UNIVERSITI TEKNOLOGI MARA

EXTENDED ABSTRACT

DESIGN INNOVATION ACADEMIC SHOW 2025

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

MONDARIKA

NIAT
NORTHERN INNOVATION ACADEMIC TOUR

Organized by

Faculty of Art & Design
#perubahanluarbiasa
#ADpilihanpertama

UNIVERSITI TEKNOLOGI MARA
Fakulti Seni Lukis & Seni Reka
Cawangan Kedah

UiTM di hatiku

Collaboration with

PUSAT SAINS NEGARA WILAYAH UTARA

KEMENTERIAN SAINS, TEKNOLOGI DAN INOVASI
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION

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

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

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.

Industrial Design (Diploma)

TWIN-B | ACCEESSIBILITY BENCH

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ABSTRACT

The **TWIN-B Accessibility Bench** is an innovative seating solution designed to support inclusivity and comfort in public spaces. Inspired by the principles of user-centred design, TWIN-B integrates key features such as a compact footprint, weather-resistant materials, and the use of eco-friendly, recyclable components. It is engineered to accommodate a variety of users—including wheelchair users, children, and the elderly—ensuring accessibility, safety, and comfort in outdoor and communal environments. This design responds to the growing need for inclusive urban furniture, especially in parks, transport hubs, and community spaces. The bench prioritizes ease of approach, sturdy support, and intuitive usability, making it suitable for individuals with diverse physical abilities. Additionally, the use of sustainable and recyclable materials reduces environmental impact, aligning with global efforts to promote green, accessible infrastructure.

Keywords: Inclusive design, compact structure, weather resistance, eco-friendly, accessible seating

INTRODUCTION

The **TWIN-B Accessibility Bench** is a thoughtfully crafted piece of urban furniture that addresses the practical, ergonomic, and environmental demands of today's public seating. In a time where inclusivity and sustainability are becoming standard expectations, TWIN-B meets the need for a versatile, accessible, and environmentally responsible bench solution. Its modular and compact form allows for flexible

placement in tight or high-traffic areas, supporting both individual use and group interaction. Designed for universal access, it includes features such as armrest supports, height-appropriate seating, and side clearance for wheelchairs. These design choices make TWIN-B ideal for use in parks, recreational paths, transit areas, and other public gathering spaces. The bench's structure uses weatherproof and anti-corrosion materials, allowing it to withstand various outdoor conditions without compromising durability. The design also includes non-slip surfaces and rounded edges to enhance safety for users of all ages. Its recyclable and biodegradable components reflect a strong commitment to sustainable design practices and responsible material sourcing. By incorporating these features, TWIN-B not only enhances physical comfort and accessibility but also contributes to social inclusion and environmental stewardship in shared spaces.

MATERIALS AND METHOD

The **TWIN-B Accessibility Bench** is engineered with a focus on durability, inclusivity, and environmental responsibility. The main seating frame is constructed from recyclable treated wood or high-grade recycled metal, chosen for their weather resistance, strength, and sustainability. These materials are shaped using CNC routing and modular assembly techniques to ensure precise craftsmanship and consistent quality. For structural support, powder-coated steel or aluminium legs are used, offering both stability and resistance to rust or corrosion. The bench surface is coated with a non-slip, UV-resistant finish, ensuring long-lasting performance under outdoor conditions. To enhance user experience, ergonomic backrests and armrests are integrated, made from soft-edged recycled composite materials that provide comfort and support. All edges and corners are rounded for safety, especially important for children and elderly users. Accessibility features include side clearance zones for wheelchair access, support bars for easy transfer, and standard-compliant height and depth dimensions. In some variants, thermally treated wood panels or treated bamboo slats may be used for their low environmental impact and aesthetic warmth. Each material is selected with recyclability and user safety in mind, supporting a low-waste, inclusive design philosophy that aligns with modern urban infrastructure standards.

RESEARCH AND FINDINGS

The development of the **TWIN-B Accessibility Bench** was guided by extensive research and real-world user feedback. Through site studies, observational research, and interviews with people with disabilities and caregivers, several key insights emerged that shaped the final product. One major finding was the need for clear approach zones for wheelchair users and the importance of having support structures like armrests and backrests to aid those with mobility issues. Elderly users and parents with strollers also highlighted the value of stable, slightly elevated seating for easy sit-down and stand-up motions. Material testing confirmed that recycled HDPE plastic and powder-coated metal offered an optimal balance between weather resistance and comfort. Feedback from pilot installations in parks and public walkways revealed that non-slip finishes, smooth contours, and labelled seating areas helped reduce slips, confusion, and discomfort, especially in rainy or high-use settings. The findings also emphasized the importance of minimalist, low-maintenance design without compromising functionality or inclusivity. All users responded positively to the bench's practical form, with many praising its universal appeal, solid construction, and environmental responsibility. These research insights helped ensure that **TWIN-B meets its core design goals**accessibility, safety, simplicity, and sustainability making it a valuable solution for modern public environments.

CONCLUSION & RECOMMENDATIONS

The **TWIN-B Accessibility Bench** offers a smart, inclusive, and sustainable solution for seating in public spaces. Designed for comfort, safety, and accessibility, it features an ergonomic layout, durable weatherproof construction, and eco-friendly materials that support inclusive use for all individuals whether in wheelchairs, with strollers, or with mobility needs. User feedback has highlighted its ease of use, aesthetic appeal, and long-term durability in outdoor settings. Moving forward, it would be beneficial to test the bench in a wider range of environments including transit stations, schools, and healthcare campuses to assess broader usability. Future enhancements might include modular seating units, tactile surface indicators, or solar-integrated lighting for added visibility and security. Additionally, small adjustments such as customizable colours for high-contrast visibility or braille labelling could further improve

accessibility for visually impaired users. Overall, the TWIN-B project demonstrates how thoughtful, research-driven design can create a meaningful, user-entered seating solution that enhances both public comfort and inclusive urban planning.

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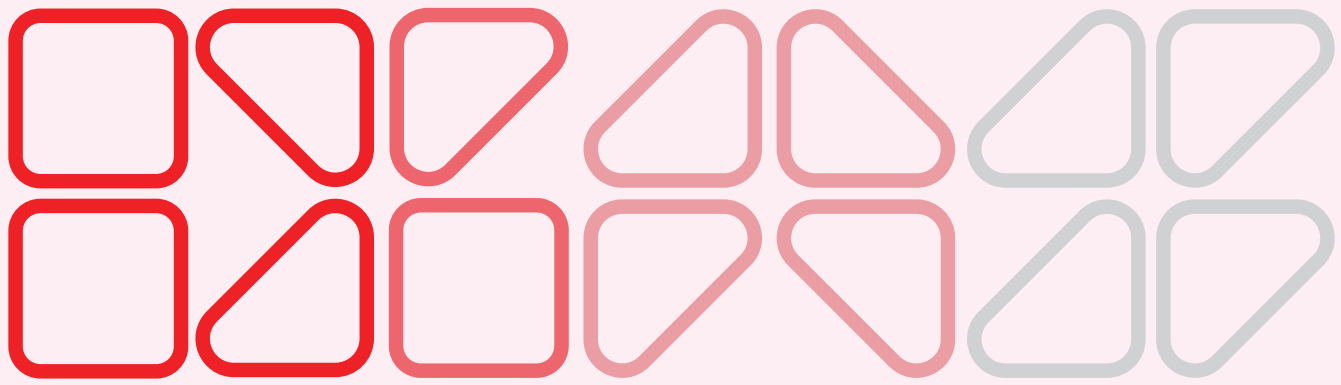

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