

# ENGINEERING & SUSTAINABILITY SUMMER SCHOOL (ES3) @MENTAKAB 2 WEEKS PROGRAMME

**FACULTY OF ENGINEERING  
AND BUILT ENVIRONMENT  
UNIVERSITI KEBANGSAAN MALAYSIA**

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FOR MORE  
INFORMATION**

## PROGRAMME OUTLINE

The **Engineering & Sustainability Summer School (ES3)** is a 2-week programme taking place at the Faculty of Engineering and Built Environment, Universiti Kebangsaan Malaysia. The students will be able to experience knowledgeable and enjoyable activities offered. An 12-hour Engineering and Sustainability module without credit has to be taken throughout the programme along with many visits to local exhibitions and stores, an excursion trip, and exciting games to play. By joining this summer school, the students can learn more about Malaysian culture, disclosure to heritage as well as interacting with local society.



## ENGINEERING AND SUSTAINABILITY MODULE THAT INCLUDES THE FOLLOWING CHAPTERS:

1. Computer-Controlled Systems
2. Computing for Engineers
3. Industrial Safety
4. Engineering Statistics
5. Finite Element Method
6. Social, Economic, and Environmental Sustainability for Next Generation

## PROGRAMME FEE

This 2-week programme costs RM 4400 per person (approximately \$931 USD @ ¥6890 Yuan) and bursaries are given to UKM partner universities (MoU/MoA bounded) and local Malaysian students.

## PROGRAMME FEE

- Partner universities (MoU/MoA): RM 3800 per person (approximately \$820, ¥5900 Yuan).
- Malaysian local students (self-accommodation & transport): RM1600 per person.

## PROGRAMME FEE

Participants will receive a Certificate of Participation upon the completion of the programme.

# ENGINEERING AND SUSTAINABILITY MODULE

| CHAPTER  | DESCRIPTION   |
|--|---|
| Computer - Controlled Systems (Lecture 1)  | This course discusses a variety of aspects of computer application in control systems, which covers aspects of instrument selection and configuration, simulation, discrete time system analysis, digital controller tuner and discrete time system modelling. The course also impart knowledge, improve understanding and enhance ability in computer programming. MATLAB or Excel VBA is used in this course.   |
| Industrial Safety (Lecture 2)  | This course focuses on methods to identify hazards and analyze and evaluate their adverse effects. Students will also be introduced to various methods of preventive and control against hazards. The national legislations on occupational safety and health and the regulations will be introduced to students to explain the responsibilities of the employer and employees in maintaining the safety and health of workers.   |
| Engineering statistics & Finite Element Method (Lecture 3)                         | This course introduces statistics as one of the tools used in decision-making through data gathering and sampling. Amongst the main topics discussed are probability, Bayes' Theorem, random data representation, discrete and continuous random variables. Moreover, a finite element module is included with the introduction and brief history, types of elements and terminology, stress and equilibrium, boundary conditions, a direct and mathematical approach. Modelling element with shape functions, potential energy and Galerkin approach, formation of stiffness matrix and finite element formulas. 2-D axisymmetric problem. |
| Social, Economic, and Environmental Sustainability for Next Generation (Lecture 4) | In this course, principles of sustainability will be discussed with reference to the 3 pillars of sustainability which are economy, society, and the environment. Among the main topics to be discussed include the impact of pandemic on economy, sustainability in fashion, transportation.   |

# Tentative - Engineering and Sustainability Summer School

## WEEK 1

### Day 1

|        |         |   |
|--------|---------|---|
| Monday | 9.00am  | Registration                                |
|        | 10.00am | Welcoming Session                           |
|        | 11.00am | Ice Breaking Session/Games                  |
|        | 12.00pm | Program Briefing & Get to Know UKM and FKAB |

### Day 2

|         |        |                                     |
|---------|--------|-------------------------------------|
| Tuesday | 9.00am | Lecture 1                           |
|         | 2.00pm | Activity 1: Drone Simulation / Race |

### Day 3

|           |         |                             |
|-----------|---------|-----------------------------|
| Wednesday | 10.00am | Activity 2: Waste Discovery |
|           | 2.00pm  | Lecture 2                   |

### Day 4

|          |        |           |
|----------|--------|-----------|
| Thursday | 6.00am | Hiking    |
|          | 2.00pm | Lecture 3 |

### Day 5

|        |        |              |
|--------|--------|--------------|
| Friday | 2.00pm | Cafe hopping |
|--------|--------|--------------|

### Day 6

|          |        |                              |
|----------|--------|------------------------------|
| Saturday | 6.30am | FKAB @ parkrun               |
|          | 2.00pm | Travel to D'Coconut Agrofarm |

### Day 7

|        |        |  |
|--------|--------|--|
| Sunday | 9.00am | D'Coconut - Farm Visit                   |
|        | 2.00pm | D'Coconut - Fishing & Village Experience |
|        | 5.00pm | D'Coconut - Kayak                        |

## WEEK 2

### Day 1

|        |         |                                       |
|--------|---------|---------------------------------------|
| Monday | 10.00am | Return to UKM from D'coconut agrofarm |
|--------|---------|---------------------------------------|

### Day 2

|         |        |                      |
|---------|--------|----------------------|
| Tuesday | 2.00pm | Pineapple Farm Visit |
|---------|--------|----------------------|

### Day 3

|           |        |                                       |
|-----------|--------|---------------------------------------|
| Wednesday | 9.00am | Lecture 4                             |
|           | 2.00pm | Kayuhan Ceria ES3 + Traditional Games |

### Day 4

|          |         |                              |
|----------|---------|------------------------------|
| Thursday | 11.00am | Must See Kuala Lumpur Part 1 |
|          | 2.00pm  | Must See Kuala Lumpur Part 2 |

### Day 5

|        |        |                   |
|--------|--------|-------------------|
| Friday | 2.00pm | Postgrad Briefing |
|--------|--------|-------------------|

### Day 6

|          |        |                |
|----------|--------|----------------|
| Saturday | 9.00pm | Closing Dinner |
|----------|--------|----------------|

## CONTACT US

**Pejabat Mobiliti dan Kolaborasi (PMK)**

*Mobility and Collaboration Office*

**Faculty of Engineering and Built Environment**

**Universiti Kebangsaan Malaysia**

**43600 Bangi UKM, Selangor**

**Tel : +603-8921 7041 / 7137**

**Website: [www.ukm/jurutera/summerschool/](http://www.ukm/jurutera/summerschool/)**

**Email: [pmkfkab@ukm.edu.my](mailto:pmkfkab@ukm.edu.my)**