves as a valuable credential for students as they pursue further education or career opportunities.

REGISTERING ON THE CIRCULAR LEARNING SPACE

The Circular Learning Space is an open-source tool – anyone can create an account and start learning. Watch this short [video](#) or read the following paragraphs to register on the platform successfully.



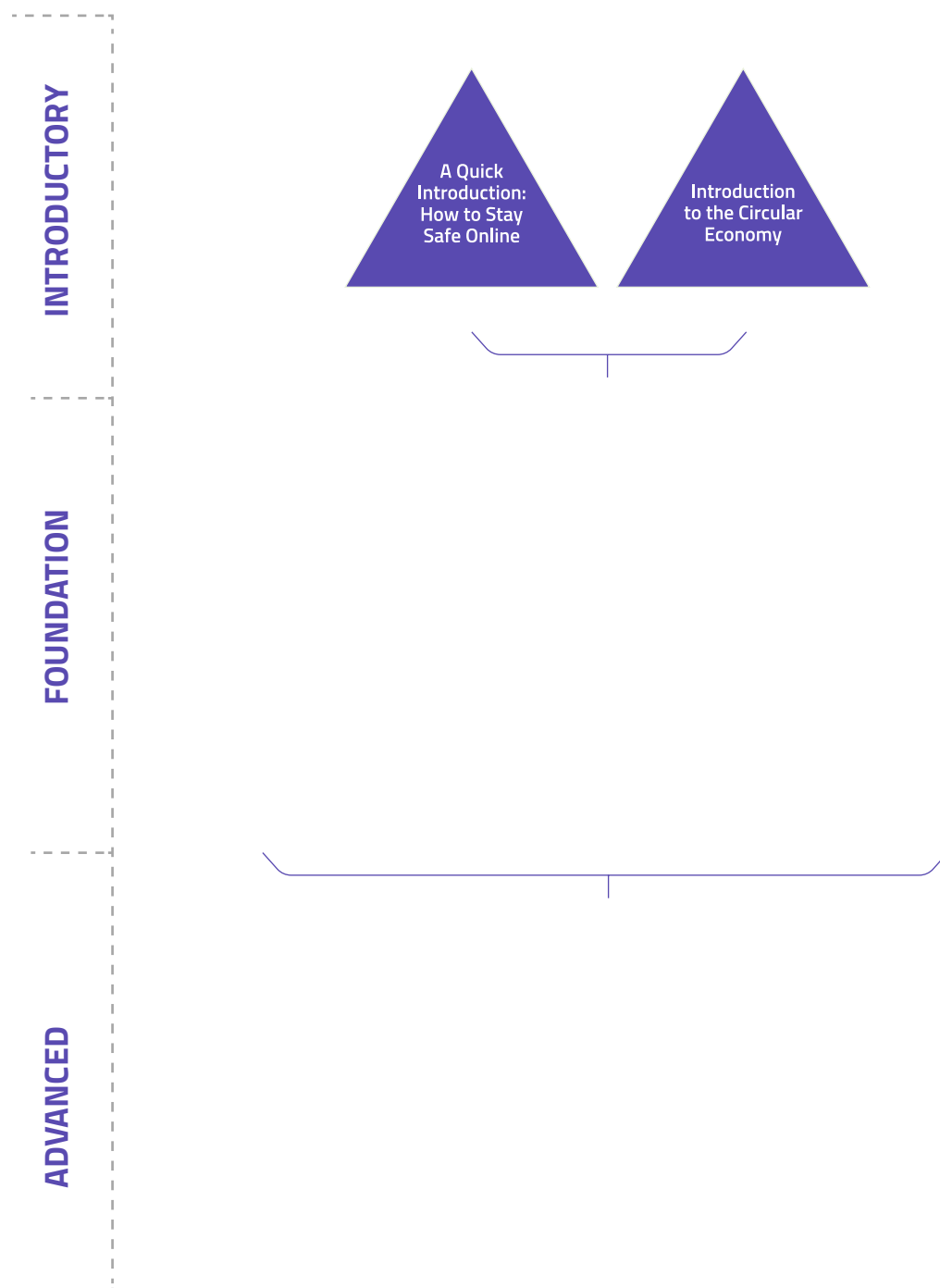
If you would like to join the platform as a teacher and work with your students, the following steps are required:

- Write an e-mail to girlsgocircular@eitrawmaterials.eu requesting access to the platform, and we will generate a unique access code for your school/institution. Then, using this special code, you can create your account and inform us about that. We will manually give you special **teacher's rights** on the platform. Through your teacher profile, you will be able to monitor your students' progress.
- **N.B.** If your school is part of the programme's outreach campaign promoted in collaboration with **Junior Achievement (JA)**, the JA staff in your country will collect your teacher data and send it to the programme team on behalf of your school. You do not need to contact the Girls Go Circular team separately.
- Following this, you will have to share the unique access code of your school/institution with your students and ensure that they use it to register for the platform. By using specifically this code, they will be automatically assigned to your school, which will give you the ability to monitor their progress.
- Once you join the platform, you can explore the different **learning courses** and **teacher guidelines**. Some of the training activities require the use of additional apps to complete individual or group tasks. These might be, for example, a [Padlet](#) board to brainstorm or a [Prezi](#) canvas to prepare a presentation. We recommend that teachers familiarise themselves with these tools before starting the work with their students.
- Now, take a closer look at the extensive offerings within the Circular Learning Space.

OUR COURSE CATALOGUE

A **one-page overview** of each of our **17 thematic courses** is provided here to help you consider how the programme can be integrated into your teaching sessions. This summary is designed to give you a clear snapshot of each course's focus and objectives.

For more detailed course information, you can access a dedicated teacher guidance course upon registration on the [Circular Learning Space](#). This course will offer additional insights and support for effectively implementing the Girls Go Circular programme in your classroom.



A CIRCULAR APPROACH TO URBAN MOBILITY

Course Level

Foundation Level

Course Structure

- 1 hour structured learning
- 2 hours skills challenge

Course Overview

This course is designed for students who are curious about making cities more liveable and sustainable.

Students will learn more about how cities have evolved and how transportation systems impact urban life.

The concept of sustainable mobility will be explored as students dive into real-world challenges like people vs cars, traffic congestion, pollution, and urban space inequity.

The course will enable learners to:

- Apply circular economy principles in the context of sustainable urban mobility systems
- Explore the role of deep tech innovations in addressing urban mobility challenges and enhancing sustainable transport solutions
- Develop digital competencies necessary for analysing and implementing sustainable mobility solutions using technological tools
- Cultivate entrepreneurial skills imagining innovative solutions, and creating value in the realm of sustainable urban mobility

Building Knowledge

This part of the course is organised in 2 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- How transport systems influence urban development and impact the quality of life
- The difference between traditional and sustainable mobility
- Challenges in urban mobility e.g. air quality, road safety
- Potential solutions to urban mobility challenges e.g. shared electric vehicles

The Skills Challenge

Working in teams, students will develop a plan to encourage sustainable travel to school, including suggestions for mobility modes, infrastructure improvements, technological innovations, and strategy recommendations.

The skills challenge is designed in 4 units, each 30 minutes long, and will engage students in reflecting on their own travel behaviours, exploring travel options, investigating environmental impact and considering how their travel mode affects their own independence and daily routines.

Students will develop skills in self-reflection, data browsing, searching and filtering, and the creative use of digital tools.

Technical Considerations

The course uses videos to support knowledge development and requires access in the skills challenge phase to:

- Digital calendar, Digital notes
- [Google Maps](#) or equivalent
- [Mentimeter](#)



Acknowledgments

This course was created by [EIT Urban Mobility](#)

CIRCULAR ECONOMY OF FOOD IN CITIES

Course Level

Foundation Level

Course Structure

- 1 hour structured learning
- 2 hours skills challenge

Course Overview

This course provides an introduction to food waste and food loss reduction and offers opportunities to build and practice relevant and associated digital and entrepreneurial skills through a stakeholder's mapping challenge activity.

By jointly identifying key opportunities and stakeholders, students will assess the possibility of reducing food waste in their own school.

The course will enable students to:

- Discover who is responsible for tackling food waste in the city
- Describe how big data and machine learning might provide solutions to food waste reduction
- Consider and select optimal communication options from the range of digital possibilities
- Identify opportunities to reduce food waste in schools and understand the long-term impact of food waste reduction on the city

Building Knowledge

This part of the course is organised in 2 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- Urbanisation and food consumption statistics
- Urban food system challenges and opportunities
- Key stakeholders in food systems
- Developing circular urban food systems

The Skills Challenge

Working in groups, students will be inspired by case studies and online examples focused on food waste reduction in cities ahead of identifying and assessing options for food waste reduction in their own school. The challenge will require problem identification and solution exploration which builds in the potential of big data and machine learning, culminating in a presentation to their peers.

The skills challenge is designed in 4 units, each 30 minutes long, and will enable the students to practice creativity, develop their entrepreneurial mindset, assess data, and consider how best to work with a range of stakeholders.

Students will benefit from working in a team context, detecting opportunities while adopting ethical and sustainable thinking. They will further develop skills in sharing information and content using digital technology.

Technical Considerations

YouTube links are used to support knowledge development in the knowledge acquisition phase of the course. The following tools are used in the skills challenge phase:

- [Miro](#)
- [Prezi](#)



Acknowledgments

This course was created by [EIT Food](#)

E-WASTE AND THE CIRCULAR ECONOMY

Course Level

Foundation Level

Course Structure

- 1 hour structured learning
- 2 hours skills challenge

Course Overview

This course focuses on e-waste as a societal problem. Drawing on key facts and figures, it will explore the impact of e-waste on health, the environment and the planet.

Students will explore challenges and opportunities associated with e-waste management, gaining understanding on how to balance technological advancement with environmental sustainability to assist in delivering a greener future for everyone.

The course will enable students to:

- Demonstrate an understanding of the environmental impact of e-waste and the consequences of not repurposing or recycling unused electronic devices
- Explain the role of blockchain in producing digital product passports, enabling life cycle tracking of electronic products
- Gain experience of using digital technology and generative AI tools to harvest and report on specific data sets
- Evidence ethical and critical thinking in decisions relating to the repurposing, recycling and reuse of electronic products

Building Knowledge

This part of the course is organised in 2 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- What is e-waste and e-waste recycling?
- E-waste in the home, and globally
- E-waste categories
- Environmental and health impacts
- Strategies to manage e-waste
- The concept of 'right to repair'
- Life cycle assessment and digital product passport

The Skills Challenge

Working in teams, students will use ChatGPT to identify key raw materials in an everyday product of their choice.

The skills challenge is designed in 4 units, each 30 minutes long. Students will develop a canvas showing the journey of three selected materials which form part of their selected product, focusing on factors such as distance travelled. They will share findings with their peers, gaining deeper understanding of how to undertake a life cycle assessment of everyday products.

Students will benefit from developing their ethical and sustainable thinking, in parallel with enhancing their ability to browse, search and filter data and to develop digital content.

Technical Considerations

The course uses videos to support knowledge development and requires access in the skills challenge phase to:

- [ChatGPT](#)
- [Canva](#)



Acknowledgments

This course was created by [EIT RawMaterials](#).

METALS AND THE CIRCULAR ECONOMY

Course Level

Foundation Level

Course Structure

- 1 hour structured learning
- 2 hours skills challenge

Course Overview

This course explores the role of metals in everyday life, reflecting on where they come from and how important they are for creating electronic devices, such as smartphones.

It focuses on the environmental and social impacts of metal mining, and the need to create a better balance between consumer demand and environmental protection.

It introduces traditional and modern recycling efforts, including urban mining as a way of harvesting valuable materials from waste and considers how to increase public awareness of the circular economy and its role in recycling and repurposing metals.

The course will enable students to:

- Demonstrate an understanding of the environmental and social impact of metal mining in the context of the circular economy
- Identify the importance of advanced manufacturing processes in metals recycling
- Use digital and audio-visual technologies for collaboration, mapping and reporting
- Evidence ethical and critical thinking in decisions relating to the recycling of products containing metals

Building Knowledge

This part of the course is organised in 2 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- What are metals?
- Different types of metals, e.g. rare earth and critical raw materials
- Environmental and social impacts of metal mining
- Recycling and recovery of metals – current practices
- Innovative solutions to metal recycling and recovery

The Skills Challenge

The skills challenge is designed in 4 units, each 30 minutes long. Working in groups, students will become the outreach team for a non-profit organisation seeking to promote metal recycling.

For each team, the task is to create a campaign video to inform and inspire the general public to get involved in metal recycling.

Students will work through specific steps – targeting their audience, creating a video storyboard and producing a campaign video.

Students will benefit from collaborating in a team context, identifying options, reaching agreement about the focus for their campaign, working together to create a product which will be shared with the other groups.

Technical Considerations

The course uses videos to support knowledge development and also requires access in the skills challenge phase to:

- [Miro](#)
- [ClipChamp](#)
- [Google Classroom](#) or equivalent



Acknowledgments

This course was created by [EIT RawMaterials](#).

RETHINKING PLASTICS

Course Level

Foundation Level

Course Structure

- 1 hour structured learning
- 2 hours skills challenge

Course Overview

Plastics are amazing materials that have found their way into all parts of our lives. But they are not the most environmentally friendly solution. Is it time to completely rethink and reduce our use of plastics?

This course looks at possible solutions for tackling the global plastic waste crisis. It will introduce students to the benefits and challenges of plastic use.

It explores innovative solutions for reducing reliance on plastics, including as an individual consumer.

The course will enable students to:

- Demonstrate an understanding of the environmental impact of plastic waste and sustainability principles - reducing, reusing, and recycling
- Apply basic knowledge of advanced materials science to identify practices and technologies used in plastic recycling and upcycling
- Engage in citizenship by creating digital content that raises awareness and promotes sustainable practices in plastic usage
- Consider how best to mobilise individuals and groups to reduce their plastic waste

Building Knowledge

This part of the course is organised in 2 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- Identifying the plastics problem
- Consumer behaviours
- EU strategies
- Pioneering plastics recycling practices and pioneers
- Plastic packaging and innovative solutions

The Skills Challenge

Working in teams, students will have the opportunity to focus on single use plastics in the school canteen.

The skills challenge is designed in 4 units, each 30 minutes long. Activities will include adopting specific roles to explore different perspectives, undertaking background research to inform arguments for/against the removal of single use plastics based on the role adopted, and engaging in a debate.

This will be followed by discovering how to calculate and reduce plastic footprints, encouraging behavioural change in the individual student and their network through the creation of a social media post.

Students will have the opportunity to share creative ideas, thinking through how to mobilise themselves and others into action.

Technical Considerations

The course uses videos to support knowledge development and requires access in the skills challenge phase to:

- Social Media
- [Plastic Footprint Calculator](#)
- [Google Maps](#) or equivalent



Acknowledgments

This course was created by [EIT RawMaterials](#).

THE CIRCULARITY OF SMARTPHONES AND HANDHELD DEVICES

Course Level

Foundation Level

Course Structure

- 1 hour structured learning
- 2 hours skills challenge

Course Overview

This course explores how smartphones are produced, their environmental impacts and social injustices.

It focuses on increasing e-waste, digital footprints and the future of smartphones and handheld devices.

Students will find out more about urban mining, modular phones and new business models which better support a circular economy.

The course will enable students to:

- Identify key sustainability issues in the smartphone and handheld device industry
- Discover how advanced materials, advanced manufacturing and urban mining will play a key role in recycling materials and creating long-lasting products
- Demonstrate skills in evaluating data, information and digital content to create a circularity ranking system and explain this system clearly through social media
- Develop a business plan designed to reduce handheld device consumption and increase recycling

Building Knowledge

This part of the course is organised in 2 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- The manufacture of smartphones and handheld devices
- Issues around production, use, waste and disposal
- Shallow vs. Deep Tech
- New business models

The Skills Challenge

Working in teams, students will evaluate and rank smartphone manufacturers circularity, before exploring new and more sustainable business models in the industry. At the end of the challenge, designed in 4 units, each 30 minutes long, students will ideate a social media advertisement for the most innovative circular smartphone business.

Technical Considerations

The course uses videos to support knowledge development and requires access in the skills challenge phase to:

- Social Media
- [Miro](#) or [Mural](#)
- [Prezi](#) or PowerPoint



Acknowledgments

This course was created by [EIT Manufacturing](#)

THE FUTURE OF ROBOTICS AND THE CIRCULAR ECONOMY

Course Level

Foundation Level

Course Structure

- 1 hour structured learning
- 2 hours skills challenge

Course Overview

This course is designed to introduce students to robotics and their role in shaping the manufacturing industry and society itself.

It invites students to find out more about cutting edge robotics research and to investigate real case studies demonstrating the impact and benefits of robotics.

It explores key innovations such as collaborative robots, cognitive twins and machine learning.

The course will enable learners to:

- Examine different types of robotics and better understand how robotics can support the circular economy through efficiencies in resource use, maintenance and disassembly
- Recognise how AI and augmented reality can support robotics to revolutionise the manufacturing industry
- Demonstrate skills in using digital mapping tools to collate and manage research
- Apply research and resources found to imagine the future of robotics, drawing on case studies and innovators of today

Building Knowledge

This part of the course is organised in 2 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- What is Robotics?
- Robotics and AI
- Robotics in the Manufacturing Industry
- Key developments in industry
- Changing roles at work

The Skills Challenge

The skills challenge is designed in 4 units, each 30 minutes long.

Working in teams, students will engage in a structured design thinking process resulting in making a pitch to a potential recycler in the form of a making a convincing presentation to their peers.

The challenge will include desk-based research to identifying the five key problems in the industry. This leads into defining a specific problem and exploring real-world solutions adopted by three companies to address the problem.

Technical Considerations

The course uses videos to support knowledge development and requires access in the skills challenge phase to:

- [Miro](#) or [Mural](#)
- [Prezi](#) or PowerPoint



Acknowledgments

This course was created by [EIT Manufacturing](#)

UNLOCKING FASHION CIRCULARITY

Course Level

Foundation Level

Course Structure

- 1 hour structured learning
- 2 hours skills challenge

Course Overview

The course provides an overview of the fashion industry cycle – design, production, use and end of life – and presents examples of how Deep Tech is being developed to reduce, manage, and eradicate some of the fashion industry's biggest environmental challenges such as waste, throwaway culture and pollutants.

The course will inspire students to take individual consumer action to reduce clothing consumption while retaining a creative and fun approach to fashion as an expression of their personalities.

The course will enable students to:

- Investigate linear and circular supply chains and envision what the future could be like for a circular fashion industry
- Identify deep tech solutions to fashion industry issues which might reduce consumption, improve consumer experience and increase circularity, including AI, 3D Printing and virtual reality
- Analyse and create business social media profiles and posts designed to celebrate circular economy concepts
- Apply deep tech ideas and sustainable thinking to envision a desirable future and innovative business models that could revolutionise the fashion industry

Building Knowledge

This part of the course is organised in 2 learning units, each 30 minutes, designed to fit into the school curriculum. Content will include:

- Current linear fashion production, use and disposal practices
- Supply chain hotspots
- Circular fashion
- Redesigning the fashion industry

The Skills Challenge

Working in teams, students will create a social media campaign focused on a problem they have identified in the fashion industry.

The task will include problem identification, exploring how businesses use social media to target customers, and introducing the students to business models.

Students will benefit from working together, imagining a more desirable future which reflects ethical and sustainable thinking, while developing the ability to search for data and options for mobilising others into action.

Technical Considerations

The course uses videos to support knowledge development and also requires access in the skills challenge phase to:

- [Miro](#) or [Mural](#)
- [Prezi](#) or PowerPoint
- Social Media



Acknowledgments

This course was created by [EIT Manufacturing](#)

ARTIFICIAL INTELLIGENCE AND THE CIRCULAR ECONOMY

Course Level

Advanced Level

Course Structure

- **2 hours structured learning**
- **3 hours skills challenge**

Course Overview

On the brink of the 4th Industrial Revolution, this course explores how cutting-edge technology can drive sustainable practices.

It will develop students' understanding of Artificial Intelligence (AI) and its various applications, exploring how it can transform both industries and communities.

Specifically, the course focuses on how AI can be used to revolutionise how we think about and manage waste and scarce resources.

The course will enable students to:

- Engage with the basics of AI and its applications
- Discover AI's use in the circular economy
- Get hand-on experience with innovative AI tools
- Develop creative solutions to sustainability issues

Building Knowledge

This part of the course is organised in 4 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- Defining AI and basic terms
- AI and its potential in the field of sustainability
- Responsible AI development and deployment
- Ethical considerations

The Skills Challenge

The skills challenge is designed in 6 units, each 30 minutes long, and takes teams through a product design process from planning, investigating, designing, building, and applying through to dissemination of the product to peers.

Working in teams, students will collaborate using AI techniques to design a product that minimises waste, increases efficiency and optimises resource use.

Students will benefit from working in a team context, co-operating with others and learning to resolve conflicts and manage competition positively.

Technical Considerations

YouTube links are used to support knowledge development in the knowledge acquisition phase of the course.

The following tools are used in the skills challenge phase:

- [Microsoft Copilot](#)
- [Looka](#)
- [Canva](#)
- [ChatGPT](#)



Acknowledgments

This course was created by [EIT Digital](#)

BEYOND RECYCLING: CREATING SUSTAINABLE COMMUNITIES

Course Level

Advanced Level

Course Structure

- 2 hours structured learning
- 3 hours skills challenge

Course Overview

This course asks two important questions. Is recycling enough to truly live sustainably? How can we ensure our decisions positively impact our communities?

To answer these questions, the course deep dives into the exciting world of “Circular Consumption”. It explores how our individual choices affect both the planet and our communities and examines the material and social impacts of the things we use every day.

Students will have the opportunity to embrace sustainability values and to confront complexity in being sustainable. They will then devise creative, informed solutions, advancing their skills in gathering and managing resources and proposing considered action.

The course will enable learners to:

- Apply circular economy principles to environmental challenges
- Appraise the transformative potential of Blockchain technology in tackling environmental issues
- Create prototypes and presentation materials for their sustainable solutions
- Develop entrepreneurial competencies and skills in pitching ideas

Building Knowledge

This part of the course is organised in 4 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- Exploring the complexities of circularity
- Learning about the carbon tunnel vision
- The impact of industrial activities
- Blockchain technology and urban symbiosis
- The social effects of consumerism

The Skills Challenge

The skills challenge is designed in 6 blocks – 30 minutes each. Working in teams, students will be introduced to and employ design thinking methodology. They will agree on a common topic, create archetypes of users impacted by their chosen issue, gaining insight into user perspectives.

This will be followed by the idea generation and refinement, ahead of designing a prototype and pitching their proposal for change.

The skills challenge will foster creativity and critical thinking, empowering learners to become effective communicators and problem-solvers.

Technical Considerations

The course uses videos to support knowledge development and requires access to:

- [Miro](#)
- [Canva](#)
- AI Chatbot



Acknowledgments

This course was created by [EIT Climate](#)

CIRCULAR HOSPITALS: TRANSFORMING HEALTHCARE

Course Level

Advanced Level

Course Structure

- 2 hours structured learning
- 3 hours skills challenge

Course Overview

This course focuses on hospitals as important spaces for sustainable action and innovative practice. It recognises that reducing waste, reusing materials and recycling resources both minimise environmental impact and can enhance the efficiency and resilience of healthcare systems.

It adopts a particular focus on the field of anaesthesia and the potential for deep tech to facilitate change, supporting the development of climate neutral hospitals.

The course will enable students to:

- Design and implement practical solutions for transitioning hospitals to climate-neutral operations
- Evaluate the environmental impact of deep tech solutions such as AI and Augmented Reality in hospital settings
- Visualise data from digital monitoring systems to identify trends, inefficiencies, and opportunities for reducing the environmental impact of hospital activities
- Evaluate the economic feasibility of green initiatives drawing on Europe-wide examples

Building Knowledge

This part of the course is organised in 4 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- Application of the Nine Rules of the Circular Economy within the hospital context
- Familiarisation with the tasks and challenges of an anaesthetic department
- Investigating the potential of Deep Tech as a support system in anaesthetics
- Exploring the affordances of AI in the anaesthetic department

The Skills Challenge

The skills challenge is designed in 6 units – each 30 minutes long. Working in teams, students will prepare a roadmap identifying short, mid- and long-term measures required to support the development of a circular hospital. Focusing particularly on the anaesthetic department, the teams will begin by analysing a patient's journey, considering the integration of Deep Tech solutions to identified hotspots. The challenge culminates with a pitch to their peers.

Technical Considerations

The course requires access to video material to support knowledge acquisition and to the following tools:

- AI Chatbot
- [Miro](#)
- [Prezi](#) or PowerPoint



Acknowledgments

This course was created by [EIT Health](#)

FUTURE MOBILITY: TECHNOLOGY, ETHICS AND SUSTAINABILITY

Course Level

Advanced Level

Course Structure

- 2 hours structured learning
- 3 hours skills challenge

Course Overview

This course is designed for students who are curious about the future of transportation and who want to be at the forefront of innovation.

It provides advanced understanding of sustainable urban mobility, emphasising the integration of deep tech solutions like AI, Internet of Things (IoT), and machine learning. It offers students opportunities to explore ethical considerations, career pathways, and hands-on problem-solving activities through a comprehensive and interactive learning experience.

The course will enable learners to:

- Understand how technological trends like Automation, Connectivity, Electrification, and the Sharing Economy enable sustainable urban mobility to shape green cities of tomorrow.
- Analyse how deep tech such as Artificial Intelligence (AI) and Internet of Things (IoT) shape autonomous mobility systems and address urban transportation challenges.
- Use digital tools to collaborate and develop digital content related to sustainable mobility and critically evaluate information through SWOT analysis.
- Build creativity and initiative by designing innovative solutions to real-world mobility challenges through collaborative projects, culminating in a startup pitch.

Building Knowledge

This part of the course is organised in 4 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- An introduction to technologies shaping the future of sustainable urban mobility
- The benefits and challenges of autonomous vehicles
- Exploration of ethical concerns and dilemmas e.g. passenger safety vs pedestrian safety
- Environmental and social issues e.g. electrification and battery mining
- Career paths and leadership examples

The Skills Challenge

The skills challenge is designed in 6 units – each 30 minutes long. Working in teams, students will be challenged to devise a solution to an identified problem, culminating in a pitch to their peers.

The skills challenge takes students through a structured process beginning with problem identification in a selected market opportunity. Each team will generate ideas for the minimum viable product, mocking up their solution to visualise key design features.

Students will develop skills in creative thinking, taking the initiative and planning, assessing needs that can be addressed with digital solutions.

Technical Considerations

The course uses videos to support knowledge development and requires access to:

- [Miro](#)
- [Canva](#) or PowerPoint



Acknowledgments

This course was created by [EIT Urban Mobility](#)

SMART SCHOOL GARDEN

Course Level

Advanced Level

Course Structure

- 2 hours structured learning
- 3 hours skills challenge

Course Overview

This course creates the opportunity for students to dive into the concept of Living Labs, real-life environments like school gardens where learners, teachers, and community members come together to experiment, innovate, and co-create solutions for a circular food system.

Students will imagine their school garden as a Living Lab where they can grow food, learn about sustainability, and make a real impact on reducing food waste.

They will explore how advanced technologies like big data, machine learning, and Internet of Things (IoT) can transform gardening into a high-tech adventure, making it more efficient and sustainable.

The course will enable students to:

- Analyse interconnections between different elements of the food value chain
- Identify how advanced technologies e.g. big data and machine learning can inform app development
- Use various digital tools to support their collaboration on creating and launching a mobile app
- Operate effectively in a team, creating a map of stakeholders needed for successful adoption of a digital tool

Building Knowledge

This part of the course is organised in 4 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- Exploring the importance of systems thinking in understanding complex issues and finding solutions
- Investigating the food system and its component parts
- Living Labs in circular food systems
- The school as a Living Lab
- Vertical Urban Farms

The Skills Challenge

The skills challenge is designed in 6 units – each 30 minutes long. Working in teams, students will be challenged to create an app designed to manage an aspect of a school garden.

Inspired by international case studies, as the first stage in the app development, they will create a mind map designed to monitor a smart school garden, seeking out and making sense of data of particular importance in their school.

Final challenge activities focus on releasing and promoting the app, thinking through how best to gather support for their smart garden ideas.

Technical Considerations

The course requires online access for case study analysis, and the following tools:

- [Miro](#)
- [Google Docs](#)
- [Glide](#)
- [Logic Balls](#)



Acknowledgments

This course was created by [EIT Food](#)

URBAN FUTURES: BUILDING TOGETHER THE CITIES OF TOMORROW

Course Level

Advanced Level

Course Structure

- 2 hours structured learning
- 3 hours skills challenge

Course Overview

This course will enable students to gain a comprehensive understanding of circular city principles in the context of climate change and will support the development of practical skills in sustainable urban development.

Through interactive projects and collaborative activities, students will gain insights into how cities can be transformed to better support our planet and its inhabitants.

The course will enable learners to:

- Explore sustainable solutions such as adaptive reuse of buildings, innovative materials, and efficient resource management
- Appraise the transformative potential of advanced technologies in urban sustainability, such as, Building Information Modelling
- Demonstrate proficiency in digital skills by collaboratively using digital tools to create detailed urban sustainability projects
- Develop entrepreneurial competencies and the ability to identify and address potential risks and ethical concerns in their proposed solutions

Building Knowledge

This part of the course is organised in 4 learning units, each 30 minutes long, designed to fit into the school curriculum. Content will include:

- Population crises and the environmental impact of cities
- Sustainable innovations in cities
- Innovative building materials
- The impact of nature in cities

The Skills Challenge

The skills challenge is designed in 6 blocks – 30 minutes each. Working in teams, students will create and then pitch to their peers a prototype of a concept focused on urban sustainability.

The process will include adopting co-generative strategies with key stakeholders and ideating options. AI will be used to help generate materials and to create engaging presentations which bring ideas to life.

The challenge will foster skills in goal setting, mobilising resources and collaborating with others to leverage diverse perspectives and expertise.

Technical Considerations

Knowledge acquisition will be supported through videos including TedTalks. In the skills challenge phase, the course also requires access to:

- [Miro](#)
- [Canva](#)
- AI Chatbot



Acknowledgments

This course was created by [EIT Climate](#)

DEEP TECH INNOVATION FROM FARM TO FORK

Course Level

Advanced

Course Hours

5 hours, 35 minutes

Course Overview

This course examines the intertwining of the agriculture and food systems and asks how deep tech advancements can help them become more circular and sustainable.

Under the 'Farm to Fork' framework, students will understand how circularity and sustainability can be achieved in these sectors.

The course will enable students to:

- Identify how the food we eat impacts the planet
- Examine how Deep Tech can positively revolutionise the agrifood system
- Look ahead towards a Circular Economy

Building Knowledge

This part of the course will cover a number of topics including:

- Food vs sustainability
- The meaning of 'Farm to fork'
- What is the agrifood system?
- Impacts on health, populations and the climate
- Inspiring women in Deep tech and Agrifood

The Skills Challenge

There is a choice of skills challenge; both require students to work in teams towards an identified goal.

Choice 1: Food Waste Reducer

In this challenge, students will train their machine learning model to categorise food produce into fit for selling to consumers or unfit. The goal is to break the norm of "Unsellable Ugly Produce" and use a sustainable criterion to reduce food waste as much as possible.

Choice 2: Sustainable Packaging Solutions

In this challenge, students must leverage technology and creativity to devise solutions that either cancel the need for packaging altogether or create a new approach to the issue.

Technical Considerations

The course uses videos to support knowledge development and requires access to:

- [Teachable Machine](#)
- [Miro](#)



Acknowledgments

This course was created by [EIT Climate](#), [EIT Food](#) and [EIT Manufacturing](#)

SEMICONDUCTORS: POWERING DIGITAL & GREEN TRANSFORMATION

Course Level

Advanced

- Paving the Way for Green Transformation
- Acknowledging the Gender Gap

Course Hours

7 hours, 45 minutes

Course Overview

Semiconductors are a key component of many products used daily, including smartphones, laptops, cars, and refrigerators.

Not only do they play an important role in consumer goods, but also in the production of renewable energy.

Efforts to bring resource consumption within the production itself to a climate-friendly level are driven by the semiconductor industry.

In this course, students will learn about:

- Why semiconductors are so important to our daily lives
- What a semiconductor is and how it closes the gap between a conductor and an insulator
- Investigate innovations in the semiconductor industry
- Identify strategies that semiconductor manufacturers can use to become more eco-friendly
- Devise strategies for a circular economy within the semiconductor industry

Building Knowledge

This part of the course is organised within four themes:

- Semiconductors and Their Different Roles
- From Raw Materials to Future Innovations

The Skills Challenge

The skills challenge invites students to work in teams and to imagine they are working for a large semiconductor manufacturer in Europe where the management team has decided it should focus on sustainable production to reduce its CO2 footprint.

To achieve this, the entire production process needs to be re-engineered, and eco-friendly and circular economy strategies implemented.

Adopting a structured approach, each team will:

- Analyse the existing (traditional) semiconductor manufacturing process.
- Identify eco-friendly and circular economy strategies and implement them into their process.
- Find the Unique Selling Proposition (USP) that aligns with their new strategies.
- Develop a distinctive company name.
- Establish their corporate identity, including the design elements that reflect their company's values and mission.

Technical Considerations

The course uses videos to support knowledge development and requires access to:

- [Figma](#)
- Bing Chat
- [Looka](#)
- [Canva](#)



Acknowledgments

This course was created by [EIT RawMaterials](#) and [EIT Digital](#)

SMART & HEALTHY CITIES

Course Level

Advanced

Course Hours

7 hours

Course Overview

Air pollution, noise, heat, and the lack of green space and physical activity, are all environmental factors that can have a negative impact on our health.

In this course, students will learn how to contribute to healthier urban environments by adopting the right urban design and mobility solutions.

The course also presents some examples of technological advances in the service of people's health and well-being.

The course will enable students to:

- Identify the main environmental stressors and understand their impact on health and quality of life.
- Discover how technology can help monitor negative impacts on health and seek solutions.
- Understand that changes in where we live and how we move are part of the solution too.
- Get familiar with R coding language and data analysis.
- Develop problem-solving and presentation skills.

Building Knowledge

This part of the course is organised around four themes:

- What defines a Smart City or Healthy City?
- Key Environmental Stressors
- Solutions for Healthier Cities
- Acknowledging the Gender Gap

The Skills Challenge

The skills challenge invites students to focus their thinking and action into a school context. It supports the development of coding and data analysis skills.

Working in teams, students will perform an analysis of the environmental stressors around schools in three different districts of a city and give recommendations for some solutions in urban design and mobility to transition to a healthier environment.

The teams will follow a structured process working through a series of steps which build in the potential of machine learning.

Technical Considerations

The course uses videos to support knowledge development and requires access to:

- [RStudio](#)
- [Shiny App](#)



Acknowledgments

This course was created by [EIT Health](#) and [EIT Urban Mobility](#)

PROJECT CONSORTIUM

[Girls Go Circular](#) is an [EIT Community](#) initiative coordinated by [EIT RawMaterials](#) with the support of the European Union. It was launched in 2020 to support Action 13 – Encourage women's participation in STEM of the European Commission's [Digital Education Action Plan](#) and contribute to reducing the gender gap in STEM and ICT.

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