**Application Form for the Organisation of a TTC**

NATIONAL VACUUM SOCIETY:

***Vacuum Society of the Philippines***

COURSE TITLE:

***Plasma and Society II***

LOCATION:

***Online via Zoom Web Conference and DMMME Amphitheater, Quezon City, Philippines***

DATE OF COURSE:

***January 26 to January 27, 2023***

STAND-ALONE COURSE OR PART OF A CONFERENCE or WORKSHOP:

***Stand-alone Hybrid Course***

OBJECT OF THE COURSE:

1. ***(1) Data Analysis Used in Studying Vacuum Science***
2. ***(2) Applying Plasma Science and Technology in Agriculture***
3. ***(3) Understanding Vacuum Science and Technology Through Simulation***

LANGUAGE:

***English and Filipino***

COURSE OUTLINE ATTACHED:

***See Attached "VSP Proposed Technical Training Course Outline"***

EXPECTED EDUCATIONAL AND JOB LEVEL OF STUDENTS:

***Undergraduate and Graduate Students (MS and Ph.D.), engineers, researchers, and professionals in the academe and relevant industries.***

EXPECTED AVERAGE NUMBER OF STUDENTS PER COURSE:

***90 per course***

FINANCES:

Cost per course in Euros, CHF, or US$;

Sources and total amount of support;

IUVSTA contribution requested and how will it be used.

PROVISIONAL BUDGET ATTACHED:

| **Possible Income** | Unit cost (EUR) | Quantity | Sub-Total (EUR) | Remarks |
|---|---|---|---|---|
| Registration Fees (online) | 20 | 60 | 1,200 | |
| Registration Fees (on-site) | 40 | 30 | 1,200 | |
| IUVSTA support | 2,000 | 1 | 2,000 | |
| **Total (EUR)** | | | **4,400** | |
| | | | | |
| **Proposed Budget** | Unit cost (EUR) | Quantity | Sub-Total (EUR) | Remarks |
| Zoom Meeting Monthly Subscription | 25 | 1 | 25 | The training course will be hybrid to allow participants from other regions of the Philippines |
| Advertisement | 200 | 1 | 200 | Publicity of the training course will be boosted in various social media outlet to further increase the reach of the training course. |
| Temporary Labors (per person) | 30 | 8 | 240 | Assigned staff for logistics and technicals of the event; Staffs for preparing the publicity materials of the course will also be hired |
| Preparation and Delivery of Certificates | 100 | 1 | 100 | To print hard copies of certificates and deliver the certificates to the participants |
| Preparation and Printing of Handouts and Modules | 285 | 1 | 285 | To print materials prepared by the lecturers and give them to the participants |

| | | | | |
|---|---|---|---|---|
| Lunch, Snacks, Coffee Breaks (2 days) | 25 | 50 | 1,250 | Packed lunch and snacks (AM and PM) for on-site participants, speakers, and staff |
| Token for Speakers | 30 | 10 | 300 | Possible tokens for speakers- jacket, shirt, mug, etc |
| Venue Rental (including Internet and Communication Expenses) | 2,000 | 1 | 2,000 | To prepare a token of appreciation to the invited speakers of the training course, including internet and communication expenses |
| | | | | |
| **Total (EUR)** | | | **4,400** | |

REPORT:

The Society (the recipient of the grant) is required (within 1 month after the TTC completion) to send a Report to the IUVSTA Scientific Secretary which should include the following information:

- Title, location, and date of the TTC
- Intent of the course, language of the course
- List of teachers and attendants (with affiliations)
- Names of beneficiaries of the IUVSTA support, with spending specifications

I agree to fulfil all the points of the above

Name: Kathrina Lois M. Taaca

Position: President

Date and Signature: 24 August 2024

## Proposed Course Outline

Length: 2 days

**Part 1: Data Analysis used in studying Vacuum Science** (6hrs)

- Plasma diagnostics principles and uses (3 hrs)

This focuses on basic plasma diagnostics on how to determine the species generated in a vacuum system. The session will discuss first the theories and principles on magnetic and electrostatic probes. Emission spectroscopy will also be highlighted as it is one of the most used tools in identifying the species generated in a plasma and/or vacuum system. The application of these tools will also be presented.

- X-ray photoelectron and absorption spectroscopy (3hrs)

The goal of this topic is to introduce the principles of x-ray photoelectron and absorption spectroscopies to chemical analysis. The session aims to discuss the identification, qualitative and quantitative analysis of the elemental and chemical species present in a sample. Lastly, the session will also tackle the surface sensitivity and microanalytical aspects of the techniques and what types of materials and problems that can be addressed by the techniques. Studies using these techniques will also be presented in this session.

Possible Speakers: Dr. Narong Chanlek, Dr. Hideki Nakajima, Prof. Anouk Galtayries, Prof. Takayoshi Tsutsumi, Dr. John Grant, Prof. Motoi Wada, Dr. Alexander Fridman

**Part 2: Applying Plasma Science and Technology in Agriculture** (2hrs)

The purpose of this session is to highlight the use of plasma and vacuum science and technology to agriculture. This can be a special session in this technical training course since the Philippines is known to be an agricultural country. The session will consist of invited speakers who can be a student or a professional whose studies use vacuum systems for agricultural purposes.

Possible Speakers: Dr. Giovanni Malapit, Dr. Christian Mahinay, Dr. David Ruzic, Dr. Koichi Takaki, Dr. Douyan Wang,

**Part 3: Understanding Vacuum Science and Technology through Simulation (8 hrs)**

- Practices on Molecular Dynamics simulation and its advantage in studying vacuum science and technology (2 hrs)

This topic will focus on how simulation can assist in understanding the molecules and particles present in a vacuum system. The goal of this session is to highlight the different steps involved in developing a molecular dynamics simulation from model generation to data analysis.

- Application of Molecular Dynamics (5 hrs)

The goal for this topic is to apply the basics of molecular dynamics simulation. As an introduction, this session will only focus on applying simulations to small molecular systems.

- Vacuum-related studies applying molecular dynamics for analysis (1 hr)

This session will focus on presenting different studies applying molecular dynamics to investigate small molecules in a vacuum system. This session will also highlight using molecular dynamics in studying the properties of materials modified or synthesized using vacuum technologies.

Possible speakers: Ms. Catherine Joy Dela Cruz, Prof Matthew Sherburne, Prof. Satoshi Hamaguchi, Mr. Jomar Tercero, Dr. Eun Ha Choi

**Goals of the Course:**

This technical training course is a continuation of the first technical training course developed by the Vacuum Society of the Philippines (VSP) last April 15 and 16 2021. Similar to the first installment, the training course will also be a 2-day activity to be held on January 26 and 27, 2023. Graduate and undergraduate students, engineers, researchers, and professionals in the academic community and related industries will all be able to enroll in this multidisciplinary technical training course. The training program will target Filipino students and professionals. However, we also intend to welcome interested South East Asian (SEA) individuals. In this installment, the training course is designed to introduce the various vacuum science technology tools. Specifically, the application of molecular dynamics to comprehend the molecular mechanism in a vacuum system. In addition, the course intends to offer molecular dynamics-based vacuum-related studies. Moreover, participants will be introduced to plasma diagnostics and spectroscopic characterizations. A further focus of the session will be the discussion of agricultural applications of vacuum technologies. This course will demonstrate the possibilities and potential applications of vacuum technology in the agricultural sector of the Philippines. After completing the required survey form and evaluation activity, participants will receive a certificate of participation from the Vacuum Society of the Philippines.

TITLE: Plasma and Society II
VENUE: Zoom Meeting and DMMME Amphitheater (Quezon City, Philippines)
DATE: 26-27 January 2023

| **Possible Income** | Unit cost (EUR) | Quantity | ub-Total (EUR) | Remarks |
|---|---|---|---|---|
| Registration Fees (online) | 20 | 60 | 1,200 | |
| Registration Fees (on-site) | 40 | 30 | 1,200 | |
| IUVSTA support | 2,000 | 1 | 2,000 | |
| Total (EUR) | | | 4,400 | |

| **Budget** | Unit cost (EUR) | Quantity | ub-Total (EUR) | Remarks |
|---|---|---|---|---|
| Zoom Meeting Monthly Subscription | 25 | 1 | 25 | The training course will be hybrid to allow participants from other regions of the Philippines |
| Advertisement | 200 | 1 | 200 | Publicity of the training course will be boosted in various social media outlet to further increase the reach of the training course. |
| Temporary Labors (per person) | 30 | 8 | 240 | Assigned staff for logistics and technicals of the event; Staffs for preparing the publicity materials of the course will also be hired |
| Preparation and Delivery of Certificates | 100 | 1 | 100 | To print hard copies of certificates and deliver the certificates to the participants |
| Preparation and Printing of Handouts and Modules | 285 | 1 | 285 | To print materials prepared by the lecturers and give them to the participants |

| | | | | |
|---|---|---|---|---|
| Lunch, Snacks, Coffee Breaks (2 days) | 25 | 50 | 1,250 | Packed lunch and snacks (AM and PM) for on-site participants, speakers, and staff |
| Token for Speakers | 30 | 10 | 300 | Possible tokens for speakers- jacket, shirt, mug, etc |
| Venue Rental (including Internet and Communication Expenses) | 2,000 | 1 | 2,000 | To prepare a token of appreciation to the invited speakers of the training course, including internet and communication expenses |
| Total (EUR) | | | 4,400 | |