

**Skybelt Project**  
**10<sup>th</sup> Project Meeting (hybrid mode)**  
**4<sup>th</sup>-9<sup>th</sup> January 2023**  
**UPM and USM, Malaysia**

**Minutes from the 1<sup>st</sup> day of the 10<sup>th</sup> Project Meeting**

4th January 2023

**Present:**

UTEC: Luca Cioccolanti, Matteo Moglie, Marco Arnesano

CU: Gulfeza Kardas

UNN: Khamid Mahkamov, Irina Makhkamova

BJUT: Chen Chao

LZJTU: Yong Guan (remotely)

UPM: Ermira Abdullah, Mohd Amran Mohd Radzi, Suhaidi Shafie, Haslina Jaafar, Syamimi Saadon

NU: Kwanchai Kraitong, Ninnart Pachapradil

CMU: Det Damrongsak, Yuttana Mona

USM: Mohamad Yusof Idroas, Teoh Yew Heng, Mohd Azmier, Muhamad Azman Miskam

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**1 Morning session**

The meeting starts at 9.00 with the welcome by Dr. Ermira Abdullah.

Prof Mohd Khairul Anuar, dean of the Engineering Faculty, welcomes the participants and provide a brief presentation of the Faculty in UPM. Then Prof Mohd Khair Hassan, deputy dean of research and innovation, introduces the research activities at the Faculty of Engineering.

According to the agenda most of the participants visit the labs where the equipment purchased by UPM within the Skybelt project have been located. Visinery supplier is present to illustrate the functionalities of the different equipment. Furthermore, colleagues at UPM provide details about the way the equipment are used for student training in different modules. In a parallel session, Prof. Marco Arnesano provide a seminar on 'innovative measurement and control system for curtain wall buildings based sub-zonal approach' to students attending the module of 'Control System Analysis' taught by Dr. Ermira Abdullah.

**2. Afternoon session**

In the afternoon the seminar on 'Advancement on renewable energy technologies' takes place. The Vice Chancellor at UPM welcome all the participants (more than 50 students attend the seminar).

Speakers from Industry Academia discuss their recent activities on renewable energy. In particular, Ir. Mohd. Yusrizal Yusof from TNB Renewables, Prof. Ir. Dr. Mohd Zainal Ab Kadir from UPM, Prof. Khamid Mahkamov from UNN and Prof. Luca Cioccolanti present the ongoing activities and projects in the field.

Many questions arise from the students

The meeting ends at 17.00.



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## Minutes from the 2<sup>nd</sup> day of the 10<sup>th</sup> Project Meeting

5th January 2023

### Present:

UTEC: Luca Cioccolanti, Matteo Moglie, Marco Arnesano

CU: Gulfeza Kardas

UNN: Khamid Mahkamov, Irina Makhkamova

BJUT: Chen Chao

LZJTU: Yong Guan (remotely)

UPM: Ermira Abdullah, Mohd Amran Mohd Radzi, Suhaidi Shafie, Haslina Jaafar, Syamimi Saadon

NU: Kwanchai Kraitong, Ninnart Pachapradil

CMU: Det Damrongsak, Yuttana Mona

USM: Mohamad Yusof Idroas, Teoh Yew Heng, Mohd Azmier, Muhamad Azman Miskam

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### 1 Morning session

Delegates arrive at the Faculty of Engineering at UPM and then move to Malaysian Green Technology And Climate Change Center. Delegates visit the center.

Dr Gregers Reimann provides presentation on the design of the building which was awarded in 2020 because of its high energy performance. Solutions used to minimize the energy consumption of the building and improve the indoor quality are discussed with special attention to the renewable technologies implemented and the cooling system.

### 2. Afternoon session

A short seminar on QA is carried out by Prof. Mahkamov with the aim of promoting the QA standards applied to the modernised modules also to other modules taught at UPM.

Then PhD students at USPM present their works.

- Mohd Ruzaimi Mohd Ariffin - Hybrid Photovoltaic-Thermoelectric Power Generation for Green House Application
- Yusnita Yusuf - CNT-Carbon Black Composite as Catalyst for Dye Sensitized Solar Cell
- Mhammed Ali Khalifa Mhammed Ali Alnigomi- Investigation of Light Absorption and Charge Transfer Efficiency in Dye-Sensitized Solar Cell (DSSC) Using Carbon Quantum Dots As Co-Synthesizer
- Rozita Mustafa- An innovative technique of existing retrofitted PV system cooling for efficiency improvement

Also Juan Zhao from LZJTU remotely presents his PhD activity on Study on the pyrolysis of food waste and its digestate.

## Minutes from the 3<sup>rd</sup> day of the 10<sup>th</sup> Project Meeting

6th January 2023

### Present:

UTEC: Luca Cioccolanti, Matteo Moglie, Marco Arnesano

CU: Gulfeza Kardas

UNN: Khamid Mahkamov, Irina Makhkamova

BJUT: Chen Chao

LZJTU: Yong Guan (remotely)

UPM: Ermira Abdullah, Mohd Amran Mohd Radzi, Suhaidi Shafie, Haslina Jaafar, Syamimi Saadon

NU: Kwanchai Kraitong, Ninnart Pachapradil

CMU: Det Damrongsak, Yuttana Mona

USM: People from USM came back on 5<sup>th</sup> of January (at night) to prepare the meeting room for the day after. They join the meeting online.

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### 1 Morning session

Delegates arrive at the faculty of Engineering in UPM. The morning session is dedicated to the presentation and the discussion of the progresses at UPM, NU and CMU. Firstly Dr. Ermira Abdullah presents the progresses at UPM and also reports the procedure for the purchase of the equipment at UPM.

The same does Prof. Kwanchai Kraitong from NU and he informs that the selling of one equipment is still pending for NU due to criticalities in the provision of the material from China by the supplier. It is expected to receive this last item by March.

Eventually, Prof. Damrongsak reports the progresses about modernisation at CMU and provides details about the documents related to the tendering procedure performed in the past months at his university.

The morning session ends and the members move to Penang in the afternoon.



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## Minutes from the 4<sup>th</sup> day of the 10<sup>th</sup> Project Meeting

7th January 2023

### Present:

UTEC: Luca Cioccolanti, Matteo Moglie, Marco Arnesano

CU: Gulfeza Kardas

UNN: Khamid Mahkamov, Irina Makhkamova

BJUT: Chen Chao

LZJTU: Unable to participate in the online meeting due to remote connection failure to connect to the video.

UPM: Ermira Abdullah, Suhaidi Shafie, Haslina Jaafar

NU: Kwanchai Kraitong, Ninnart Pachapradil

CMU: Det Damrongsak, Yuttana Mona

USM: Mohamad Yusof Idroas, Teoh Yew Heng, Mohd Azmier, Muhamad Azman Miskam

### Apologise:

Prof. Yong Guan was unable to participate in the online meeting due to remote connection failure to connect to the video

### 1 Morning session

Participants arrived at USM Engineering Faculty and are welcomed by the USM team of Skybelt project and the Mechanical Engineering Dean.

Emeritus Professor Zainal Alimuddin Zainal Alauddin and Dr. Khaled Ali Al-Attab present the research activities on biomass and biomass-fuelled energy conversion systems at USM. Questions arise and potential cooperation with partners of the Skybelt consortium is discussed.

### 2. Afternoon session

Seminar on renewable energy with some Malaysian industrial partners involved in Skybelt network is carried out. Dr. Horizon Gitano Briggs from Focus Applied Technologies and Mr. Shaun Lim Kean Lai from Gen Plus Technologies present the activities performed in their companies in the field of renewable energy and energy efficiency. They confirm the interest in recruiting new engineers with enhanced knowledge in the field of renewable energy.

The participants discuss about the way to foster the cooperation between academia and industry in order to meet the market needs.

Then PhD students at USM present their works according to the following list:

Student	Research Topic	Year of PhD	Supervisor
Hishammudin Afifi Huspi	Suitability Study of Biofuels for Enabling HCCI, PCCI, And RCCI Combustion in Diesel Engine	4 <sup>th</sup> (On-going)	Dr. Teoh Yew Heng
Aamir Sohail	Integration of Organic Rankine Cycle (ORC) with Internal Combustion Engine for carbon capture and energy utilization system	1 <sup>st</sup>	Dr. Teoh Yew Heng



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Mohd Fadzli Hamid	Simulation and Experimental Analysis of Emulsified Biofuel Spraying and Combustion Characteristics in Compression-Ignition Engine	4 <sup>th</sup> (Waiting for Viva)	Associate Professor Dr. Mohamad Yusof Idroas
Munira binti Mohamed Nazari	The Effect of Carbonization and Binders on the Quality Characteristics of Empty Fruit Bunch (EFB) Briquettes and Producer Gas	4 <sup>th</sup> (On-going)	Associate Professor Dr. Mohamad Yusof Idroas
Nazmi bin Che Ismail	Double-Layer PMB from Lean to Rich Combustion: Analysis of Entropy generation, Thermal and Exergy analysis	4 <sup>th</sup> (On-going)	Prof. Ir. Dr. Mohd Zulkifly Abdullah
Al-Juboori Zaid Ali Shaalan	Efficiency and Heat Transfer Enhancement Using Hybrid Nanoparticles Suspended in Water Through Solar Cell Collector	2 <sup>nd</sup>	Prof. Ir. Dr. Mohd Zulkifly Abdullah
Wang Jie	Biomass Integrated Gasification - SOFC System	2 <sup>nd</sup>	Dr. Khaled Ali Mohammad Al-Attab



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**Sunday 8th of January 2023:**

Free day

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## **Minutes from the 5<sup>th</sup> day of the 10<sup>th</sup> Project Meeting**

9 January 2023

### **Present:**

UTEC: Luca Cioccolanti, Matteo Moglie, Marco Arnesano

CU: Gulfeza Kardas

UNN: Khamid Mahkamov, Irina Makhkamova

BJUT: Chen Chao

LZJTU: Yong Guan (remotely)

UPM: Ermira Abdullah, Suhaidi Shafie, Haslina Jaafar

NU: Kwanchai Kraitong, Ninnart Pachapradil

CMU: Det Damrongsak, Yuttana Mona

USM: Mohamad Yusof Idroas, Teoh Yew Heng, Mohd Azmier, Muhamad Azman Miskam

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### **1 Morning session**

Participants arrived at USM Engineering Faculty. During the morning session workshop on 'Innovative RETs for the built environment' is held. More than 50 students of the Engineering Faculty at USM took part to the workshop dealing with research and advanced projects on RETs in EU Universities of the consortium. Please see attached document in pdf.

In the second part of the morning the progresses on WP4 are presented remotely by Prof. Halime Paksoy and the next actions to be implemented are discussed. It was decided that some online short courses and seminars will be offered to PhD students of the network for their skills development. eCampus will provide on February a short course on 'Design of the Research' while Cukurova and Northumbria Universities commit to organise 2/3 hours seminar each on specific topics in the field of the project.

### **2. Afternoon session**

In the afternoon sessions the participants visit the laboratory at USM where the purchased equipment have been recently installed. Visinergy supplier is present also at USM premises to illustrate the functionalities of the different equipment. Furthermore, colleagues at USM provide details about the way the equipment are used for student training in different modules. Later on, the participants move to another laboratory at USM in which several prototypes of gasifier are installed for research purposes.

Participants come back to the meeting room and discussion on WP5 starts. Prof. Luca Cioccolanti commit to provide in the next few months comments on the timesheets previously provided by the partners prior to their signature and recording.

Then, it is discussed the next face to face meeting. It is decided to have the next meeting from 15th to 19th of March in Turkey, then sometimes in July in UK, in September in China (is restrictions will be removed soon) and the last one in Italy.

The meeting ends at 17.00.



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