Project: Circular Design Training Program
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CIRCULAR DESIGN TRAINING COURSES, TOOLS & METHODS: CURRENT LANDSCAPE AND FUTURE NEEDS

Circular Design Training Program

The evolving social and economic environment requires a change in the way products and services are designed. This change is driven by the urgent need to create products that benefit society while respecting environmental boundaries and protecting the planet. The design sector itself is also rapidly changing, and designers, particularly those who have been in the profession for longer or at least some years, require continuous skill updates to meet new challenges. Designers play a critical role in helping industries align with sustainability goals, reduce emissions, promote circular business models, and empower consumers in the green transition. However, despite this crucial role, many designers still struggle to meet sustainability goals, underscoring the need for specialized training programs that equip them with the necessary skills to integrate circular economy and even regenerative principles into their work.

The main objective of the Circular Design Training Program is to enhance designers' ability to integrate circular economy practices into their daily work and design strategies. The program aims to develop educational content that supports designers in understanding and applying circular economy principles, ensuring they are equipped to effectively contribute to sustainability efforts across industries and make circular design an integral part of their everyday work.

Drivers Influencing the Development of Circular Design Courses

Several factors are pushing the development of circular design courses, with one of the most significant being the changing regulatory landscape. The European Union is implementing stricter environmental policies, including product design regulations, proposal of green claims directive and the introduction of digital product passports, as part of its broader sustainability agenda. These policies and regulations require designers to focus on creating products that are easier to repair, reuse, and recycle. Additionally, designers must consider the full life cycle of products, from production through to end-of-life disposal, to ensure they align with circular economy principles. Designers must also assess whether the entire product is necessary or if it could be replaced with a service or an entirely new business model. Furthermore, the design of services and business models will become an essential part of designers' future roles, as they help shape more sustainable and circular systems.

The push from regulations is not the only driver for change. Designers are increasingly expected to integrate sustainability into their practices – not only to meet regulatory requirements, but also to drive innovation that supports the principles of a circular economy. This includes designing products and systems that are easier to repair, reuse, and recycle, as well as considering alternative business models or services that reduce the need for physical products

altogether. These shifts require greater collaboration between designers, manufacturers, and other stakeholders, ensuring that products and services are designed with sustainability in mind at every stage of their life cycle. As regulations evolve, they will continue to shape how products are conceived, produced, and disposed of, ultimately fostering more sustainable business practices across industries.

Moreover, the transition towards regenerative growth calls for a fundamental shift in design thinking. The focus is moving from merely reducing harm to actively restoring and regenerating both the environment and society. Designers must be equipped with the skills and mindset to create positive, restorative impacts, rather than simply mitigating negative effects. Current training often does not sufficiently address this regenerative approach, highlighting the need for more specialized education that prepares designers to meet the challenges of building a sustainable and restorative future.

Overview of Existing Circular Design Courses

Numerous e-learning platforms and courses have made the principles of circular design more accessible, offering resources primarily aimed at business development and sustainability practices. These courses provide valuable information on integrating circular economy concepts into business practices, but they often lack the in-depth, designer-specific focus necessary for practical implementation. While there is some material directed towards designers, the content is still emerging, and circular design practices have not yet been fully integrated into mainstream design education and circular design practices have not yet become an integral part of designers' practical work.

Traditionally, product design has operated within a linear business model, where products are designed, consumed, and disposed of. Even though circular design offers improvements within this linear framework, it remains constrained by the limitations of these existing business models. Most design education continues to focus on linear approaches, which hinders the development of new, sustainable, and circular design methodologies. Since the linear model remains the guiding framework for the economy, design has also produced solutions that support weak sustainability. There is a growing need for programs that move beyond traditional linear models and provide the tools and knowledge to support the creation of sustainable, circular products and services. The goal should be to produce solutions that support strong sustainability.

Designers have often aimed for responsible and sustainable solutions, but with the current overproduction and consumption of goods, the design practices and methods must be re-evaluated. This re-evaluation involves embracing completely new design strategies that go beyond the traditional models, such as adopting circular design thinking. However, traditional service design approaches, which are still tied to product-service systems based on linear models, fail to fully address these challenges.

One of the crucial aspects, nonetheless, is keeping users and customers at the center, designing according to needs, and delivering value to customers and users. Sustainable solutions must be at least as good as, or better than, their less sustainable predecessors in terms of quality, functionality, and overall user experience. Only then can they effectively compete and replace traditional solutions, driving a shift toward more sustainable practices across industries.

Design still offers valuable methods, and there is no inherent need to develop entirely new ones. What truly matters is applying existing knowledge and methods effectively, while focusing on the right objectives.

Exploring circular design courses and materials

The project team explored various circular design courses and methods that are openly available. Based on these, the team assessed what is missing from the field and what has changed since these courses were published. Particular attention was given to what might be needed specifically from a designer's perspective.

Several courses and circular design methods were examined, with a particular focus on the following ones. The following four examples presented in this report were selected because of their versatility and their specific focus on circular design content.

1. Circular Design for Business course by Design Forum Finland

The Circular Design for Business course series produced 2024 by Design Forum Finland is intended for professionals working in the design field, product and service designers, creative agencies and those interested in the business opportunities of the circular economy.

The self-paced course, divided into seven themes, does not require prior knowledge of the circular economy. It offers an opportunity to build relevant skills for work. Participants will gain a set of tools to help apply what they have learned.

The themes cover key aspects of circular design:

1. Introduction: Explores the new business model of circular economy and designers' role in addressing global challenges.
2. Regulation: Focuses on EU legislation, including product design regulations and the digital product passport.
3. Design and Systems: Highlights the evolving role of designers, ecosystem-level thinking, and user-centered design.
4. Materials and Chemicals: Emphasizes understanding material cycles and avoiding harmful product combinations.
5. Product and Service Strategies: Discusses integrating circular economy principles into products/services, focusing on disassembly and emotional sustainability.
6. Circular Economy and Business: Reviews how to integrate circular economy into business and tools for impact measurement.
7. Portfolio and Brand: Guides scaling circular portfolios and building a strong, authentic brand to achieve circular economy goals.

One of the core themes of the online course is that circular design skills are crucial for pioneering companies aiming to innovate and succeed sustainably. Due to the global climate crisis, companies are under increasing pressure to make their businesses more sustainable. The circular economy, utilizing design methods, offers a solution to environmental challenges and is key to creating a sustainable future.

https://designforum.fi/en/news/circular-design-for-business-3/

2. Circular Design Guide by Ellen McArthur Foundation

The Circular Design Guide, originally published in 2017 by the Ellen MacArthur Foundation in collaboration with the global design agency IDEO, helps designers and businesses incorporate circular economy principles into their product design processes.

The guide is organized around four key themes - Understand, Define, Make, and Release - each offering a range of methods and toolkits to explore and utilize at different stages of the design process. These methods help designers create circular innovations that minimize waste, extend product life cycles, and promote sustainability.

- Understand: Methods to help designers grasp the principles of the circular economy and analyze the systems in which they operate.
- Define: Tools and methods for setting clear, circular design goals and aligning projects with sustainability objectives.
- Make: Methods for designing products and services that are durable, modular, and easy to disassemble for reuse or recycling.
- Release: Strategies for bringing circular designs to market and ensuring products continue their circular journey after release.

The tools and methods gathered under the themes are diverse and offer the opportunity to explore and study the topic of circular design broadly and comprehensively.

The Ellen MacArthur Foundation is a leading advocate for the circular economy. Their online platform offers a wealth of resources to explore and implement circular design principles.

https://www.ellenmacarthurfoundation.org/circular-design-guide/overview

3. Teaching Circular Design by Circular Design: Learning for innovative design for sustainability

Teaching Circular Design is the outcome of a project Erasmus+ project, Circular Design: Learning for innovative design for sustainability. It was developed in collaboration between academics and designers with expertise in various aspects of circular design. This learning guide was developed as a resource for the Circular Design Professional Development Course. Partners from Catalonia, Ireland, the Netherlands, and Sweden contributed to this effort, The purpose of the guide is to assist those interested in applying, teaching, or taking the Circular Design Professional Development Course. It connects the fundamentals of the design profession with the principles of circular design, serving as an introductory guide for circular design education. The learning guide offers an valuable framework for teaching circular design.

The guide systematically presents the teaching material and its structure. The course consists of five days and is divided into modules.

Day 1 consists of introduction modules
- Circular Economy (3 hours)
- Design for Circular Economy (3 hours)

Day 2 consists of general modules
- Systems Thinking (1,5 hours)
- Stakeholders and Collaboration (1,5 hours)
- Policy, Legislation & Standardization (1,5 hours)
- Life Cycles, Assessment and Evaluation (1,5 hours)

Day 3 and Day 4 consist of track modules
- Change and Transition (3 hours)
- Social Design (3 hours)
- Business Model Design (3 hours)
- Product-Service Design (3 hours)
- Material Flows and Production (3 hours)
- Product Design (3 hours)

Day 5 consists again of general modules

- Systems Thinking (1,5 hours)
- Stakeholders and Collaboration (1,5 hours)
- Policy, Legislation & Standardization (1,5 hours)
- Life Cycles, Assessment and Evaluation (1,5 hours)

The structure of the course is well-built and the 12 modules are logically organized. The guide also provides good instructions for implementation. Some modules are repeated, and the reason behind this is that towards the end, the same themes can be deepened and moved to a more advanced level. Although there are five full course days, they are not intended to be completed in a short period but over several weeks. Participants work on the course tasks during this time.

https://circulardesigneurope.eu/

4. Okala Practioner Guide

The Okala Practitioner Guide, published in 2014, is a comprehensive resource on ecological design and lifecycle principles. Authored by industrial design practitioners and academics Philip White, Louise St. Pierre, and Steve Belletire, it translates design principles that can be applied across various specializations and levels of practice. The guide is available in both hardcopy and several open-access PDF resources.

The guide aims to support designers, engineers, business planners, and students in all design-related disciplines by providing practical information and methods for designing products, services, and systems with minimal impacts on ecological and human health.
The Okala Practitioner Guide supports not only industrial designers but also professionals in architecture, graphic design, interior design, apparel design, engineering, and business disciplines. The 2014 edition expanded the Okala Impact Factors from 300 to over 500, enhancing life cycle modeling for a broader range of product systems.

The guide is a result of years of ecodesign research, workshops, and collaboration. Philip White developed the Okala Impact Factors and technical topics, Louise St. Pierre focused on ecodesign strategies and social criteria, and Steve Belletire worked on marketing and business integration. The team aimed to provide a balanced perspective on ecological and social equity design, crucial for the biosphere's health.

The Okala Practitioner Guide provides professionals with the tools they need to address the pressing environmental challenges of our time. By integrating ecological and lifecycle principles into design practices, the guide promotes sustainable innovation across multiple sectors.

https://cfda.com/resources-tools/sustainability-resource-hub/library-lexicon-directory-sustainability-resource-hub/detail/okala-practitioner-guide-isda-2014-guide

Insights from Circular Design Courses and Materials

Nonetheless, this report highlights only a part of the content that is relevant and essential for designing the new framework being developed. Additionally, many other methods, tools, and courses related to practical development work or degree programs have been explored. Whether they are tools for professionals or frameworks for teaching circular design, all of these resources are relevant and useful in developing updated and new content to build a sustainable future through design.

Existing circular design courses, such as those offered by the Design Forum Finland and the Ellen MacArthur Foundation, as well as methods developed by various organizations and projects provide valuable frameworks and tools for understanding and applying circular economy principles. Nevertheless, these programs generally focus on business strategies, regulatory frameworks, and systems thinking at a macro level. While they offer insights into circular business models, they are less focused on the practical tools needed specifically by designers to implement these principles in their day-to-day work.

In addition, a change in the regenerative and environmentally critical approach is necessary to ensure that designers' skills not only adapt to the current linear model, but create entirely new approaches that allow for the implementation of new models that are truly circular and sustainable.

Still, the existing courses and the content created in them are valuable for the Circular Design Training Program and the overall development within it. Our intention is not to create overlapping content but to utilize the valuable work that has been done previously.

Overcoming Barriers and Harnessing Opportunities in Re-Skilling Circular Design Expertise

Several barriers hinder the effective integration of circular design into professional practice. One of the key challenges is the entrenched linear thinking that dominates much of design education.

Traditional design curricula are built around linear business models, which focus on creating, consuming, and disposing of products. Circular design, in contrast, requires a fundamental shift towards systems-level thinking, where designers must consider entire product life cycles, material flows, and the relationships between various stakeholders from businesses to users. This shift requires new tools, methodologies, and approaches that are not widely taught in current design programs.

Another challenge is the lack of specific, actionable tools that designers need to implement circular design principles in practice. Many existing courses offer theoretical knowledge but fail to provide concrete strategies for designing products that are easy to repair, recycle, or repurpose. Designers need to be equipped with practical tools for material selection, product disassembly, and understanding the potential for product re-use. Furthermore, as circular design relies heavily on collaboration with other sectors, designers must also develop skills in cross-disciplinary cooperation, which is often overlooked in current educational offerings.

Addressing these barriers requires a comprehensive rethinking of how circular design education is structured. Tools, methods, and specialized programs focusing on systems thinking, sustainable product design, and collaborative problem-solving will be crucial in helping designers develop the expertise needed to meet the challenges of the circular economy.

New Content and Structure for the Training Program

Future circular design training programs must go beyond business and regulatory frameworks and provide designers with the hands-on tools and methodologies necessary to implement circular design principles effectively. These programs should focus on equipping designers with systems-level thinking skills, helping them understand the interconnections between materials,

production processes, people and the environment. Practical tools for designing for disassembly, repair, and reuse should be central to these programs, as well as methods for selecting sustainable materials and designing products that minimize waste.

Additionally, it is equally important to emphasize user-centered design and regenerative design thinking in training. Designers need to understand how users can engage with products throughout their life cycle and how to create solutions that not only meet needs but also generate value and enable societal and environmental change. User-centered design is key to creating sustainable and viable products and services, as it ensures that solutions address real needs and promote user engagement.

In conclusion, while existing circular design courses provide valuable insights into the circular economy, they need to be complemented with specialized up to date content that is directly relevant to professional designers. By offering practical, actionable tools and focusing on systems thinking, future training programs can better equip designers to contribute meaningfully to the transition to a circular economy, fostering a more sustainable future for the design industry.

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