Virtual Visiting Professor Project

1. Teacher Coordinator details

1.1 Name-surname of the coordinator

Dr. Issara Chanakaewsomboo

1.2 Teacher Coordinator Affiliated With

Faculty of environment management, PSU.

2. Details of internationally recognised foreign expert

2.1 Applicant Name: Fatmawati Adam

2.2 Academic position: Associate Professor

2.3 Affiliated With: Universiti Malaysia Pahang

2.4 Email: fatmawati@ump.edu.my

2.5 CV : please refer to the attachment

3. Operating Model

3.1 **Special Lecture Topics** Academic Activities and/or research topic to be consulted

Special Lecture Topics on "Application of sustainable engineering design for green herb extract, healthy food & beverage products"

3.2 **Special lecture plans in the course** Academic Activities Plan and/or meeting plans in the Research group meeting

3.2.1 Date, time, venue, and schedule

10.00-11.00 am

The topic of "Molecular Modelling & Simulation Application For Sustainable Engineering Process Design : Microscopic linking to Macroscopic Property" is an important science principles which underpinning the development of a chemical or material processing. The method can help the scientist or engineering scientist to understand the bulk property processing linking to the molecular property of any actual process or product which is important and sustainable in the product or process design.

11.00-12.00 am

This session will discuss the importance of chemical solvent selection in the extraction of essential oil of herbs such as patchouli and agarwood for sustainable extraction process. Active pharmaceutical ingredients such as benzoic acid, ascorbic acid and mefenamic acid in the crystallisation of solid particle through the selection of appropriate solvent also will be presented. The toxicity of solvent and physical chemistry play their important roles for sustainable food and pharmaceutical process.

1.00 – 2.00 pm

This session will present the innovation result and study of Developing Carboxymethyl Sago Starch (CMSS) Application in Pharmaceutical as a thickener agent for Hard Capsule and binder for tablet application. Thickener and binder are important to formulate a good texture of food product.

2.00 – 3.00 pm

Carrageenan is a renewable seaweed extract which can be developed for food and beverage industry as an additive. It can act as a thickener, binder, emulsifier in food such gelling food, ice cream. Besides, carrageenan can preserve the food quality through the development of Active Food Packaging.

Schedule Special Lecture Topics on

"Application of sustainable engineering design for green herb extract, healthy food & beverage products"

Date: January 6, 2022, 10.00 a.m.– 3.00 p.m. (According to the time of Thailand)

Date January 6, 2022	**Operating Details**
10.00 -12.00 a.m. **Time break down** 10.00 – 10.00 am 11.00 – 12.0 am	<u>Application of sustainable engineering design for green herb extract, healthy food & beverage products</u> • Molecular Modelling & Simulation Application For • Sustainable Engineering Process Design : • Microscopic linking to Macroscopic Property • Molecular Dynamic Simulation of the Patchouli Oil • Extraction Process : Chemical Solvents Interaction • Role • Agarwood Essential Oil Extraction Process • Crystallisation of Active Pharmaceutical Ingredient: • Chemical Solvents Interaction Role
1.00 – 3.00 p.m. **Time break down** 1.00 – 2.00 pm	<u>Innovation development of green herb extract, healthy food & beverage products</u> • Developing Carboxymethyl Sago Starch (CMSS) Application in Pharmaceutical as a thickener agent for Hard Capsule application • Developing Carboxymethyl Sago Starch (CMSS) Application in Pharmaceutical as a binder agent for tablet application

2.00 – 3.00 pm	• Carrageenan: Renewable Seaweed Source in Food and Beverage Application • Carrageenan: Active Food Packaging for Future Bioplastic Potential?

3.1.1 Number of hours
4 hours

3.1.2 Expected concrete results

1) Students gain experience in studying, researching, and working with foreign teachers.
2) Students develop academic writing for publication in high-quality journals, language skills and competence in a global society.
3) Students develop partnerships with international experts to build knowledge and innovation.

3.2 Amount of participants
Master's degree and doctoral degree students in Environmental Management major and Sustainable Energy Management major (International Program) PSU 10 persons.

3.3 Cost estimate
Scholarship to promote the organization of Virtual Visiting Professor under the Reinventing University project (Fiscal Year 2021)

	expense item	**unit**	**Amount/person (Baht)**	**number of people**	**Included (Baht)**	**note**
1	foreign expert compensation	per hour	5,000	1	20,000	4 hours each time, (including international money transfer fees)