



CHAPTER VII

CHOOSING SUSTAINABLE PRINTING TECHNIQUES

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WHY

Sustainable printing techniques refer to the methods and processes used in the printing industry that prioritize environmental protection, conservation, and reducing waste.

These techniques are aimed at reducing the impact of printing on the environment by using environmentally friendly materials, reducing energy consumption, and promoting waste reduction and recycling.

Sustainable printing includes a range of processes such as using water-based inks, digital printing, recycling of printing materials, using biodegradable and compostable materials, and using renewable energy sources for printing.

Implementing sustainable printing techniques can help graphic designers reduce their carbon footprint, minimize waste and pollution, and promote environmentally responsible practices in the printing industry.



7.2 CHAPTER VII DIGITAL PRINTING

Digital printing is a sustainable printing method that uses digital files, such as PDFs, to produce printouts. It eliminates the need for film and plates, reducing waste and energy consumption.

This is because, in traditional offset printing, printing plates have to be made for each colour and each page, which generates waste and consumes energy and resources.

Digital printing, on the other hand, uses digital files to produce printouts, eliminating the need for plates, and reducing waste and energy consumption.

Digital printing is also highly customizable, allowing for short run and on-demand printing, which can help to reduce the need for warehousing and inventory. In traditional offset printing, a large amount of paper is printed at once, and it's often necessary to print more than what is needed to meet the demand, this generates waste, and this excess has to be stored until it's needed. Digital printing, on the other hand, allows for short runs and on-demand printing, which means that only the amount of paper that is needed is printed, reducing the need for warehousing and inventory, and also reducing the environmental impact of the storage.

Digital printing also allows for more efficient use of resources, as it eliminates the need for make-ready, which is the process of adjusting the printing press for a new job, this process consumes energy and resources. Digital printing also allows for more efficient use of ink, as it's more precise and accurate, reducing the amount of ink used, and also reducing the environmental impact of the ink production.

Digital printing is a sustainable option that is well suited for printing on a wide range of materials such as paper, cardboard, and fabrics. It is also a good option for printing on non-porous surfaces such as vinyl, film, and foil. This method is suitable for printing on materials that require a high level of detail and colour accuracy. The results of this printing method are highly precise and accurate, but the cost for production can be higher than traditional printing methods.

All these factors make digital printing a more sustainable option for the graphic design industry, and it's in line with the EU's Circular Economy Action Plan.



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LED PRINTING

LED (Light-Emitting Diode) printing is a sustainable printing technique that uses a series of light-emitting diodes to produce an image on a print medium.

THE KEY CHARACTERISTICS OF LED PRINTING INCLUDE:

- **ENERGY EFFICIENCY**
LED printing uses less energy compared to traditional printing methods, as the process only requires electricity to power the diodes.
- **ENVIRONMENTALLY FRIENDLY**
LED printing does not produce harmful VOCs (Volatile Organic Compounds) or emissions, which makes it an environmentally-friendly printing technique.
- **HIGH QUALITY PRINTING**
LED printing produces high-quality prints with sharp and vibrant colours, making it ideal for a wide range of printing applications.
- **DURABILITY**
LED printing is a durable printing method, as the prints produced are resistant to fading, water, and abrasion.
- **COST-EFFECTIVE**
LED printing is cost-effective in the long run, as it reduces the need for frequent ink replacements and maintenance costs.
- **VERSATILITY**
LED printing is versatile, as it can be used to print on a variety of materials, including paper, plastic, metal, and fabric.

Overall, LED printing is a sustainable and cost-effective printing technique that offers high-quality printing results while reducing environmental impact and is suitable for printing on a wide range of materials, including paper, cardboard, and fabrics.

IT IS ALSO A GOOD OPTION FOR PRINTING ON NON-POROUS SURFACES SUCH AS VINYL, FILM, AND FOIL.



7.4 CHAPTER VII PRINTING WITHOUT WATER

Printing without water is another sustainable printing method that eliminates the use of water in the printing process.

This not only reduces water consumption but also eliminates the need for wastewater treatment and disposal.

SOME OF THE MAIN ADVANTAGES ARE:

- **WATERLESS PRINTING TECHNOLOGY**
This printing method uses a special type of ink that does not require water for printing and does not mix with water.
- **ENVIRONMENTALLY FRIENDLY**
This technique reduces water consumption and waste, making it a more environmentally friendly option compared to traditional printing methods.
- **IMPROVED PRINT QUALITY**
The absence of water in the printing process eliminates the risk of smudging, bleeding or soaking into the paper, resulting in a sharper and clearer print.
- **INCREASED PRODUCTIVITY**
Since this technique does not require water, the time and energy required to prepare the press for printing is reduced, leading to increased productivity.
- **IMPROVED COLOR CONSISTENCY**
Without water to dilute the ink, the color consistency of the print is improved and remains consistent throughout the printing run.
- **COST SAVINGS**
Printing without water can reduce the cost of printing by eliminating the need for water and energy consumption.
- **LESS PAPER WASTE**
With this printing technique, there is less paper waste because the ink dries quickly and does not soak into the paper, reducing the need for paper to be discarded.
- **REDUCED ENERGY USAGE**
The elimination of water in the printing process reduces the energy usage required for heating and cooling the press.
- **DECREASED DOWNTIME**
This printing technique reduces downtime and maintenance requirements, as there is no need to clean the press and refill the water supply.

Overall, printing without water is a more sustainable option for the graphic design industry, as it reduces water consumption, eliminates the need for wastewater treatment and disposal, eliminates the need for the chemical treatment of the water, eliminates the need for the water transportation and storage, and is more versatile. All these factors make printing without water a more sustainable option for the graphic design industry, and it's in line with the EU's Circular Economy Action Plan.



7.5 CHAPTER VII TIPS AND TYPES FOR GRAPHIC DESIGN TEACHERS

Here are some tips and types for graphic design teachers on how to introduce [sustainable printing techniques](#) in the curriculum

- **[INTEGRATE SUSTAINABILITY INTO THE DESIGN PROCESS](#)**
Encourage students to think about sustainability from the very beginning of the design process and incorporate it into their design decisions.
- **[HANDS-ON DEMONSTRATIONS](#)**
Show students how to use eco-friendly printing techniques, such as digital printing, water-based inks, and vegetable inks. Demonstrate how these techniques are better for the environment compared to traditional printing methods.
- **[CLASSROOM ACTIVITIES](#)**
Assign projects that focus on sustainable printing techniques and challenge students to find ways to reduce waste and use eco-friendly materials.
- **[GUEST SPEAKERS](#)**
Invite industry experts to come and speak to students about the importance of sustainable printing techniques and how they are being used in the industry.
- **[FIELD TRIPS](#)**
Take students on a field trip to a printing company that uses sustainable techniques. This will give students a firsthand look at how sustainable printing works in real life.
- **[CASE STUDIES](#)**
Share case studies of companies that have successfully implemented sustainable printing techniques. This will give students a real-world example of how sustainability can be incorporated into the design process.
- **[ONLINE RESOURCES](#)**
Provide students with online resources, such as articles, videos, and podcasts, that focus on sustainable printing techniques. Encourage students to research and learn about the topic on their own.