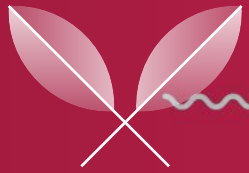


Staff Training and Development



Sustainability Management
Center

Universiti Malaysia Terengganu

Introduction

It is the duty of Universiti Malaysia Terengganu (UMT) faculties, institutions, and centers to provide pertinent environmental education in respective domains. Employees must be aware of their environmental duties as well as the policies and procedures governing environmental management that apply to their departments, schools, or centers.



Sustainability Training Programmes

- Sustainability training at UMT covers environmental education and procedures, as well as workers' individual responsibilities relevant to working at UMT.
- The training programmes are as follow:
 1. Sustainability education for all UMT students and workers
 2. Sustainable Labs training for laboratory workers
 3. Sustainable Living training for all students and staff

1. Sustainability education for all UMT students and workers

- UMTMOOC@ (<https://bayou.umat.edu.my/mod/page/view.php?id=3684>) was officially launched on 2015 following Dasar e-Pembelajaran Negara (DePAN) and Malaysia Education Blueprint 2015-25 (Higher Education) highlighting the shift to globalized online learning. The program started in 2015 with the development of several pilot courses that served as an introductory to MOOC course development. UMT is committed in expanding the concept of higher learning under four key principles, "Quality Education", "Sustainability", "Accessibility, and "Learning for Life". Below are courses that related to sustainability taken by our UMT staff, students and broader community which are non-staff and students.

1. Sustainable Development
2. Coastal Science and Engineering
3. Estuarine and mangrove
4. Fundamental of the earth
5. Hidrologi dan sumber air
6. Principles of Ecology
7. Sea Turtle biology and Conservation
8. Wildlife management

DATA ENROLLMENT BAGI KURSUS UMTMOOC
(Data sehingga 29 Februari 2024)

Selesai dibangunkan pada 2015



3041 Enrollments

(Data sehingga 29 Februari 2024)



2823 Pelajar UMT

27 Staf UMT

191 Orang Awam

Selesai dibangunkan pada 2023



8 Enrollments

(Data sehingga 29 Februari 2024)



0 Pelajar UMT

4 Staf UMT

4 Orang Awam

Selesai dibangunkan pada 2018



540 Enrollments

(Data sehingga 29 Februari 2024)



416 Pelajar UMT

12 Staf UMT

112 Orang Awam

Selesai dibangun pada 2023



5 Enrollments

(Data sehingga 29 Februari 2024)



1 Pelajar UMT

3 Staf UMT

1 Orang Awam

Dalam fasa pembangunan kursus tahun 2024



0 Enrollment

(Data sehingga 29 Februari 2024)



0 Pelajar UMT

0 Staf UMT

0 Orang Awam

Selesai dibangunkan pada 2015



139 Enrollments
(Data sehingga 29 Februari 2024)



50 Pelajar UMT

8 Staf UMT

81 Orang Awam

Selesai dibangunkan pada 2016



179 Enrollments

(Data sehingga 29 Februari 2024)



121 Pelajar UMT

13 Staf UMT

45 Orang Awam

Selesai dibangun pada 2017



311 Enrollments

(Data sehingga 29 Februari 2024)



288 Pelajar UMT

7 Staf UMT

16 Orang Awam

2. Sustainable Labs training for laboratory workers

- The scientific community is becoming more aware in the subject of sustainability. Compared to private life, lab equipment, procedures, and habits are still a long way off from truly becoming sustainable. How can we cut down on power usage, improve workflows, and create less plastic waste? The laboratory's sustainability footprint is the result of several interrelated factors. The first measures to enhancing the conditions in your lab are suggested in the following ppt to UMT staff and students.

Sustainable Laboratory
Briefing: Small Changes
make a big difference



How can we help save our planet with sustainable lab?

- Many Island countries including Maldives, Fiji, The Solomon Islands and Samoa are at risk of completely disappearing due to climate change, leaving many people homeless.





Effects of climate change: 70 % of Alps' snow cover lost by 2100



2/3 snow
leopards' habitat
inhospitable by
2070



Climate change is already affecting all aspects of food production throughout the world, from growing crops to rearing livestock

Ways to Increase Sustainability in Your Research Lab-1. **Save Energy**

**shut
the sash**

to save energy and
reduce emissions.



(i). Shut the sash of fumehood if not in use- Shut fume cupboards you are not using. An open fume cupboard four times as much carbon emission as one that's shut and is also four time more costly to run.

(ii). Switch your
computer off



(iii). Avoid storing samples at temperatures than you need to.

- Ultra low freezers operating at - 80 degree Celsius can make up over 66 % of the energy used by all the appliances in the lab.





Ways to Increase Sustainability in Your Research Lab-2. **Save Water**

1. Water condenser can use up to 150 litres of water in an hour, the same as continuously running a bath.

2. Ways to Increase Sustainability in Your Research Lab. **Save Water**



- At some universities, the water used in labs accounts for 50 % of the entire university's water usage.

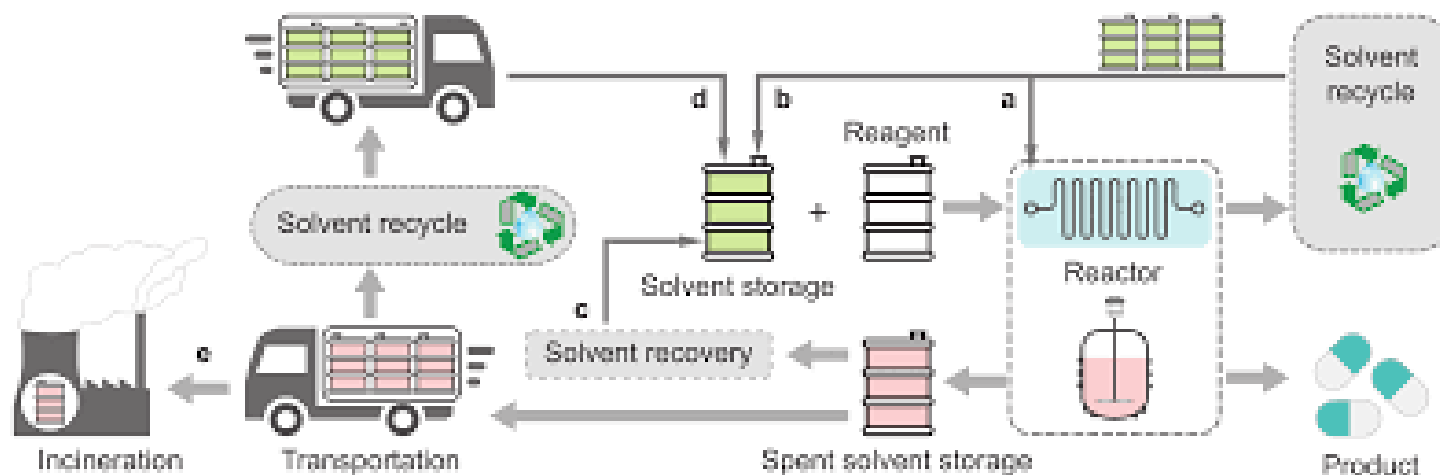
2. Ways to Increase Sustainability in Your Research Lab. **Save Water**



- Only use high quality water when necessary. Creating distilled or deionized water wastes a lot of energy and water.

Ways to Increase Sustainability in Your Research Lab - 3. Reduce Wastes

- Use less solvent and recycle if possible. Solvents make up to 80 % of the mass in a standard batch chemical operation and are a big source of waste when they are discarded at the end.
- Look for alternative solvents with lower toxicity, minimal safety concerns and lower impact on the environment.



Ways to Increase Sustainability in Your Research Lab-Reduce wastes

Use computerized chemical
inventory.



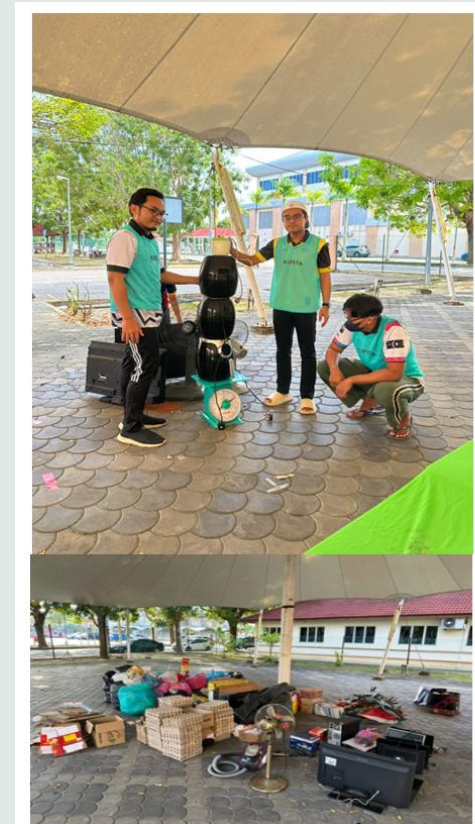
Ways to Increase Sustainability in Your Research Lab- 3. Reduce Wastes



- Put up posters with clear instructions next to easily accessible recycling bins. You can recycle plenty in a lab including Styrofoam, glass, metal alcohol, cans, plastic containers, pipettes, cartridges, batteries, lights and gloves.

3. Sustainable living training for all students and staff- Trash to Cash Programme

- The "Trash to Cash" initiative has been implemented on three separate occasions. The first and second series took place on July 14 and July 18, 2022, while the third and fourth iterations were conducted on February 10 and February 20, 2023, respectively. During these events, a total of 1670 kilograms of waste was gathered and subsequently exchanged for a cash value of RM1183.00. All students and staff of UMT involved in this programme.
- The program involved the exchange of recyclable materials for cash, with items such as used cooking oils and electronic waste being among the recyclables submitted. The positive reception and participation in this program have paved the way for its continuation in the future, reflecting its effectiveness and the community's willingness to actively engage in recycling efforts.



Trash to Cash

LOKASI
SERAMBI SISWA (TEFLON),
KOLEJ KEDAMIAN UMT

TARIKH
9 FEBRUARI 2023 (KHAMIS)

MASA
8 PAGI HINGGA 5 PETANG

SENARAI BARANGAN KITAR SEMULA

- * KOTAK
- * PLASTIK
- * BESI
- * SURAT KHABAR
- * TIN ALUMINIUM
- * MINYAK MASAK
- * KERTAS
- * E-WASTE

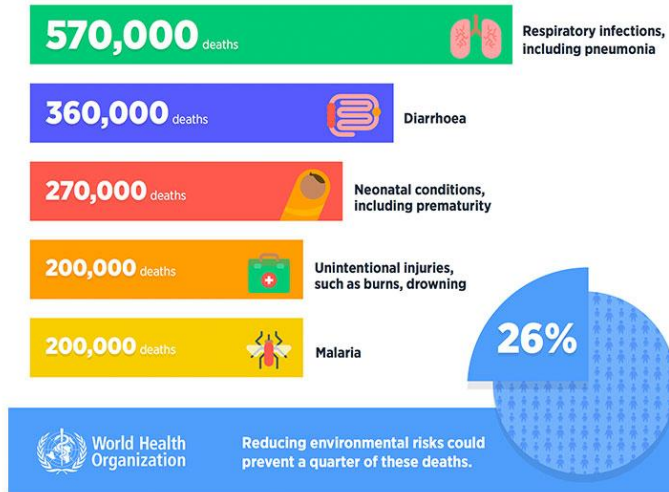
CARA PENYERTAAN

- i. Kumpul barangan kitar semula yang dihasilkan dari kediaman masing-masing serta asingkan jenis barangan kitar semula mengikut kategori.
- ii. Pastikan barangan kitar semula bersih dari sisa makanan dan bebas daripada mengandungi cecair.
- iii. Pastikan barangan kitar semula yang disenaraikan sahaja dibawa ke kaunter timbangan barang.
- iv. Bawa barangan kitar semula ke lokasi yang telah ditetapkan dan timbangan barang akan dibayar dengan wang tunai secara terus pada kadar yang ditetapkan.
- v. Dapatkan bantuan daripada petugas jika mendapat sebarang pertanyaan.



It is estimated that only 5 % great barrier reef left
by 2050

Each year 1.7 million deaths of children under 5 are linked to the environment.

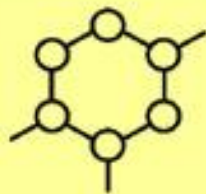
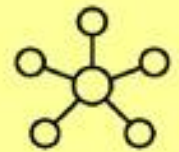


Environmental pollution is linked to the death of 1.7 millions children annually. Harmful chemicals such as persistent organic pollutants are among the threats they face.

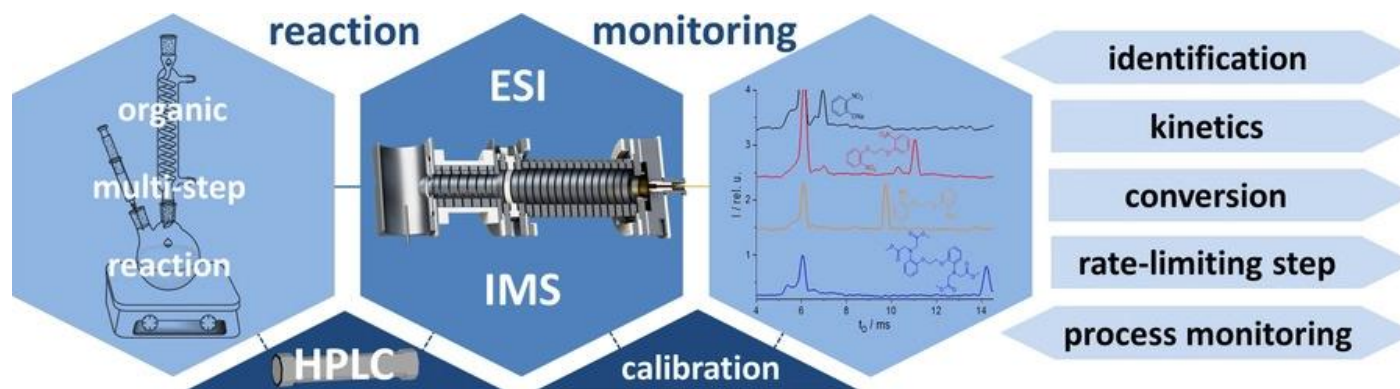
Ways to Increase Sustainability in Your Research

Lab-4. Reduce Pollution

- Use less environmentally persistent chemicals. Design less toxic molecules that are more likely to degrade after use.

1  Waste Prevention	2  Atom Economy	3  Less Hazardous Chemical Synthesis	4  Designing Safer Chemicals
5  Safer Solvents	6  Design for Energy Efficiency	7  Use of Renewable Feedstocks	8  Reduce Derivatives
9  Catalysis	10  Design For Degradation	11  Real Time Pollution Prevention	12  Safer Chemistry For Accident Prevention

Ways to Increase Sustainability in Your Research Lab-4. Reduce Pollution



- Perform analysis in real time. This can help prevent accidents by detecting changes in temperature or pH which could make a reaction get out of control.

Ways to Increase Sustainability in Your Research Lab-5. **Perform Green Experiment**

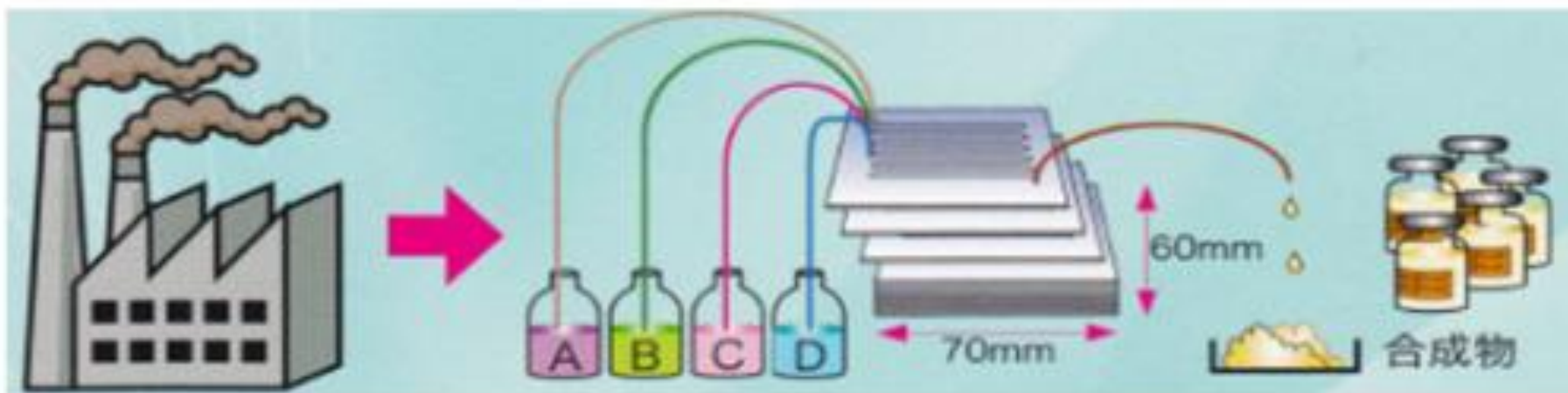


- Run reactions at room temperature and pressure whenever possible. Avoid heating and cooling unnecessarily.

Practice microchemistry where possible. Small scale chemistry helps reduce waste and save energy.

Ways to Increase Sustainability in Your Research Lab-5. Perform Green Experiment

Chemical synthesis



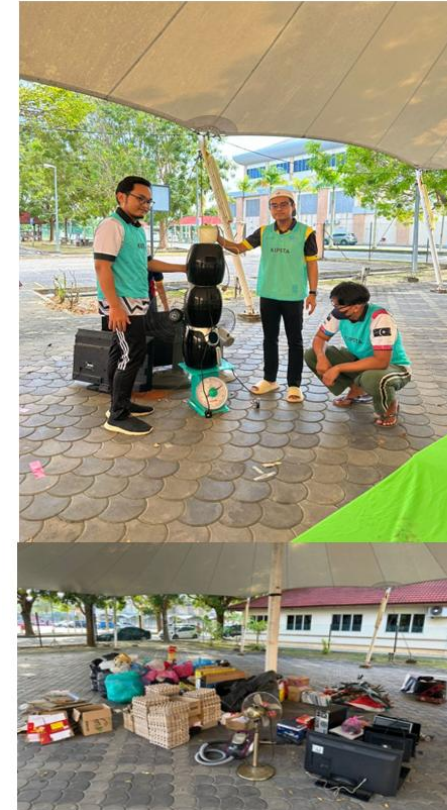
In some chemical industry like pharmaceuticals, small amount of high functional biomolecule is synthesized (production of small amount in wide variety). With microchemical chip, production of the precise amount of required compound is possible in small space. This saves cost compared to changing production lines each time.

3. Sustainable living training for all students and staff

- The goal of Sustainable Living Experience (SLE) is to give staff and students access to a comprehensive and engaging learning environment where they can cultivate a lifetime of leadership in environmental justice and sustainability. Regardless of academic concentration, SLE welcomes students and staff to promote a sustainable culture on campus. In order to do this, SLE operates as a community of engaged stakeholders and sustainability leaders and incorporates sustainability programs and learning opportunities throughout their stay in campus. The following are the pillars of SLE community programmes:
 1. Trash to Case Programme
 2. Strawless Campaign
 3. World Ocean Week
 4. Bring your Own Container and Pay as you Like
 5. SDG Webinar
 6. Saving Energy Campaign
 7. UMT Green Living Monthly Programme

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SENARAI BARANGAN KITAR SEMULA

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* PLASTIK	* TIN ALUMINIUM	* E-WASTE
* BESI	* MINYAK MASAK	



3. Sustainable living training for all students and staff- Strawless Campaign at UMT

- The campaign on strawless and purchase of reusable tumbler was launched in the August 2023 by the Marmoris Café. The aim of this programme is to minimize the usage of one-off plastic cup for takeaways. In addition, customer who bring and use tumbler are given discount on certain item of purchase. To date, this programme is still ongoing.



3. Sustainable living training for all students and staff- World Ocean Week

- The event was a sign of support from the institution popularly known as the marine university for the World Oceans Day celebrated globally every 8 June and involving students and staff from UMT. UMT continuously promotes the conservation of ocean resource conservation efforts and fills its calendar with activities that aim to increase the awareness of the importance of ocean conservation among every segment of the society. Several campaigns have been organized for the past ten years, and we noticed that the society has begun to realize the importance of environmental conservation. The effort must be continued for the awareness to remain in the people's hearts.



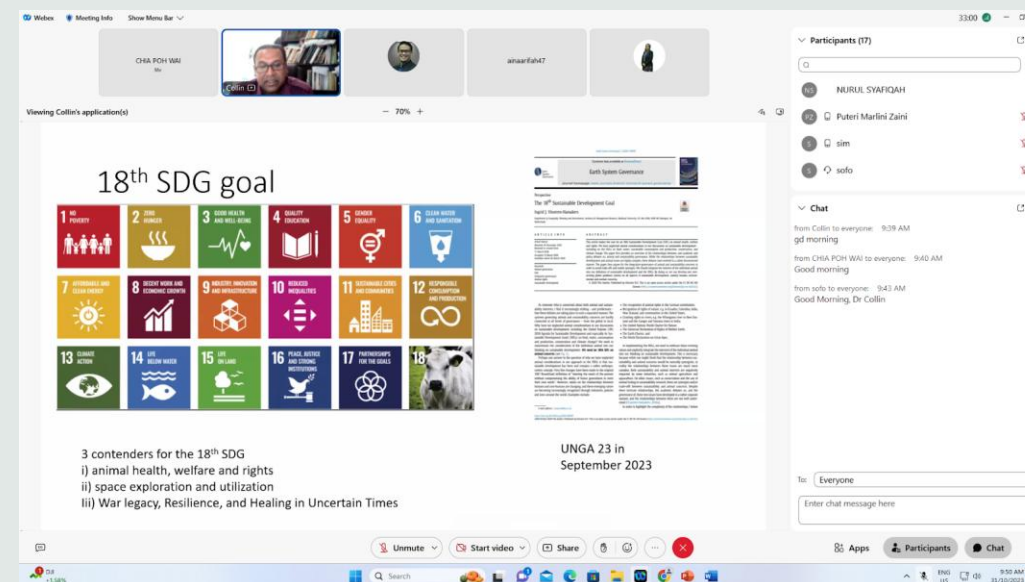
3. Sustainable living training for all students and staff- Bring your own container and pay as you like

- Concept of pay as you like, to provide free food/ non profit food for underprivileged student whom purchase from Act of Kindness (AOK) & Gerobok Rezeki (GR) project, the project was established in 2017 until now, with the formation of volunteer group to ease the operation. In addition, food container and food packaging are not provided to minimize and reduce usage of one-off plastic / paper packaging. Students are required to bring their own container to place their purchase. This programme has been an ongoing event every year till now.



3. Sustainable living training for all students and staff- SDG Webinar

- This online webinar is one of the initiatives from Analytical and Environmental Chemistry course, Faculty Science and Marine Environment, Universiti Malaysia Terengganu to expand on the opportunity for research exploration and engagements between UMT and other institutions. With theme nurturing research innovative through cutting edge research, the objectives of this webinar are to foster continuous learning and connect bright minds to share, discuss and promote a wide range of research subjects. The webinar will be held via the WebEx platform. For the month of October 2023, the AEC has invited a speaker from Universiti Malaysia Sabah to share on the topic 'Chemistry's role in Sustainable Development Goals (SDGs): designing a sustainable future'.



3. Sustainable living training for all students and staff- Saving Energy Campaign

- The Center for Development and Property makes announcements about electrical energy saving activities via email to residents at UMT. All UMT residents are requested to take the following steps before leaving their respective rooms and office spaces:
 1. The light switch is closed
 2. The air conditioning system switch is closed
 3. The fan switch is closed
 4. Electrical equipment is closed
- This reminder is issued as an energy saving measure that needs to be taken and held accountable to every UMT citizen. Together we work together by emphasizing this practice in an effort to avoid wastage of electricity.



3. Sustainable living training for all students and staff- UMT Green Living Monthly Programme

- UMT Green Living monthly program - Collection and Collection of Recycled Materials of the Month. The scheduled collection and collection of recyclable materials organized by the UMT Sustainable Pengurusan Center (PPL) will be carried out at 4 notified locations (as per the attachment), namely:
 1. In front of the Faculty of Maritime Studies (next to the cafe)
 2. Behind the FSSM building (Between the Faculty building and Nautical Science Laboratory)
 3. Lecturer's Temporary Complex (Blue Cabin) next to the Tropika Bio-D building (near the car park area)
 4. Institute of Marine Biotechnology (IMB, near the back door).
- UMT residents can bring recycling materials from home to the location at the designated time - Wednesday afternoon (for Location 1 only) or Thursday morning.

