MSSA/CIDB OPEN IDEAS COMPETITION FOR STUDENTS

"Sustainability in Steel Construction Industry"
Restoration and Innovation of Merdeka Stadium

https://farm4.static.flickr.com/3305/3441804298_90ae06e22a_b.jpg

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OIC -2024

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Restoration and Evolution of Merdeka Stadium

COMPETITION BRIEF

1.0 INTRODUCTION

Welcome to MSSA/CIDB Open Ideas Competition for Students (OIC). This design competition is open to students in the fields of architecture and civil engineering in Malaysia with the opportunity to collaborate in a structural steel design that employs steel as the main structural and finishing material. It is envisioned that students will realise that structural steel design does not lie within the individual jurisdiction of the architect or civil engineer, but also is a means for them to arrive at a meaningful realization of both architectural fascination and structural manifestation. It also aims to bridge the gap between thetraining of architecture and civil engineering. All design strategies should achieve the goal of modernisation with regards to sustainability, constructability and functionality.

2.0 PROJECT BRIEF

THE TASK

Architecture, at its core, is an art form that celebrates the human spirit and its quest to shape the world around us. It is an embodiment of culture, history, and human aspiration. In this competition, we celebrate not just the external beauty of architectural wonders but the intrinsic beauty that arises when architecture harmonizes with structure.

We believe that the elegance of architectural design can be elevated to new heights when it is intimately entwined with structural integrity. Structures, while often hidden from the casual observer, form the backbone of our built environment. When architects and civil engineers collaborate to create designs that seamlessly blend beauty and structure, they produce works that captivate the eye, stir the soul, and stand as enduring testaments to human ingenuity.

This competition challenges participants to transform structures from their academic portfolios, with acentral focus on blending architectural creativity and civil engineering innovation: -

- Our goal is to restore and renovate the Merdeka Stadium, taking it to new heights of functionality and aesthetic appeal through a modernization process that utilizes the latest technology available.
- Conduct a comprehensive research and analysis: Begin by understanding the history and

significance of the Merdeka Stadium. This will help in preserving its heritage while modernizing it. Study the existing infrastructure, technological limitations, and potential areas for improvement.

- Collaborate with experts: Engage with architects, engineers, and technology specialists who have experience in stadium renovations. Their expertise can help in identifying innovative solutions, ensuring structural integrity, and incorporating the latest technologies.
- The stadium structures should undergo a process of reimagining and redesign, emphasizing theseamless integration of architecture and civil engineering.
- The design must prioritize the transformation of structural elements into integral aesthetic features.
- Specifically, the focus should be on mid to long span structures within the design.
- The goal is to create a masterpiece that not only captures the viewer's attention visually but also serves as a demonstration of the artistry and precision attainable through the synergy ofarchitecture and civil engineering

Utilising steel as a primary material, consideration needs to be given to:

- Creative and rational use of steel as the primary structural system.
- Structural expression
- Medium to long-span structures with minimal columns
- Minimum use of materials and material innovation
- Sustainability
- Flexibility
- Cost Efficiency
- Creative Internal planning and spatial design
- User and visitor experience
- Consideration for innovative functions and facilities.
- Functional efficiency.
- Site context and Malaysia’s tropical climate

AIM

The purpose of the MSSA/CIDB Open Ideas Competition for Students is to ignite imagination and challenge creativity. It's a call to arms for those who dare to dream beyond conventional boundaries, to envision steel structures that not only inspire wonder but also serve as living proof that art and engineeringcan coalesce into something truly extraordinary.

THE SITE

The site for the OIC2024 Student Steel Design Competition project is located at the historic Merdeka Stadium in Kuala Lumpur, Malaysia. Merdeka Stadium, an iconic symbol of Malaysia's independence, sits on a sprawling 19-acre site. This location, rich with cultural and historical significance, offers ample space and a unique environment for innovative steel design projects, encouraging participants to blend modern engineering techniques with the heritage of the site. The competition aims to leverage the expansive area to inspire creative solutions that respect the stadium's legacy while promoting advanced structural design.

3.0 SUBMISSION

There will be two (2) stages of submissions; namely Stage 1 and Stage 2.

Registration
Interested parties must first register their group participants with the Secretariat of the MSSA-CIDB Open Ideas Competition for Students (OIC-2024): Sustainability in Steel Construction Industry.

Registration Form
Please register using the Registration Form (R-OIC-2024). It requires a Group Leader who is a student and a supervising lecturer in architecture and/or engineering. The form may be sent via e-mail to resource@mssa.org.my by **4.00pm, 12 July 2024**.

Entrant Code Number
Upon receiving the Registration to Enter Forms, the Secretariat shall assign each entrant with a code number by **5.00 pm, 12 July 2024.** This number will be used to identify the report and drawings submitted for this competition. The identity of the team shall remain incognito.

Stage 1: The Shortlisted Teams from Each University

The maximum of 5 teams from each university are qualified to participate in **Stage 1**.

Project Report
The architectural and structural proposals shall be compiled in a report that contains the following:

- Architectural design analysis, approach and concept.
- Scaled drawings of plans, sections and elevations showing the schematic design (folded in order to fit within the report).
- 3-dimensional modelling of the building or group of buildings.
- Implementation of green building strategies.
- Conceptual analysis of the entire structure, design of the main structural elements and types of structural connections used, all of which are designed in consideration of seismic forces.
- Summary of structural design and analysis in a table format. Computer structural design and analysis outputs shall not be included.

Report Format

- The report shall be in A-3 size format.
- The report is limited to 30 pages.
- Headings are to be in font size 16 while texts are size 14 and Tahoma font type.

Submission Documents
The five (5) groups shortlisted by each university shall submit the following to the OIC-2024 Secretariat:

- Preliminary report on the design proposal and structural system (softcolpy only).
- Five (5) A1-size presentation boards in portrait format (softcopy only).
- Submission for **Stage 1** Form (S-OIC-2024).
- **Authorship Declaration Form** (A-OIC-2024).

Submission to be made directly to MSSA at: **resources@mssa.org.my**

Document Regulations

- Both the report and the drawings shall be identified **at the top right-hand corner** by the code number assigned to each entrant as stated in paragraph above. **The report and drawings shall not display the authors' identities**.
- The A1-size drawings must be mounted on hard boards and not loose leaves.
- The documents shall be submitted by **4.00pm, 21 August 2024**.
- They may be posted or hand delivered to the Secretariat's office.

Selection of Top 10 finalists

- The Panel of Judges shall convene on **26 August 2024** to select the top ten (10) groups fromall the participating universities to compete in Stage 3.
- The ten (10) teams of finalists will be duly notified by the Secretariat on **30 August 2024.**

Finalist Grant

A grant of **RM1,000** will be provided to each finalist team to improve and refine their submissions and to build **a scaled physical mode**. In the event that presentation boards and/or scaled model are not submitted, a full refund must be made to the Secretariat.

Stage 2: Final

Submission of Final Documents

The **ten (10) finalists** are required to submit the following to OIC-2024 Secretariat latest by **6.00 pm, 21st October 2024:**

- Finalised A3 report on the design proposal that includes the layout and detailing of the architectural and structural elements **(printed hardcopy)**.
- Five (5) A1-size presentation boards in portrait format **(printed hardcopy)**.
- Multimedia presentation with animation.
- Scale model 1:200.
- CD/DVD containing:
    - Softcopy of the finalised report, presentation boards, and multimedia presentation;
    - Digital photographs of the model at various angles;
    - At least ten (10) digital photographs of the team working together throughout the progress of the project.

Presentation to Panel of Judges

The ten (10) finalists are required to present a verbal presentation to a Panel of Judges on **22nd October 2024**, at a venue to be announced later.

- The selection of the five (5) winners will be made.
- The presentation shall include the report, boards, animation and model.
- Each team is given 15 minutes for verbal presentation, including animation, followed by 5 minutes' question and answer session with the judges.

Prize Award Ceremony

The Prize Award Ceremony will be held tentatively on **23rd October 2024** at MITEC Kuala Lumpur during the International Construction Week 2024.

4.0 JUDGING

Panel of Judges

A Panel of Judges appointed by the Secretariat shall consist of five (5) members as follows:

- President/CEO of MSSA/CIDB or his/her nominee, who shall preside as the Chief Judge.
- A practising architect experienced in the design of transit facilities.
- A practising engineer experienced in the design of steel structure.
- An academician in architecture discipline from a non-participating university.
- An academician in engineering discipline from a non-participating university.

Marking Criteria for Judging

- The Panel of Judges will assess each entry based on the following criteria and breakdown of marks:

No.	Criteria	Mark
1	Formulation of project brief, including environmental impact and cost-effectiveness	20%
2	Functional, Innovative, and creative Architectural Design and Expression	20%
3	Expressive and creative Structural Design and use of materials	20%
4	Structural efficiency, logic and appropriateness	20%
5	Structural Performance Simulation	10%
6	Response to Global Climate change	10%
	Total	100%

Bona Fide Authors

Successful contestants must be able to satisfy the Panel of Judges that they are the bona fide authors of the design submitted.

5.0 ELIGIBILITY

This competition is open to all students in the field of Architecture (Lembaga Arkitek Malaysia (LAM) Part I and Part II accredited programmes) in collaboration with undergraduate students of Civil Engineering.

Registered participating universities are:

i. Universiti Malaya (UM)
ii. Universiti Teknologi Malaysia (UTM)
iii. Universiti Teknologi MARA (UiTM)
iv. Universiti Putra Malaysia (UPM)
v. Universiti Kebangsaan Malaysia (UKM)
vi. Universiti Sains Malaysia (USM)
vii. Universiti Islam Antarabangsa Malaysia (IIUM)
viii. Universiti Malaysia Sarawak (UNIMAS)
ix. Universiti Teknologi Petronas (UTP)
x. Universiti Tenaga Nasional (UNITEN)
xi. Universiti Malaysia Sabah (UMS)
xii. Universiti Malaysia Pahang (UMP)
xiii. Infrastructure University Kuala Lumpur (IUKL)
xiv. Universiti Tun Hussein Onn Malaysia (UTHM)

xv. Universiti Malaysia Perlis (UniMAP)
xvi. Universiti Pertahanan Nasional Malaysia (UPNM)
xvii. Universiti Selangor (UNISEL)
xviii. SEGi University (SEGi)
xix. Herriot-Wat University Malaysia (HWUM)
xx. Taylor's University (TU)
xxi. University of Nottingham
xxii. Universities with MOUs in progress

Only group entries are permitted, and each group shall comprise of two (2) to six (6) members. It is encouraged that members of each group consist of a combination of architecture and engineering students.

- Inter-university collaboration is permitted.
- Participants must be active **Registered Student Members of Malaysian Structural Steel Association (MSSA)**. Those who have not registered as MSSA members must do so prior to participating in the competition. The membership form is available online.
- No family member of the promoting bodies, Secretariat or the Panel of Judges shall be eligible to participate in the competition.

6.0 AWARDS

Challenge Trophy
A challenge trophy will be presented to the first prize winner.

Cash Prizes
Cash prizes totalling **RM28,000** shall be awarded and distributed as follows:

Category	Prize
First Prize	RM 10,000
Second Prize	RM 7,000
Third Prize	RM 5,000
Two (2) Consolation Prizes	RM 3,000 each

Certificates

- Winner Certificates shall be presented to the first, second, third and consolation prizes winners.
- Certificates of Participation shall be presented to all **Stage 1** participants.

7.0 OTHER RELATED MATTERS

Any queries should be addressed in writing to the Secretariat at corporate@mssa.org.my. Verbal enquiries shall not be entertained.

Contestants must retrieve documents submitted for Stage 1 after the judging. The Secretariat will notbe held responsible for any loss or damage which may occur either in transit, storage, packing, or during the exhibition.

The Secretariat reserves the right to retain all the design/materials/models submitted by each final

group contestant and these items shall remain the property of the Secretariat. The Secretariat shall have the rights to use the competition materials as deemed fit. The Secretariat shall not be held responsible for any damage that may happen to the respective presentation materials of the winning entries.

ORGANISERS

The Open Ideas Competition for Students is jointly organised by the CIDB and MSSA, with CIDB contributing substantial funds for the success of the competition including the first prize cash.

MALAYSIAN STRUCTURAL STEEL ASSOCIATION

The Malaysian Structural Steel Association, MSSA, was formed in 1996 to promote the growth of the structural steel industry through enhancing the perception of structural steel as a construction material and encouraging the usage of steel as the primary building material of choice. The organization supports the interests of the constructional steel and oil and gas industry and its associated professionals.

MSSA is made up of engineers, fabricators, contractors, architects, designers, surveyors as well as academics and students from several tertiary institutions in the country. As these individuals and their respective organizations offer much more in terms of diversity and practicality for the local construction industry, MSSA complements these efforts by working to re-define the industry in providing leadership, enhancing standards and improving construction practices at building sites through the use of structural steel.

CONSTRUCTION INDUSTRY DEVELOPMENT BOARD MALAYSIA

The Construction Industry Development Board Malaysia, CIDB Malaysia, was established in July 1994 as a statutory body under the Ministry of Works Malaysia to develop, enhance and increase the competitiveness of the construction industry.

The objective of CIDB Malaysia is to develop the capacity and capability of the construction industry through the enhancement of quality and productivity by placing great emphasis on professionalism, innovation and knowledge in the endeavour to improve the quality of life.

LIST OF WINNERS FROM 1999 TO 2023

(1st Prize, 2nd Prize, 3rd Prize and 2 Consolation Prizes)

YEAR	PROJECT	SITE	WINNERS
2023	Open	Open	• Universiti Sains Malaysia (USM) • Universiti Teknologi MARA (UITM) • Universiti Sains Malaysia (USM) • Universiti Sains Malaysia(USM) • Universiti Teknologi Malaysia (UTM)
2022	Malaysia World Expo 2025 Pavilion	Yumeshima Island, Osaka, Japan	• Universiti Teknologi Mara (UiTM) • Universiti Teknologi Malaysia (UTM) • Universiti Teknologi Malaysia (UTM) • Universiti Sains Malaysia (USM) • Universiti Teknologi Malaysia (UTM)
2019	Regional Airport Terminal	Site selection by students	• Universiti Teknologi Malaysia (UTM) • Universiti Sains Malaysia (USM) • Universiti Sains Malaysia (USM) • Universiti Teknologi Malaysia (UTM) • Universiti Sains Malaysia (USM)
2018	ReMS (Reimagine: MRT Stations)	Site selection by students	• Universiti Sains Malaysia (USM Penang) • Universiti Sains Malaysia (USM Penang) • Universiti Sains Malaysia (USM Penang) • International Islamic University Malaysia (IIUM) • Universiti Malaya (UM)
2017	YouDo (Youth Dome in Steel)	Site selection by students	• Universiti Teknologi Malaysia (UTM Skudai) • Universiti Teknologi Malaysia (UTM Skudai) • Universiti Teknologi MARA (UiTM Shah Alam) • International Islamic University Malaysia (IIUM) • Universiti Teknologi MARA (UiTM Shah Alam)
2016	IT'S (Iconic Tower in Steel)	Site selection by students	• Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Teknologi Malaysia (UTM Skudai) • Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Sains Malaysia (USM Penang) • Universiti Sains Malaysia (USM Penang)
2015	HRS (High-rise Residence for Students)	Site selection by students	• Universiti Sains Malaysia (USM Penang) • Universiti Sains Malaysia (USM Penang) • Universiti Malaya (UM Kuala Lumpur) • Universiti Teknologi Petronas (UTP Tronoh) and Universiti Teknologi MARA (UiTM Perak) • Universiti Sains Malaysia (USM Penang)
2014	iC-Dcc (Innovative Community-Disaster Convertible Centre)	Site selection by students	• Universiti Teknologi Malaysia (UTM Skudai) • Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Sains Malaysia (USM Penang) • Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Teknologi MARA (UiTM Shah Alam)
2013	Langkawi CRC (Cycling and Recreational Centre)	Kuah, Langkawi, Kedah Darul Aman	• Universiti Sains Malaysia (USM Penang) • Universiti Sains Malaysia (USM Penang) • Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Teknologi MARA (UiTM Shah Alam)
2012	Era of Towers:	Terminal Putra, Jalan Putra, Kuala Lumpur	• Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Teknologi MARA (UiTM Shah Alam)

YEAR	PROJECT	SITE	WINNERS
	Mixed-Use Tower Design		• Universiti Teknologi Malaysia (UTM Skudai) • Universiti Teknologi Petronas (UTP Tronoh) and Universiti Teknologi MARA (UiTM Perak)
2005/ 2006	National Bio-Technology Complex	Langkawi, Kedah	• Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Malaya (UM Kuala Lumpur) • Universiti Teknologi Malaysia (UTM Skudai) • Universiti Sains Malaysia (USM Penang) • Universiti Teknologi Malaysia (UTM Skudai)
2003/ 2004	National Centre for Emerging Science and Technology	Technovation Park, Skudai, Johor	• Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Sains Malaysia (USM Penang) • Universiti Teknologi MARA (UiTM Shah Alam) • Universiti Teknologi MARA (UiTM Shah Alam)
2001/ 2002	Bridge BR5	Putrajaya	• Universiti Teknologi Malaysia (UTM Skudai) • Universiti Teknologi Malaysia (UTM Skudai) • Universiti Sains Malaysia (USM Penang) • Universiti Teknologi Malaysia (UTM Skudai) • Universiti Teknologi Malaysia (UTM Skudai)
1999/ 2000	Chin Woo Stadium	Kuala Lumpur	• Universiti Teknologi Malaysia (UTM Skudai) • Universiti Teknologi Malaysia (UTM Skudai) • Universiti Teknologi Malaysia (UTM Skudai)

R-OIC-2024

REGISTRATION FORM

This form must be submitted by **4.00pm, 12 July 2024** by e-mail to resources@mssa.org.my

Name of University: _____

	ARCHITECTURE	**CIVIL ENGINEERING**
Name of Supervisor(s)		
Mobile No.:		
E-mail:		
Signature:		

We hereby declare that we have read and understood the competition booklet and would like to register as a group to participate in the MSSA/CIDB Open Ideas Competition for Undergraduates (OIC-2024).

Name of Team Leader: _____

Mobile No.: _____

E-mail: _____

Signature: _____