



UNIVERSITI  
MALAYA

IChemE

ADVANCING  
CHEMICAL  
ENGINEERING  
WORLDWIDE

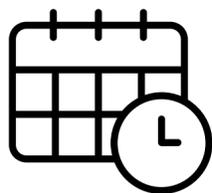


**NACES 2023**

# NACES 2023

NATIONAL CHEMICAL ENGINEERING SYMPOSIUM 2023

## INVITATION BOOKLET



**16 - 17 December 2023**



**Universiti Malaya (UM),  
Kuala Lumpur**

# // ABOUT NACES 2023

**The National Chemical Engineering Symposium (NACES) is an annual international event that is organised by the Chemical Engineering Student Society of universities in Malaysia, in collaboration with Institution of Chemical Engineers (IChemE) of Malaysia. Each year, this prestigious symposium is hosted by different public and private universities in Malaysia that offer Chemical Engineering Programmes.**

**In 2023, the Department of Chemical Engineering within the Faculty of Engineering at Universiti Malaya, in collaboration with IChemE Malaysia, will take the responsibility of organizing NACES. This edition of NACES will be a unique combination of online and physical modes, aiming to provide a comprehensive and engaging experience for all participants. NACES 2023 will feature seven challenging competitions, including Plant Design Competition, Technical Case Study Competition, Technical Debate Competition, Technical Essay Competition, Technical Video Competition, Technical Infographic Competition, and Chemical Engineering Challenge.**

**This event serves as a platform for Chemical Engineering students to showcase their knowledge, innovative ideas, critical thinking ability, and soft skills to the community, through the various competitions. Additionally, this event aims to encourage connections and teamwork among students by providing opportunities for competitive interaction and idea-sharing.**



# THEME

## **Mainstreaming Lab-grown Food: Chemical Engineers to the rescue!**

Population growth, land scarcity, climate change, and food security are all interrelated global issues that are placing great strain on the planet. By 2050, there will be 9.7 billion people on the planet, and the need for food is anticipated to rise. However, with approximately 40% of the land on the planet being used for agriculture, we are already facing a land shortage. Extreme weather events and shifting weather patterns are making the problem worse and reducing crop yields and food production. Food security as a result is becoming harder to maintain, especially in developing nations. We must come up with sustainable methods that boost food production while reducing their negative effects on the environment to address these issues. Sustainable agricultural methods, reducing food waste, promoting plant-based diets, and the development of technology like lab-grown food might all be part of the solutions.

Chemical engineers are essential to the advancement and acceptance of food produced in laboratories. They are well positioned to address the technical difficulties of scaling up cell-based meat production since they are experts in the design and optimisation of chemical processes. This theme will explore the interdisciplinary nature of lab-grown food production, highlighting the critical role that chemical engineers play in developing and optimising the various stages of the process, from cell cultivation to final product formulation. It will also look into the difficulties the industry is currently facing, such as the need to create sustainable, cost-efficient production methods that fulfil high requirements for food safety and quality. The theme will emphasise the most recent advancements in food production from lab-grown sources and their possible effects on the environment and the food sector. Overall, the theme will give participants a forum to interact and debate how chemical engineering may help develop a future food system that is sustainable.



# OBJECTIVES

1

**Encourage collaboration and innovation among Chemical Engineering students**

2

**Develop critical thinking and problem-solving skills in Chemical Engineering students**

3

**Foster leadership qualities and proactive engagement with global issues among Chemical Engineering students**

4

**Provide a platform for Chemical Engineering students to connect and share ideas for societal benefit**

5

**Promote the application of Chemical Engineering knowledge and skills towards improving the economy, society, and environment**



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# ELIGIBILITY

1

Participants must be **full-time undergraduate students** enrolled in the **Chemical Engineering Program** (or equivalent) offered by one of the participating universities/ institutions.

2

Participants must submit an **APPROVED** original copy of their **student identity card (Matric Card)** together with the **LATEST module registration file**.

3

Each participant is only allowed to participate in **ONE (1) physical mode competition** and **ALL online mode competitions**.

4

Each participant in a team must be from the **SAME** university/institution.



# CATEGORIES OF COMPETITION

## ONLINE MODE

- 1 **Technical Infographic**
- 2 **Technical Video**
- 3 **Technical Essay**
- 4 **Chemical Engineering Challenge**

## PHYSICAL MODE

- 5 **Technical Debate**
- 6 **Technical Case Study & Presentation**
- 7 **Plant Design**



# COMPETITION DESCRIPTION

## 1 TECHNICAL INFOGRAPHIC

- Category: **Individual**
- Mode: **Online**
- Maximum number of participants per university/institution: **5**

In the Technical Infographic Competition, participants are tasked with producing an infographic relevant to the theme of the event. The infographic can explore various topics, including Chemical Engineering knowledge, latest inventions, products, technology, and others, while emphasising the chemical aspects or processes involved. Additionally, participants must provide explanations for these processes. The competition aims to assess the participants' abilities in demonstrating invention aspiration, critical thinking, and graphic design skills.

## 2 TECHNICAL VIDEO

- Category: **Group**
- Mode: **Online**
- Number of participants per group: **3**
- Maximum number of groups per university/institution: **5**

The Technical Video Competition requires each team to produce a 5-minute video that explains their viewpoint on the title's relationship to the theme and the chemical engineer's role in resolving present challenges. Teams must choose a process or solution and expound on how it can alleviate the problem, while considering creativity, environmental impact, and economic value. The video must also incorporate at least one new and inventive method of addressing the issues without endangering economic, social, and environmental sustainability.



# 3 TECHNICAL ESSAY

- Category: **Individual**
- Mode: **Online**
- Maximum number of participants per university/institution: **5**

The individual Technical Essay Competition necessitates that participants must submit an essay that showcases their analysis and opinions on the chosen topic. Critical thinking skills are expected, and the issue must be presented in a creative and clear manner. The essay should include technical analysis related to the theme and display the participant's ability to think critically, supported by pertinent details.

# 4 CHEMICAL ENGINEERING CHALLENGE

- Category: **Individual**
- Mode: **Online**
- Maximum number of participants per university/institution: **10**

The Chemical Engineering Challenge requires participants to answer both multiple choice (MCQ) and subjective questions. The primary objectives of this challenge are to assess their overall knowledge, problem-solving skills, time management skills, and critical thinking skills. The challenge also aims to evaluate participants' theoretical and practical abilities.

# 5 TECHNICAL DEBATE

- Category: **Group**
- Mode: **Physical**
- Number of participants per group: **3**
- Maximum number of groups per university/institution: **2**

The aim of this competition is to improve students' ability to express their ideas and viewpoints and engage in meaningful debates on specific topics related to the theme. Debating requires a thorough understanding of the subject matter, making research and drafting skills advantageous for participants. The experience also offers opportunities for soft skills development for personal growth. Debate topics are centred around the theme and encompass current issues relevant to the subject matter.

# 6 TECHNICAL CASE STUDY & PRESENTATION

- Category: **Group**
- Mode: **Physical**
- Number of participants per group: **3**
- Maximum number of groups per university/institution: **3**

The competition requires each group to showcase their abilities in teamwork, research, critical thinking, and creativity. Each group will have to prepare a presentation based on the issues that will be provided beforehand. Participants are required to come up with a solution(s) that takes into account both the environmental impact and economic value. The presentation will be delivered on the day of the event and will be evaluated accordingly. Following the presentation, a Q&A session will take place.

# 7 PLANT DESIGN

- **Category: Group**
- **Mode: Physical**
- **Number of participants per group: 4**
- **Maximum number of groups per university/institution: 2**

The aim of this competition is to create a sustainable process plant that is relevant to the designated theme. The plant or process designed can vary in terms of size, type, and technology used, but it must include reactive processes. The winner will be selected through a judging process. The Plant Design teams must produce four (4) deliverables including a design report, an Excel file for mass and energy balance, a poster presentation during NACES 2023, and also a 2D plant design model.



# PRIZES

## PLANT DESIGN



**RM 800**



**RM 600**



**RM 300**

## TECHNICAL CASE STUDY & PRESENTATION



**RM 700**



**RM 500**



**RM 300**

## TECHNICAL DEBATE



**RM 600**



**RM 400**



**RM 200**

## TECHNICAL VIDEO



**RM 300**



**RM 200**



**RM 100**



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# PRIZES

## CHEMICAL ENGINEERING CHALLENGE



**RM 200**



**RM 150**



**RM 100**

## TECHNICAL INFOGRAPHIC



**RM 150**



**RM 120**



**RM 100**

## TECHNICAL ESSAY



**RM 150**



**RM 120**



**RM 100**



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# // FEES

- All registration fees do not include the accommodation fees.
- Participants who are attending a physical presentation at Universiti Malaya are kindly requested to make their own arrangements for accommodation and transportation.
- Participants may use the list of hotels provided by organizer as a reference for accommodation.
- Meals during the two-days competitions will be prepared by the organizer.

## LOCAL UNIVERSITY

| COMPETITION                         | EARLY BIRD | NORMAL    |
|-------------------------------------|------------|-----------|
| Plant Design                        | RM 610.00  | RM 720.00 |
| Technical Case Study & Presentation | RM 560.00  | RM 610.00 |
| Technical Debate                    | RM 450.00  | RM 500.00 |
| Technical Video                     | RM 170.00  | RM 180.00 |
| Chemical Engineering Challenge      | RM 65.00   | RM 80.00  |
| Technical Infographic               | RM 55.00   | RM 65.00  |
| Technical Essay                     | RM 55.00   | RM 65.00  |

**Note: Online transaction service charges may apply.**



# FEEES

## INTERNATIONAL UNIVERSITY

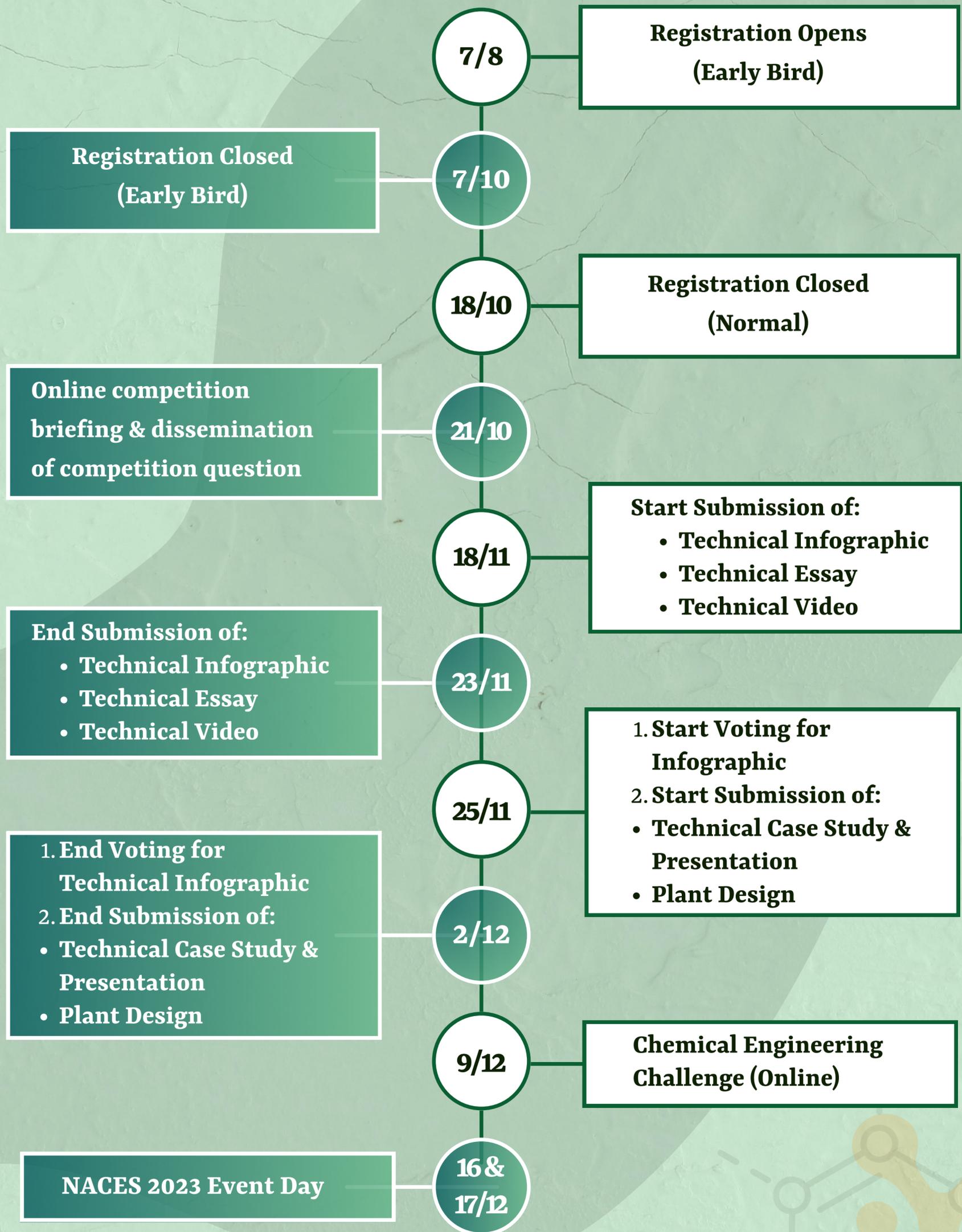
| <b>COMPETITION</b>                             | <b>EARLY BIRD</b> | <b>NORMAL</b>    |
|--|-------------------|------------------|
| <b>Plant Design</b>                            | <b>RM 780.00</b>  | <b>RM 890.00</b> |
| <b>Technical Case Study &amp; Presentation</b> | <b>RM 710.00</b>  | <b>RM 760.00</b> |
| <b>Technical Debate</b>                        | <b>RM 610.00</b>  | <b>RM 660.00</b> |
| <b>Technical Video</b>                         | <b>RM 200.00</b>  | <b>RM 220.00</b> |
| <b>Chemical Engineering Challenge</b>          | <b>RM 90.00</b>   | <b>RM 110.00</b> |
| <b>Technical Infographic</b>                   | <b>RM 80.00</b>   | <b>RM 100.00</b> |
| <b>Technical Essay</b>                         | <b>RM 80.00</b>   | <b>RM 100.00</b> |

**Note: Online transaction service charges may apply.**



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# TIMELINE





# TENTATIVE PROGRAM

## ONLINE SESSION

**Saturday, 9.12.2023**

**10<sup>AM</sup> - 11<sup>AM</sup>**

**Chemical Engineering Challenge**



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# DAY 1

[ PHYSICAL SESSION ]

Saturday, 16.12.2023

**9.00 am**

**Arrival & Registration of  
Participants**

**11.00 am**

**Opening Ceremony**

**12.30 pm**

**Lunch Break + Prayer**

**2.00 pm**

- **Technical Debate  
Preliminary Round**
- **Technical Case Study &  
Presentation**

**4.10 pm**

**Plant Design Competition**

**6.30 pm**

**Adjourn**



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# DAY 2

[ PHYSICAL SESSION ]

Sunday, 17.12.2023

**8.00 am**

- Arrival & Registration of participants
- Breakfast

**9.00 am**

- Technical Debate Final Round
- Technical Case Study & Presentation

**11.10 am**

**Forum Session**

**1.00 pm**

**Lunch**

**2.30 pm**

- Prize Giving Ceremony
- Closing Ceremony

**4.30 pm**

**Adjourn**



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# REGISTRATION

1

Participants must submit the registration form together with an **APPROVED** original copy of student identity card (Matric Card) and the **LATEST** module registration file through email.

Email : [admin\\_jkk.event@um.edu.my](mailto:admin_jkk.event@um.edu.my)

2

Kindly visit NACES 2023 official website to access a more detailed registration guideline.

Website : <https://umevent.um.edu.my/NACES2023>



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# IMPORTANT NOTES

**Kindly submit the registration form through email before proceed to the payment in NACES 2023 website.**

**The contents of this booklet are subjected to amendment and improvisation. Participants will be notified when the amendments are made.**



# CONTACT INFORMATION



**Chairperson:**

**+60 12-231 8067 (Chong Cui Hua)**

**Co-Chairperson:**

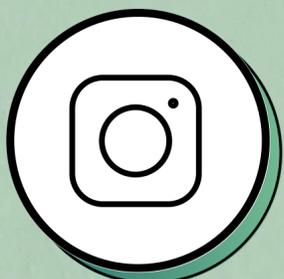
**+60 17-700 5035 (Sou Chen Guan)**



**[admin\\_jkk.event@um.edu.my](mailto:admin_jkk.event@um.edu.my)**



**<https://umevent.um.edu.my/NACES2023>**



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