

# SMART GREEN

POLITEKNIK BANTING SELANGOR



**SUSTAINABILITY  
REPORT 2022**



# SUSTAINABILITY REPORT 2022

# SMART GREEN

## POLITEKNIK BANTING SELANGOR

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopy, recording, or any information storage and retrieval system, without permission in writing from Penerbit Politeknik Banting Selangor.

Published by:  
POLITEKNIK BANTING SELANGOR  
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI  
KEMENTERIAN PENGAJIAN TINGGI  
Persiaran Ilmu,  
Jalan Sultan Abdul Samad,  
42700 Banting,  
Selangor Darul Ehsan.  
[www.pbs.mypolycc.edu.my](http://www.pbs.mypolycc.edu.my)  
Tel:603-31201625  
Faks:603-31201706

© 2023 Politeknik Banting Selangor  
Perpustakaan Negara Malaysia

e ISBN 978-967-2747-19-2



# Table of Content

|  |     |
|--|-----|
| Table of Content   | i   |
| Foreword   | ii  |
| Objective  | iii |
| Committee Members  | iv  |
| Smart Green at PBS                                       | 1   |
| Smart Green Activities                                   | 2   |
| • Recycling Awareness Briefing                           | 3   |
| • Launch Of Recycling Center                             | 5   |
| • Collection Of Recycling Materials & World Clean Up Day | 7   |
| • Urban Farming  | 10  |
| • Collection Of Used Cooking Oil                         | 14  |
| • Environmental Sustainability                           | 16  |
| • Innovative Recycling Competition                       | 19  |
| • Rainwater Collection & Reuse System                    | 21  |
| • Car Pooling & Transportation                           | 23  |
| • Earth Hour   | 25  |
| • Community Garden                                       | 27  |
| • Education & Research Management                        | 29  |
| • Green Procurement                                      | 32  |
| • Tree Tagging Process                                   | 34  |
| Smart Green Achievements                                 | 36  |
| Editorial Members  | 38  |

# Foreword

**Alhamdulillah, Thank God, the Polytechnic Banting Selangor's SmartGreen Committee Report 2022 has been published. This report highlights the efforts and implementation of various programmes to maintain, promote and improve sustainability and green initiatives at Polytechnic Banting Selangor throughout the year 2022. In addition, this report serves as a significant evidence for the evaluation of the UI GreenMetric World University Ranking 2023. Special thanks goes to the editorial team and Polytechnic Banting Selangor's SmartGreen Committee who had worked hand in hand to publish this report. Hopefully by publishing this report, it could spread awareness and promote more sustainability and green initiatives among Malaysian Polytechnic and Community College staffs.**

**Thank you.**

**En. Mohd Khairun Nizam Bin Sa'adan  
Coordinator/Manager  
Smart Green Politeknik Banting Selangor**

# Objective

**Giving awareness to PBS citizens about sustainable living practices by implementing and engaging in related programmes.**

# Committee Members

## **Chairman**

Ts. Zainah Binti Rujihan

## **Deputy chairman**

En. Saharuddin Bin Talib

## **Coordinator/Manager**

En. Mohd Khairun Nizam Bin Sa'adan

## **Secretary**

En. Mohd Azam Bin Mohd Daud

## **Education and Research Management**

Pn. S.Thivviyah A/P Sanmugam

## **Energy Management and Climate Change**

Pn. Intan Liyana Binti Ramli

Pn. Hanis Rasyidah Binti Dollah@Abdullah

## **Environmental and Landscape Management**

Pn. Roziyani Binti Zaidon

## **Waste Management**

Pn. Minarni Binti Sairi

## **Water Management**

En. Ahmad Aminnudin Bin Basar

## **Transportation**

Pn. Hemala A/P Manohar

## **Green Procurement**

En. Muhammad Faez Bin Nordin

# Smart Green at PBS

Polytechnic Banting Selangor (PBS) is the 24th polytechnic out of 36 Malaysian Polytechnics under the supervision of the Department of Polytechnic Education and Community College. PBS started operating in a temporary campus in 2007 at Kolej Komuniti Kuala Langat with the recruitment of the first cohort in January 2008 before moving to a shop house building in Bandar Sungai Emas.



PBS then moved to its permanent campus and started its operation on 6th September 2012 by offering 2 main diploma programs namely the Aircraft Maintenance Engineering and the Mechanical Engineering. The first intake of students at this permanent campus was in December 2012 session with a total of 165 students. Today, PBS student's enrolment has reached a total of 952 students with the addition of the Mechanical Engineering (Manufacturing) Diploma program.



PBS had continuously given priority to sustainability programmes in line with the launch of Politeknik Malaysia's Polygreen Blueprint which was launched on 1 April 2015 by the Deputy Prime Minister, Tan Sri Muhyiddin Yassin at Politeknik Merlimau, Melaka. With the blueprint plan, it has guided PBS to integrate many green practices that involved the five main aspects, namely green campus management, green curriculum development, green community nurturing, green research and green culture. Practices based on the 6R concept of Reuse, Reduce, Renew, Recycle, Repair and Rethink were promoted actively to all PBS citizens.

# SMART GREEN ACTIVITIES

## **Recycling Awareness Briefing**

# Recycling Awareness Briefing



In order to ensure the involvement of all PBS citizens regarding the importance of recycling activities, an awareness briefing for landscape and cleaning service providers was held on 24 September 2022. A recycling awareness briefing for landscaping and cleaning suppliers was delivered by Smart Green PBS Coordinator, Mohd Khairun Nizam Bin Sa'adan.



# SMART GREEN ACTIVITIES

**Launch of Recycling Center**

# Launch of Recycling Center

In order to ensure that recyclable materials are collected, sorted and stored in the appropriate place, the launch of the PBS recycling center was carried out on 30 March 2022. This launch was also carried out simultaneously with the energy and water saving campaign at PBS.



# SMART GREEN ACTIVITIES

**Collection of Recycling Materials  
& World Clean Up Day**

# Collection of Recycling Materials

The collection of recyclable materials was implemented first at PBS in early 2022 with the involvement of all citizens. In addition, the collection of recycled materials has become a practice for PBS citizens in parallel with the launch of the Public Sector Ecosystem practice (EKSA). Furthermore, active recycling material collection activities were carried out at PBS in conjunction with World Clean Up Day which took place from 17-25 September 2022. A total of 38.23 kg of recyclable materials (paper) and 4.41 kg of plastic were successfully collected for recycling process.



# World Clean Up Day 2022

The collection of recyclable materials also involved all the residential college students on 21 September 2022 in conjunction with World Clean Up Day 2022.



In conjunction with World Clean Up Day 2022, PBS Student Representative Main Council members had participated in a hiking cum plogging activity at Bukit Jugra on 21 September 2022.

# SMART GREEN ACTIVITIES

## **Urban Farming**

# Urban Farming

The urban farming project at PBS was launched as a result of the approval of the Environmental and Green Technology grant worth RM15,000.00 from Selangor state government. The urban farming project house was first set at the PBS academic building. This project utilises hydroponic concept and is carried out without the use of harmful pesticides.



Inauguration of urban farming project on 5 July 2022 by PBS Director, Ts. Zainah Binti Rujihan

# Urban Farming



Upon the success of the first phase of urban farming project, PBS has taken steps to add more urban farming houses in the second phase. The installation of new urban farming houses were carried out on 22 September 2022.



In collaboration with TOCLAN Sdn, Bhd., a workshop on Urban Farming process and procedures was carried out on September 30, 2022.

# Urban Farming



The Director of Politeknik Banting Selangor, Ts. Zainah Binti Rujihan had officially handed over the eight Urban Farming Houses to the appointed coordinators.

| CODE | LOCATION                | UNIT                             | COORDINATORS                       | STUDENT'S CLUB                        |
|------|-------------------------|----------------------------------|------------------------------------|---------------------------------------|
| 1    | ACADEMIC BUILDING       | MECHANICAL DEPARTMENT            | PN. INTAN LIYANA BINTI RAMLI       | MECHANIZER                            |
| 2    | ACADEMIC BUILDING       | MECHANICAL DEPARTMENT            | PN. HANIS RASYIDAH BINTI ABDULLAH  | MECHANIZER                            |
| 3    | ACADEMIC BUILDING       | AIRCRAFT DEPARTMENT              | TS. MOHD KHAIRUN NIZAM BIN SA'ADAN | AERO CLUB                             |
| 4    | ACADEMIC BUILDING       | AIRCRAFT DEPARTMENT              | PN.SHALHAYUNI BINTI SARIPUDEN      | AERO CLUB                             |
| 5    | ADMINISTRATION BUILDING | MATHEMATIC & COMPUTER DEPARTMENT | PN. RUHIYAH NAZIHAH BINTI ZAHKAI   | STEM                                  |
| 6    | ADMINISTRATION BUILDING | GENERAL STUDIES DEPARTMENT       | PN. IMA RAHAYU BINTI ABD RAHMAN    | CALLIDUS                              |
| 7    | ADMINISTRATION BUILDING | ADMINISTRATION                   | PN. NOOR AZILA BINTI ABU BAKAR     | STUDENT REPRESENTATIVE COUNCIL        |
| 8    | ADMINISTRATION BUILDING | ADMINISTRATION                   | PN. HASLIZA BINIT HASHIM           | STUDENT RESIDENTIAL COLLEGE COMMITTEE |

# SMART GREEN ACTIVITIES

## **Collection Of Used Cooking Oil**

# Collection Of Used Cooking Oil



Collecting used cooking oil is one of the sustainable activity that is being carried out at PBS. This activity has received strong support from PBS citizens, including the canteen operators.



# SMART GREEN ACTIVITIES

**Environmental Sustainability**

# Environmental Sustainability



In ensuring the sustainability of the environment, PBS citizens are very active in carrying out activities related to the environment. Students from Kelab Mesra Alam worked collaboratively with Generasi Peduli Sampah, a Non-Governmental Organization (NGO) and participated in a beach cleaning activity organized by the Kuala Langat Municipal Council on 10 September 2022. A total of 24.90 kg of garbage were successfully collected.



# Environmental Sustainability



In addition, students from Kelab Mesra Alam did not miss out on participating in the Batu Laut beach clean-up activity organized by SWCorp on 21 September 2022.



Several plogging activities were also carried out by PBS citizens to ensure the sustainability of the environment, especially in Kuala Langat area. These activities were jointly organized by Smart Green PBS, Kelab Mesra Alam, PBS Student Representative Council and Puspanita PBS in collaboration with the Kuala Langat Municipal Council in 2022.

# SMART GREEN ACTIVITIES

**Innovative Recycling Competition**

# Innovative Recycling Competition



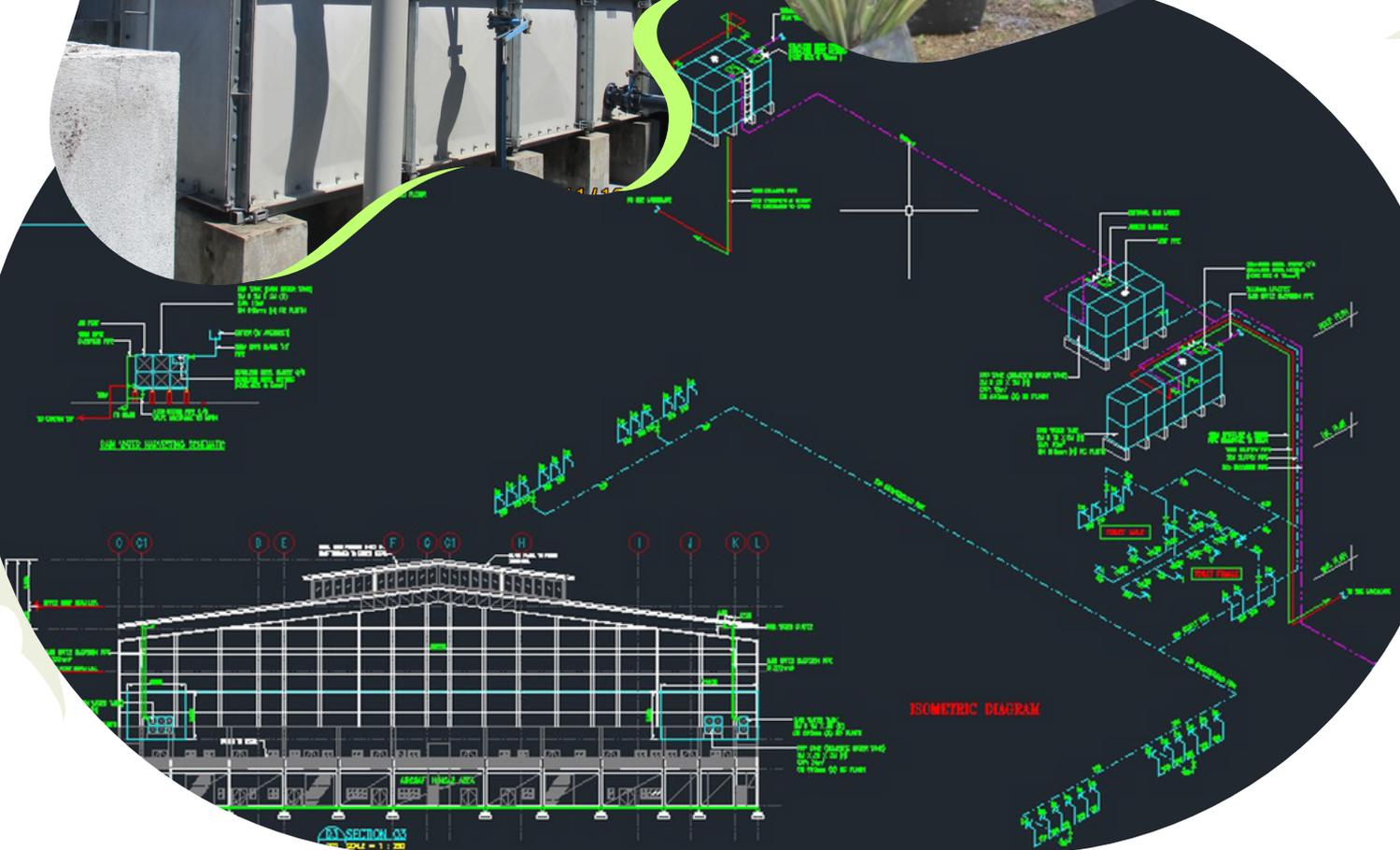
In an effort to increase students' awareness of upcycling recycling materials into useful innovative products, PBS has organized the Innovative Recycling Competition on 8 June 2022. This competition was organized by Kelab Mesra Alam for the MPU 24021 Co-curriculum course.

# SMART GREEN ACTIVITIES

## **Rainwater Collection & Reuse System**

# Rainwater Collection And Reuse System

In order to save water usage, PBS has provided two tanks for the process of collecting rainwater. The collected rainwater is used for watering trees and plants around PBS campus.

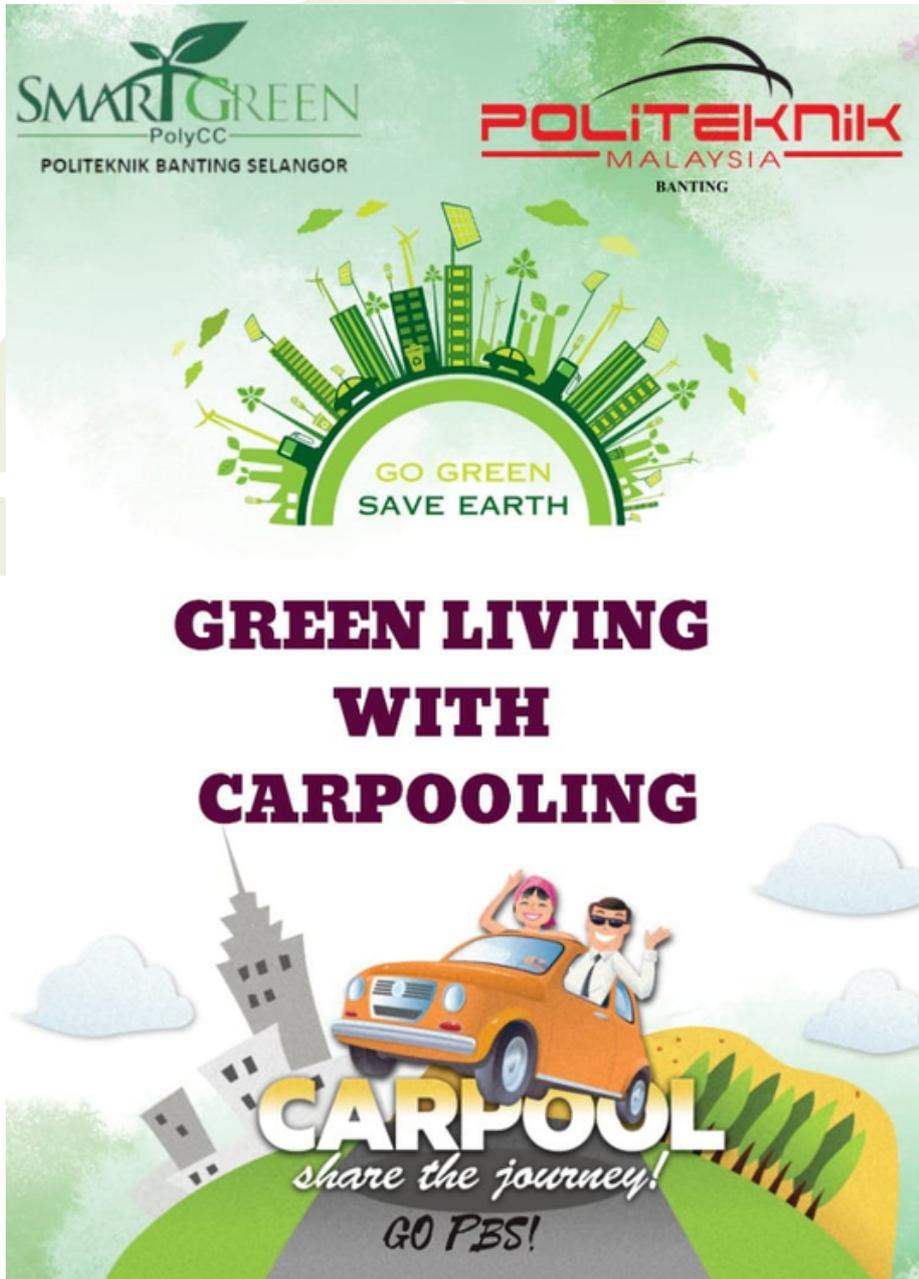


# SMART GREEN ACTIVITIES

## **Car Pooling & Transportation**

# Car Pooling & Transportation

In continuing efforts towards a low-carbon city, PBS encourages its citizens to share vehicles to work. This effort is actively supported by PBS staffs whereby many staffs started carpooling with their colleagues to work. This program was led by Pn. Hemala Manohar.



PBS staffs are also encouraged to use Efficient Vehicle or Hybrid cars around PBS Campus.

# SMART GREEN ACTIVITIES

**Earth Hour**

# Earth Hour

Earth Hour is an annual event organized by WWF and is organized on the last Saturday of March 2022. The Earth Hour event requires homes and offices to turn off lights and electrical appliances for one hour to raise awareness of climate change. PBS has also participated in making Earth Hour 2022 a success.



# SMART GREEN ACTIVITIES

## **Community Garden**

# Community Garden

The community garden is one of PBS's initiatives in promoting green concepts on campus. This community garden kick-started with a tree planting campaign that was held on 11 May 2022. This campaign was organized by Kelab Mesra Alam students.



# SMART GREEN ACTIVITIES

**Education &  
Research Management**

# Education & Research Management



PBS staffs; Ts. Intan Liyana binti Ramli and Ts. Hanis Rasyidah binti Dollah received a Grant from Selangor state government (Geran Kecil Alam Sekitar Dan Teknolog Hijau) valued RM15000.00 for Urban Farming Project. The grant awarding ceremony was held on 14 February 2022.

A workshop to promote awareness on Sustainable Development Goals (SDG's) and integrating SDG into student's innovation projects were carried out by Pn. S. Thivviyah Sanmugam via online on 1st and 6th April 2022.



# Education And Research Management

PBS had also contributed 5 research and innovation project articles in 2022 for Malaysian Polytechnic and Community College Sustainability Awards 2022 E-proceeding. The title of the research articles were Self Sustainable Personal Floating Device, Incorporating Design Thinking in Eco-Friendly Innovation Project for Communicative English Assessments, Aircraft Personal Safety Compartment, Multipurpose Pro-Techtor Helmet and Movable Aviation Light.

Penyelidikan dan Inovasi Hijau MPCCSustAward22  
eISBN 978-967-2766-29-2

## Movable Aviation Light (MAL)

Mohd Khairun Nizam bin Sa'adan<sup>1</sup>, Vishnuu a/I Narayanan<sup>1</sup>, Mohd Sandarshah bin Suaidi<sup>1</sup>,  
Mohd Ferhan Bin Suaidi<sup>1</sup> & Salleh Wong Kok Ming<sup>1</sup>

<sup>1</sup>Department of Aircraft Maintenance, Polytechnic, Banting, Selangor

\*Corresponding author's email: nizam@polibanting.edu.my

### ABSTRACT

Aircraft maintenance hangars must have high levels of visibility and good colour rendering in order for personnel to detect defects in airplanes and make repairs. Poor illumination levels and colour rendering can obscure or mask the appearance of items that would otherwise be visible. Poor illumination in an aviation hangar could lead the technicians and engineers to make mistakes during inspection and identification of the defects on the aircraft. As a result, the aircraft will have a large amount of features that able to help the LAE and technicians to do their jobs more efficient and without difficulties. The product LED Work light is able to make the product to use in various places around aircraft. Four Swivel lights are installed and makes the product is movable. Other than that, Solar panel is installed as backup source of the product.

Keyword: aircraft, maintenance

Penyelidikan dan Inovasi Hijau MPCCSustAward22  
eISBN 978-967-2766-29-2

## Incorporating Design Thinking Approach in Eco-Friendly Innovation Project for Communicative English Assessments

S.Thivviah Sanmugam<sup>1</sup> & Norzilah Binti Mohd Ali<sup>1</sup>

<sup>1</sup>Politeknik Banting Selangor, Persiaran Ilmu, Jalan Sultan Abdul Samad, 42700, Banting, Selangor

\*Corresponding author's email: thivviah@polibanting.edu.my

### ABSTRACT

An eco-friendly innovation project-based assessment was integrated in the teaching and learning of English course at a Malaysian polytechnic. The eco-friendly project is developed as a part of the assessment for Communicative English 2 class whereby semester three polytechnic students are required to work collaboratively to come up with an eco-friendly innovation project using recycled materials. The purpose of integrating eco-friendly project-based assessment in the Communicative English 2 oral presentation assessment is to enhance students' 4C's skills namely collaboration, creativity, critical thinking and communication skills. To develop environmentally-aware and ecologically conscious students. Students used design thinking approach to innovate and propose eco-friendly projects to achieve Sustainable Development Goals (SDGs) and later presented their projects using posters and prototype. Data from questionnaires administered to students upon completing their assessments showed that they enjoyed this new form of assessment, it has facilitated their language learning at the same time enhanced their environmental awareness.

Keywords: design thinking, Eco-friendly innovation projects, Sustainable Development Goals

- E-PROCEEDING -  
**MPCCSustAWARD22**  
MALAYSIAN POLYTECHNIC & COMMUNITY COLLEGE SUSTAINABILITY AWARD



# SMART GREEN ACTIVITIES

## **Green Procurement**

# Green Procurement



En. Muhammad Faez gave a briefing to Polytechnic Banting staffs regarding Malaysian Standard for Green Procurement practices and schemes such as MyHijau Mark.



# SMART GREEN ACTIVITIES

## **Tree Tagging Process**

# Tree Tagging Process



The tree tagging process was carried out on 19 October 2022 in collaboration with the PBS Asset Management Unit together with Kelab Mesra Alam students. This program was led by Pn. Minarni Binti Sairi.





# SMART GREEN ACHIEVEMENTS

# PBS Smart Green Achievements



PBS Smart Green Team members had obtained RM15,000.00 worth grant for Environment and Green Technology project from Selangor State Government.

In addition, PBS Smart Green team has secured 888th place for World's Most Sustainable University Ranking on 2021



## MPCCSustAWARD22

8 SEPTEMBER 2022

PBS Smart Green team emerged as the overall 2nd place winner in the Malaysian Polytechnic and Community College Sustainability Award 2022





# EDITORIAL MEMBERS

# Editorial Members



**Pn. Normurni binti Mohamad**  
Editor-in-Chief



**Ts. Mohd Khairun Nizam Bin Sa'adan**  
Co-Chief Editor

## Editors



**Ts. Intan Liyana**  
Binti Ramli



**Pn. S.Thivviah**  
A/P Sanmugam



**En. Muhammad**  
Faez Bin Nordin



**En. Mohd Azam**  
Bin Daud



**Ts. Hanis Rasyidah**  
Binti  
Dollah@Abdullah



**Pn. Roziyani**  
Binti Zaidon



**Pn. Minarni**  
Binti Sairi



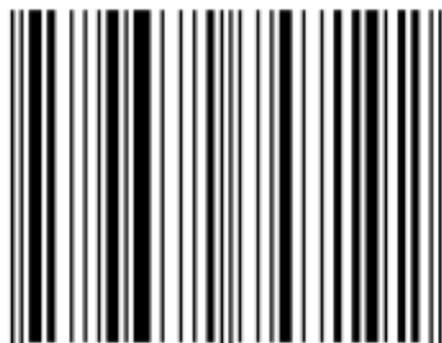
**Pn. Hemala**  
A/P Manohar



**En. Ahmad**  
Aminnudin Bin  
Basar



e ISBN 978-967-2747-19-2



9 789672 747192