12.3 Proportion of Recycled Waste

Evidence's

1. Recycling Program for University Waste

1. Integrated Solid Waste Management at USU equipped with 4 (four) compost bins, incinerator and pyrolisis

1a. The incinerator as a result of Dr. Eng Hafizhul Khair et al to process domestic waste

1b. Pyrolysis equipment which is a grant from Earthwise Consulting Japan to process plastic waste into fuel oil

1c. Compost processing building consisting of 4 compartments to process organic waste

2. Compost Center at USU's Faculty of Agriculture

Description:

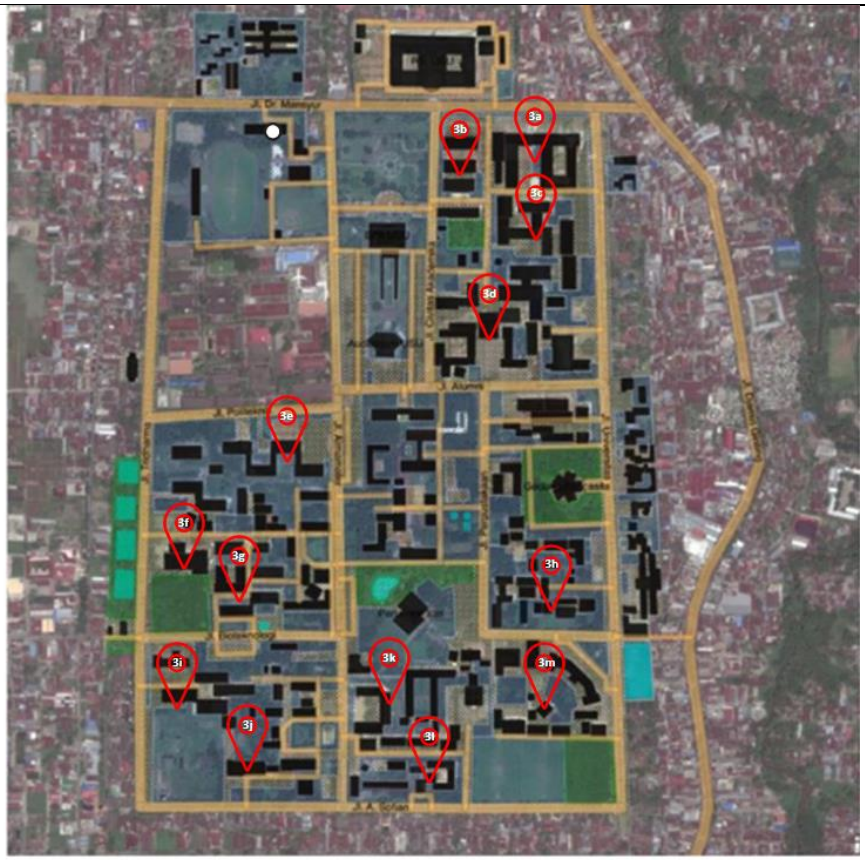
1a. The waste processing facility at USU is equipped with an incinerator. This incinerator is the result of the design of the research team led by Dr. Eng Hafizhul Khair, AM, ST, MT. This incinerator design has 2 combustion chambers with combustion chamber dimensions I of 94 x 42 x 72 cm, combustion chamber 2 with dimensions of 29 x 48 x 110 cm, equipped with a burner, blower, hopper, thermocouple, and air pollution control device in the form of a cyclone scrubber. The capacity of waste that can be burned in this incinerator is 25 kg with a combustion efficiency of about 95.28%

1b. In addition to the incinerator, USU's TPS is also equipped with a pyrolysis device. This pyrolysis is a grant from Earthwise Consulting, Japan produced by the Get Plastic Foundation. The processing process uses a pyrolysis machine with a heating process and dry distillation method. Pyrolysis is a machine that converts plastic waste into fuel oil (BBM). The amount of plastic waste that can be reduced with one operation of this tool is about 20 kg of plastic waste and can produce up to 20 liters of fuel oil.

1c. USU has a Temporary Landfill located at USU Gate 4, at this TPS, apart from being a temporary waste collection site, it is also equipped with 4 units of compost bins. This composting unit is used to process organic waste from yards, parks, lecturer housing in campus complexes, canteens, etc. The compost is reused to fertilize plants in USU's gardens. In the process of handling waste, USU is also equipped with transport vehicles in the form of garbage carts and L 300 trucks.

2. The Compost Center located at the Faculty of Agriculture is an aid from the Japanese government which was established in 2009 until now. The compost center is also used as an educational and research laboratory.

2. Recycling Program for University Waste



Padang Bulan (Jl. Dr. Mansyur Campus Site

1. Availability of segregated waste bins scattered in the faculty (3a) Medicine (3b) Psychology (3c) Public Health (3d) Dentistry (3e) Engineering (3f) Pharmacy (3g) FMIPA (3h) Cultural Sciences (3i) Forestry (3j) Agriculture (3k) Economics and Business and (3l) Political Science and (3m) Law.

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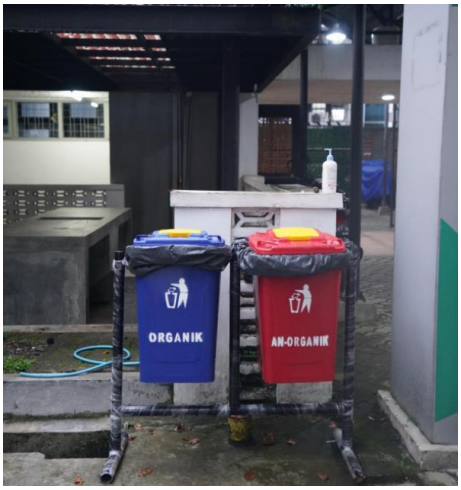
<tr><td> 
</td><td>  </td></tr>
<tr><td colspan="2">2. Availability of segregated waste containers in several faculties at USU</td></tr>
<tr><td>  </td><td>  </td></tr>
</table>

3. Ecoenzyme Products from Organic Waste Processing at USU

4. TOT Eco Enzym held at the Compost Center by Dr. Ir. Nurzainah Ginting, M.Sc as Chair of the Compost Centre.

Description:

1. In accordance with the mandate of Law No. 18 of 2008 the first step in waste management is to reduce waste at the source through waste segregation. In order to support waste segregation at source, almost all work units have segregated waste containers
2. Based on information from Mrs. Dr. Ir. Nurzainah, eco-enzymes can be made from organic solid waste from university canteens such as pineapple, papaya, orange, and banana peels. A total of 40 Kg of organic waste can produce approximately 130 L of Eco-enzymes. The resulting eco-enzyme was then isolated, purified, and tested for antagonists and antibiotics. The products produced from these eco-enzymes can be used as floor cleaners, glass cleaners, bio-disinfectants, toilet cleaners, and water quality controllers on campus and in Islamic boarding schools.
3. The TOT for making eco enzymes is carried out by the USU Compos Center chaired by Dr. Ir. Nurzainah Ginting, M.Sc was held on November 17, 2021 and was also attended online by the Consul General of Japan Mr. Takonai Susumu, Ph.D, Compost Center Supervisor Prof. Dr. Ir. Bustami Syam, M.Eng, Vice Chancellor III, University of North Sumatra Dr. Poppy Anjelisa Zaitun Hasibuan, S.Si., M.Sc., Apt. The participants of this TOT are the principal, teachers of teaching staff and students of SMK N 08, Medan, totaling 20 people, news related to the implementation of this activity can be seen at https://suarausu.or.id/selamatkan-bumi-dengan-tot-eco-enzyme-university-of-sumatera-utara/

3. Recycling Program for University Waste

1. Canteen waste processing using the Black Soldier Flyer at Temporary Landfill

2. Participation of the USU Student Union (PEMA USU) in the context of clean up day

Description:

1. Through the Campus Intellectual Business Development Program (PPUPIK) activity initiated by the USU LPPM with the chairman Dr rer medic dr M.Ichwan, M.Sc developing the utilization of USU TPS by making adult BSF fly cages made of wooden frames covered with nets (mosquito nets).) size 2 x 2 x 1.75 meters. Bio pond is a 3-level shelf with a size of 3 x 1.5 x 2 meters, made of a mild steel frame with a cement base. Used for the composting process using BSF larvae. Then Tong for fermentation of organic waste before being given to BSF larvae. The fermentation process will reduce the unpleasant odor that arises during the composting process. News related to this activity can be seen at the following link https://waspada.id/education/ppupik-lppm-support-pengelolaan-limbah-organik-di-usu/
2. The participation of the USU student union in preserving the environment in collaboration with Kejar Dreams Medan and Galeri Daur which is one of the main waste banks in Medan. **https://www.instagram.com/p/CfLne_cuz6p/**

4. Program to Reduce the Use of Paper and Plastic on Campus

8. Melakukan pemilahan sampah dan limbah B3 menurut jenisnya untuk kemudahan pengangkutan maupun proses pengelolaan sampah pada Tempat Pengelolaan Sampah Terpadu (TPST) USU;
9. Menyampaikan laporan bulanan penggunaan energi (listrik, air, gas, telepon, dan BBM) sebelum tanggal 20 setiap bulannya. Data *softcopy* dikirim via e-mail ke sirenbang@usu.ac.id, dan *hardcopy* disampaikan ke Sekretariat USU Kampus Hijau (Biro Sistem Informasi, Perencanaan, dan Pengembangan) yang selanjutnya akan dilaporkan kepada Rektor Universitas Sumatera Utara.

BAB VI
PENUTUP

Pasal 8

Peraturan Rektor Universitas Sumatera Utara ini mulai berlaku sejak ditetapkan dan apabila terjadi kesalahan dalam penetapan ini, akan dilakukan perbaikan sebagaimana mestinya;

Ditetapkan di Medan
pada tanggal 28 Oktober 2019
REKTOR,

Runtung, SH, M.Hum
NIP. 195611101985031022

KEMENTERIAN RISET TEKNOLOGI DAN PENDIDIKAN TINGGI
UNIVERSITAS SUMATERA UTARA
Jalan dr. T. Mansur No. 9 Kampus USU Medan 20155
Telepon : 061-8211633, 8215937, Fax: 061-8219411, 8211822, 8215937

PERATURAN REKTOR
UNIVERSITAS SUMATERA UTARA
NOMOR 3 Tahun 2019
TENTANG

PELAKSANAAN GERAKAN KAMPUS HIJAU DI LINGKUNGAN UNIVERSITAS SUMATERA UTARA

DENGAN RAHMAT TUHAN YANG MAHA ESA

REKTOR UNIVERSITAS SUMATERA UTARA,

Menimbang : a. bahwa untuk penyelenggaraan Tridharma Perguruan Tinggi pada Universitas Sumatera Utara (USU) sebagaimana dimaksud dalam Statuta USU dan Rencana Strategis USU 2020-2024 perlu dilaksanakan gerakan kampus hijau;
b. bahwa dalam rangka menjamin kelestarian serta memanfaatkan sumberdaya alam secara efisien, dipandang perlu untuk menggunakan sumber energi secara bijaksana, berdaya guna dan berhasil guna agar tercapai keseimbangan antara pembangunan, pemerataan dan pelestarian lingkungan hidup;
c. bahwa sumber energi mempunyai peran sangat penting dalam mewujudkan pembangunan nasional yang berkelanjutan;
d. bahwa Universitas Sumatera Utara sebagai lembaga Pendidikan Tinggi memiliki kapasitas untuk mengembangkan Ilmu Pengetahuan berkelanjutan yang membutuhkan dukungan lingkungan kampus yang ramah lingkungan dan sosial dalam mengemban pelaksanaan Tridarma Perguruan Tinggi;
e. bahwa Universitas Sumatera Utara adalah universitas yang diharapkan sebagai "Kampus

1. Rector's Regulation regarding Green Campus Policy at USU

KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET, DAN TEKNOLOGI
UNIVERSITAS SUMATERA UTARA
FAKULTAS KEDOKTERAN
Jalan dr. T. Mansur No. 5 Kampus USU Medan 20155
Telp. (061) 8211045, 8210555 Fax. (061) 8216264
e-mail: dean.med@usu.ac.id

SURAT EDARAN
NOMOR : 193 /UN5.2.1.1/KPM/2021

TENTANG
PENANGANAN SAMPAH
DI LINGKUNGAN FAKULTAS KEDOKTERAN USU

Yth ;
Ketua Departemen/KPS/Sub.Bag/Devisi :

Fakultas Kedokteran USU
Medan

Untuk mengembangkan budaya kampus hijau di lingkungan Fakultas Kedokteran USU serta mendukung pemeringkatan program UI GreenMetric, bersama ini kami menghimbau kepada seluruh Ketua Departemen/KPS/Sub.Bag/Devisi untuk berpartisipasi dan memberi dukungan berupa :

1. Mengurangi penggunaan sampah kertas dan plastik pada kegiatan administrasi perkantoran dan pada acara kegiatan rapat di lingkungan Fakultas Kedokteran USU.
2. Menggunakan bahan-bahan yang mudah untuk di daur ulang.
3. Meminimalisir penggunaan wadah plastik dengan mengganti penggunaan botol minuman kemasan plastik dengan menggunakan tumbler pada pengadaan konsumsi acara rapat di lingkungan Fakultas Kedokteran USU.
4. Mengurangi pemakaian wadah kertas dengan mengganti penggunaan kue kotak dengan piring pada pengadaan konsumsi acara rapat di lingkungan Fakultas Kedokteran USU.
5. Menyediakan tempat sampah yang terpilah pada masing-masing Departemen/Sub Bagian/Devisi untuk dapat diklasifikasikan sesuai tempatnya antara sampah kertas, sampah organik dan sampah an organik di lingkungan Fakultas Kedokteran USU.

Demikian hal ini kami sampaikan atas perhatian dan kerjasama yang baik kami ucapkan terima kasih.

Medan : 30 Agustus 2021
Dekan,

Prof.Dr.dr. Aldy Safruddin Rambe, Sp.S(K)
NIP. 196605524 199203 1 002

Tembusan :
Arsip

KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET, DAN TEKNOLOGI
UNIVERSITAS SUMATERA UTARA
FAKULTAS FARMASI
Jalan Tri Dharma No.5, Pintu 4 Kampus USU Medan 20155
Telepon: (061) 8223558 Fax: (061) 8219775
Laman: farmasi@usu.ac.id

SURAT EDARAN
No.2831/UN5.2.1.11/KPM/2021

02 SEP 2021

TENTANG
Langkah-langkah Penghematan Energi di Lingkungan Fakultas Farmasi
Universitas Sumatera Utara

Sehubungan dengan peran Fakultas Farmasi Universitas Sumatera Utara dalam menjalankan program hemat energi demi keberlanjutan lingkungan hidup dan juga dalam rangka kampus yang sehat, nyaman, aman, indah dan hemat energi melalui efisiensi dan efektivitas penggunaan energi, mewujudkan sumber daya dan tindakan nyata yang tercermin dari pola pikir dan prilaku civitas akademika yang berwawasan lingkungan, bersama ini disampaikan edaran langkah-langkah dalam melaksanakan penghematan terhadap penggunaan sarana dan prasarana kerja sebagai berikut :

1. Menghemat penggunaan listrik dan tata ruang, antara lain dengan cara :
   - Menggunakan lampu dan peralatan listrik hemat energy;
   - Mematikan/mengurangi penggunaan lampu dan peralatan listrik dalam ruangan yang tidak digunakan;
   - Mengurangi penggunaan lampu pada siang hari;
   - Mematikan computer dalam kondisi *shut down* bila tidak digunakan dalam waktu lebih dari 2 jam. Jika dalam keadaan *standby* masih akan menyerap energy listrik;
   - Mematikan alat yang menggunakan listrik dan pastikan sumber listrik telah dicabut jika jam kerja sudah selesai dan akan pulang.
2. Menghemat penggunaan pendingin ruangan dengan mengatur suhu pendingin ruangan pada suhu paling rendah 24 derajat celcius. Jika meninggalkan ruangan, memastikan AC dalam posisi off/mati.
3. Menghemat penggunaan air sesuai kebutuhan.
4. Menghemat penggunaan ATK dan sediaan sesuai kebutuhan :
   - Menggunakan alat tulis yang dapat diisi ulang;
   - Menggunakan tinta printer yang bisa diisi ulang;
   - Menggunakan kertas HVS 70 gram.
5. Menghemat kertas :
   - Menyimpan laporan dalam bentuk digital, mencetak laporan bila dianggap perlu saja;
   - Mencetak dokumen yang tidak resmi atau draft secara bolak-balik;
6. Menghemat sampah plastik :
   - Menggunakan botol minum (Thumbler) selama berada di lingkungan Fakultas;
   - Tidak menggunakan minuman kemasan plastik pada semua kegiatan.

Demikian edaran ini dibuat untuk dilaksanakan sebaik-baiknya.

Dekan,

Khairunnisa, M.Pharm., Ph.D., Apt
NIP. 197802152008122001

2. Policies from several faculties and units at USU regarding green campus

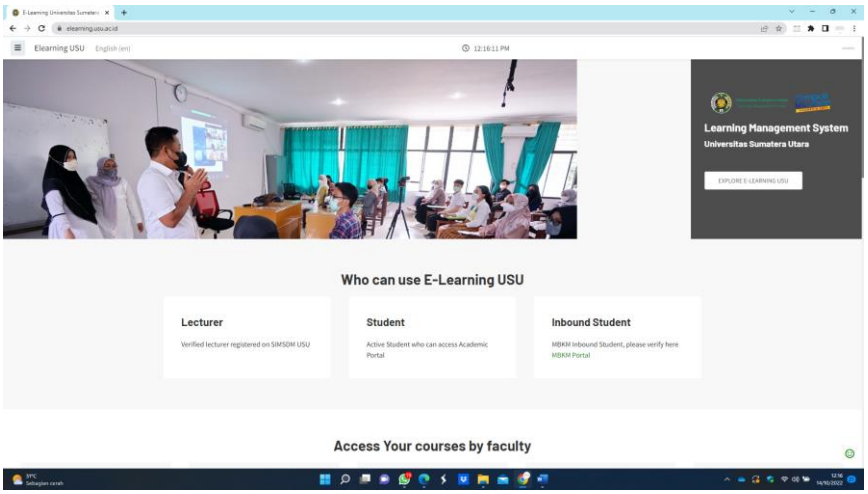
Unit Pelaksana Teknis
Laboratorium Penelitian Terpadu
GREEN CAMPUS

KEBIJAKAN PENERAPAN GREEN HABIT

Berdasarkan kebijakan Universitas tentang green metric disetiap satuan kerja, maka UPT LPT USU dengan ini membuat Kebijakan tentang Penerapan Green Habit dilingkungan UPT LPT sebagai berikut :

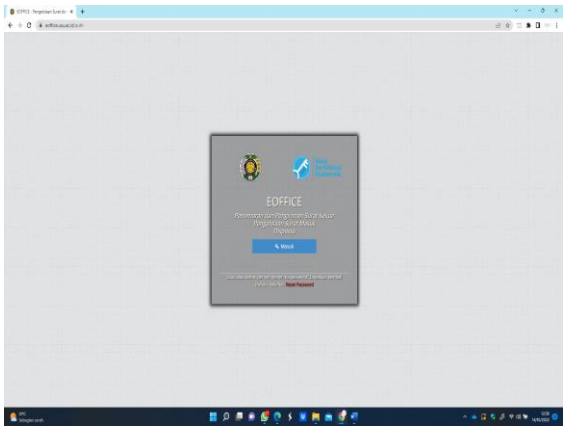
1. Penggunaan tumbler sendiri untuk setiap staf UPT LPT
2. Penggunaan totebag untuk mengurangi pemakaian kantong plastik
3. Penggunaan peralatan hemat energi berupa lampu otomatis dan stiker hemat energi disetiap stop kontak lampu. Agar seluruh staf atau pihak lain dapat melihat dengan jelas

3. Policies regarding the use of tumblers and tote bags at the USU Integrated Research Laboratory

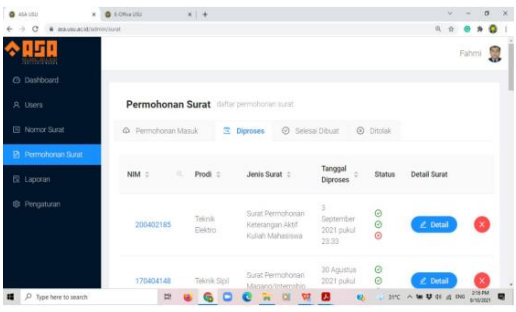


4. The use of e-learning in the learning process and student attendance (https://elearning.usu.ac.id/)

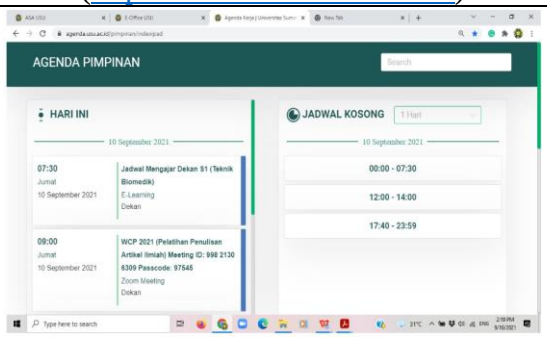
5. USU Online Web Presence (https://presensi.usu.ac.id/)



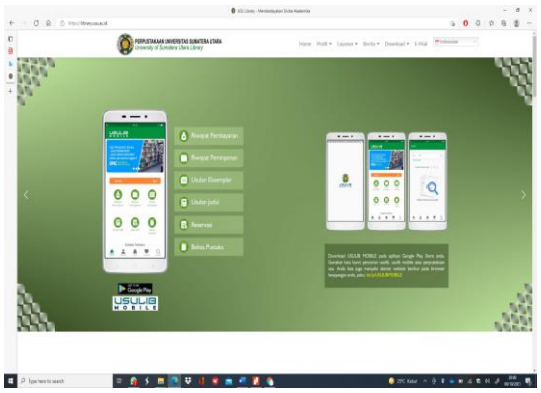
6. E-Office USU (https://eoffice.usu.ac.id/auth)



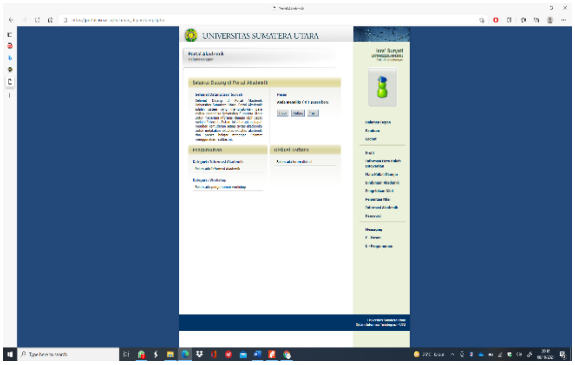
7. Using ASA to Reduce Paper Use in Student Services (https://asa.usu.ac.id)



8. Utilization of E-Agenda to Reduce Paper Use in Scheduling Activity Agenda (https://agenda.usu.ac.id)

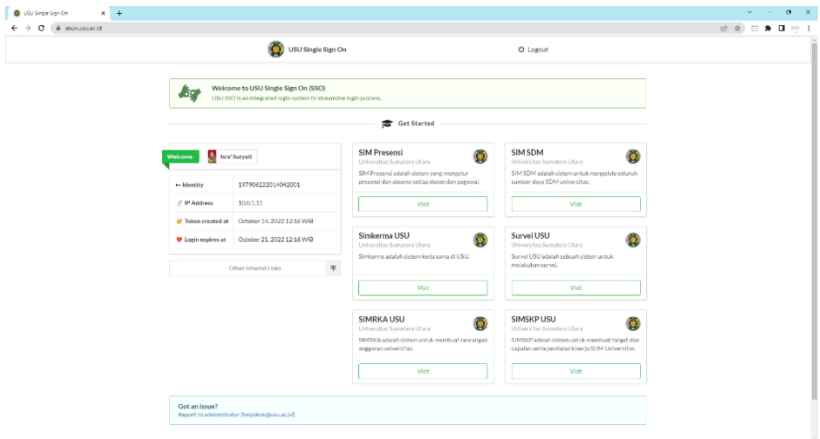


9. Availability of usu library mobile applications, e-books and several excellent library services ((https://library.usu.ac.id)

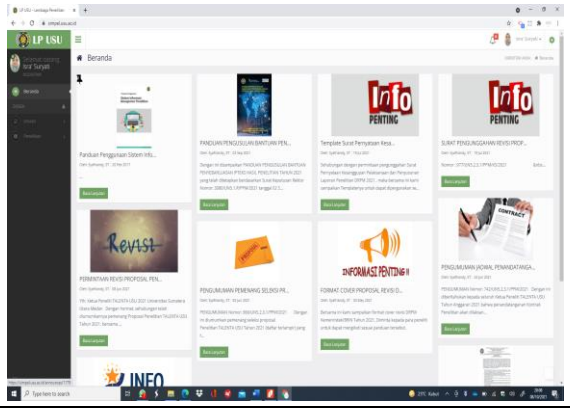
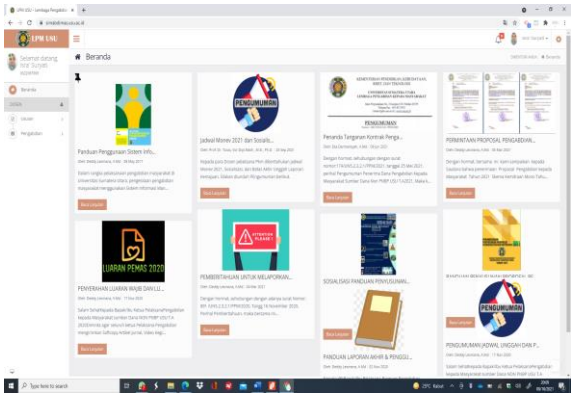
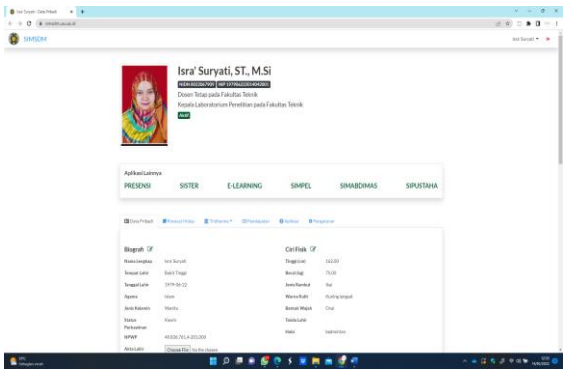
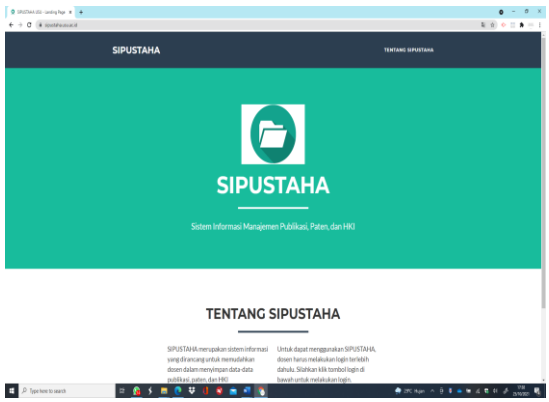
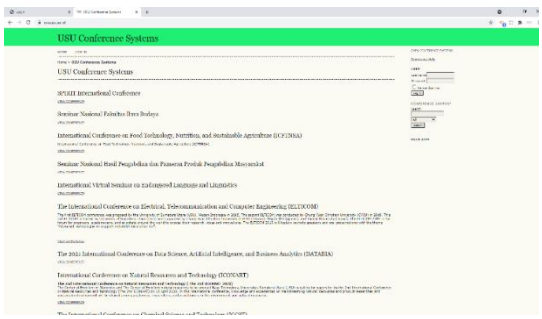
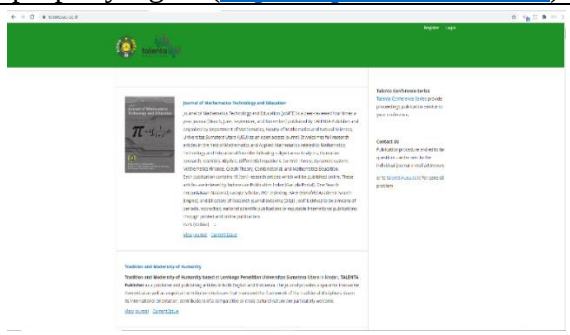


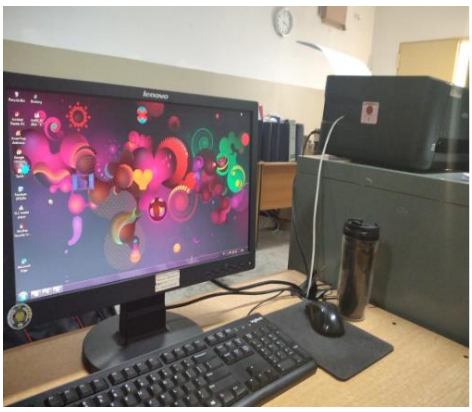
10. Information system to manage academic data administration in faculties/study programs (https://portal.usu.ac.id)

11. Academic management online application for lectures (https://sia.usu.ac.id)

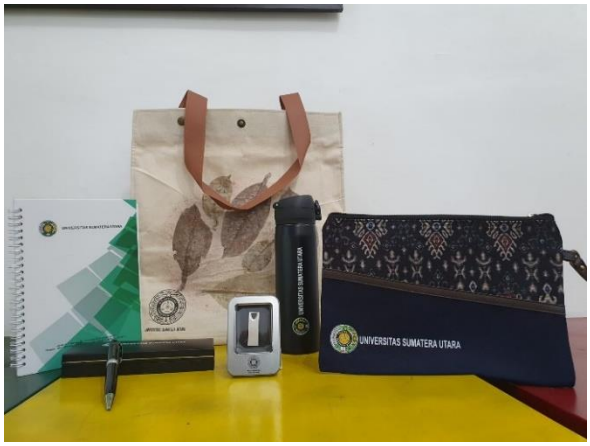


12. USU Single Sign On n integrated login system to streamline login process. (https://akun.usu.ac.id/)

	
13. The online information system for lecturer research (https://simpel.usu.ac.id)	14. Online information system for community service lecturers (https://simabdimas.usu.ac.id)
	
15. Online information system for lecturer and employee administration data (https://simsdm.usu.ac.id)	16. Information system designed to facilitate lecturers in storing data on publications, patents, and intellectual property rights (https://sipustaha.usu.ac.id)
	
17. OJS and OCS for paperless journals and conferences management	



18. Use a thumbler to refill drinking water both daily and during meetings



19. Meeting and conference merchandise at USU

Description:

1. Rector's Regulation No. 3 of 2019 concerning the Implementation of the Green Campus Movement at the University of North Sumatra which consists of 4 chapters and 8 articles. In Article 7 Point 6 it is stated that not to use drinking water in packaging made from single-use plastic and/or plastic bags in the USU environment. Meanwhile, Article 7 Point 7 explains the steps to save paper such as using paper on both sides, saving using tissue paper as well as regulations related to sorting waste and B3 waste to facilitate transportation and waste management processes.
2. Referring to the rector's regulations, each faculty, and unit at USU make policies related to green campuses in their respective work units.
3. Policies regarding the use of tumblers and tote bags at the USU Integrated Research Laboratory to reduce plastic waste.
4. The use of e-learning in the learning process and student attendance at USU, especially during the online learning period, requires an application that makes it easier for students to learn. The features in USU's e-learning continue to develop, not only for uploading materials and attendance but also for planning lectures through the big button or google meet, planning assignments and semester exams. Links related to learning at USU: https://elearning.usu.ac.id/
5. Use of USU attendance for lecturers and staff attendance to reduce attendance using paper and fingerprint. Given the conditions of the COVID-19 pandemic, PSI has developed an online attendance that can be accessed by lecturers and employees via cell phones. Link for attendance of USU lecturers and employees: https://presensi.usu.ac.id/
6. Utilization of E-Office (https://eoffice.usu.ac.id/) to realize the principle of paperless concise administrative services and facilitate the management of incoming and outgoing letters electronically, e-office is expected to increase the efficiency and effectiveness of the management of correspondence and public services, accelerate the management of Service Manuscripts, and realizing a digitalized modern bureaucracy. The launching of this activity can be seen at https://www.youtube.com/watch?v=l24bd_zUh34&ab_channel=USUOfficialSocialNetwork

7. Utilization of ASA (One-Stop Application) to reduce paper usage in student services. ASA (One-Stop Application) is a technology-based service to facilitate interaction between administration and students. Asa is an alternative for administrative problems on campus, especially during the pandemic (https://asa.usu.ac.id/).
8. Utilization of E-Agenda to reduce paper usage in scheduling activity agendas (https://agenda.usu.ac.id/)
9. Availability of USU library mobile applications, e-books and several excellent library services that can be accessed at https://library.usu.ac.id/
10. Information system to manage academic data administration in faculties/study programs at https://portal.usu.ac.id/
11. Online application for academic management of lectures consisting of student and lecturer data, arrangement of class schedules, study plan cards, study results cards, lecture schedules, to final assignments and student transcripts. This system is also connected to the existing system at the Ministry of Research, Technology and Higher Education (https://sia.usu.ac.id/)
12. USU has an integrated system also known as USU Single Sign On to enter several information systems at once, namely (a) Presence SIM is a system that regulates the attendance and attendance of every lecturer and employee; (b) HR SIM is a system for managing all university HR resources; (c) Simkerma is a cooperation system at USU; (d) USU Survey is a system for conducting surveys; (e) SIMRKA is a system for drafting university budgets and (f) SIMSKP is a system for making targets and achievements as well as evaluating the performance of university human resources (https://akun.usu.ac.id/)
13. Online information system for lecturer research at https://simpel.usu.ac.id/. In this system, starting from uploading research proposals, announcements related to submitting reports, progress reports to final reports and uploading research outputs.
14. Online information system for community service lecturers at https://simabdimas.usu.ac.id/. In this system, the same is devoted to community service lecturers starting from proposals, progress reports, final reports and uploading the outputs of community service.
15. Online information system for lecturers and staff administration data at https://simsdm.usu.ac.id/ In this information system, apart from personal data, it is also available related to the Tridharma carried out by lecturers and the income earned.
16. Information system designed to facilitate lecturers in storing data on publications, patents, and intellectual property rights (https://sipustaha.usu.ac.id
17. Online Journal System and Online Conference System for paperless journals and conferences management https://ocs.usu.ac.id/
18. The use of tumblers during meetings is in accordance with the rector's regulation to reduce the use of water in plastic packaging.
19. Meeting merchandise at USU varies from tote bags, tumblers, pens, flash disks, notebooks, etc. which are usually used as souvenirs for conferences or guests visiting USU.

5. Organic Waste Treatment

1. Compost Tank for Road and Yard Waste Processing at Temporary Landfill USU

2. Compost center for organic waste processing

3. Making ecoenzymes from organic waste and canteen waste at USU which was initiated by Dr.Ir. Nurzainah Ginting (UIGWURN Eco Enzym Team Leader)

	
4. Reducing food waste by using the Black Soldier Flyer in combination with aquaponics	

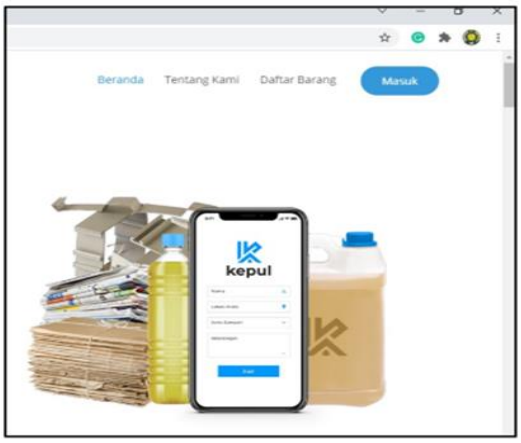
Description:

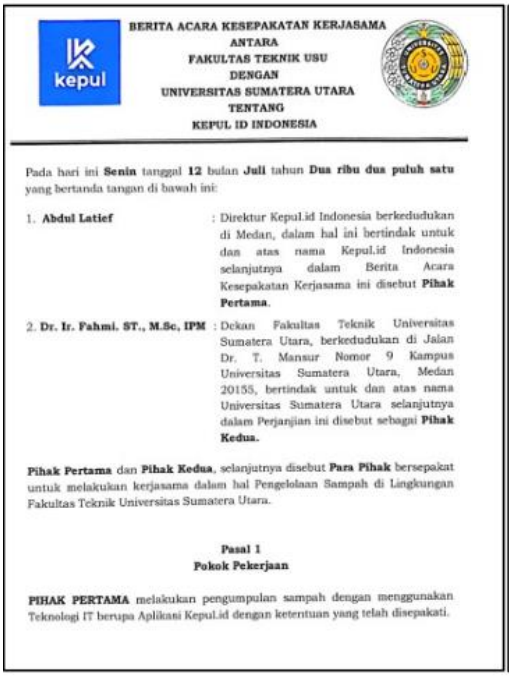
1. Availability of compost bins at the Temporary Garbage Disposal Site consisting of 4 tubs aimed at degrading waste from sweeping yards and roads on the USU campus.
2. The existence of a compost center which is a Japanese state aid. This compost center is in the Faculty of Agriculture, currently the compost center is also used as a forum for research development for lecturers and students.
3. In order to reduce organic waste, an eco-enzyme was made, which was initiated by Mrs. Dr. Ir. Nurzainah Ginting, M.Si from the Faculty of Agriculture. He is also the head of the national team for eco enzyme. The resulting eco-enzymes have been applied to several activities, such as during the commemoration of World Environment Day by pouring eco-enzymes into water bodies to improve the quality of water bodies around the USU campus and the Deli River.
4. Reducing food waste by maintaining a Black Soldier Flyer (BSF) combined with aquaponics. This activity is in line with the community service of lecturers carried out at the USU Campus Temporary Landfill

6. Inorganic Waste Treatment

1. The existence of a pyrolysis device to convert plastic waste into fuel which is a grant from Earthwise Consulting Japan and training on pyrolysis machines by Get Plastic

2. Availability of segregated waste bins so that inorganic waste can be recycled





BERITA ACARA KESEPAKATAN KERJASAMA
ANTARA
FAKULTAS TEKNIK USU
DENGAN
UNIVERSITAS SUMATERA UTARA
TENTANG
KEPUL ID INDONESIA

Pada hari ini **Senin** tanggal **12** bulan **Juli** tahun **Dua ribu dua puluh satu** yang bertanda tangan di bawah ini:

1. **Abdul Latief** : Direktur Kepul.id Indonesia berkedudukan di Medan, dalam hal ini bertindak untuk dan atas nama Kepul.id Indonesia selanjutnya dalam Berita Acara Kesepakatan Kerjasama ini disebut **Pihak Pertama.**
2. **Dr. Ir. Fahmi. ST., M.Sc, IPM** : Dekan Fakultas Teknik Universitas Sumatera Utara, berkedudukan di Jalan Dr. T. Mansur Nomor 9 Kampus Universitas Sumatera Utara, Medan 20155, bertindak untuk dan atas nama Universitas Sumatera Utara selanjutnya dalam Perjanjian ini disebut sebagai **Pihak Kedua.**

Pihak Pertama dan **Pihak Kedua**, selanjutnya disebut **Para Pihak** bersepakat untuk melakukan kerjasama dalam hal Pengelolaan Sampah di Lingkungan Fakultas Teknik Universitas Sumatera Utara.

Pasal 1
Pokok Pekerjaan

PIHAK PERTAMA melakukan pengumpulan sampah dengan menggunakan Teknologi IT berupa Aplikasi Kepul.id dengan ketentuan yang telah disepakati.

Pasal 2
Tujuan

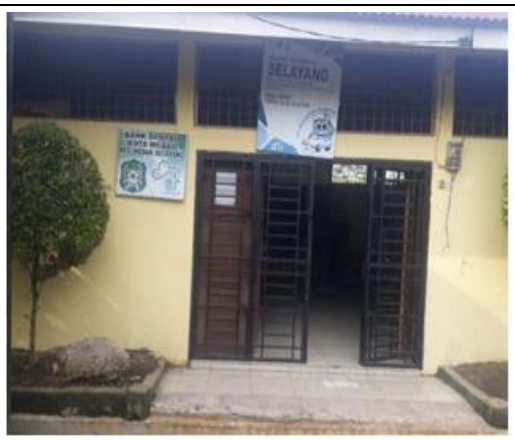
Tujuan dari Perjanjian Kerja Sama ini adalah untuk melakukan pengelolaan sampah dalam rangka mengupayakan Green Campus di lingkungan Fakultas Teknik Universitas Sumatera Utara.

Pasal 3
Ruang Lingkup

Ruang lingkup Perjanjian Kerja Sama ini adalah pengumpulan dan pengolahan sampah dalam bentuk sebagai berikut :

1. Cup Plastik
2. Ac
3. Kertas HVS
4. Botol Plastik
5. Kipas Angin
6. Koran
7. Atom Botol
8. Dupleks
9. Televisi
10. Botol Kaca
11. Logam Aki
12. Besi Tua
13. Minyak Jelantah
14. Kaleng
15. Kain

3. The policy of the Faculty of Engineering to cooperate regarding the collection of inorganic waste with KEPUL ID INDONESIA



4. Cooperation with the Waste Bank for USU's inorganic waste

Description:

1. The existence of a pyrolysis device which is a grant from Earthwise Consulting Japan to process plastic waste into fuel and the pyrolysis ash residue can also be used as handicrafts.

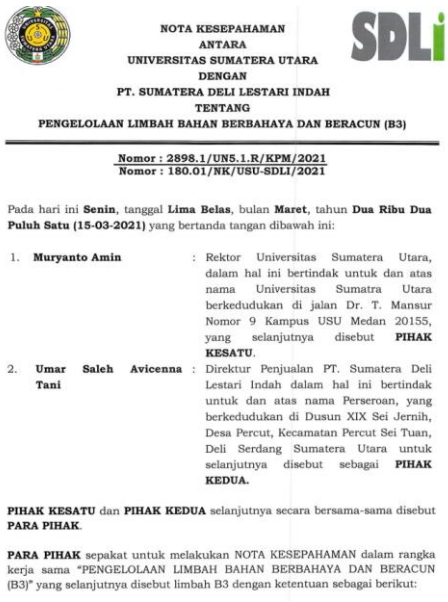
This training was conducted by the Center for Waste Recycling and Climate Change Mitigation, Environmental Engineering USU in collaboration with Earthwise Consulting Japan in the form of technical training on the use of pyrolysis. The activity, which will be held on 26-28 July 2022, is scheduled to be filled with a series of education to the public. News related to this training can be seen at the link https://www.usu.ac.id/en/berita/usu-earthwise-consulting-japan-held-pyrolysis-training and https://www.usu.ac.id/id/berita/usu-earthwise-consulting-jepang-gelar-pelatihan-pirolisis-

2. Several units and faculties have been equipped with separate containers for recyclable inorganic waste. Waste that can be recycled after being collected will be sold to the Waste Bank in collaboration with USU
3. The Faculty of Engineering cooperates with the collection of inorganic waste with KEPUL ID INDONESIA. Kepul is a company that uses technology applications for buying and selling waste. About 30 types of waste can be traded in this application.
4. Inorganic waste processing at the University of North Sumatra was developed in collaboration with the Medan City Sanitation and Environmental Office. Education about waste sorting is carried out through lectures during the new student admissions period. Waste sorting starts from a separate bin for inorganic waste. At USU's TPS, inorganic waste that can be recycled is sorted again. Furthermore, this waste is sold to recycling traders or partner waste banks in Medan Selayang District. Other inorganic waste is transported by the Medan City Sanitation Service to the Final Processing Site (TPA).

7. Toxic Waste Treatment

Padang Bulan (Jl. Dr. Mansyur Campus Site

Location Description:
A. Temporary Shelter for Hazardous Waste at USU Hospital
B. Temporary Shelter for Hazardous Waste at USU Dental and Oral Hospital
C. Hazardous Waste Collection at the Microbiology Laboratory, USU Faculty of Medicine



NOTA KESEPAHAMAN
ANTARA
UNIVERSITAS SUMATERA UTARA
DENGAN
PT. SUMATERA DELI LESTARI INDAH
TENTANG
PENGELOLAAN LIMBAH BAHAN BERBAHAYA DAN BERACUN (B3)

Nomor : 2898.1/UN5.1.R/KPM/2021
Nomor : 180.01/NK/USU-SDLI/2021

Pada hari ini **Senin**, tanggal **Lima Belas**, bulan **Maret**, tahun **Dua Ribu Dua Puluh Satu (15-03-2021)** yang bertanda tangan dibawah ini:

1. **Muryanto Amin** : Rektor Universitas Sumatera Utara, dalam hal ini bertindak untuk dan atas nama Universitas Sumatra Utara berkedudukan di jalan Dr. T. Mansur Nomor 9 Kampus USU Medan 20155, yang selanjutnya disebut **PIHAK KESATU**.
2. **Umar Saleh Avicenna Tani** : Direktur Penjualan PT. Sumatera Deli Lestari Indah dalam hal ini bertindak untuk dan atas nama Perseroan, yang berkedudukan di Dusun XIX Sei Jernih, Desa Percut, Kecamatan Percut Sei Tuan, Deli Serdang Sumatera Utara untuk selanjutnya disebut sebagai **PIHAK KEDUA.**

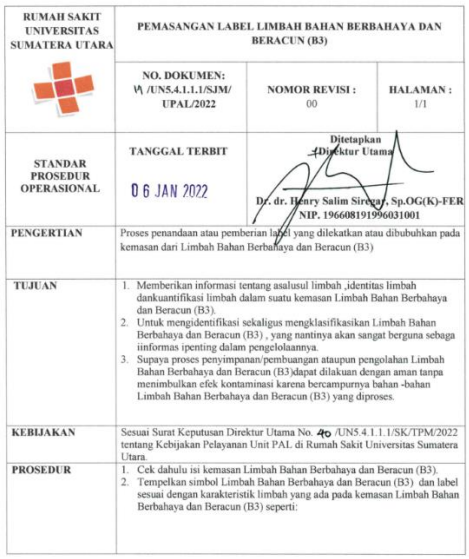
PIHAK KESATU dan **PIHAK KEDUA** selanjutnya secara bersama-sama disebut **PARA PIHAK**.

PARA PIHAK sepakat untuk melakukan NOTA KESEPAHAMAN dalam rangka kerja sama "PENGELOLAAN LIMBAH BAHAN BERBAHAYA DAN BERACUN (B3)" yang selanjutnya disebut limbah B3 dengan ketentuan sebagai berikut:

1. Cooperation between USU and PT SDLI in the management of hazardous waste generated by sources of activity at USU such as from hospitals, laboratories, etc.

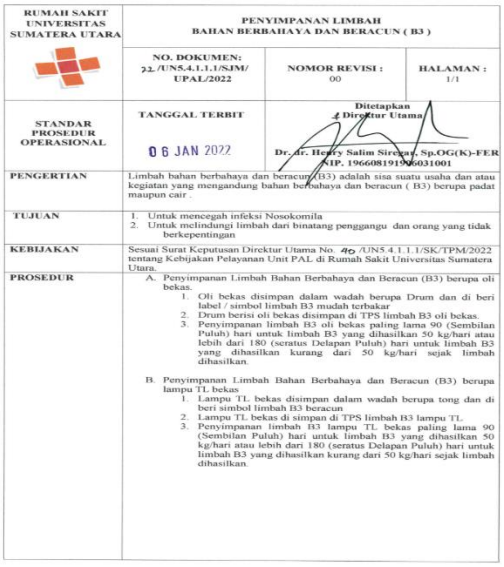
RUMAH SAKIT UNIVERSITAS SUMATERA UTARA	IDETIFIKASI LIMBAH BAHAN BERBAHAYA DAN BERACUN (B3)		
	NO. DOKUMEN: \9/UN5.4.1.1.1/SJM/UPAL/2022	NOMOR REVISI : 00	HALAMAN : 1/1
STANDAR PROSEDUR OPERASIONAL	TANGGAL TERBIT 06 JAN 2022	Ditetapkan Direktur Utama Dr. dr. Henry Salim Siregar, Sp.OG(K)-FER NIP. 196608191996031001	
PENGERTIAN	Limbah Bahan Berbahaya dan Beracun (B3) adalah sisa suatu usaha dan atau kegiatan yang mengandung bahan berbahaya yang beracun yang karena sifat dan atau jumlahnya baik secara langsung maupun tidak langsung dapat mencemarkan dan merusak lingkungan hidup.		
TUJUAN	Untuk memisahkan dan atau memilah jenis B3 sesuai dengan karakteristik dan menurut sumber B3 itu sendiri sehingga proses pengolahan berikutnya dapat disesuaikan dengan besaran resiko yang kemungkinan bisa diakibatkan oleh limbah B3 itu sendiri.		
KEBIJAKAN	Sesuai Surat Keputusan Direktur Utama No. 49 /UN5.4.1.1.1/SK/TPM/2022 tentang Kebijakan Pelayanan Unit PAL di Rumah Sakit Universitas Sumatera Utara.		
PROSEDUR	1. Petugaswajibmemakai APD yang benar(sarungtangan,helm, masker dan alas kaki). Disesuaikandenganjenispekerjaan yang akandilakukan. 2. Petugasmelakukanidentifikasilimbah B3 berdasarkan: a. Sumberlimbah B3 dibedakanmenjadi: ✓ Sumberspesifik ✓ Sumbertidakspesifik ✓ Limbah B3 dari bahan kimia kadaluarsa, tumpahan, bekas kemasan produk dan buangan produk yang tidak sesuai dengan spesifikasi. b. Berdasarkankarakteristikdibedakanmenjadi: ✓ Mudahmeledak ✓ Beracun ✓ Korosif ✓ Mudahmenyala ✓ Menyebabkaninfeksi ✓ Bersifatreaktif 3. Semua limbah B3 yang sudah dipilah dan di pisahkan sesuai dengan karakteristik dikemas dalam kemasan yang berbeda yang sudah disediakan. Hal ini akan memudahkan petugas pengumpul dalam melakukan pengumpulan dan penyimpanan sementara.		
UNIT TERKAIT	1. Seluruh Unit Terkait, RS USU 2. UNIT PAL RS USU		

2a. Standard Operational Procedures for the management of Hazardous and Toxic Waste from USU Hospital starting from the identification of Hazardous and Toxic Waste



RUMAH SAKIT UNIVERSITAS SUMATERA UTARA	PEMASANGAN LABEL LIMBAH BAHAN BERBAHAYA DAN BERACUN (B3)		
	NO. DOKUMEN: /UN5.4.1.1.1/SJM/ UPAL/2022	NOMOR REVISI : 00	HALAMAN : 1/1
STANDAR PROSEDUR OPERASIONAL	TANGGAL TERBIT 06 JAN 2022	Ditetapkan Direktur Utama Dr. dr. Henry Salim Siregar, Sp.OG(K)-FER NIP. 196608191996031001	
PENGERTIAN	Proses penandaan atau pemberian label yang dilekatkan atau dibubuhkan pada kemasan dari Limbah Bahan Berbahaya dan Beracun (B3)		
TUJUAN	1. Memberikan informasi tentang asalusul limbah ,identitas limbah dankuantifikasi limbah dalam suatu kemasan Limbah Bahan Berbahaya dan Beracun (B3). 2. Untuk mengidentifikasi sekaligus mengklasifikasikan Limbah Bahan Berbahaya dan Beracun (B3) , yang nantinya akan sangat berguna sebaga iinformas ipenting dalam pengelolaannya. 3. Supaya proses penyimpanan/pembuangan ataupun pengolahan Limbah Bahan Berbahaya dan Beracun (B3)dapat dilakuan dengan aman tanpa menimbulkan efek kontaminasi karena bercampurnya bahan -bahan Limbah Bahan Berbahaya dan Beracun (B3) yang diproses.		
KEBIJAKAN	Sesuai Surat Keputusan Direktur Utama No. 40 /UN5.4.1.1.1/SK/TPM/2022 tentang Kebijakan Pelayanan Unit PAL di Rumah Sakit Universitas Sumatera Utara.		
PROSEDUR	1. Cek dahulu isi kemasan Limbah Bahan Berbahaya dan Beracun (B3). 2. Tempelkan simbol Limbah Bahan Berbahaya dan Beracun (B3) dan label sesuai dengan karakteristik limbah yang ada pada kemasan Limbah Bahan Berbahaya dan Beracun (B3) seperti:		

2b. Standard Operational Procedures for Laying Hazardous Toxic Waste Labels at USU Hospitals



RUMAH SAKIT UNIVERSITAS SUMATERA UTARA	PENYIMPANAN LIMBAH BAHAN BERBAHAYA DAN BERACUN (B3)		
	NO. DOKUMEN: /UN5.4.1.1.1/SJM/ UPAL/2022	NOMOR REVISI : 00	HALAMAN : 1/1
STANDAR PROSEDUR OPERASIONAL	TANGGAL TERBIT 06 JAN 2022	Ditetapkan Direktur Utama Dr. dr. Henry Salim Siregar, Sp.OG(K)-FER NIP. 196608191996031001	
PENGERTIAN	Limbah bahan berbahaya dan beracun (B3) adalah sisa suatu usaha dan atau kegiatan yang mengandung bahan berbahaya dan beracun (B3) berupa padat maupun cair .		
TUJUAN	1. Untuk mencegah infeksi Nosokomila 2. Untuk melindungi limbah dari binatang penggangu dan orang yang tidak berkepentingan		
KEBIJAKAN	Sesuai Surat Keputusan Direktur Utama No. 40 /UN5.4.1.1.1/SK/TPM/2022 tentang Kebijakan Pelayanan Unit PAL di Rumah Sakit Universitas Sumatera Utara.		
PROSEDUR	A. Penyimpanan Limbah Bahan Berbahaya dan Beracun (B3) berupa oli bekas. 1. Oli bekas disimpan dalam wadah berupa Drum dan di beri label / simbol limbah B3 mudah terbakar 2. Drum berisi oli bekas disimpan di TPS limbah B3 oli bekas. 3. Penyimpanan limbah B3 oli bekas paling lama 90 (Sembilan Puluh) hari untuk limbah B3 yang dihasilkan 50 kg/hari atau lebih dari 180 (seratus Delapan Puluh) hari untuk limbah B3 yang dihasilkan kurang dari 50 kg/hari sejak limbah dihasilkan. B. Penyimpanan Limbah Bahan Berbahaya dan Beracun (B3) berupa lampu TL bekas 1. Lampu TL bekas disimpan dalam wadah berupa tong dan di beri simbol limbah B3 beracun 2. Lampu TL bekas di simpan di TPS limbah B3 lampu TL 3. Penyimpanan limbah B3 lampu TL bekas paling lama 90 (Sembilan Puluh) hari untuk limbah B3 yang dihasilkan 50 kg/hari atau lebih dari 180 (seratus Delapan Puluh) hari untuk limbah B3 yang dihasilkan kurang dari 50 kg/hari sejak limbah dihasilkan.		

2c. Standard Operational Procedures for Storage of Toxic Hazardous Waste in USU Hospitals

3. Temporary Shelter for Hazardous Waste at USU Hospital

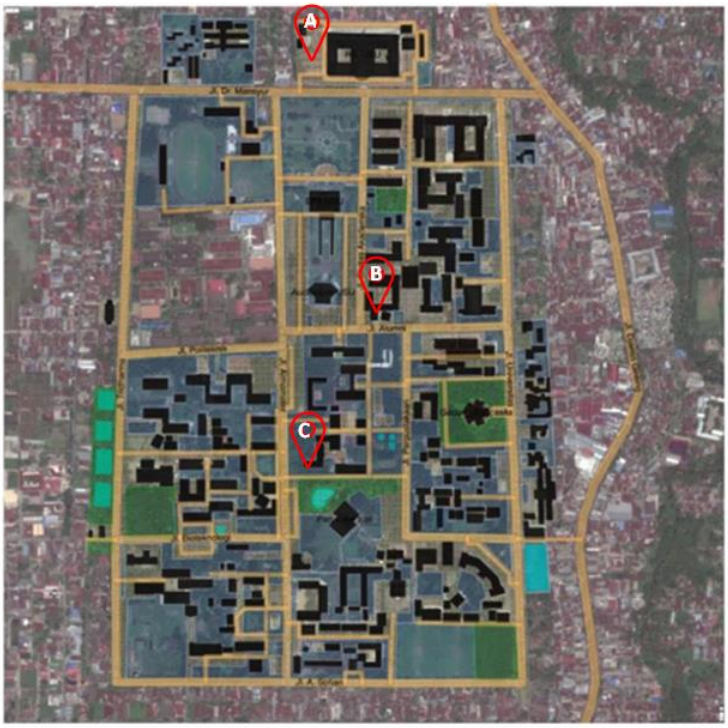
4. Temporary Shelter for Hazardous Waste at USU Dental and Oral Hospital

5. Hazardous Waste Collection at the Microbiology Laboratory, USU Faculty of Medicine

Description:

1. In the context of hazardous and toxic waste management, USU cooperates with a third party, namely PT Sumatra Deli Lestari Indah with a Memorandum of Understanding Number: 2898.1/UN5.1.R/KPM/2021 and Number: 180.01/NK/USU-SDLI/2021. The scope of the cooperation starts from the transportation, collection, and processing of hazardous and toxic waste which includes all activity units under the auspices of USU which in their activities produce hazardous and toxic waste.
2. USU Hospital is equipped with Standard Operating Procedures related to hazardous and toxic waste management, starting from (2a) Standard Operating Procedures for hazardous and toxic waste identification; (2b) Standard Operating Procedures for labeling hazardous and toxic waste, and (2c) Standard Operating Procedures for storing hazardous and toxic waste.
3. USU Hospital is equipped with a temporary storage area for hazardous and toxic waste in accordance with applicable government regulations
4. Management of hazardous and toxic waste or medical solid waste at the USU Dental and Oral Hospital (RSGM) in the form of a hazardous and toxic waste collection site in the form of infectious waste, pathological waste, sharp object waste, pharmaceutical waste, cytotoxic waste, chemical waste, radioactive waste, pressurized container waste, and wastes with high heavy metal content.
5. Hazardous waste from laboratory activities after being accommodated at TPS, hazardous and toxic waste is then transported by a third party.

8. Sewage Disposal

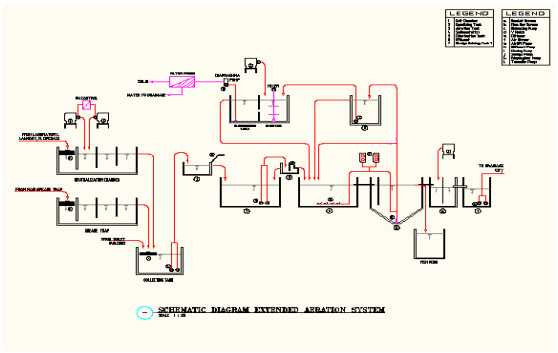


Padang Bulan (Jl. Dr. Mansyur Campus Site

Location Description:
A. Waste Water Treatment Plant at USU Hospital
B. Waste Water Treatment Plant at USU Dental and Oral Hospital
C. Johkasou (Waste Water Treatment Plant) at USU's Environmental Engineering Department

RUMAH SAKIT UNIVERSITAS SUMATERA UTARA	OPERATION MANUAL STP (SEWAGE TREATMENT PLANT)/ IPAL (INSTALASI PENGOLAHAN AIR LIMBAH)		
	NO. DOKUMEN: 29/UN5.4.1.1.1/SJM/ UPAL/2022	NOMOR REVISI : 00	HALAMAN : 1/1
STANDAR PROSEDUR OPERASIONAL	TANGGAL TERBIT 06 JAN 2022	Ditetapkan Direktur Utama Dr. dr. Henry Salim Siregar, Sp.OG(K)-FER NIP. 196608191996031001	
PENGERTIAN	Sawage Treatment Plant (STP) adalah system untuk mentreatment air limbah domestik / buangan dari aktifitas manusia, agar aman untuk dibuang ke saluran lingkungan dan memenuhi standar persyaratan dan peraturan yang berlaku.		
TUJUAN	Tujuan utama pengolahan limbah adalah untuk mengurai bahan pencemar terutama senyawa organik,padatan tersuspensi, micro pathogen.		
KEBIJAKAN	Sesuai Surat Keputusan Direktur Utama No. 40 /UN5.4.1.1.1/SK/TPM/2022 tentang Kebijakan Pelayanan Unit PAL di Rumah Sakit Universitas Sumatera Utara.		
PROSEDUR	**1. SISTEM & PROSES PENGOLAHAN** Sewage Treatment plant (STP) RS USU melalui 3 system sebagai berikut : 1. pre Treatment 2. Main Treatment 3. Post Treatment Adapun penjelasan proses-proses dari system tersebut adalah sebagai berikut : 1. Pre treatment ada 4 sumber air limbah yang perlu di pre Treatment terlebih dahulu yaitu : a. Air Limbah Kitchen Air Limbah Kitchen di pre treatment dengan pemisah lemak/minyak dengan peralatan berupa Grease Trap b. Air Limbah Ruang Operasi Air Limbah Ruang Operasi di pre Treatment terlebih dahulu dengan desinfeksi menggunakan clorin, supaya bibit penyakit tidak menyebar, setelah itu di dechlorinasi supaya tidak menggangu proses STP pada Main Treatment. Proses ini dailakukan pada Netralization Chamber,Proses pemberian Chlorin dan Dechlorinasi c. Air Limbah Ruang Laboratory Air Limbah Ruang Laboratory di pre treatment dengan cara di Netralisai dengan penaik dan penurun PH.Proses ini dilakukan pada Netralization Chamber dan pendosisan penaik dan penurun PH dengan menggunak Dosing Pump semua proses dikontrol dengan pH Control.		

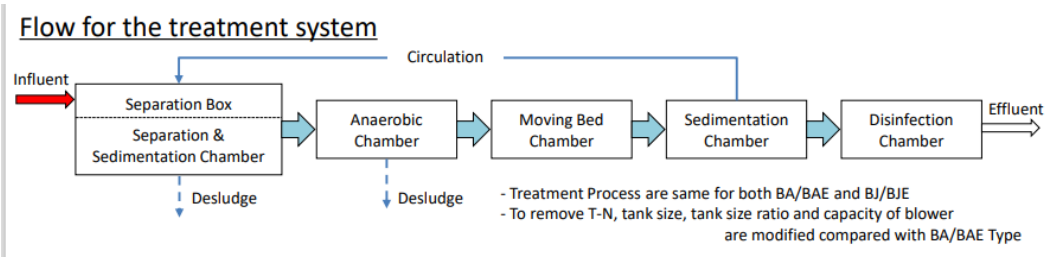
1. Manual Book of USU Hospital WWTP



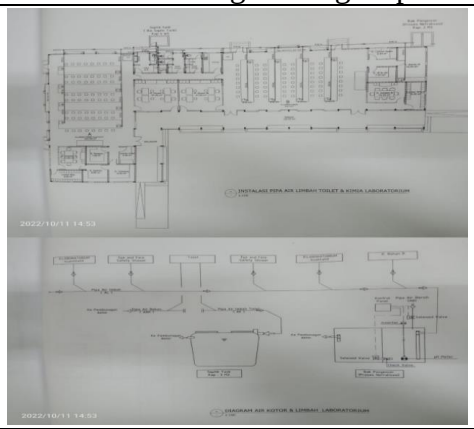
2. Waste Water Treatment Plant at USU Hospital

3. Waste Water Treatment Plant for Isolation Room at USU Hospital

4. Waste Water Treatment Plant at USU Dental and Oral Hospital



5. Wastewater treatment with Johkasou at USU's Environmental Engineering Department



6. The site plan and location of the wastewater treatment in the Faculty of Pharmacy Laboratory

Description:

1. The manual book of the operation of the USU Hospital WWTP has been equipped with processing processes starting from pretreatment; main treatment which consists of collection tank – equalization tank – aeration tank – sedimentation tank – chlorination tank – fishpond – effluent tank – sludge holding tank and post-treatment which consists of mixing tank and filter press.
2. Wastewater treatment from USU Hospital activities uses a schematic diagram extended aeration system with a capacity of 150 m^3/day.
3. During the pandemic period, specifically for isolation rooms, separate wastewater treatment is made using bio tanks.
4. Wastewater treatment from the activities of the USU Dental and Oral Hospital uses a bio bless IPAL/STP. Wastewater Treatment Plant (IPAL) / Sewage Treatment Plant or STP Biotechnology is a structured and organized plan to treat wastewater so that the wastewater is not dangerous when disposed of directly or reused for certain purposes.

5. Johkasou is a standard Japanese septic tank that can decompose 90% of liquid waste which is certainly very different from the septic tanks in Indonesia. Johkasou as a grant from the Cooperation between JICA, Sinryo, and the City Government of Kitakyushu through Environmental Education for Deli River activities. One johkasou unit was installed in USU's Department of Environmental Engineering. The unit is a fiber-reinforced plastic tank and contains five functional spaces (sedimentation, anaerobic, aeration, sedimentation, and disinfection) in the tank. High efficiency combined anaerobic and aerobic biological processes.
6. Wastewater from laboratory activities is waste that comes from the results of the reactions of various solutions of chemistry in an experiment. This will have an impact on the surrounding environment if it is disposed of directly without a waste treatment process first. Especially for laboratories that use hazardous chemicals in practice. USU's Faculty of Pharmacy has designed and built a special place for wastewater management for laboratories that produce chemical waste so that the wastewater from the laboratory passes through the WWTP before being discharged into the environment.