Universidad de Valladolid

ESCUELA DE INGENIERÍAS INDUSTRIALES

UNIVERSIDAD DE VALLADOLID

ESCUELA DE INGENIERIAS INDUSTRIALES

Grado en Ingeniería de Diseño Industrial y Desarrollo del Producto

Folding Board

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TFG REALIZADO EN PROGRAMA DE INTERCAMBIO

TÍTULO:	Folding board
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FECHA:	03/07/2025
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UNIVERSIDAD:	Anhalt University of Applied Sciences
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Cinco palabras claves que describen el TFG: Mesa de diseño plegable

Resumen TFG:

El Trabajo de Fin de Grado se centra en el diseño y desarrollo de una mesa plegable que se transforma en una única plancha de madera, optimizando espacio y facilitando su transporte y almacenamiento. El público objetivo era una asociación de la ciudad donde se realizaban varias actividades y el espacio debía poder cambiar con facilidad según se necesitara.

El proyecto aborda todas las fases del proceso de diseño industrial: desde la investigación de mercado y necesidades del usuario, hasta el desarrollo conceptual, modelado en 3D, elección de materiales y fabricación.

Otro de los objetivos principales era la simplicidad del diseño, que fuera intuitivo y resultara fácil de usar, buscando un equilibrio entre forma y utilidad.

Como parte del trabajo, construí un prototipo a escala real utilizando madera, validando así la viabilidad técnica y funcional del diseño. Este prototipo permitió comprobar la estabilidad estructural, la facilidad de uso del sistema plegable y su ergonomía.

Keywords: Desing folding Table.

Abstract:

The Bachelor's Thesis focuses on the design and development of a folding table that transforms into a single wooden panel, optimizing space and facilitating both transport and storage. The target audience was a local association where various activities took place, requiring the space to be easily adaptable as needed.

The project covers all stages of the industrial design process: from market research and user needs analysis to conceptual development, 3D modeling, material selection, and manufacturing.

One of the main objectives was to achieve a simple design that would be intuitive and easy to use, aiming for a balance between form and function.

As part of the project, I built a full-scale prototype using wood, thereby validating the technical and functional feasibility of the design. This prototype allowed for testing the structural stability, ease of use of the folding system, and its ergonomics.

The Folding Board

This folding table offers the duality of being a useful table and a very thin piece of wood when folded with the added value of the "yoga" design.

The first steps.

PERSONA RESEARCH

One of the first steps were to do research of our persona. Personally, the situation in Zeit's Statdlabor stud up to me. I decided to do my imaginary persona of a young woman that goes to the Stadtlabor in Zeit where they do different activities and where they sometimes need table space and when sometimes they need as much open space as possible.

Also, Andrea, my persona, she lives in a very small flat o her own and she is very extroverted and has a lot of friends over all the time so she also neds more table space.

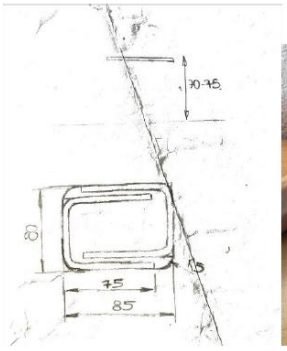
INSPIRATION / RESEARCH

To come up with ideas I did a bit of research on the Internet and Pinterest. I was looking for very lightweight easy to assemble tables.

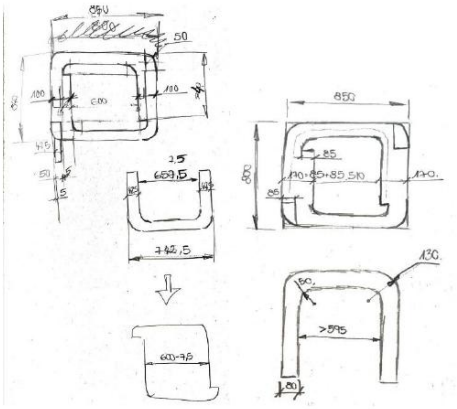
Coming up with the Idea

The Idea consisted of a folding table that could be folded into a single board. We also considered the idea of making a “sexy” inside of the table, not just focusing on the folding itself. With my design the table could be folded into what appeared to be a single piece of board but when unfolded it was a table. That way it could be easily stored without taking up much space.

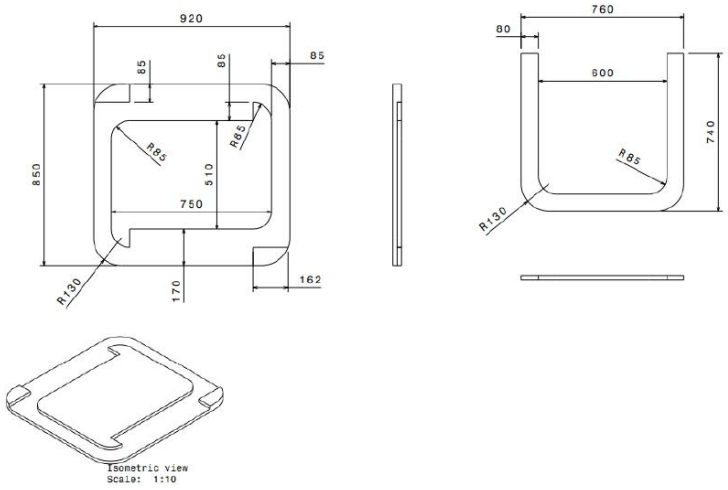
I did some sketches and a small model to see if it worked how I wanted it.



After doing the model I did more concrete sketches, with measurements to see what I needed to do.

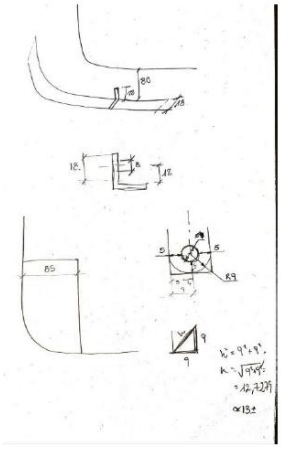


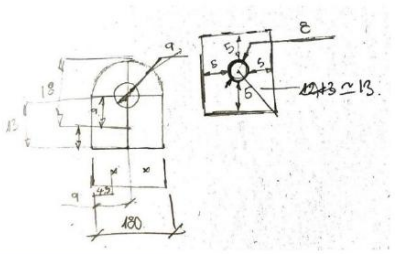
Then I got to my computer and did the 3D models and the technical drawings.



DETAILS

While doing making the design feel more real, I noticed that the hinge was going to be an Issue, and we came up with the idea of doing an inside hinge. So, I designed it. At that point I also bought the folding mechanisms for the legs.





After that I got to the wood workshop to start building the 1:1 model.

Building the 1:1 model

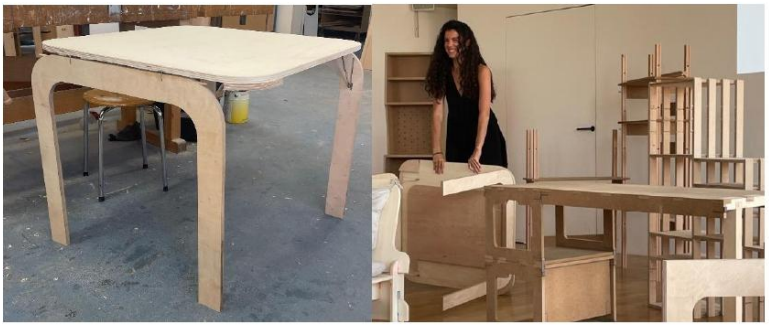
During the time at the workshop some complications came along, we needed a longer drill for the inside hinge, and the folding mecanisims for the legs didn't work as well as we had

tought in the beginning. So we had to do bigger holes for the mecanisims to fit in and buy a longer drill.

A the end we ended up conquering the problems as well as we could.

The Final Product

Finally, we made it in time.



In conclusion I've realized that it isn't as simple as doing 3D models and technical drawings. It is crucial to put the design to test in the workshop and have trials to see if everything works, because it's normal when it doesn't.