



EXTENDED ABSTRACT



InViCCAD 2025
1ST INTERNATIONAL VIRTUAL COMPETITION OF CREATIVE
ARTS & INNOVATIVE DESIGN IN TEACHING & LEARNING



Design Innovation Academic Show 2025



Organized by



Fakulti
Seni Lukis & Seni Reka
Cawangan Kedah



اوسها تقوى موليا

Collaboration with



#perubahanluarbiasa
#ADpilihanpertama



**EXTENDED
ABSTRACT**

**Design
Innovation
Academic
Show 2025**





DIAS 2025 (Design Innovation Academic Show) is all about "Transcending the Boundaries of Creativity: Innovation in Art & Design for 21st Century Education." This vibrant program shines a spotlight on how creativity and innovation are reshaping modern education.

It consists of three key components. First up is the Mindareka Design Show, an exhibition that showcases students' final year projects and creative designs, giving them a chance to connect with industry professionals and the wider community. Next, we have the Northern Innovation Academic Tour (NIAT), which takes participants on an academic adventure to select institutions and innovation centers in the northern region, aimed at promoting knowledge sharing and building strong academic and professional networks.

Finally, there's the 1st International Virtual Competition of Creative Arts & Innovative Design in Teaching & Learning (InViCCAID), a global competition that recognizes outstanding practices in teaching and learning by blending art, technology, and innovative design. But DIAS 2025 is more than just a talent showcase; it's a powerful platform for empowering both students and educators, while also strengthening collaborations between universities, creative industries, and global communities. With its inclusive and interdisciplinary approach, this initiative strives to spark relevant, competitive, and impactful ideas and innovations that truly benefit society and push the future of education forward.



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Design
Innovation
Academic
Show 2025



Prof. Dr. Roshima Haji Said
Acting Rector
UiTM Kedah Branch

Rector's Message

I am delighted to extend my heartfelt congratulations to the College of Creative Arts, UiTM Kedah Branch, for bringing MINDAREKA 2024 - Unleashing Your Visual Creativity to fruition. The triumphs of past MINDAREKA editions undoubtedly fueled the organization of this year's event, making MINDAREKA 2024 a reality.

MINDAREKA 2024 - Unleashing Your Visual Creativity stands as a testament to the dedication of students at the College of Creative Arts, UiTM Kedah Branch, providing them with a platform to showcase their final art projects. Beyond serving as a space for the exploration of fresh, innovative, and entrepreneurial concepts, this exhibition is poised to connect aspiring talents with potential clients and employers.

I extend my sincere gratitude to all participants whose enthusiasm and support have contributed to the success of MINDAREKA 2024 - Unleashing Your Visual Creativity. Their unwavering belief and commitment have truly brought this event to life, marking it as a resounding triumph!





Head of Faculty Message

It is an honour to introduce DIAS 2025 – Design Innovation Academic Show, held under the theme “Transcending the Boundaries of Creativity: Innovation in Art & Design for 21st-Century Education.” This significant event reflects the faculty’s ongoing commitment to fostering a culture of innovation, critical thinking, and creative exploration among our students and academic community. As we navigate the complexities of the 21st century, it becomes increasingly clear that education must go beyond traditional boundaries to embrace multidisciplinary approaches that are both relevant and future-forward.

The three core components of DIAS 2025, Mindareka Design Show, Northern Innovation Academic Tour (NIAT), and the 1st International Virtual Competition of Creative Arts & Innovative Design in Teaching & Learning (InViCCAID) which is serve as vital platforms to highlight the convergence of design, technology, and pedagogy. These initiatives not only empower our students to showcase their talents and ideas, but also create opportunities for engagement with industry leaders, academic peers, and global collaborators. The Mindareka Design Show celebrates student creativity and innovation through compelling final year projects. NIAT fosters knowledge sharing and institutional partnerships through academic visits and exchanges, while InViCCAID offers international recognition for excellence in integrating art and design into teaching and learning.

I would like to express my deepest appreciation to the organising committee, faculty members, students, and strategic partners who have worked tirelessly to bring this programme to life. Your dedication and collaborative spirit have made DIAS 2025 a reality and a reflection of our shared vision for transformative education. It is my hope that this platform will continue to inspire meaningful dialogue, cultivate groundbreaking ideas, and spark a new wave of innovation that enriches both education and society.



Mohamat Najib Mat Noor
Head of Faculty
Faculty of Arts & Design
UiTM Kedah Branch





**Industrial
Design
(Bachelor)**





PINOCUT | CUTLERY SET

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ABSTRACT

PinoCut is a biodegradable cutlery set made from pineapple leaf fiber and Arabic gum, offering a sustainable alternative to traditional plastic and metal utensils. Developed in response to the growing environmental concerns caused by single-use plastics and high-energy metal production, PinoCut promotes eco-friendly, short-term cutlery solutions. While plastic can take centuries to decompose and often ends up polluting land and oceans, metal cutlery demands significant energy and resources, making both unsuitable for disposable applications. PinoCut utilizes pineapple leaf fiber an agricultural byproduct and combines it with Arabic gum, a natural adhesive. When dried, the material forms a sturdy and usable product. However, testing revealed some challenges. The material tends to become brittle over time, and its surface finish varies: the mold-contacted base is smooth, while the top can remain rough without additional treatment. Despite these issues, PinoCut proves effective for temporary use and highlights the potential of agricultural waste in sustainable product design. It aligns with circular economy principles by creating a product that safely biodegrades after use. With continued improvement in surface finish and durability, PinoCut presents a promising, eco-conscious alternative for everyday disposable cutlery.

Keywords: Sustainable Cutlery, Pineapple Fiber, Biodegradable, Eco-friendly, Natural Material

INTRODUCTION

Nowadays, environmental issues are becoming more serious, especially with the overuse of plastic and metal cutlery. Plastic takes hundreds of years to break down, and metal production uses a lot of energy and resources. These materials are not suitable for disposable products, which are often thrown away after one use. Therefore, there is a need for a better, more eco-friendly option.

PinoCut is a biodegradable cutlery set made from pineapple leaf fiber and Arabic gum. This project started with a simple question: can we turn agricultural waste into something useful? Pineapple leaves are usually thrown away, but through this project, they are reused and transformed into cutlery that is sufficiently durable for use, yet safe for the environment after disposal.

As part of an industrial design process, this project involved experimenting with natural materials, shaping them into functional forms, and testing their strength and texture. The material was hard at first, but over time, it became brittle and easy to break. Also, the surface was smooth at the bottom (from the mold), but rough on top if no finishing was added.

Even with these challenges, PinoCut shows how design can help reduce waste and promote sustainability. It proves that even simple ideas like turning pineapple leaves into spoons and forks can make a difference. This project is a step toward creating products that not only work well but also respect the planet.

MATERIALS AND METHODS



Figure 1: The picture of Experiment Material Arabic Gum with Pineapple leaf



For this project, the main materials used were pineapple leaf fiber and Arabic gum. The process began by collecting pineapple leaves, which were then cleaned, dried, and crushed into smaller fibers. These fibers were chosen because they're natural, lightweight, and often thrown away as waste. Arabic gum was added to the mix as a natural glue to help bind everything together. Several trials were done to find the right balance between the fiber and gum to get a texture that was firm but still workable. Once the mixture was ready, it was pressed into a cutlery shaped mold and left to dry naturally at room temperature. No machines or heat were used just air drying, to keep the process simple and eco-friendly. During this stage, it was noticed that the bottom side of the cutlery turned out smooth because it was in contact with the mold, while the top surface became rough since no coating or finishing layer was added. After drying, the material felt hard and sturdy at first, but over time, it started to become brittle and break easily. These tests helped highlight what worked well and what still needed improvement especially in terms of durability and surface finishing. Overall, the method used was simple, sustainable, and low cost, showing how waste materials like pineapple leaves can be reused in a meaningful way.

RESULTS AND DISCUSSION/FINDINGS

Throughout the development of PinoCut, several important findings were discovered. The combination of pineapple leaf fiber and Arabic gum successfully created a biodegradable material that could be shaped into a cutlery set. At the beginning, the material was hard and felt sturdy enough for single use purposes. However, after some time, it began to show weaknesses it became brittle and broke easily, especially when exposed to air for too long. Another observation was the surface texture the bottom of the cutlery turned out smooth due to direct contact with the mold, while the top surface remained rough if no coating or finishing layer was applied. Despite these issues, the overall shape and structure of the cutlery were achieved as intended. These results showed that natural materials like pineapple leaves can be used effectively, but further improvement is needed to strengthen the durability and enhance surface quality. The project also proved that sustainable materials can be part of practical, real-life products when approached through creative design and careful testing.



Sample A: Front View



Sample B : Back View

Figure 2: Comparison of Surface Texture of PinoCut Material Samples

CONCLUSION & RECOMMENDATION

In conclusion, the PinoCut project successfully explored the use of pineapple leaf fiber and Arabic gum to create biodegradable cutlery. The material initially formed a sturdy structure, demonstrating potential as an eco-friendly alternative to plastic. However, its brittleness over time highlights the need for further refinement. The surface texture also varied, with the top remaining rough without finishing and the bottom smooth due to mold contact.

For future development, it is recommended to enhance material durability by adjusting the fiber-to-binder ratio or incorporating natural additives to improve flexibility. Additionally, applying a surface coating or refining the molding technique could improve the final product's texture and appearance. With continued improvements, PinoCut holds strong potential as a sustainable solution for disposable cutlery.



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