

# **SUSTAINABILITY REPORT**



UNIVERSITAS SULTAN AGENG TIRTAYASA 2021

# INTRODUCTION

University of Sultan Ageng Tirtayasa, popularly known as Untirta, is a State University (PTN) located at Banten Province, Indonesia. The main campus is in Sindangsari – Serang, Faculty of Engineering is in Cilegon and Faculty of Teacher Training and Education is in Ciwaru – Serang.

As an Institution of Higher Education, students and lecturers conduct research and community services in various fields for the advancement of Indonesia in the future.

### Vision and Mission UNTIRTA 2019-2023

# **Vision**

The actualization of Untirta as excellent, characterized, and competitive Integrated Smart and Green (It'S Green) University.

# **Mission**

Upgrading the quality, relevance, and education competitiveness along with excellent and competitive graduates with good personality in ASEAN.

Increasing the quality and quantity of innovative research and community service based on the needs according to current development.

Enhancing the carrying capacity of good university governance as the implementation of Integrated Smart and Green (It'S Green) University.

Value JAWARA (Jujur Adil Wibawa Amanah Religius Akuntabel) "UNTIRTA is a house that not only acts as a place, but also as a source of knowledge, example, and virtue. Therefore, all academicians are obliged to uphold these basic values in carrying out their duties and responsibilities." (Sulaiman. 2019)





# Certificate

This certificate is awarded to

# Universitas Sultan Ageng Tirtayasa

as The 224<sup>th</sup> World's Most Sustainable University in 2021 UI GreenMetric World University Rankings

Jakarta, 14 December 2021



Prof. Ari Kuncoro, S.E., M.A., Ph.D Rector of Universitas Indonesia



Prof. Riri Fitri Sari, M.M., M.Sc Chairperson of UI GreenMetric World University Rankings





# Template for Evidence(s) UI GreenMetric Questionnaire

University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

#### [1] Setting and Infrastructure (SI)

Universitas Sultan Ageng Tirtayasa, commonly abbreviated as Untirta, is a state university located in the province of Banten, Indonesia. Untirta campus has several campus locations spread across Serang and Cilegon, where these areas have the same climate as Indonesian cities in general, namely a tropical climate with two seasonal patterns that are influenced by the movement of monsoon winds, namely the rainy season and the dry season.

#### [1.3] Number of Campus Sites



Campus A (Pakupatan) Universitas Sultan Ageng Tiratayasa



Campus B (Cilegon)
Universitas Sultan
Ageng Tiratayasa







Campus C (Ciwaru) Universitas Sultan Ageng Tiratayasa



Campus D (Kepandean) Universitas Sultan Ageng Tiratayasa



Campus E (Sindangsari) Universitas Sultan Ageng Tiratayasa







Currently, it serves as the main campus, with Campus E Sindangsari serving as the administrative hub for the other campuses (Campus A, Campus B, Campus C, and Campus D), as well as being the primary Untirta-owned campus.

#### **Description:**

Universitas Sultan Ageng Tirtayasa (Untirta) as a State University continues to make changes and improvements in all fields, both institutional, academic, as well as student affairs and cooperation. Changes and improvements in the academic field, especially the establishment of new Faculties and Departments or Study Programs, construction of educational facilities and infrastructure and other fields to meet the needs of the community in the field of education.

Universitas Sultan Ageng Tirtayasa currently organizes academic education programs and vocational education programs, for the Academic Education program consists of 7 Faculties (S1) Education Programs and 1 Masters (Postgraduate) Education Program, namely (1) Faculty of Law, (2) Faculty of Teacher Training and Education, (3) Faculty of Engineering, (4) Faculty of Agriculture, (5) Faculty of Economics, (6) Faculty of Social and Political Sciences, (7) Postgraduate and (8) Faculty of Medicine.

In 2021 Universitas Sultan Ageng Tirtayasa has 5 campuses spread across two cities, namely:

- Campus A (Pakupatan)
   Campus A (Pakupatan) is currently planned for postgraduate academic activities.
- 2. Campus B (Cilegon)

Campus B (Cilegon) currently consists of 2 faculties, namely Faculty of Engineering and Faculty of Medicine.

- a. The Faculty of Engineering consists of 7 departments, namely Electrical Engineering Department, Industrial Engineering Department, Chemical Engineering Department, Mechanical Engineering Department, Metallurgical Engineering Department, Civil Engineering Department and Department of Informatics.
- b. Untirta Faculty of Medicine is the first medical faculty in Banten, ratified based on the Decree of the Minister of Research, Technology and Higher Education of the Republic of Indonesia Number 283/KPT/I/2019. Untirta's medical study program is currently under the supervision of the Faculty of Medicine, University of Indonesia. The Faculty of Medicine consists of 2 study programs, namely the Nutrition Science Study Program and the Sports Science Study Program.
- 3. Campus C (Ciwaru)

Campus C (Ciwaru) is currently the campus of the Faculty of Teacher Training and Education which consists of 18 study programs, namely Non-Formal Education, Indonesian B Education, English B Education, Biology Education, Mathematics Education, Primary Teacher Education, Teacher Education for Early Childhood Education, Counseling Guidance, Physics Education, Natural Science Education, Chemistry Education, Special Education, Pancasila & Citizenship Education, History Education, Performing Arts Education, Sociology Education, Mechanical Engineering Vocational Education, Electrical Engineering Vocational Education.





Campus D (Kepandean)
 Campus D (Kepandean) is a campus for Diploma III Nursing which is anlocated on Jl. Letnan Jidun No. 2
 Kepandean, Serang.

#### 5. Campus E (Sindangsari)

Campus E (Sindangsari) is Untirta's fifth site. It serves as the administrative center for the other campuses (Campus A, Campus B, Campus C, and Campus D), as well as being the primary campus owned by Untirta. Additionally, Campus E Sindangsari has developed a water management system, an automation system, and has its own substation equipped with German technology. Campus E Sindangsari is comprised of many structures, including the following:

(1) Rectorat, (2) Faculty of Social and Politic, (3) Integrated Sustainable Agriculture LAB, (4) Faculty of Agriculture, (5) Library, (6) Integrated Classroom, (7) Faculty Economy and Bussines. (8) Auditorium, (9) Faculty of Law, (10) Female Dormitory, (11) Male Dormitory and (12) Student Learning Center.

#### Additional evidence link:

Maps of Campus A (Pakupatan)
 https://goo.gl/maps/hf8fc22kcdM6FhbN6
 Maps of Campus B (Cilegon)
 https://goo.gl/maps/2x8GmRCvFofeRAFUA
 Maps of Campus C (Ciwaru)
 https://goo.gl/maps/SCmTSeb6hwkSe7UQA
 https://goo.gl/maps/QJRW27GQUtJ3jQsi7
 https://goo.gl/maps/PKyYr9GGpQ4xCXsX6





# Template for Evidence(s) UI GreenMetric Questionnaire

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Country : Indonesia

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[1] Setting and Infrastructure (SI)

[1.4] Campus Setting

A. Campus A (Pakupatan)



Location of Campus A Pakupatan (Universitas Sultan Ageng Tirtayasa, Indonesia)

#### **Description:**

Campus A (Pakupatan) is located in Serang City, Serang City has a position as the administrative center of Banten Province as well as an alternative and buffer area for the Capital, because from the Special Capital Region of Jakarta it is only about  $\pm$  70 km. The location of campus A Pakupatan is adjacent to residential areas and adjacent to the Pakupatan Bus Station. Currently Campus A Pakupatan stands on an area of 2.84 hectares consisting of the Postgraduate administration building.

Serang City which covers an area of 266.74 km² with a population of Serang City in 2020 of 692,101 people, the population density level in the Serang City area is 2,595 people/km² where most of the population lives in urban areas.

#### Additional evidence link:

- 1. <a href="https://untirta.ac.id/tentang/">https://untirta.ac.id/tentang/</a>
- 2. <a href="https://serangkota.bps.go.id/publication/2021/02/26/92d07f0edc333af1889f4a49/kota-serang-dalam-angka-2021.html">https://serangkota.bps.go.id/publication/2021/02/26/92d07f0edc333af1889f4a49/kota-serang-dalam-angka-2021.html</a>





### B. Campus B Cilegon



Location of Campus B Cilegon (Universitas Sultan Ageng Tirtayasa, Indonesia)



Master plan Area of Campus B Cilegon (Universitas Sultan Ageng Tirtayasa, Indonesia)





Campus B (Cilegon) or the Faculty of Engineering and the Faculty of Medicine are faculties within Universitas Sultan Ageng Tirtayasa (Untirta). Untirta's Faculty of Engineering campus is located in Cilegon Industrial Estate, where in this area there are various kinds of heavy metal, chemical, manufacture, engineering and power generation industries, including PT. Krakatau Steel & Group, PT. Krakatau Posco, PT. Candra Asri, PT. Asahimas, PT. Tri Polita, PT. PLN (Persero) PLTGU Cilegon, PT. Indonesia Power UBP Suralaya and so on. Geographically, the Faculty of Engineering of Untirta is located at the gates and trade routes of Java-Sumatra as well as international trade routes, namely the ASDP crossing port in Merak and several international ports including Cigading, Bojonegara and Krakatau Bandar Samudra. Administratively, the Faculty of Engineering is located in Cilegon City and Banten Province which continues to grow.

Until now, the Faculty of Engineering consists of 7 undergraduate majors, namely Mechanical Engineering, Electrical Engineering, Metallurgical Engineering, Industrial Engineering, Chemical Engineering, Civil Engineering and Informatics Engineering. All majors have obtained accreditation from the National Accreditation Board for Higher Education (BAN-PT). At this time the Faculty of Engineering stands on an area of 6.17 Ha, consisting of 3.43 Ha which has been used for academic activities and the remaining 2.74 Ha in the form of land overgrown with forest/big trees. In addition, currently the Faculty of Engineering has physical facilities, namely the Dean Building, Hall Building, COE Petrochemical Building, Lecture Building with three floors, Secretariat Room, Lecturer Room, Laboratory, Library, Cooperative Room, Al-Muta'alimin Mosque, Computer Room, Workshop Room, Undergraduate Meeting Room, Clinic, Student Canteen, Department Student Association Room, Sports Facilities and Parking Facilities. The Faculty of Engineering continues to make changes and improvements, both in the institutional, academic, as well as in the field of student affairs and cooperation. Changes and improvements in the academic field, especially the establishment of new departments, construction of educational facilities and infrastructure according to the master plan design. One of the efforts to improve services in 2020 the Faculty of Engineering has started the construction of the Canteen Building in accordance with the draft master plan of the Faculty of Engineering. In addition to the Faculty of Engineering in Campus B Cilegon, there is also a Faculty of Medicine which is still in the same area within the campus.

Cilegon City which covers an area of 175.5 km<sup>2</sup>, The total population of Cilegon City in 2020 is 434,896 people, The population density level in the Cilegon City area is 2,477 people/km<sup>2</sup>.

#### Additional evidence link:

- 1. http://ft.untirta.ac.id/
- 2. <a href="https://kedokteran.untirta.ac.id/">https://kedokteran.untirta.ac.id/</a>
- 3. <a href="https://cilegonkota.bps.go.id/publication/2021/02/26/62579c317955d0838eef1313/kota-cilegon-dalam-angka-2021.html">https://cilegonkota.bps.go.id/publication/2021/02/26/62579c317955d0838eef1313/kota-cilegon-dalam-angka-2021.html</a>





#### C. Kampus C Ciwaru



Location of Campus C Ciwaru (Universitas Sultan Ageng Tirtayasa, Indonesia)

#### **Description:**

Campus C (Ciwaru) or the Faculty of Teacher Training and Education is located in Serang City, where Serang City has a position as the administrative center of Banten Province as well as an alternative and buffer area for the State Capital, because from the Special Capital Region of Jakarta it is only about 70 km. The capital of Serang City is in Serang District. Campus C Ciwaru stands on an area of 2.9 Ha. The location of campus C Ciwaru is adjacent to a residential area. Currently, the Faculty of Teacher Training and Education has 18 (eighteen) departments, namely: (1) Non-Formal Education, (2) Bahasa Education, (3) English Education, (4) Biology Education, (5) Mathematics Education, (6) Primary Teacher Education, (7) Early Childhood Teacher Education, (8) Counseling Guidance, (9) Physics Education, (10) Natural Science Education, (11) Chemistry Education, (12) Special Education, (13) Education of Pancasila & Citizenship, (14) History Education, (15) Performing Arts Education, (16) Sociology Education, (17) Mechanical Engineering Vocational Education, (18) Electrical Engineering Vocational Education. And in 2018 received the mandate to organize the Teacher Professional Education Program through the Decree of the Minister of Research, Technology, and Higher Education of the Republic of Indonesia.

Number: 990/KPT/I/2018, November 9, 2018, namely the fields of study: Physics, Chemical, Bahasa, English, Biology, Mathematics and Primary School Teachers.

Serang City has an area of 266.74 km² with a population of Serang City in 2020 of 692,101 people. The population density level in the Serang City area is 2,595 people/km² where most of the population lives in urban areas.

#### Additional evidence link:

- 1. http://fkip.untirta.ac.id/
- 2. <a href="https://serangkota.bps.go.id/publication/2021/02/26/92d07f0edc333af1889f4a49/kota-serang-dalam-angka-2021.html">https://serangkota.bps.go.id/publication/2021/02/26/92d07f0edc333af1889f4a49/kota-serang-dalam-angka-2021.html</a>





#### D. Campus D Kepandean



Location of Campus D Kepandean (Universitas Sultan Ageng Tirtayasa, Indonesia)

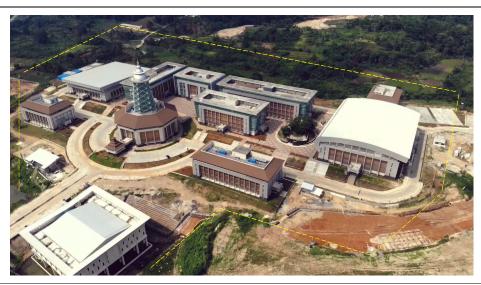
#### **Description:**

Campus D (Kepandean) or Campus Diploma III Nursing is located in Serang City like campuses A and C. Campus D Kepandean stands on an area of 0.593 ha. The location of campus D Kepandean is bordered by residential areas and the Bus Station.

#### Additional evidence link:

1. <a href="https://kedokteran.untirta.ac.id/">https://kedokteran.untirta.ac.id/</a>

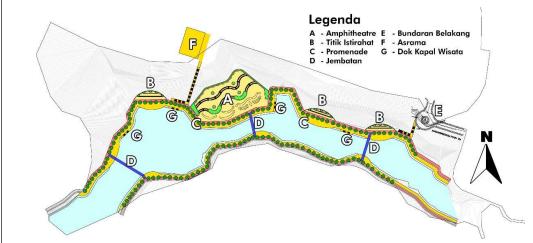
#### E. Campus E Sindangsari



Location of Campus E Sindangsari (Universitas Sultan Ageng Tirtayasa, Indonesia)











Master plan of South Embung Landscape at Campus E Sindangsari (Universitas Sultan Ageng Tirtayasa, Indonesia)





Campus E (Sindangsari) is located in Serang Regency, the location of Campus E Sindangsari is close to the administrative center of Banten Province with a distance of about ±4 km. Campus E is built on an area of 28.5 Ha consisting of 12.9 Ha which has been built with 12 buildings, and 0.7 Ha was built as an Embung (water treatment), and the remaining 14.9 Ha is a land overgrown with trees. The location of campus E Sindangsari is bordered by plantation and forest areas. Campus E Sindangsari consists of 12 buildings including: (1) Rectorat, (2) Faculty of Social and Politic, (3) Integrated Sustainable Agriculture LAB, (4) Faculty of Agriculture, (5) Library, (6) Integrated Classroom, (7) Faculty Economy and Bussines. (8) Auditorium, (9) Faculty of Law, (10) Female Dormitory, (11) Male Dormitory and (12) Student Learning Center. The construction of Campus E Sindangsari was built with the concept of Smart and Green Building. In addition, Campus E will also be equipped with Embung or a Retention Pool as a water catchment area with an area of 13,892 m².

#### Additional evidence link:

- 1. <a href="https://untirta.ac.id/tentang/">https://untirta.ac.id/tentang/</a>
- 2. <a href="https://untirta.ac.id/2021/02/09/wujudkan-smart-green-campus-untirta-tuai-dukungan-pemerintah-kabupaten-serang/">https://untirta.ac.id/2021/02/09/wujudkan-smart-green-campus-untirta-tuai-dukungan-pemerintah-kabupaten-serang/</a>
- 3. <a href="https://www.youtube.com/watch?v=azOBpa4g5lw">https://www.youtube.com/watch?v=azOBpa4g5lw</a>
- 4. <a href="https://bidikutama.com/berita-mahasiswa/jokowi-perintahkan-menteri-pupr-bangun-embung-di-kampus-sindangsari/">https://bidikutama.com/berita-mahasiswa/jokowi-perintahkan-menteri-pupr-bangun-embung-di-kampus-sindangsari/</a>





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#### [1] Setting and Infrastructure (SI)

#### [1.5] Total Campus Area (m<sup>2</sup>)



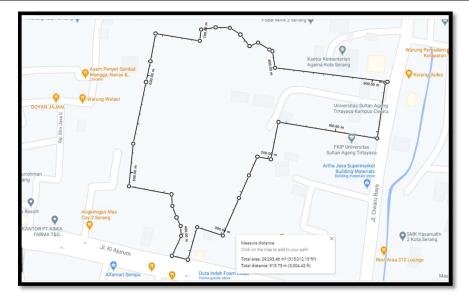
Total Area of
Campus A
Pakupatan
(Universitas Sultan
Ageng Tirtayasa,
Indonesia)



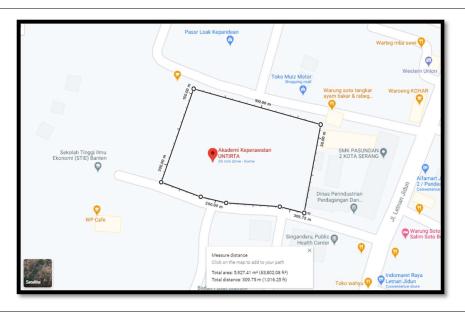
Total Area of **Campus B Cilegon** (Universitas Sultan Ageng Tirtayasa, Indonesia)







Total Area of **Campus C Ciwaru** (Universitas Sultan Ageng Tirtayasa, Indonesia)



Total Area of
Campus D
Kepandean
(Universitas Sultan
Ageng Tirtayasa,
Indonesia)









Total Area of
Campus E
Sindangsari, Master
plan of Embung
Campus E and
Development Land
Use of Campus E
(Universitas Sultan
Ageng Tirtayasa,
Indonesia)









Agricultural land (Karangkitri) As Land for Practicum of the Faculty of Agriculture





Agricultural land (Cadasari, Pandeglang) As Ecofarm Riset











Universitas Sultan Ageng Tirtayasa has 5 campuses located in two cities, and 2 Agricultural Lands with each of the following areas:

No.	Campus	Area (m²)	Distance (m')
1.	Campus A Pakupatan	28.384	859
2.	Campus B Cilegon	61.847	1210
3.	Campus C Ciwaru	29.216	915
4.	Campus D Kepandean	5.933	309
5.	Campus E Sindangsari	127.054	
6.	Embung at Campus E Sindangsari	13.892	3590
7.	Development Land Campus E	176.102	
7.	Agricultural land (Karangkitri)	21.483	673
8.	Agricultural land (Cadasari)	74.250	1448
		538.161	

#### Additional evidence link:

- https://www.google.com/maps/place/Universitas+Sultan+Ageng+Tirtayasa+(Untirta)/@-6.120726,106.194561,13z/data=!4m5!3m4!1s0x0:0xd7fbb1e65b42cbd2!8m2!3d-6.1207259!4d106.1945611?hl=id-ID
- 2. <a href="https://untirta.ac.id/">https://untirta.ac.id/</a>
- https://www.google.com/maps/place/Fakultas+Teknik+UNTIRTA/@-5.996273,106.032095,13z/data=!4m5!3m4!1s0x0:0x249411dd80bfd66e!8m2!3d-5.9962731!4d106.032095?hl=id-ID
- 4. https://ft.untirta.ac.id/
- 5. <a href="https://www.google.com/maps?ll=-6.130764,106.16566&z=13&t=m&hl=id-ID&gl=US&mapclient=embed&cid=12412607988068042645">https://www.google.com/maps?ll=-6.130764,106.16566&z=13&t=m&hl=id-ID&gl=US&mapclient=embed&cid=12412607988068042645</a>
- 6. http://fkip.untirta.ac.id/
- 7. <a href="https://www.google.com/maps/place/Kampus+D3+Keperawatan+Universitas+Sultan+Ageng+Tirtayasa/@-">https://www.google.com/maps/place/Kampus+D3+Keperawatan+Universitas+Sultan+Ageng+Tirtayasa/@-</a>
  - $\underline{6.1118034,106.1424769,17.57z/data=!4m5!3m4!1s0x2e418b26b0bae6a1:0x7daee5584bf42617!8m2!3d}\\ -6.1119801!4d106.141035$
- 8. <a href="https://www.google.com/maps/place/Universtas+Sultan+Ageng+Tirtayasa+Banten/@-6.1909125,106.1242294,17.33z/data=!4m8!1m2!3m1!1s0x0:0xd0e3e2065d06d35c!3m4!1s0x2e4221ef196497b9:0xf60ef7a24ea5646c!8m2!3d-6.1903756!4d106.1245219?hl=id-ID
- 9. <a href="https://www.youtube.com/watch?v=azOBpa4g5lw">https://www.youtube.com/watch?v=azOBpa4g5lw</a>
- 10. <a href="https://bidikutama.com/berita-mahasiswa/jokowi-perintahkan-menteri-pupr-bangun-embung-di-kampus-sindangsari/">https://bidikutama.com/berita-mahasiswa/jokowi-perintahkan-menteri-pupr-bangun-embung-di-kampus-sindangsari/</a>





# Template for Evidence(s) UI GreenMetric Questionnaire

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[1] Setting and Infrastructure (SI)

[1.7] Total Campus Building Area (m<sup>2</sup>)

A. Campus A Pakupatan











**Gedung Doktor Pascasarjana** 

The following is a list of the basic and overall building areas at Campus A Pakupatan:

No.	Building	Ground Floor Area (m²)	Number of Floors	Area (m²)
1.	Central Security Post	12	1	12
2.	Left Security Post	24	1	24
3.	ATM Gallery	31	1	31
4.	Rectorate Building	1.055	2	2.110
5.	Lab. FKIP & Clinic	251	2	502
6.	UTBK	603	1	603
7.	UPT Building	116,5	2	233
8.	Law Faculty	455	2	910
9.	Faculty of Economics and Business	605,5	2	1.211
10.	Lab. & Library of FEB	93,5	2	187
11.	Library	405,5	2	811
12.	Gedung Program Doktor Pascasarjana	626,5	2	1.253
13.	Data and Information Centre Building	293,5	2	587
14.	Lecturer room of Faculty of Agriculture	50	2	100
15.	Faculty of Agriculture	553	1	553
16.	Lab. Green House of Agriculture	279	3	838
17.	Lab. Faculty of Agriculture	80	3	240
18.	C Building	679,33	3	2.038
19.	PKM B	590	1	590
20.	PKM A	559	1	559
21.	Saung of students	30	1	30
22.	Back Side Canteen	176	1	176
23.	Canteen of B Building	60	1	60
24.	B Building	784,75	4	3.139
25.	A Building	789,25	4	3.157
26.	Integrated Laboratory	1.450	3	4.350
27.	Saung Untirta Serang	36	1	36
28.	Generator Room	28	1	28
29.	Mosque	750	1	750
	Total (m²)	11.467,33		25.118





### B. Campus B Cilegon





**Dean Building Faculty Of Engineering** 



Faculty Of Engineering Hall



Lecture Building



**Medical Faculty Building** 



**COE Building** 

**Lecture Building** 

#### **Description:**

The following is a list of the basic and overall building areas on Campus B Cilegon:

No.	Building	Ground Floor Area (m²)	Total of Floor	Area (m²)
1.	Security Post 1	9	1	9
2.	Security Post 2	25	1	25
3.	Clinic	78	1	78
4.	Dean's Canteen	162	1	162
5.	Engineering Faculty Hall	796	1	796
6.	New Dean's Building	700	5	3500
7.	Old Secretariat	500	1	500
8.	Old Dean's building	426	1	426
9.	Mosque	675	1	675





				World Offiversity Rankings
10.	BR Building	300	3	900
11.	PKM	288	1	288
12.	U Lecture Building	1.551	3	4.652
13.	COE Building	807	4	3.228
14.	Medical building	517	3	1.551
15.	New Canteen	800	2	684
	Total (m <sup>2</sup> )	7634	-	17.474

# C. Campus C Ciwaru





**Lecturer Room and Library** 







Mosque PKM









**Dormitory Building** 

The following is a list of the basic and overall building areas at Campus C Ciwaru:

No.	Building	Ground Floor Area (m²)	Number of Floors	Area (m²)
1.	Security Post	9	1	9
2.	Head of Department Building	209	1	209
3.	Lecturer Building	282	1	282
4.	ATM Gallery	31	1	31
5.	Engineering Laboratory	60	1	60
6.	Mosque	237	1	237
7.	PKM	193	1	193
8.	Art Practice Building	286	1	286
9.	Lecture Building A	595	1	595
10.	Lecture Building B	598	3	1.795
11.	Lecture Building C	544	3	1.632
12.	Old Lecture Building	150	1	150
13.	Canteen	134	1	134
14.	Dormitory	565,5	4	2.262
15.	Lecture Building of FKIP	1.672	4	6.688
	Total (m²)	5.565,5	-	14.563

# D. Campus D Kepandean





Dormitory Lectu



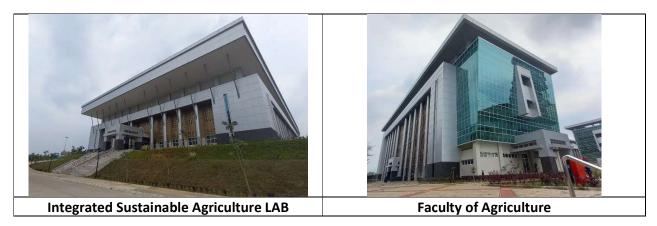


The following is a list of the basic and overall building areas on Campus D Kepandean:

No.	Building	Ground Floor Area (m²)	Number of Floors	Area (m²)
1.	Security Post	5	1	5
2.	Office	389,5	2	779
3.	Lab. Demon	147	1	147
4.	Lab. KMB	166	1	166
5.	Nursing Laboratory	83	2	166
6.	Female's Mosque	82	1	82
7.	Male's Mosque	51	1	51
8.	Classes	555,5	2	1.111
9.	Male Dormitory 1	364	1	364
10.	Male Dormitory 2	50	1	50
11.	Male Dormitory 3 dan Kitchen	157	1	157
12.	Male Dormitory 4	87	1	87
13.	Female Dormitory 1	325	1	325
14.	Female Dormitory 2 dan Clinic	306	1	306
15.	Female Dormitory 3	90	1	90
16.	Guest House	1.184	1	1.184
	Total (m²)	4.042	-	5.070

### E. Campus E Sindangsari













Library

Integrated Classroom





**Faculty Economy and Bussines** 

Auditorium





**Faculty of Law** 

**Female Dormitory** 





**Male Dormitory** 

**Student Learning Center** 





The following is a list of the basic and overall building areas at Campus E Sindangsari:

No.	Building	Ground Floor Area (m²)	Number of Floors	Area (m²)
1.	Rectorat	1.585,60	4	6.469
2.	Faculty of Social and Politic	1.239,19	4	4.230
3.	Integrated Sustainable Agriculture LAB	3.757,15	1	3.755
4.	Faculty of Agriculture	1.630,90	4	5.140
5.	Library	812,50	4	3.250
6.	Integrated Classroom	1.112,75	4	4.451
7.	Faculty Economy and Bussines	2.114,11	4	7.800
8.	Auditorium	3.880,40	4	4.746
9.	Faculty of Law	1.430,71	4	4.866
10.	Male Dormitory	792,66	4	2.460
11.	Female Dormitory	792,66	4	2.460
12.	Student Learning Center	4.111,54	4	10.651,91
13.	Gardu PLN	24	1	24
14.	Power House & Trafo	312	1	312
15.	Tangki Air Bersih	34	1	800
16.	Gate/Security Post	34	1	34
	Total (m²)	23.664,17	-	61.448,91

Recapitulation of Total Campus Building Area:

No.	Untirta Campuses	Building Area (m²)
1.	Campus A (Pakupatan)	25.118
2. Campus B (Cilegon) 17.474		17.474
3. Campus C (Ciwaru)		14.563
4.	4. Campus D (Kepandean) 5.070	
5.	Campus E (Sindangsari)	61.448,91
	TOTAL	123.673,91

### Additional evidence link :

https://green.untirta.ac.id/penataan-dan-infrastruktur/





# Template for Evidence(s) UI GreenMetric Questionnaire

University : University of Sultan Ageng Tirtayasa

Country : Indonesia

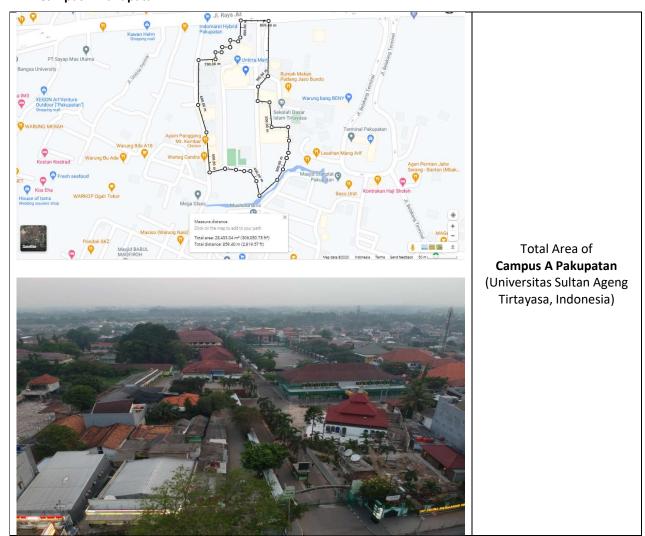
Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

#### [1] Setting and Infrastructure (SI)

#### [1.8] The Ratio Of Open Space To Total Area

#### A. Campus A Pakupatan



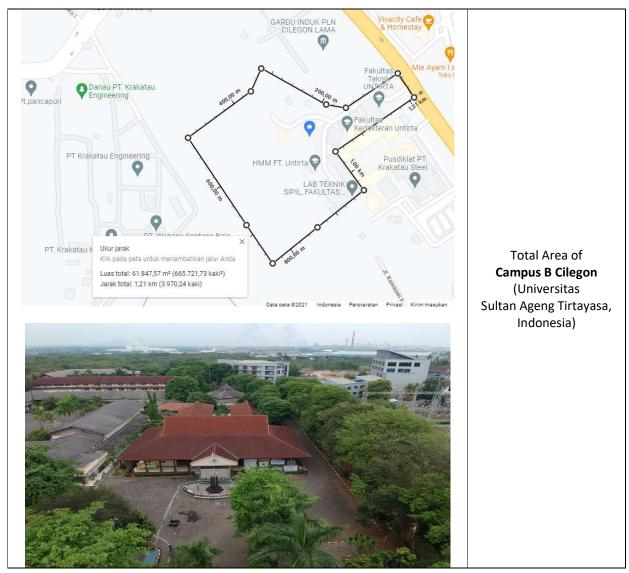
#### **Description:**

The total area of campus A Pakupatan is 28,384 m<sup>2</sup> The total base area of the Pakupatan Campus A building is 11,467.33 m<sup>2</sup> The total open space area is 28,384 m<sup>2</sup> – 11,467.33 m<sup>2</sup> = 16,916.67 m<sup>2</sup>





#### B. Campus B Cilegon



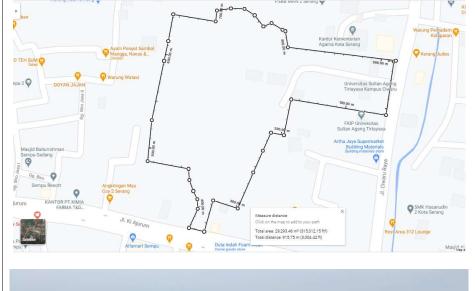
#### **Description:**

The total area of campus B Cilegon is 61,847  $m^2$ The total building base area of the Campus B Cilegon is 7,634  $m^2$ The total open space area is 61,847  $m^2$  – 7,634  $m^2$  = 54,213  $m^2$ 





C. Campus C Ciwaru



Total Area of **Campus C Ciwaru**(Universitas

Sultan Ageng Tirtayasa,
Indonesia)



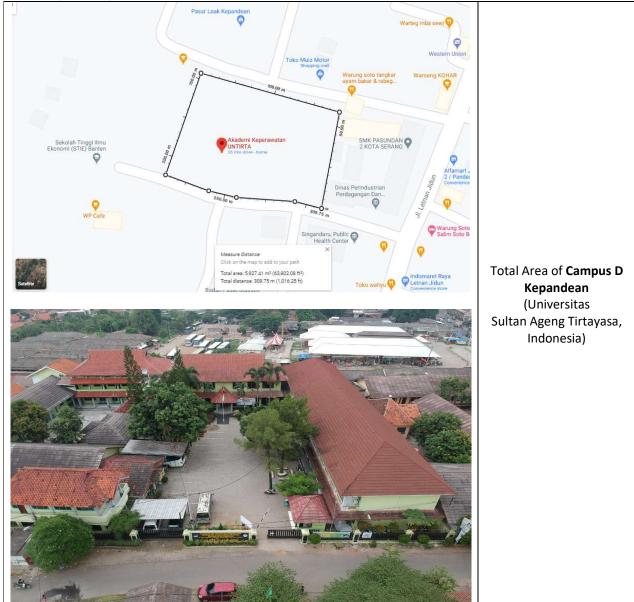
#### **Description:**

The total area of the C Ciwaru campus is 29,216 m<sup>2</sup> The total base area of the Campus C Ciwaru building is 5,565.5 m<sup>2</sup> Total open space area is 29,216 m2 - 5,565.5 m<sup>2</sup> = 23,650.5 m<sup>2</sup>





D. Campus D Kepandean



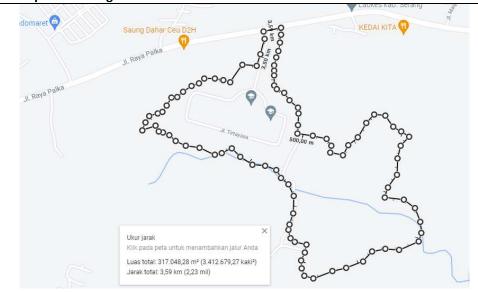
#### **Description:**

The total area of campus D Kepandean is 5,933 m $^2$ The total base area of Campus D Kepandean building is 4,042 m $^2$ The total open space area is 5,933 m $^2$  – 4,042 m $^2$  = 1,891 m $^2$ 





E. Campus E Sindangsari





Total Area of Campus E Sindangsari (Universitas Sultan Ageng Tirtayasa, Indonesia)







The total area of campus E Sindangsari is 317,048  $m^2$ The total area of Campus E Sindangsari building is 23,664.17  $m^2$ Total open space area is 317,048  $m^2$  – 23,664.17  $m^2$  = 293,383.83 $m^2$ 

#### Open Space to Total Area Data Recapitulation:

No.	UNTIRTA's Campuses	Campus Area (m²)	Ground Floor Area (m²)	Open Space (m²)
NO.		(1.5)	(1.6)	(1.5-1.6)
1.	Campus A (Pakupatan)	28.384	11.467,33	16.916,67
2.	Campus B (Cilegon)	61.847	7.634	54.213
3.	Campus C (Ciwaru)	29.216	5.565,5	23.650,5
4.	Campus D (Kepandean)	5.933	4.042	1.891
5.	Campus E Sindangsari	127.054	23.664,17	103.389,83
6.	Embung of Campus E Sindangsari	13.892	0	13.892
7.	Campus E Development Land	176.102	0	176.102
8.	Agricultural land (Karangkitri)	21.483	0	21.483
9.	Agricultural land (Pandeglang)	74.250	0	74.250
	TOTAL	538.161	52.373	485.788

Based on a total of 5 campuses and with the addition of land used as a practical laboratory from the faculty of agriculture, the ratio of open space to the total area of UNTIRTA is:

The Ratio Of Open Space To Total Area = 
$$\frac{(1.5-1.6)}{1.5}x$$
 100% =  $\frac{485.788}{538.161}x$  100% = 90,26 %

Where the value of 90.26% is included in the category [4], namely > 90% - 95%

#### Additional evidence link:

https://green.untirta.ac.id/penataan-dan-infrastruktur/





# Template for Evidence(s) UI GreenMetric Questionnaire

University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : www.untirta.ac.id

https://green.untirta.ac.id

### [1] Setting and Infrastructure (SI)

#### [1.9] Total Area On Campus Covered In Forest Vegetation (m²)



Forest Vegetation located on campus B Cilegon with an area of 26,233 m<sup>2</sup>



Forest Vegetation located on campus E Sindangsari with an area of 176,102 m<sup>2</sup>











Forest vegetation in Karangkitri with an area of 21,483 m<sup>2</sup>





Forest Vegetation in Cadasari, Pandeglang with an area of 74,250 m<sup>2</sup>











The total area of Campus B (Cilegon), Campus E (Sindangsari), Karangkitri Agricultural Experimental Garden, and Pandeglang Experimental Garden are covered with forest vegetation.

Open Space to Total Area Data Recapitulation :

No.	Untirta's Campuses	Open Space (m²)
1.	Campus B Forest Vegetation	26.233
2.	E Campus Development Area	176.102
3.	Agricultural Area (Karangkitri)	21.483
4.	Agricultural Area (Pandeglang)	74.250
	TOTAL	298.068

Total campus area = 538.161 m2

So that the ratio of the total area on the campus covered by forest vegetation is obtained:

% ratio = 
$$\frac{298.068}{538.161}$$
 x  $100\%$  = 55,39 %

### Additional evidence link:

https://green.untirta.ac.id/penataan-dan-infrastruktur/





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

[1] Setting and Infrastructure (SI)

[1.10] Total Area On Campus Covered In Planted Vegetation

## A. Campus A Pakupatan







## **Description:**

Area of Campus A Pakupatan: 28,384 m<sup>2</sup>

Green area (garden): 839.50 m<sup>2</sup>

# B. Campus B Cilegon















Cilegon Campus B area : 35,614 m<sup>2</sup> Greean Area (garden): 1,350 m<sup>2</sup>

# C. Campus C Ciwaru





# **Description:**

The area of Campus C Ciwaru: 29,216 m<sup>2</sup>

Green area (garden): 25 m<sup>2</sup>

# D. Campus D Kepandean

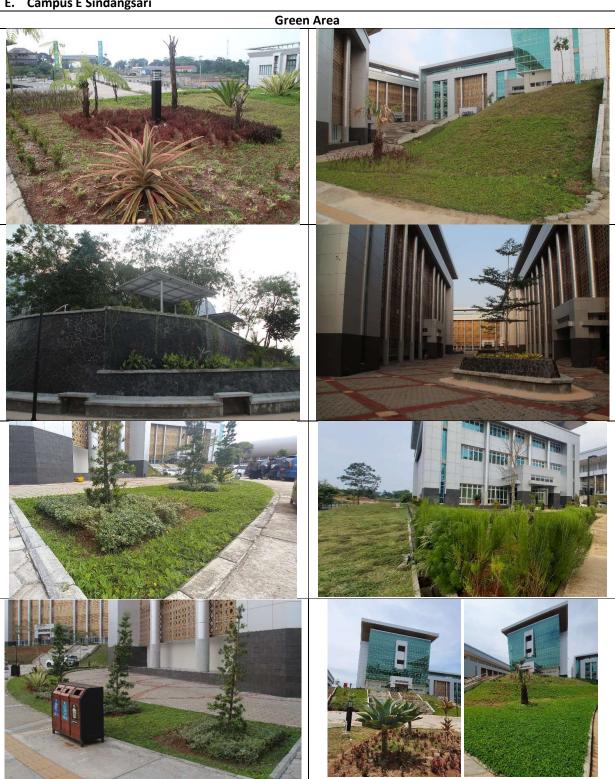






Area of Campus D Kepandean : 5,933  $m^2$  Green area (garden): 70.65  $m^2$ 

# E. Campus E Sindangsari







Area of Campus E Sindangsari : 127,054 m²

Green area (garden): 45,218 m<sup>2</sup>

Data Recapitulation Total area on campus covered in planted vegetation:

No.	Untirta's Campuses	Campus Area (m²)	Garden (m²)
1.	Campus A (Pakupatan)	28.384	839,5
2.	Campus B (Cilegon)	35.614	1.350
3.	Campus C (Ciwaru)	29.216	25
4.	Campus D (Kepandean)	5.933	70,65
5.	Campus E Sindangsari	127.054	45.218
	TOTAL	226.201	47.503,15

Based on the total area of garden on 5 campuses, total area on campus covered in planted vegetation of UNTIRTA is:

Total area on campus covered in planted vegetation =  $\frac{47.503,15}{226.201}$  x 100% = 21,00 %

Where the value of 21.00% is included in the category [3], namely > 20% - 30%

### Additional evidence link:

https://green.untirta.ac.id/penataan-dan-infrastruktur/





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

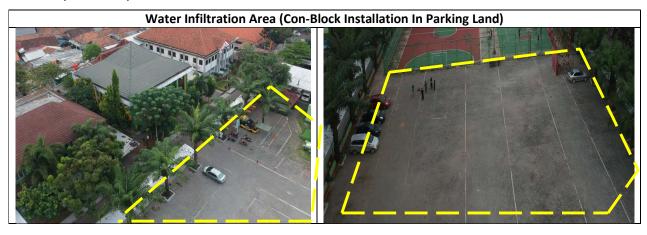
Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

## [1] Setting and Infrastructure (SI)

### [1.11] Total Area On Campus For Water Absorption Beside Forest And Planted Vegetation

## A. Campus A Pakupatan



### **Description:**

Area of Campus A Pakupatan: 28,384 m<sup>2</sup>

Absorption area: 2,628.97 m<sup>2</sup>

## B. Campus B Cilegon



**Description:** 

Cilegon Campus B area : 35,614 m<sup>2</sup> Absorption area : 5,600 m<sup>2</sup>





## C. Campus C Ciwaru



## **Description:**

The area of Campus C Ciwaru: 29,216 m<sup>2</sup>

Absorption area: 3,183 m<sup>2</sup>

# D. Campus D Kepandean



## **Description:**

Area of Campus D Kepandean: 5,933 m²

Absorption area: 449 m<sup>2</sup>

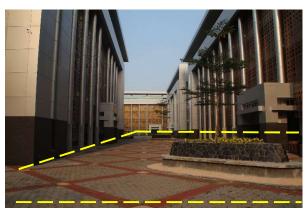




# E. Campus E Sindangsari

# Water Infiltration Area (Grass And Con-Block Installation)









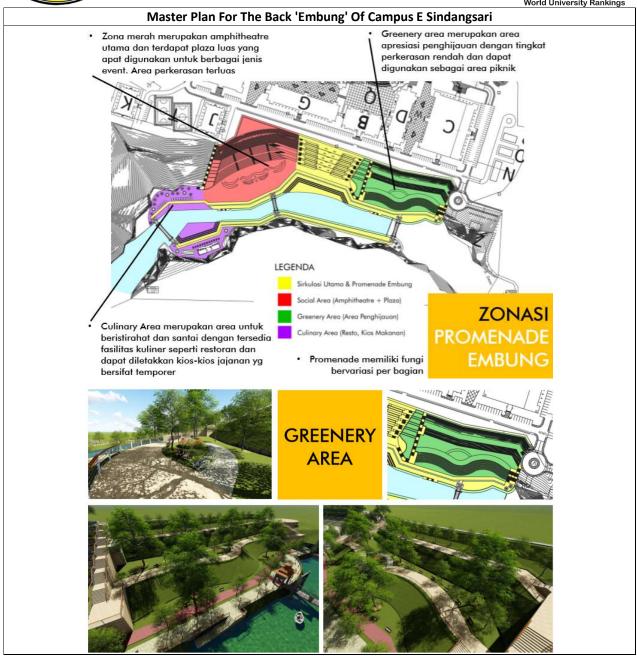
**East Side + West Side Retention Pool Construction** 











Area of Campus E Sindangsari : 127,054 m<sup>2</sup>

Absorption area: 33,480 m<sup>2</sup>

Data Recapitulation Total area on campus for water absorption beside forest and planted vegetation:

No.	Untirta's Campuses	Campus Area (m²)	Absorption (m <sup>2</sup> )
1.	Campus A (Pakupatan)	28.384	2.628,97
2.	Campus B (Cilegon)	35.614	5.600
3.	Campus C (Ciwaru)	29.216	3.183
4.	Campus D (Kepandean)	5.933	449
5.	Campus E Sindangsari	127.054	33.496
	TOTAL	226.201	45.356,97





Based on the total area of garden on 5 campuses, the total area on campus covered in planted vegetation of UNTIRTA is:

Total area on campus covered in planted vegetation =  $\frac{45.356,97}{226.201}$  x 100% = 20,05 %

Where the value of 20.05 % is included in the category [3], namely > 20% - 30%

### Additional evidence link:

- 1. <a href="https://www.youtube.com/watch?v=azOBpa4g5lw">https://www.youtube.com/watch?v=azOBpa4g5lw</a>
- 2. <a href="https://bidikutama.com/berita-mahasiswa/jokowi-perintahkan-menteri-pupr-bangun-embung-di-kampus-sindangsari/">https://bidikutama.com/berita-mahasiswa/jokowi-perintahkan-menteri-pupr-bangun-embung-di-kampus-sindangsari/</a>





University : Universitas Sultan Ageng Tirtayasa

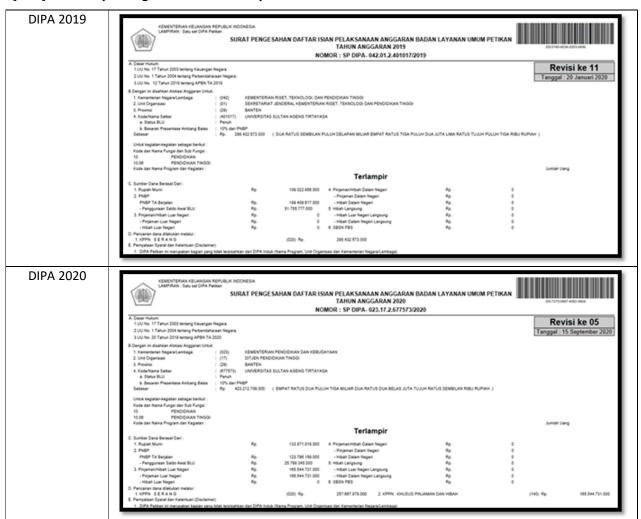
Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

# [1] Setting and Infrastructure (SI)

# [1.18] University's Budget for Sustainableity Effort









University Budget Recapitulation In The Last 3 Years (Us Dollar)

No	Descriptions		Average				
INO	Descriptions	2019	2021	Average			
1	Total campus budget	21.218.929,50	30.090.959,12	24.760.765,33	25.356.884,65		
		USD	USD	USD	USD		
2	Total campus budget for				1.268.000 USD		
	sustainability						
3	Percentage of campus				5 %		
	budget for sustainability						
	efforts						

## **Description:**

The budget for sustainability campus funds is taken from DIPA for capital and building expenditure activities with a total annual average of 1.268.800 USD or about 5 % of the total university budget.

### Additional evidence link:

https://untirta.ac.id/2021/01/02/dipa-rka-kl-untirta-2021/





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : www.untirta.ac.id

https://green.untirta.ac.id

# [1] Setting and Infrastructure (SI)

# [1.20] Percentage Of Operation And Maintenance Activities During Covid-19 Pandemic









(Maintain Cleanliness of Rooms and Yard Periodically)

























(Periodic Checking of Supporting Machines and Lights)

Universitas Sultan Ageng Tirtayasa, commonly abbreviated as Untirta, is a state university located in the province of Banten, Indonesia. Universitas Sultan Ageng Tirtayasa as a State University continues to make changes and improvements in all fields by making improvement or maintenance of the facilities and infrastructure owned to support activities on campus and always doing cleaning to maintain cleanliness and health during Covid-19 pandemic. Almost all buildings are always checked for conditions and cleaning, especially in buildings that carry out many activities such as rectorate buildings and faculty buildings, but classroom buildings are only carried out periodically because during the Covid-19 pandemic, teaching and learning activities are still online. The following is a presentation of buildings that carry out routine maintenance:

Total campus building area = 123.673,91 m²
 Total operated building = 93.944,91 m²

Percentage building that operated and maintenanced = 76 %

### Additional evidence link:

https://green.untirta.ac.id/penataan-dan-infrastruktur/





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : www.untirta.ac.id

https://green.untirta.ac.id

# [1] Setting and Infrastructure (SI)

# [1.20] Percentage Of Operation And Maintenance Activities During Covid-19 Pandemic









(Maintain Cleanliness of Rooms and Yard Periodically)

























(Periodic Checking of Supporting Machines and Lights)

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 Total operated building = 93.944,91 m²

Percentage building that operated and maintenanced = 76 %

### Additional evidence link:

https://green.untirta.ac.id/penataan-dan-infrastruktur/





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : www.untirta.ac.id

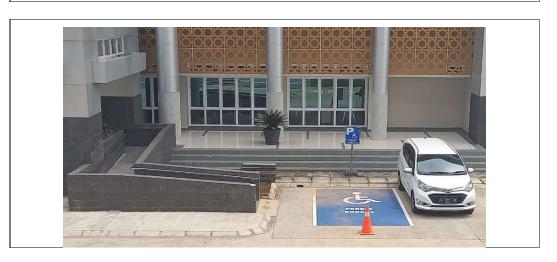
https://green.untirta.ac.id

# [1] Setting and Infrastructure (SI)

# [1.21] Campus Facilities For Disabled, Special Needs And Or Maternity Care



**Pedestrian Facilities For Disabled (Blind)** 



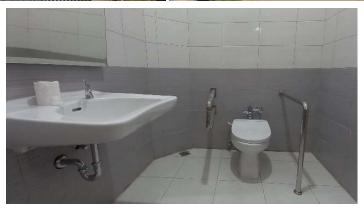












Wheelchair Track Facilities For Disabled And Disabled Toilets







Universitas Sultan Ageng Tirtayasa, commonly abbreviated as Untirta, is a state university located in the province of Banten, Indonesia. Universitas Sultan Ageng Tirtayasa as a State University continues to make changes and improvements in all fields, one of those is by preparing facilities friendly to persons with disabilities, such as disability lanes available along the road, then special parking locations for disabilities and complete with signs as access to the building, besides that there is also special toilet for people with disabilities or people with special needs in each building, this is done with the intention that people with disabilities can still be active on campus. At several locations, lactation rooms are available to support maternity care.

Not only support in terms of facilities, Untirta also cares for students with special needs by giving appreciation to students who have achievements in both academic and non-academic fields.

#### Additional evidence link:

https://untirta.ac.id/2020/10/19/berkah-dies-natalis-ke-39-untirta-vivi-mahasiswi-berkebutuhan-khusus-banjir-hadiah/





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

# [1] Setting and Infrastructure (SI)

# [1.22] Security and safety facilities

















Universitas Sultan Ageng Tirtayasa, commonly abbreviated as Untirta, is a state university located in the province of Banten, Indonesia. Universitas Sultan Ageng Tirtayasa as a State University has good security in each of its campuses, this is evidenced by the presence of guard by the security team, guard posts at several points of the campus and the availability of CCTV and APAR on each campus. This is provided to support security in the Untirta campus environment from all things that are not desirable so that every academic community will still feel comfortable in carrying out activities in campus environment. Additionally, Untirta conducted many disaster response simulations on the Sindangsari campus to ensure that the Sindangsari campus has standardized security measures in place to deliver the best service possible to the Academic Civitas, Stakeholders, and Community.

### Additional evidence link:

https://www.instagram.com/reel/CSBHreiJQ-N/?utm\_medium=copy\_link





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

# [1] Setting and Infrastructure (SI)

# [1.23] Health Infrastructure Facilities For Students, Academics And Administrative Staffs' Wellbeing













Technical Implementing Service Unit - Clinic Untirta has an obligation to provide health services to all Untirta employees, all academics, both preventively and curatively. Therefore, Technical Implementing Service Unit - Clinic Untirta implements an integrated service program, which is a service activity aims to provide health services, provide integrated health information and socialization. Through the annual program, Technical Implementing Service Unit - Clinic Untirta also conducts medical tests for new students, these types of tests consist of general medical tests, tests for the use of illegal drugs or types of narcotics or drugs and color blind tests for certain faculties or educational programs require these requirements.

To facilitate the form of health services at Technical Implementing Service Unit - Clinic Untirta, technical instructions are given for those who will seek treatment by being given a special card for treatment functions to control changes or developments in patients in treatment.

Technical Implementing Service Unit - Clinic Untirta service is at the stage of improvement in terms of the facilities provided to support the health of Untirta employees. Sultan Ageng Tirtayasa University (Untirta) currently has a Technical Implementing Service Unit - Clinic, was established based on the 2003 Untirta Rector's Decree on Organization and Work Procedures (OTK) of Untirta, which was named Technical Implementing Service Unit - Clinic. The existence of the Technical Implementing Service Unit - Clinic Untirta is expected to be able to become a health service center (Central of Health) for Untirta. Various collaborations in health services are also carried out, community service through social services (Baksos) is the main target in providing health services for the community, especially Untirta employees and generally the people of Banten. Technical Implementing Service Unit - Clinic Untirta is trying to strengthen its role in maximizing the form of Untirta health services through various work plans in the next five years such as seminars or health workshops by inviting various health experts or collaborating with other health service units in providing health services to carry out community service activities on society. The explanation above shows that Untirta's hope to improve the quality of health services is profound. Untirta's Clinic as a health service center is certainly highly expected. Therefore, support for the development and socialization of Untirta 's Clinic needs support.

Universitas Sultan Ageng Tirtayasa already has several clinics spread across several campuses, namely:

- 1. Campus A (Pakupatan) Campus A (Pakupatan) as the central clinic.
- 2. Campus B (Cilegon)
  Campus B (Cilegon) currently has a clinic located at the front of the Cilegon campus site map which is intended for students and Untirta employees.
- 3. Campus C (Ciwaru)

  Campus A (Ciwaru) currently has a clinic located at the front of the Ciwaru campus site map.

### Additional evidence link:

- 1. http://ubis.untirta.ac.id/umc
- 2. https://www.youtube.com/watch?v=q\_uNd9YN3tw&t=3s
- 3. <a href="https://www.youtube.com/watch?v=6BwocozDAXc">https://www.youtube.com/watch?v=6BwocozDAXc</a>
- 4. https://www.youtube.com/watch?v=dQk5is6Gptk
- 5. <a href="https://www.youtube.com/watch?v=1HJ5dHFZdWg">https://www.youtube.com/watch?v=1HJ5dHFZdWg</a>





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : https://untirta.ac.id/

## [1] Setting and Infrastructure (SI)

[1.24] Conservation: Plant, Animal, And Wildlife Genetic Resources For Food And Argicultural Secured In Either Medium Or Ling-Term Conservation Facilities





Palawija Plantations and Research Conservation Areas





Chili Plants in the Yard of the Faculty of Agriculture Building







Fish Conservation On The Ground Floor Of The Student Center Building











#### Fish Ponds At Several Points On Campus



The Using Of Unproductive Land In Engineering Faculty As Open Space Renewable Energy Garden With Local Wisdom Of Banten Province (Saung Sanggah)





Universitas Sultan Ageng Tirtayasa, commonly abbreviated as Untirta, is a state university located in the province of Banten, Indonesia. Sultan Ageng Tirtayasa University as a State University continues to strive to make changes and improvements in all fields, one of those is by utilizing vacant land to be used to support every activity while still supporting the green campus program. The vacant land used is located behind Campus E (Sindangsari) as a secondary crop plantation, in addition, the Faculty of Agriculture Untirta has 2 lands that are used for plant conservation practices which are located in Karangkitri and in Cadasari, Pandeglang as a innovation local food. There are also chili plants around the Faculty of Agriculture building that can be used.

Untirta also has a conservation pond at the ground floor of the Student Center building, the pond has been planted with fish by UNTIRTA's Rector. In addition, at several points around the campus there are beautiful facilities specially aquariums. Of the total conservation, about 27% have been implemented.

#### Additional evidence link:

- 1. <a href="https://untirta.ac.id/2021/09/03/untirta-mendapat-4000-benih-ikan-dari-balai-benih-ikan-tawar/">https://untirta.ac.id/2021/09/03/untirta-mendapat-4000-benih-ikan-dari-balai-benih-ikan-tawar/</a>
- 2. https://www.instagram.com/p/CUU8LRWpayl/?utm\_medium=copy\_link





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

# [2] Energy and Climate Change (EC)

# [2.1] Energy Efficient Appliances Usage



Example of LED light usage, Air Conditioning Inverter system (Campus B Universitas Sultan Ageng Tirtayasa)









Example of Air Conditioning Inverter and VRV system (Campus E Universitas Sultan Ageng Tirtayasa)





Universitas Sultan Ageng Tirtayasa has several campus locations namely Campus A located in Pakupatan - Serang, Campus B located in Cilegon, Campus C located in Ciwaru - Serang, Campus D located in Kepandean – Serang and Campus E located in Sindang Sari – Banten.

Currently the Main Campus has moved to camus E in Sindangsari, there are Rectorate Building, Audiotorium, Library, Laboratory, 4 faculty buildings, Integrated Class Building, Student Center Building and 2 Dormitory Buildings.

The use of LED lights and energy-saving air conditioners has reached 100% at campus E Sindangsari. With a total of 5520 lamps spread over 12 buildings, all of air conditioner have been using centralized VRV technology. The use of lights and air conditioners can be monitored and controlled by the BAS (Building Automation System)

REKAPITULASI JUMLAH LAMPU												
NO	KAMPUS	KAMPUS JUMLAH PENGGUNAAN LAMPU LAMPU LE										
1	A Pakupatan	2856	571									
2	B Cilegon	1187	594									
3	C Ciwaru	1240	342									
4	D Kepandean	433	51									
5	E Sindangsari	5415	5415									
	TOTAL	6973										
	PERSENTASI	63%										

#### Additional evidence link:

Additional evidence link: <a href="https://green.untirta.ac.id/energi-dan-perubahan-iklim/">https://green.untirta.ac.id/energi-dan-perubahan-iklim/</a>





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

[2] Energy and Climate Change (EC)

[2.3] Smart Building Implementation

\*Min. at least five requirements for each building

IVII	*Min. at least five requirements for each building																				
No.	Name Place		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	automation		. 403	salety			kg alla		water		Indoor	environment			:	lighting		Building Area (m²)
			B1	В2	<b>S1</b>	S2	<b>S3</b>	<b>S4</b>	E1	E2	<b>A1</b>	A2	l1	12	13	14	L1	L2	L3	L4	
	Universitas Sultan Ageng Tirtayasa; Campus A	Serang, Indonesia				х	x										х	х		x	20612
	Universitas Sultan Ageng Tirtayasa; Campus B	Cilegon, Indonesia				х	х		х							х	х	х		х	8987
	Universitas Sultan Ageng Tirtayasa; Campus C	Serang, Indonesia				х	х										х	х		х	4989
	Universitas Sultan Ageng Tirtayasa; Campus D	Serang, Indonesia				х	х										х			х	1258
	Universitas Sultan Ageng Tirtayasa; Campus E	Serang, Indonesia	х	x		х	х		х							х	х	х		х	60275
		Total																			96121

— Please compile one row for each building (or homogeneous part of it) by ticking with a "X" for each requirement ———

## **Smart building implementation**

$$\frac{total\ smart\ building\ area}{total\ building\ area} \times 100\%$$

**Example:** 

\*Total Building Area: 112338 m<sup>2</sup>

$$\frac{9121 \ m^2}{123,6655 \ m^2} \times 100\% = 78\%$$









Building A













Building B









Building C









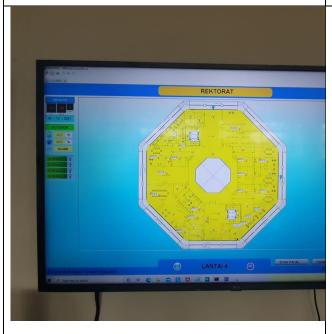


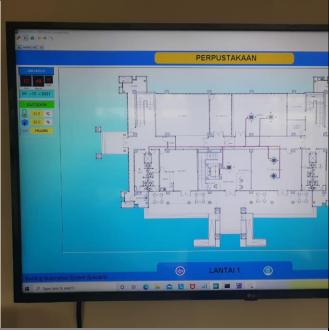












Buliding E





In the calculation of a smart building implementation, two campuses meet the minimum requirements of 5 features; campus B and Campus E. However, Campus A, campus C and campus D meet three features, namely S2, S3 (fire fighting system and CCTV system) and L1 (use LED).

. Campus E is a new campus which is built based on smart and green building.

Percentage of the building area that has used the smart building concept reached 78%, which the largest area is in E campus Sindangsari, with all of buildings already installed with smart systems. Of the 11 buildings in Sindangsari, each building is equipped with an electronic system i.e. CCTV security, Fire Alarm, Building Sound system, temperature sensor, heat sensor, smoke detector-It's all integrated with the Building Automation System (BAS). All systems in E campus Sindangsari can be monitored and controlled centrally, as well as with the use of electricity, both lighting and AC systems.

The integrated control system is located in Library, and can also be monitored from Rector's room. Not only that, all of information is also supported by the existence of an IPTV system spread in each building

Additional evidence link: <a href="https://green.untirta.ac.id/energi-dan-perubahan-iklim/">https://green.untirta.ac.id/energi-dan-perubahan-iklim/</a>





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### [2] Energy and Climate Change (EC)

### [2.5] Renewable Energy Sources in Campus





Biodiesel 1250 KVA

Biodiesel 460 KVA



Biodiesel 460 KVA







- 1. There are five Biodiesel generators available which are distributed in Campus A two generators (capacity 1250 kVA), one in Campus B (capacity 1250 kVA), one in Campus D (capacity 460 kVA), and another one in Campus E (capacity 1250 kVA).
- 2. In Campus B, solar cell 3300 Wp was installed and utilized for lighting. The lighting load is 1410 Watt. There is also a small capacity of wind power plants that is specifically used for lecturers' and students' research.
- 3. There are some studies of solar cell implementation have been conducted in Campus B. Some studies which utilized the software PVSyst recommended the installation of 24 solar cells (12 series and two parallels) with the capacity of 300Wp on each of them. As a result, the Solar cell power plant enables to generate total energy of 11.211 energy/year. The installation of the solar cell power plant is in the right place to generate a lot of energy. To fulfill the lightning load of 11.624,5 kWh/year, some loads of solar cell power plant ON-GRID is also supplied by the National Electrical Company (known as PLN). The amount of energy of the solar cell power plant used is 6.253 kWh/year and energy supplied by PLN is 5.371,5 kWh/year. Other studies stimulated the use of solar cells as a power plant on BR building (3-floor building) with a lightning load of 5.280 kWh/year and it was required for, at least, 36 solar cells (300Wp/each). The distribution on each floor will be 12 solar cells that are connected to 6 series and 2 parallels.
- 4. In early 2020, a study was conducted to measure the total amount of energy in Universitas Sultan Ageng Tirtayasa. This planning was stimulated using the PVsyst application and the load on the simulation used energy consumption on a yearly calendar. Modul PV used was Jinko Solar JKM 300M-60-V monocrystalline and its specification is as in the following table 1.

Table 1 Spesification of Modul Jinko Solar JKM 300M-60-V monocrystalline

No	Spesification	Notes	
1	Peak Power (Pmax)	301,5 Watt	
2	Efficiency Module / Area	18,42 %	
3	Max. power volt (Vmp)	32,6 V	
4	Max. power current (Imp)	9,22 A	
5	Open circuit volt (Voc)	39,1 V	
6	Short circuit current (Isc)	10,02 A	
7	Dimension	1650 x 992 x40 mm	
8	Weight	19 kg	





The inverter used was customized with the number of module PV that will be installed. Inverter Solaredge SE2500H-AUS was used for building A-D and its specification is as in the following table 2.

Table 2 Specification of Inverter Solaredge SE2500H-AUS

No	Specification	Notes	
1	Fixed Input DC Voltage	380 V	
2	Input Current	8 A	
3	Efficiency	99.1 %	
4	Maximum Input Power	3,9 kW	
5	Output Voltage	230 V	
6	Output Current	11,5 A	
7	Output AC Power	2,5 kW	

Meanwhile, for the energy use in the entire building utilized 2 inverter Solaredge SE16K-EU-APAC/AUS and its specification is as in the following table 3.

Tabel 3 Spesification Inverter SE16K-EU-APAC/AUS

No	Spesification	Notes	
1	Fixed Input DC Voltage	750 V	
2	Input Current	23 A	
3	Efficiency	97.97 %	
4	Maximum Input Power	17,6 kW	
5	Output Voltage	400 V	
6	Output Current	25,5 A	
7	Output AC Power	17 kW	

Solar cell power plant (PLTS) on building A-D will use 10 modules which are compiled series. On the module, seitan will be installed *optimizer* SolarEdge 505 that functions to maximize the output of the module and to match the input of required inverter voltage.

In addition, the design for the whole load will use 128 modules that are compiled 32 series that are parallel on four parts.





### Additional evidence link:





University : Universitas Sultan Ageng Tirtayasa

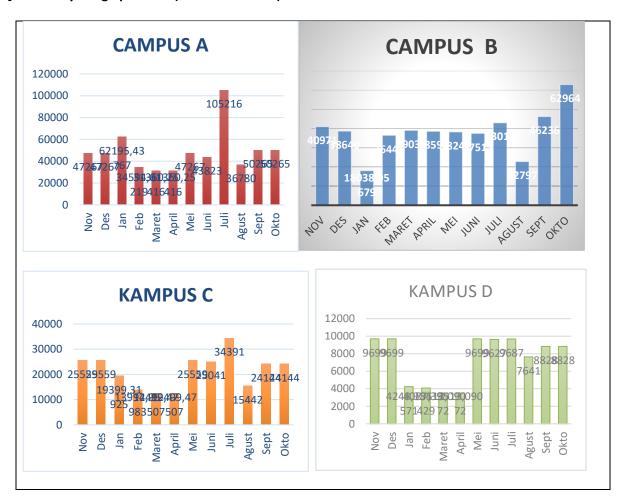
Country : Indonesia

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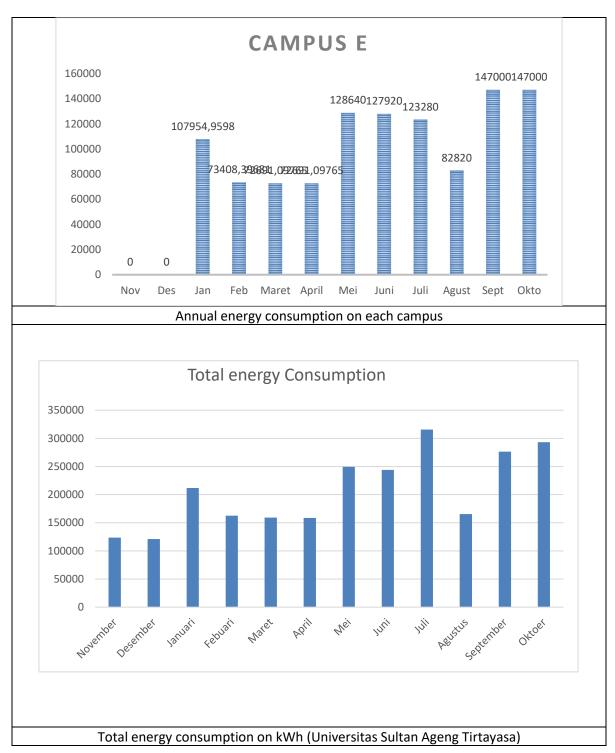
### [2] Energy and Climate Change (EC)

### [2.6] Electricity Usage per Year (in Kilowatt hour)









Campus A, monthly energy consumption can be seen on the graphic. The total of energy use in 1 year are 587.667 kwh, last year was 592.609 kWh.

Campus B, load demands are supplied by two sources namely PT Krakatau Daya Listrik (KDL) and PT Persero PLN. The total energy use from both sources are 462.494 kwh and last year load demands were 750.662 kWh.

Campus C, the total of energy consumption in one year are 258.232 kwh, and last year 425.877 kWh, and for Campus D, the total energy consumption are 89,069 kwh, and for last year was 126.928 kWh.





Currently Campus E in Sindangsari has begun to be used gradually starting from January, the total of energy consumption in one year are 1,083,405 kwh.

The total energy consumption of Universitas Sultan Ageng Tirtayasa is 2,480,862 kwh, and last year at 2,896,076 kWh.

Overall, seen from the total electrical energy used by Untirta there is a decrease in usage, although there is an additional campus area in Sindangsari which consists of 11 buildings. This shows that the Sindangsari campus has realized the use of energy-efficient electrical equipment.

### Additional evidence link:





University : Universitas Sultan Ageng Tirtayasa

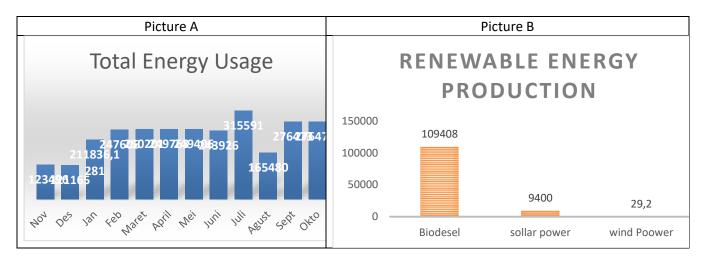
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### [2] Energy and Climate Change (EC)

### [2.8] The ratio of renewable energy production divided by total energy usage per year



### **Description:**

The calculation of renewable energy resulted in one-year calendar is as follow:

Biodisel: There are 3 biodiesels available with the capacity of 460 kVA and 1 biodiesel capacity of 1250 kVA. The total amount of capacity is 2630 kVA. Assumed that cos phi is 0,85 and its operation for 1 hour/a week, biodiesel generate total energy of 109408 kWh.

Solar power: Using 20 solar cell, energy that can be generated is in 9400 kWh/year.

Wind power: It is still in small scale of wind power design and the power generates between 35 – 50 watt. Two hours per day, those equipment yield 29,2 kWh/year.

In total, the renewable energy is 118837,2 kWh

The ratio of renewable energy production divided by total energy usage per year:

$$\frac{renewable\ energy\ production}{total\ energy\ useage\ per\ year} = \frac{118837.2}{2,480,862} \times 100\% = 4,8\%$$

### Additional evidence link:





University : Universitas Sultan Ageng Tirtayasa

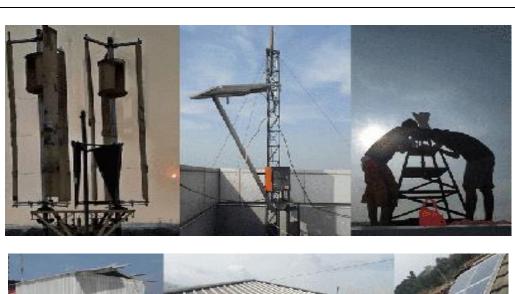
Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

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### [2] Energy and Climate Change (EC)

### [2.9] Elements of Green Building Implementation as Reflected in All Construction and Renovation Policies













### KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN

# Males Roya Bidarta KM 4 Pahaputan-Sorrag Kode Post 21121 Telegona US24-2020 Suramide (US24). 2013121 Telegona US24-2020 Suramide (US24). 201312 Telegona US24-

- 2023;
   11. Peraturan Rektor Universitas Sultan Ageng Tirtayasa Nomor:
   13. Tahun. 2019. Tentang. Rencana. Strategis. (Renstra).
   Universitas Sultan Ageng Tirtayasa.

The figure above is the sample of rector's decree on the use of renewable energy



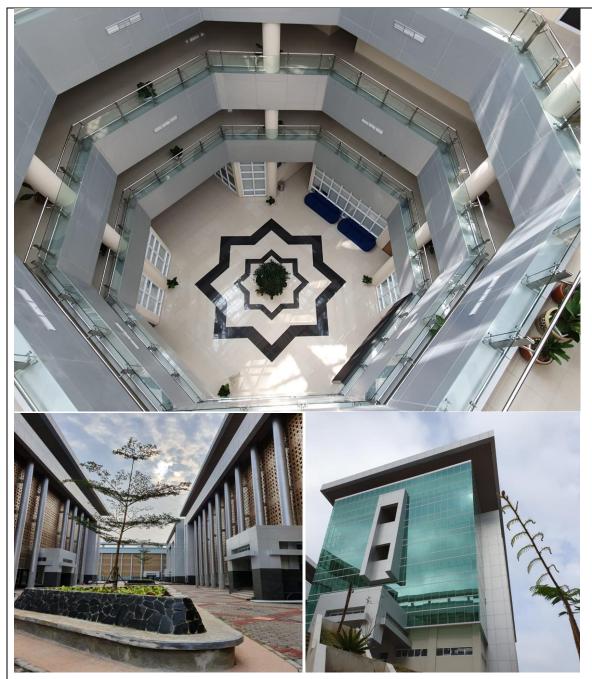




The pictures above are the sample of green Area Garden in Universitas Sultan Ageng Tirtayasa









The pictures above are the sample of Green Building architecture implementation in Universitas Sultan Ageng Tirtayasa





The implementation of renewable energy has been successfully implemented at Universitas Sultan Ageng Tirtayasa, as can be seen in Campus B. Several studies regarding the use of solar and wind energy have been conducted. Almost all the buildings at Universitas Sultan Ageng Tirtayasa have implemented a natural lightening system and ventilation system as referred to concept of green building. Land expeditious is also applied, for instance, the application of green house roof top for hydroponic system using circulation water pump system by using solar cell. The use of fishpond for hydroponic DFT system operated by the solar cell sources.

A green shelter making has also been successfully implemented, this is a bicycle shelter facility can be used to charge electric bicycles with solar power, equipped with a vertical garden. Everything is stated in the policy of research direction refers to a green campus.

During the development, the policy of parks making and green areas continues to be carried out. The green building design concept has been implemented in all Sindangsari campus buildings with elements of air conditioning and natural lighting applied

### Additional evidence link:





University : Universitas Sultan Ageng Tirtayasa

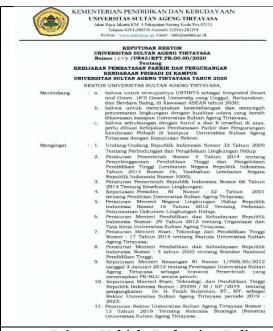
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### [2] Energy and Climate Change (EC)

### [2.10] Greenhouse gas emission reduction program





1. Private Vehicle Reduction Policy on campus

2. Design of rooftop solar panels for E campus



3. Providing Electric Cars in the E Campus Area





.

Untirta continues to make efforts to reduce carbon emissions, starting with the issuance of a policy in the form of the Rector's Decree regarding the policy of reducing private vehicles entering the campus area. The master plan to build a rooftop solar panel with a capacity of 1,1 MW step by step is currently in the DED document stage. The provision of an environmentally friendly shuttle in the form of an electric car has now been implemented which operates in the campus area.

### Additional evidence link:





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Country : Indonesia

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### [2] Energy and Climate Change (EC)

### [2.13] Number of innovative program(s) during Covid-19 pandemic



Examples of innovative program (Untirta, Indonesia)





### Additional evidence link:





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

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### [2] Energy and Climate Change (EC)

### [2.14] Impactful university program(s) on climate change



Untirta and Indonesian Rector Forum are serious to find solution for management and utilization of sustainable plastic waste







Focus Group Discussion with local government

Universitas Sultan Ageng Tirtayasa (Untirta) and Indonesia Rector Forum (FRI) held a national webinar of management and utilization of sustainable plastic waste. The event was attended by Rector of Untirta – Prof. Dr. Ir. H. Fatah Sulaiman, ST., MT., Chairman of FRI - Prof. Ir. Panut Mulyono, M.Eng., D.Eng., IPU ASEAN Eng, prominent speakers, industrial representatives, representative form Ministry of Environment, local government, and several scholars from Faculty of Engineering Untirta.

Focus grup discussion with local government has also been conducted. The discussion mainly focused on the planning construction of pond at Untirta. This collaboration also received positive feedback from both party leaders, Regent of Serang and Rector of Untirta. Moreover, local government expressed their enthusiasm to get involved into an educational program, not only in the part of construction.

Furthermore, the existence of water treatment plant for ablution water that can be re-used. All pipelines in the Student Centre building have been separated from raw water and recycle water. And, the output of the water treatment is used to water plants and flush in the toilet.

### Additional evidence link:





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : <a href="https://untirta.ac.id">https://untirta.ac.id</a>

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[3] [Waste]

### [3.1] Recyling program for University waste



Waste sorting program, namely organic waste, inorganic waste and B3 waste.







Waste management scheme at Universitas Sultan Ageng Tirtayasa



Organic waste treatment at Universitas Sultan Ageng Tirtayasa



Processing rainwater and river water for ablution





Processing of plastic waste into fuel





The recycling program for university waste has been implemented at Universitas Sultan Ageng Tirtayasa. This program is strengthened by the Rector's Decree Number 636/UN43/KPT.PR.00.00/2020. Some of the recycling programs for university waste that have been carried out at Universitas Sultan Ageng Tirtayasa include:

- 1. Waste sorting program, namely organic waste, inorganic waste and B3 waste.
- 2. Composting to recycle organic waste which is centered on Sindang Sari Campus
- 2. Processing rainwater and river water for ablution
- 3. Using the water for ablution that has been reprocessed so that it can be used for watering plants
- 4. Processing of plastic waste into fuel

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Processing rainwater and river water for ablution <a href="https://link.untirta.ac.id/konservasiair">https://link.untirta.ac.id/konservasiair</a>

Processing of plastic waste into fuel

https://green.untirta.ac.id/2021/10/18/pengembangan-industri-pengolahan-sampah-plastik-terpadu-berbasis-circular-economy-di-kota-cilegon-banten/

Additional evidence link:		





University : Universitas Sultan Ageng Tirtayasa

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https://green.untirta.ac.id

### [3] [WASTE]

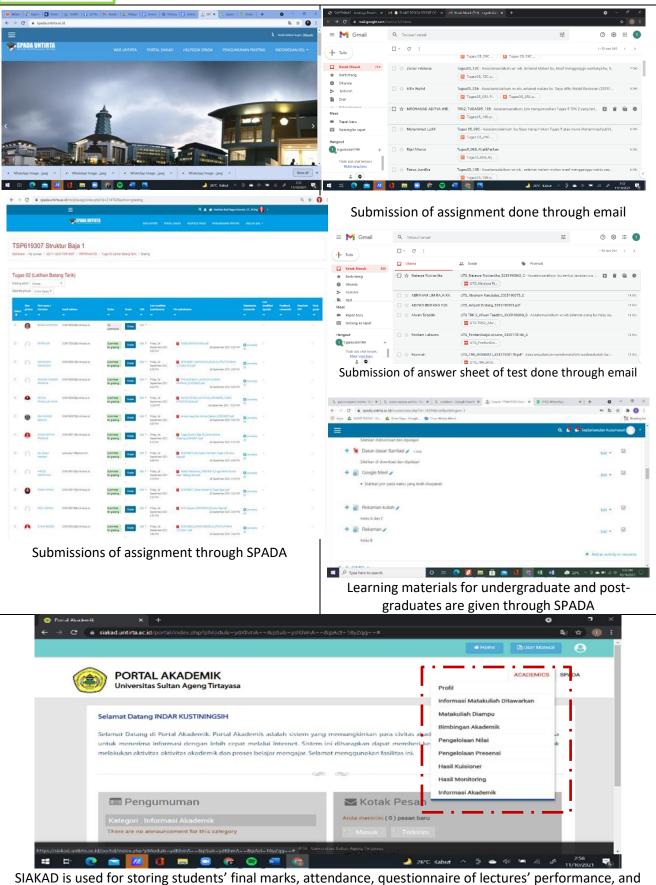
### [3.2] Program to reduce the use of paper and plastic in campus



Reducing the use of plastic containers (either beverage or food) during activities on campus, such as meetings and other activities



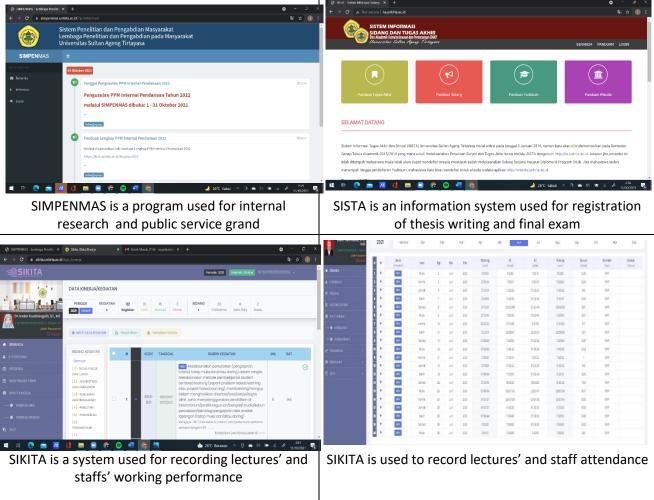




academic supervision







Universitas Sultan Ageng Tirtayasa has played an active role in reducing the use of paper and plastic according to the Rector's Decree Number 639/UN43/KPT.PR.00.00/2020. Some of the programs already conducted include:

- 1. Reducing the use of plastic containers (either beverage or food) during activities on campus, such as meetings and other activities;
- 2. Maximizing the use of the SIKD system and SIM KEU in the correspondence practice among staff members in Untirta in both administrative and financial sectors;
- 3. Teaching using online system (SPADA) and submitting assignments in softcopy files by students via SPADA or email
- 4. Management of student attendance, information on courses taught, management of student grades, academic guidance, questionnaires for lecturers and students are all through SIAKAD
- 5. Using online system for Untirta's internal grant competition, both research grants and community service grants.





- 6. Registration of the final project (thesis/dissertation), graduation through Sista Untirta and the final project is submitted to the Department in soft copy file.
- 7. Using SIKITA in the collection of data of remuneration for lecturers and education staff and list of attendees of lecturers

### Additional evidence link:

Teaching using online system (SPADA) and submitting assignments in softcopy files by students via SPADA https://spada.untirta.ac.id/

Additional evidence link:

Management of student attendance, information on courses taught, management of student grades, academic guidance, questionnaires for lecturers and students are all through SIAKAD <a href="https://siakad.untirta.ac.id/portal/">https://siakad.untirta.ac.id/portal/</a>

### Additional evidence link:

Using online system for Untirta's internal grant competition, both research grants and community service grants.

https://simpenmas.untirta.ac.id/?p=Informasi

### Additional evidence link:

Registration of the final project (thesis/dissertation), graduation through Sista Untirta and the final project is submitted to the Department in soft copy file <a href="http://ta.untirta.ac.id/">http://ta.untirta.ac.id/</a>

### Additional evidence link:

Using SIKITA in the collection of data of remuneration for lecturers and education staff and list of attendees of lecturers

https://sikita.untirta.ac.id/app\_presensi/list\_tap





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### [3] [WASTE]

### [3.3.] Organic Waste Treatment





Organic composting center for processing organic waste into organic fertilizer

### **Description:**

Universitas Sultan Ageng Tirtayasa has organic composting center that is used for processing organic waste into organic fertilizer.

### **Description:**

Additional evidence link: <a href="https://green.untirta.ac.id/limbah/">https://green.untirta.ac.id/limbah/</a>





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[3] [WASTE]

### [3.4] Inorganic waste treatment



Lab-scale pyrolysis at the Faculty of Engineering



Chopped plastic waste



Plastic waste processing in collaboration with PT Chandra Asri tbk









The results of processing plastic waste

Universitas Sultan Ageng Tirtayasa has already separated inorganic waste from organic waste by providing different trash bins both inside the campus building and outside the campus building. In addition, Untirta has reduced inorganic waste by requiring the use of tumblers for drinking water for employees and lecturers and also prohibiting the use of bottled water during meetings and other activities.

Inorganic waste processing is partly in collaboration with outside parties and partly plastic waste is processed into fuel using the pyrolysis method. This plastic waste processing is in collaboration with PT Chandra Asri tbk.

Additional evidence link:

https://drive.google.com/file/d/1y2IUkUUmpS3G5UEXkVhNc4pqOlzAy0p4/view?usp=sharing

Additional evidence link:

https://green.untirta.ac.id/2021/10/18/pengembangan-industri-pengolahan-sampah-plastik-terpadu-berbasis-circular-economy-di-kota-cilegon-banten/





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### [3] [WASTE]

### [3.5] Toxic waste handled





### **Description:**

Universitas Sultan Ageng Tirtayasa has given considerable attention to B3 waste management since 2020 in accordance with Rector's Decree Number 636/UN.43/KPT.PR.00.00/2020. B3 waste treatment at Universitas Sultan Ageng Tirtayasa was previously managed by a third party. In 2021, B3 waste management has been managed independently, centralized by the Integrated Lab and the Faculty of Agriculture at Sindang Sari Integrated Campus.

Additional evidence link: https://green.untirta.ac.id/2021/10/15/alat-netralizer-limbah-di-kampus-





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### [3] [WASTE]

### [3.6] Sewage diposal



Sewer water in Sindang Sari



WTP Electro System Processing Scheme



Wastewater and rainwater treatment equipment using Electro System



Results of water treatment used for ablution

### **Description:**

Wastewater processing at Universitas Sultan Ageng Tirtayasa has been carried out in the Untirta campus area such as the reuse of water used for ablution and for watering plants. Waste water treatment at Universitas Sultan Ageng Tirtayasa has been built on the Sindang Sari Campus using the WTP electro system. The results of treatment of rainwater and waste water can be reused for watering plants and green areas at Universitas Sultan Ageng Tirtayasa and for ablution.





University : Universitas Sultan Ageng Tirtayasa

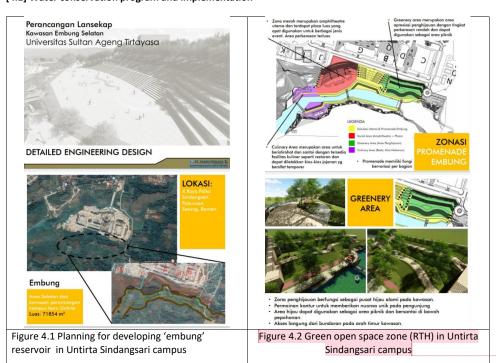
Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

### [4] [WATER]

### [4.1] Water conservation program and implementation



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Figure 4.4 The Installation of bio pores and infiltration wells in the Engineering Faculty campus

Untirta Rector Decree Number 634 / UN43 / KPT.PR.00.00 / 2020 concerning THE IMPLEMENTATION POLICY FOR WATER CONSERVATION IN Untirta CAMPUS, it regulates the following:

1. Implementation of zoning and water conservation measures in Campus B / Untirta - Cilegon and Campus E / Untirta - Sindangsari.





- 2. The Program for implementing local and ecological protection functions; as conservation zones to restore balance and anticipate disaster-prone areas, which include botanical forests and the area's lungs, river boundaries, and disaster evacuation zones.
- 3. The implementation program for green open space includes green open space for slope conservation, water catchment areas, retention and detention facilities on campus A / Untirta Pakupatan, campus B / Untirta Cilegon, campus C / Untirta Ciwaru, campus D / Untirta Kepandean, and campus E / Untirta Sindangsari.
- 4.The establishment of biopore hole drilling programs and infiltration wells throughout UNTIRTA's campus regions.
- 5. The Implementation Program for Greenery Areas; a green open space zone with a low level of pavement that serves as a recreation place for campus A / Untirta - Pakupatan, campus B / Untirta - Cilegon, campus C / Untirta - Ciwaru, campus D / Untirta - Kepandean, and campus E / Untirta - Sindang



Figure 4.5 Anti-flood drainage system (zero run-offs) equipped with bio pure pipes in the main plaza / main hall at Untirta Sindangsari campus



Figure 4.6 Retention Pool as flood control and water management at Untirta Sindangsari campus





(The Rector's Decree 634 / UN43 / KPT.PR.00.00 / 2020 contains various initiatives and policies connected to water conservation: 1) In the UNTIRTA Sindangsari region, there is a plan to construct an embung (reservoir) with the purpose of increasing infiltration capacity and reducing flow to the nearby river. 2) By planning a greenery area, which is a zone of green open space, a campus recreation area can be created. 3) The installation of biopore holes and infiltration wells in the campus areas A / Untirta - Pakupatan, B / Untirta - Cilegon, C / Untirta - Ciwaru, and D / Untirta - Kepandean, as well as the installation of anti-flood drainage systems (zero run-offs) fitted with biopore pipes in the main plaza near Sindangsari - Untirta). At Untirta Sindang Sari (Main Campus), there is a retention pool for flood management. Additionally, retention pools provide as lovely landscape and can help boost groundwater reserves. On Main Campus, there were two retention pools. These retention ponds have a combined capacity of approximately 20.000 m3. Embung/Lake/Reservoir was developed with a total size of 13.000 m2 and is scheduled to open in June 2022. The Ministry of Public Works and Public Housing of the Republic of Indonesia will oversee this project. Embung will construct a building at the Sindang Sari Campus's back area. UNTIRTA Sindangsari's main plaza/main hall has an anti-flood drainage system (zero run-offs) fitted with bio pure pipes (main campus). This system may contribute to Untirta's water saving efforts. The biopore area on the main campus is approximately 10.500 m3. Around 30.500 m3 of water was preserved in total (retention pools, con block area in main campus and bio pores). Untirta's entire campus utilized approximately 100.000m3 of pure water, which means that 30% of water was already preserved.

Additional evidence link:

https://green.Untirta.ac.id/air https://youtu.be/tlJO0c6wPo4





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Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

### [4] Water (WR)

### [4.2] Water Recycling Program Implementation

Untirta Rector's Decree Number 633 / UN43 / KPT.PR.00.00 / 2020 concerning THE IMPLEMENTATION POLICY FOR WATER MANAGEMENT OR WATER HARVESTING, Untirta CAMPUS, it regulates the following:

- 1. Rainwater management/water harvesting activities in the campus areas A / Untirta Pakupatan, B / Untirta Cilegon, C / Untirta Ciwaru, D / Untirta Kepandean, and E / Untirta Sindangsari.
- 2. The implementation of rainwater harvesting programs as a means of meeting water requirements in campus facilities, such as watering plants and flushing toilets.
- 3. The establishment of a river water recycling program in the E / Untirta Sindangsari campus region as a regulator of the hydrological system (runoff) and river conservation (increasing the river's water quality/purification process) to allow water to flow back into the river.
- 4. Implementation of the WTP development program for the reservoir (embung) as a source of clean water for one or more buildings on the E / Untirta Sindangsari campus.













Figure 4.7 Green Technology Recycle Wudhu's Water in Student Center Untirta Sindang Sari





(The Rector's Decree 633 / UN43 / KPT.PR.00.00 / 2020 has many policies regarding the usage of recycled water: 1) Water harvesting programs in all areas of the Untirta campus, 2) Rainwater harvesting to meet raw water needs in buildings and outside buildings for watering plants and toilets, 3) River water recycling plan in the E / Untirta - Sindangsari campus area, 3) Development of WTP artificial lake/ reservoir (embung) as a source of clean water for the E / Untirta - Sindangsari campus area.

Eco-Friendly Technology Recycle Wudhu's Water in the Untirta Sindang Sari Student Center has been installed. This method is environmentally benign and can provide clean wudhu's water; also, the water can be used as a source of clean drinking water. Water from the pool, rainwater, and the river were collected and processed using the electrochemistry filtering method. This system was developed by Untirta graduates. Additionally, Untirta Sindang Sari has a clean water storage space near the power building. The clean water storage tank had a capacity of around 800 cubic feet per day. This system is already in place and is capable of providing clean water to the Sindang Sari campus. Around 29% of water has already been recycled.





Figure 4.8 Water Treatment in Power House Area Untirta Sindang Sari



Figure 4.9 Schema Water Treatment Process

Additional evidence link: https://www.youtube.com/watch?v=tlJO0c6wPo4





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## [4] Water (WR)

## [4.3] Water Efficient Appliances Usage (e.g. hand washing taps, toilet flush, etc.)















Figure 4.10 The Use of water-saving equipment

Untirta Rector's Decree Number 640 / UN43 / KPT.PR.00.00 / 2020 concerning to Untirta CAMPUS WATER SAVING IMPLEMENTATION POLICY, it regulates the following:

- 1. A program for deploying water-saving devices throughout the campus building through the use of automatic sensors.
- 2. A program for the use of tools (automated and censored faucets, water-efficient out-flush toilets) on all campuses in the Untirta area, particularly in new buildings or buildings that are being replaced due to damage.
- 3. A program to gradually phase out the use of water-saving equipment across the Untirta system.





(The Rector's Decree Number 640 / UN43 / KPT.PR.00.00 / 2020 contains several programs and policies relating to water conservation on campus: 1) the use of water-efficient equipment such as automatic water taps for household purposes, bathing, washbasins, and flush toilets; 2) the policy on the use of water-saving devices in the form of automatic sensors both inside and outside campus buildings; and 3) the policy on the use of tools (automatic and censored)

Appliance	Total Number	Total number water Efficient appliances	Percentage
Toilet	469	422	89.9%
Orinoir	197	157	79.7%
Shower	175	122	69.7%
		Average Percentage	79.7%

Additional evidence link: <a href="https://green.untirta.ac.id/air/">https://green.untirta.ac.id/air/</a>





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[4] Water (WR)

## [4.4] Treated Water Consumed





Figure 4.11 Drinking water consumption of Untirta-Ku

Untirta Rector's Decree Number 639 / UN43 / KPT.PR.00.00 / 2020 concerning POLICY ON IMPLEMENTATION OF THE USE OF DRINKING WATER IN PACKAGING AT Untirta CAMPUS, it regulates the following:

- 1. It is prohibited to utilize a plastic container, such as a tumbler, in any academic community activity held on campus.
- 2. A program to adopt the use of "Untirta-Ku," purified drinking water, as the primary source of drinking water for the entire academic community in Untirta.
- 3. Use used water to make wudhu (holly water) with a capacity of 2 m³ per hour, located on Campus E of Sultan Ageng Tirtayasa University.



Figure 4.12 Tap Water facilities for ready to drink water





(The Rector's Decree Number 639/UN43/KPT.PR.00.00/2020 contains several programs and policies relating to the drinking water policy: 1) the use of plastic containers is prohibited in all academic activities on campus; 2) Source Untirta-Ku bottled drinking water (AMDK) was developed by the Business and Entrepreneurship Development Unit (UPBK) of Sultan Ageng Tirtayasa (Untirta) University in collaboration with PT UntirtaKu is a brand of bottled water that supplies all water gallon dispensers on the Untirta campus.

In the region surrounding the power house, there are tap water facilities for ready-to-drink water. Untirta Sindang Sari is capable of producing 10-15 gallons of drinkable water each day. All students and visitors are welcome to use these facilities for free. The reverse osmosis system converts clean water to drinkable water. This drinking water has been analyzed in a laboratory approved by Banten Province's Public Health Office. Air Jawara is the brand name for this bottled water. Clean water derived from green technology on the main campus of the Student Center was drank as wudhu's water. Around 27% of water has already been consumed.

#### Additional evidence link:

https://untirta.ac.id/2020/06/16/rektor-luncurkan-air-minum-dalam-kemasan-merk-Untirta-ku/

https://youtu.be/crVDhO7 Aro

https://green.untirta.ac.id/air





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## [4] Water (WR)

## [4.5] Percentage of additional handwashing and sanitation facilities during Covid-19 pandemic



Handwashing Facilities in ULP and mosque



the entrance of the Integrated Laboratory
Building





Handwashing Facilities in Rector Office Sindang Sari



Common Class Room Building C Ciwaru

Figure 4.13 Handwashing and sanitation facilities during Covid-19 pandemic

### **Description:**

All Untirta campuses have additional hand washing facilities. Meanwhile, the graphic depicts handwashing stations located at each building's entrance. Hand sanitizer dispensers are placed in all corners of buildings when handwashing facilities cannot be installed.







Figure 4.14. Hand sanitizer in entrance building and meeting room

Facilities	Number of Facilities
Handwashing Facilities	70
Number of Building	91
Percentage Facilities	76.9%

Concerns over COVID handling and sanitation have been expressed by Untirta. Each building in Untirta is equipped with a hand sanitizer, additional hand washing facilities, and a body temperature monitoring system at the main entrance. Each room already has a hand sanitizer (meeting rooms, class rooms, and offices).

### Additional evidence link:

https://covid19.untirta.ac.id/en/

https://youtu.be/nWj\_pO1SO78

https://youtu.be/hphTiOQBFRg





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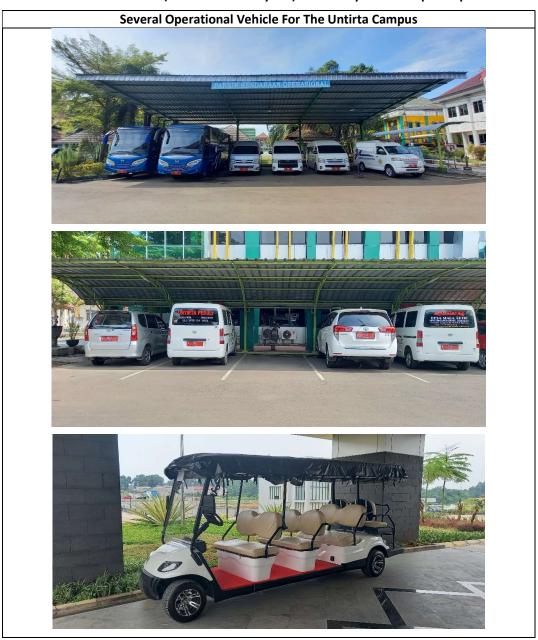
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## [5] Transportation (TR)

[5.4] The Total Number Of Vehicles (Cars And Motorcycles) Divided By Total Campus Population









(Based on data from BMN, the number of cars managed by Untirta is 60 vehicles)

No.	Indicator	Total	
5.1	Number of cars actively used and managed by the university	60	
5.2	Number of Cars entering the university daily	408	
5.3	Number of Motorcycles entering the university daily	2021	
	Total Number of Vehicles	2489	
1.12	Total number of regular students	20603	
1.14	Total number of academic and administrative staff	1304	
	Total Campus Population		
The Total Number Of Vehicles (Cars And Motorcycles With Combustion Engine) Divided By		0,1136	
	Total Campus Population		

## Additional evidence link:

https://green.untirta.ac.id/transportasi/ https://ppid.untirta.ac.id/?p=1463





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## [5] [TRANSPORTATION]

#### [5.5] Shuttle Services



**Untirta's Shuttle Bus** 



**Shuttle Bus Schedule** 

## **Description:**

Untirta campus provides campus bus services for free to support the accessibility of the academic community, the. Untirta Campus Bus operates during weekdays Monday - Friday. It is divided into two routes, namely the B.01 and B.02 lines with The bus stop is centralized on the Untirta Main Campus in SIndangsari. Route B.01 will go through the New Untirta Sindangsari Campus - D Nursing Campus - Campus B, Faculty of Engineering Cilegon, while Route B.02 will serve the New Untirta Sindangsari Campus route - Campus C FKIP Ciwaru - Campus A Untirta in Pakupatan.





For future development, the Untirta campus will operate a shuttle bus service on campus regularly to serve the entire academic community in the new campus in Sindangsari; Untirta campus policy to reduce the use of private vehicles on campus.

### Additional evidence link:

https://untirta.ac.id/2021/01/25/untirta-sediakan-shuttle-bus-ke-kampus-sindangsari/





University : Universitas Sultan Ageng Tirtayasa

Country : Serang Banten
Web Address : <u>www.untirta.ac.id</u>

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## [5] [Transportasi]

## [5.9] Zero Emission Vehicles (ZEV) Policy On Campus

## **Bicycle Parking at Campus A Pakupatan**









## Bicycle Parking at Campus B Cilegon













## **Bicycle Parking at Campus C Ciwaru**





Bicycle Parking at Campus E Sindangsari













Mobil Listrik Parking at Campus E Sindangsari





To create a pollution-free campus environment, currently, Untirta has provided bicycle services for free; used in the campus. In addition, it can encourage the use of bicycles as a daily means of transportation for the Untirta academic community on campus.

Untirta campus is so wide; the distances between building to building especially in the New Untirta Sindangsari campus. very far Therefore, bicycle service as an alternative in facilitating the movement of the Untirta academic community to move from one building to another one to avoid vehicle emissions on campus. Also, the availability of campus bicycle services can improve the quality of the environment and the safety of road users on the Untirta campus by starting to reduce the use of motorized vehicles in the campus environment.

Untirta already has an electric automobile with an open model, such as a golf car or what is generally referred to as a buggy car. This vehicle is used to transport students and staff throughout the E Sindangsari campus. This electric buggy car seats up to eight passengers.

With the presence of these zero-emission vehicles, both bicycles and electric cars, it is intended that the amount of emission gas within the campus can be minimized, resulting in cleaner and healthier air. Additionally, there is no charge or fee for using a bicycle or buggy car.

#### Additional evidence link:

- 1. <a href="https://untirta.ac.id/2018/10/05/untirta-bersepeda-membangun-kebersamaan/">https://untirta.ac.id/2018/10/05/untirta-bersepeda-membangun-kebersamaan/</a>
- 2. https://untirta.ac.id/2019/09/25/sivitas-untirta-rayakan-diesnatalis-ke-38-dengan-gowes-sepeda-santai/
- 3. https://untirta.ac.id/2020/09/24/tirtayasa-virtual-bike/
- 4. https://untirta.ac.id/2020/10/21/bni-sumbang-10-unit-sepeda-listrik-untuk-untirta/
- 5. <a href="https://www.youtube.com/watch?v=7i0uRzBIEZE">https://www.youtube.com/watch?v=7i0uRzBIEZE</a>
- 6. <a href="https://www.youtube.com/watch?v=YSUVAiTXaJM">https://www.youtube.com/watch?v=YSUVAiTXaJM</a>





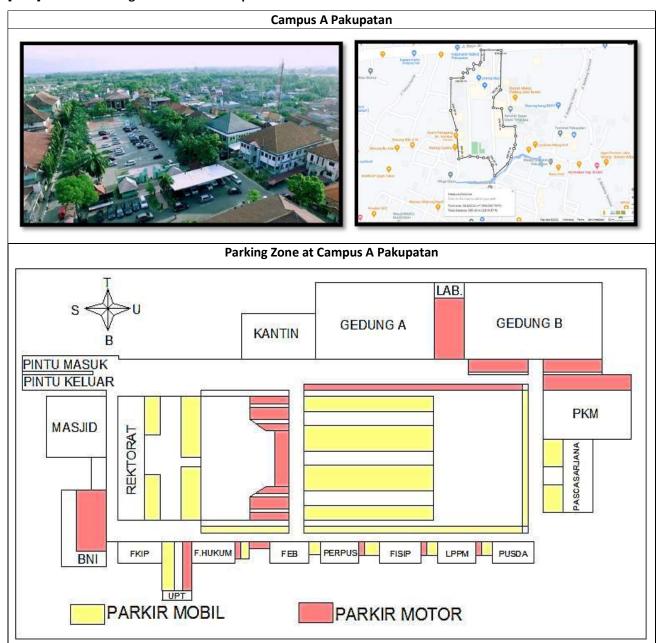
University : Universitas Sultan Ageng Tirtayasa

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## [5] [TRANSPORTATION]

### [5.13] Ratio of Parking Area to Total Campus Area





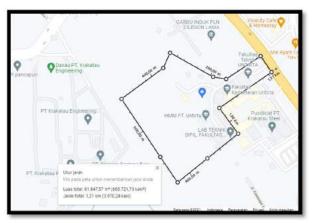






## Campus B Cilegon





## Parking Zone on Campus B Cilegon

















## Campus C Ciwaru





Parking Zone on Campus C Ciwaru











Campus D Kepandean





Parking Zone on Campus D Kepandean











## Campus E Sindangsari





Parking Zone on Campus E Sindangsari









No	Campus	Area (m²)
1.	Kampus A Pakupatan	28.384
2.	Kampus B Cilegon	61.847
3.	Kampus C Ciwaru	29.216
4.	Kampus D Kepandean	5.933
5.	Kampus E Sindangsari	317.048
	Total Area	442.428

No.	Campus	Parking Area (m²)
1.	Kampus A Pakupatan	3.015,80
2.	Kampus B Cilegon	3.226,23
3.	Kampus C Ciwaru	1.546,85
4.	Kampus D Kepandean	574,60
5.	Kampus E Sindangsari	132,00
	Total Parking Area	8.495,48

Total Campus Area	442.428
Total Parking Area	8.495,48
Ratio of ground parking area to total campus area	0,02 %
	Tergolong ke dalam kategori
	< 1 %

#### Additional evidence link:

- 1. <a href="https://www.google.com/maps/place/Universitas+Sultan+Ageng+Tirtayasa+(Untirta)/@-6.120726,106.194561,13z/data=!4m5!3m4!1s0x0:0xd7fbb1e65b42cbd2!8m2!3d-6.1207259!4d106.1945611?hl=id-ID</a>
- 2. <a href="https://untirta.ac.id/">https://untirta.ac.id/</a>
- 3. <a href="https://www.google.com/maps?ll=-6.189931,106.124637&z=13&t=m&hl=id-ID&gl=US&mapclient=embed&cid=15052122896560739164">https://www.google.com/maps?ll=-6.189931,106.124637&z=13&t=m&hl=id-ID&gl=US&mapclient=embed&cid=15052122896560739164</a>
- - 5.9962731!4d106.032095?hl=id-ID
- 5. https://ft.untirta.ac.id/
- 6. <a href="https://www.google.com/maps?ll=-6.130764,106.16566&z=13&t=m&hl=id-ID&gl=US&mapclient=embed&cid=12412607988068042645">https://www.google.com/maps?ll=-6.130764,106.16566&z=13&t=m&hl=id-ID&gl=US&mapclient=embed&cid=12412607988068042645</a>
- 7. <a href="http://fkip.untirta.ac.id/">http://fkip.untirta.ac.id/</a>
- 8. <a href="https://www.google.com/maps/place/Akademi+Keperawatan+UNTIRTA/@-6.1121953,106.1407066,19z/data=!4m5!3m4!1s0x2e418b26b0bae6a1:0x7daee5584bf42617!8m2!3d-6.1119801!4d106.141035?hl=en">https://www.google.com/maps/place/Akademi+Keperawatan+UNTIRTA/@-6.1121953,106.1407066,19z/data=!4m5!3m4!1s0x2e418b26b0bae6a1:0x7daee5584bf42617!8m2!3d-6.1119801!4d106.141035?hl=en</a>





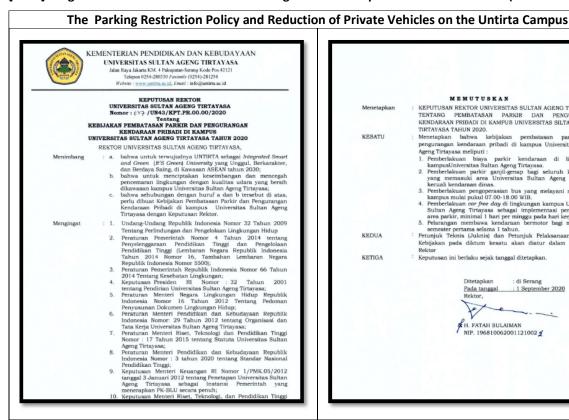
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#### [5] [TRANSPORTATION]

[5.14] Program To Limit Or Decrease The Parking Area On Campus For The Last 3 Years (From 2018 To 2020)





#### Special Parking Sticker Which Is Only Given To Particular Lecturers And Teachers









In order to preserve the environment on campus, it will regulate restrictions on entering and parking at campus A Pakupatan Untirta considering that for other campuses there are still enough parking spaces available so that there is no congestion in parking spaces; the area of campus A Untirta is not affordable to accommodate the number of parking vehicles.

This policy is conducted to limit the carbon emissions/pollution in order to provide comfortable campus environment and order in the Untirta campus environment, especially at Campus A Pakupatan. This policy only allows parking for vehicles belonging to the University (Dinas), Senior Lecturers (Sepuh), Education Personnel and is valid only from Monday - Friday. To mark vehicles that can be parked, the University issues a special parking sticker which is only given to particular lecturers and teachers.

As a solution for those who do not get a parking space on campus, Untirta has provided a parking lot as an alternative place in collaboration with third parties in managing parking lots. Previously charged parking rates in the parking lot, but the University has waived fees as a consequence of the parking restriction policy.

Furthermore, the University has prepared several additional policies to limit the volume of parking in the campus environment, especially at the New Sindangsari Campus, based on the Rector's Decree No. 637 / UN43 / KPT.PR.00.00 / 2020 has listed several policies, including:

- a. The application of vehicle parking fees in the Universitas Sultan Ageng Tiratayasa campus.
- b. Enforcement of vehicle plate odd-even system for all vehicles entering the campus, except for official vehicles.
- c. Enactment of the operation of buses serving inter-campus routes that operate from 07.00 18.00.
- d. Enforcement of Car Free Day (CFD) on the campus of Universitas Sultan Ageng Tirtayasa as an implementation of reducing the parking area, at least one day per week during weekdays.
- e. Prohibition of bringing vehicles into the campus for one year for first semester students.





Untirta also offers a regular "Green Friday" program, which involves working on a bicycle from Campus A Pakupatan to Campus E Sindangsari at 7:00 a.m. and continuing with the "Clear Campus" activity in order to keep the Sindangsari Campus clean of rubbish.

#### Additional evidence link:

- 1. <a href="https://bidikutama.com/berita-mahasiswa/catat-ini-kebijakan-untirta-soal-lahan-parkir-kampus-a/">https://bidikutama.com/berita-mahasiswa/catat-ini-kebijakan-untirta-soal-lahan-parkir-kampus-a/</a>
- 2. <a href="https://bidikutama.com/berita-mahasiswa/babak-baru-lahan-parkir-untirta/">https://bidikutama.com/berita-mahasiswa/babak-baru-lahan-parkir-untirta/</a>
- 3. <a href="https://www.youtube.com/watch?v=7i0uRzBlEZE">https://www.youtube.com/watch?v=7i0uRzBlEZE</a>
- 4. <a href="https://www.youtube.com/watch?v=YSUVAiTXaJM">https://www.youtube.com/watch?v=YSUVAiTXaJM</a>
- 5. <a href="https://untirta.ac.id/2021/02/18/untirta-green-friday-19-februari-2021/">https://untirta.ac.id/2021/02/18/untirta-green-friday-19-februari-2021/</a>





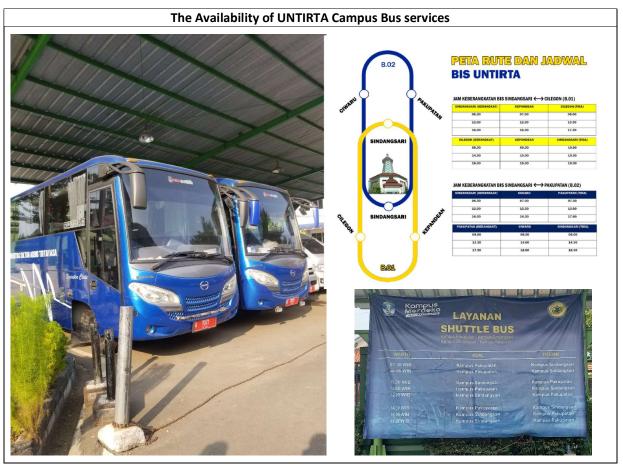
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## [5] [TRANSPORTATION]

## [5.15] Number of Transportation Initiatives to Decrease Private Vehicles on Campus



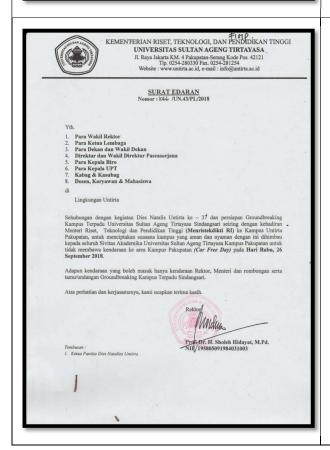


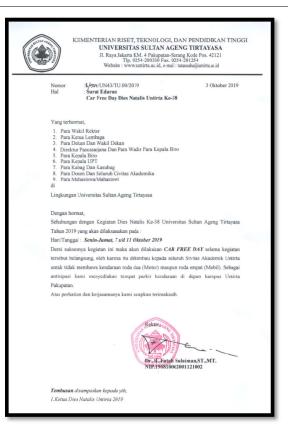


### Car Free Day (CFD) Policy

















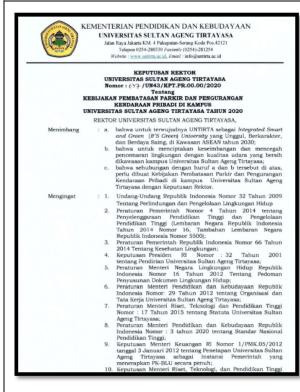
#### **Conditions of Car Free Day Implementation at Untirta**







## Universitas Sultan Ageng Tirtayasa's Policy is to Limit or Reduce the Number of Private Vehicles on Campus





#### **Description:**

The Car Free Day activity is a routine agenda which is carried out by Universitas Sultan Ageng Tirtayasa in order to support and care for the condition of the campus environment as stipulated in several Rector's Decrees and Rector's Letters. By implementing the CFD activity, air quality on campus is protected from vehicle emissions that can endanger humans and the environment. The policy of the CFD program can create a new culture in transportation; using public transportation, cycling and walking.

As Untirta's main commitment to realizing a green campus, it is planned to build an integrated public transport service system, by implementing services and ticketing systems with low rates even free of charge. Then to support this service, Untirta will implement restrictions on the SRP (Parking Space Unit) as an effort to force motorized vehicle users, in this case, the academic community, to switch to public transportation. Currently, Untirta has provided free campus bus service facilities which are scheduled for Monday-Friday with routes to each Untirta campus which is spread across several different areas.

Another program to limit the use of motorized vehicles on the Untirta campus is to issue the following policies:

- a. The application of vehicle parking fees in the Universitas Sultan Ageng Tiratayasa campus.
- b. Enforcement of vehicle plate odd-even system for all vehicles entering the campus, except for official vehicles.
- c. Enactment of the operation of buses serving inter-campus routes that operate from 07.00 18.00.
- d. Enforcement of Car Free Day (CFD) on the campus of Sultan Ageng Tirtayasa University as an implementation of reducing the parking area, at least one day per week during weekdays.
- e. Prohibition of bringing vehicles into the campus for one year for first semester students





### Additional evidence link:

- 1. https://bidikutama.com/berita-mahasiswa/car-free-day-untirta-2/
- 2. <a href="http://fkip.untirta.ac.id/2019/08/08/pemberitahuan-car-free-day-terkait-pelaksanaan-spok-2019/">http://fkip.untirta.ac.id/2019/08/08/pemberitahuan-car-free-day-terkait-pelaksanaan-spok-2019/</a>
- 3. https://untirta.ac.id/2020/07/04/pelaksanaan-car-free-day-di-lingkungan-kampus-selama-utbk-sbmptn/
- 4. <a href="https://fisip.untirta.ac.id/2019/09/24/car-free-day-25-26-september-2019/">https://fisip.untirta.ac.id/2019/09/24/car-free-day-25-26-september-2019/</a>
- 5. <a href="https://bidikutama.com/berita-mahasiswa/untirta-cfd-selama-2-hari-ke-depan/">https://bidikutama.com/berita-mahasiswa/untirta-cfd-selama-2-hari-ke-depan/</a>
- 6. https://bidikutama.com/berita-mahasiswa/gelar-utbk-ini-tanggal-cfd-untirta/
- 7. <a href="https://www.youtube.com/watch?v=7i0uRzBlEZE">https://www.youtube.com/watch?v=7i0uRzBlEZE</a>
- 8. <a href="https://www.youtube.com/watch?v=YSUVAiTXaJM">https://www.youtube.com/watch?v=YSUVAiTXaJM</a>





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## [5] [TRANSPORTATION]

## [5.16] Pedestrian Path Policy on Campus





Sidewalk (Pedestrian Paths) at Campus A Pakupatan



Sidewalk (Pedestrian Paths) at Campus B Cilegon









Sidewalk (Pedestrian Paths) at Campus C Ciwaru









Sidewalk (Pedestrian Paths) at Campus E Sindangsari

Sidewalk facilities in Untirta campus are intended to make pedestrians easier to reach their destination in comfort, safe and secure. Sidewalk facilities are made to protect pedestrians from hot and rain. Besides that, it is separated by distance from the vehicle line to make them quite safe when walking. Several areas of the campus are provided with increments to replace stages, and guide blocks for pedestrians with physical disabilities (difable).

### Additional evidence link:

https://green.untirta.ac.id/transportasi/





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Country : Indonesia

Web Address: <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

## [6] Education and Research (ED)

## [6.1] Number of Courses/Subjects Related to Sustainability Offered University Courses

No	Course Title	Course Description
1	Ketahanan Pangan (Food Security)	The basis and importance of food security, aspects of food security from various aspects (legal, industrial and social aspect)
2	Studi Kebantenan (Study of Banten)	The history of Banten, the land of Surosoan, the political history of Banten, the philosophical thoughts of Syekh Nawawi Al Bantani, Banten and religious pluralism, the stratification of the people of Banten, the intellectual figures and statesmen Sultan Ageng Tirtayasa and Syekh Nawawi, Banten tourism destinations, Maintaining the environment based on AMDAL, Horizons of developing science and technology
3	Kewirausahaan (Entrepreneurship)	The scope of entrepreneurship that will be discussed and discussed in this course is oriented towards two main aspects, namely value-oriented and goal-oriented. One of the important content that needs to be introduced to students is the internalization of the value system contained in entrepreneurship, namely independence, creative thinking, soft skills, interpersonal skills, persuasive communication, hard work, persistence, and others. In the end, the expected long-term impact of the formation of these values is the ability to capture and create opportunities into something that has value and added value.
4	KKM (Students Community Service and Empowerment)	Lecture activities and fieldwork which is the integration of education and teaching, research and community service by students in a pragmatic, broad-dimensional manner through an interdisciplinary, comprehensive, and cross-sectoral approach

Faculty of Engineering
Department of Electrical Engineering

N0	Course Title	Course Description
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5	Energi Baru dan Terbarukan	Energy crisis, energy potential, New and Renewable
	(New & Renewable Enery)	Energy Conversion, Wind and seawater energy,
	,,	Geothermal energy, solar energy and solar cells
6	Technopreunership	Market structure, quality control, economic analysis,
	·	entrepreneurship, marketing techniques, business plans
7	Rekayasa Perangkat Lunak	UML, software process and methodology, planning in
	+Tutorial (Software	software design, architecture and design, software
	Engineering + Tutorials)	implementation, software testing, software quality,
		software development and maintenance, project
		management, assistive software, software re-engineering
8	Kesehatan dan Keselamatan	The scope of Occupational Health and Safety,
	Kerja	occupational safety, occupational health, occupational
	(Occupational Health and	accident factors, Occupational Health and Safety
	Safety)	principles, Occupational Health and Safety Law,
		Occupational Health and Safety standard personal
		protective equipment, occupational physiology
		ergonomics, Occupational Health and Safety nutrition,
		Occupational Health and Safety management,
		Occupational Health and Safety prevention
9		Definition and ethical philosophy; Ethics branches and
	Etika Profesi	their scope; Ethical approach method; Definition and
	(Professional ethics)	specificity of norms; Definition of profession and
		professionalism; Definition of engineering profession
		ethics; The importance of engineering profession ethics in
		the present; Professional standards and competences in
		engineering; Definition of human relations; The scope and
		importance of human relations; Definition and role of
		code of ethics; The responsibility of the engineering
		profession to society

Department of Industrial Engineering

<u> Cpart</u>	inent of industrial Engineering	
No	Course Title	Course Description
10	Sistem Lingkungan Industri (Industrial Environmental Systems)	Basic concepts of Industrial Environmental Systems, measurement of the physical work environment, work climate of NAB, workload, environmental influence on work physiology in the human body, the concept of human factors - ergonomics and work environment, the concept of industrial ecology, environmental impact analysis, Environmental Management Systems and ISO 14001, Good Manufacturing Practice (GMP)
11	Kesehatan dan Keselamatan Kerja (Occupational Health and Safety)	Basic concepts and general definitions o Occupational Health and Safety, Management System and Occupational Health, Audit system, Personal Protective Equipment





12	Green Productivity	Green Productivity is a strategy to increase productivity and environmental performance simultaneously for overall socio-economic development that leads to a continuous improvement in the quality of human life. It is the combined application of appropriate productivity and environmental management tools to engineering and technology that reduces the impact of the organization's product and service activities to increase profits and excellence.
13	Ergonomi Kesehatan (Health Ergonomics)	Ergonomic aspects, the concept of SHIP approach, appropriate technology, evaluation of the physiological condition of workers through the analysis approach of skeletal muscle complaints or musculoskeletal complaints, work fatigue (physical fatigue, motivation fatigue and activity fatigue), job satisfaction
14	Hygiene Industries	hygienic and sanitary management in industrial environments including hazard control in the workplace
15	Sistem Manajemen Mutu dan Lingkungan (Quality and Environmental Management Systems)	quality management systems and environmental management which are widely applied in the industrial world to improve competitiveness. The concepts and applications of Total Quality Management (TQM), ISO 9001, ISO 17025, ISO 14000, ISO 22000 and the concept of Hazard Analysis Critical Control Point (HACCP), and the concepts of Life Cycle Assessment (LCA), Kaizen, Six Sigma and added with the development of the current quality management system, both internationally and in Indonesia. This quality management system and related concepts are explained along with examples of applications in the industry for discussion

## Department of Chemistry Engineering

No	Course Title	Course Description
16	Pengelolaan Air dan Limbah (Water and Waste Management)	Processing of liquid, solid and gas waste. The definition of waste, the history of waste management, the legal basis for environmental protection and management and technology for treating liquid, solid and gas waste. After getting the targeted course, students will have an increased
17	Keselamatan dan Kesehatan Kerja (Occupational Health and Safety)	Occupational safety and health issues are very important in an industry, because they will affect productivity and efficiency in a series of processes in the chemical industry. The rules and regulations including the practice of its application in the Chemical Industry





	Teknologi Bersih (Clean Technology)	Clean technology definitions and principles. Waste, Potential and Its Processing in Industry. Application of Cleaner Production in Industry. Steps and implementation strategies in the Process Industry. Non-product output analysis in clean technology implementation. Implementation of clean technology in industrial estates
19	AMDAL dan proper (environmental impact analysis and its proper)	AMDAL principles, processes, and benefits; Formulation of Terms of Reference (KA); Preparation of ANDAL; RKL-RPL preparation; Implications of Environment Document Preparation Application

## Department of Mechanical Engineering

No	Course Title	Course Description
20	Teknopreneurship (Technopreuneurship)	Providing insights in improving the abilities of students who not only have high competence in mechanical engineering, but also have an entrepreneurial spirit
21	Manajemen & Optimasi Energi (Energy Management & Optimization)	Mathematical modeling, simulation and optimization of an energy system through an economic and engineering approach. The Energy System Optimization lecture aims to complement a student's ability to understand mathematical models, simulations and optimization of a thermal system.
22	Energi Terbarukan (Renewable energy)	Provides an overview of the use of fuels other than basic fuels and bricks, sources and how to get them. Solar Energy: Photovoltaic Solar Cell, Photovoltaic Energy Conversion, Chimney and Solar Pool; Magma Energy; Biomass Energy; Firewood and agricultural waste; Forest energy and biomass for transport fuel; Biogas; Municipal waste; Oil and natural gas energy; Wind power: Multiple wind data and concentrators; Solar energy; Nuclear energy: Nuclear materials, Fusion, Nuclear reactors, Reactor coolers; Ocean energy; Tidal energy, Energy of waves and currents. Coal energy: Mining and use of coal, Combustion of coal conversion.
23	Mesin Konversi Energi (Energy Conversion) Machine)	Overview on energy sources, types and classifications of energy, energy conversion, energy consumption, basic concepts of energy conversion systems, resources and classification of energy conversion machines, including lab achievements of energy conversion machines.





24

Kesehatan dan Keselamatan Kerja (Occupational Health and Safety)

Aspects of safety, industrial health and environmental protection. Understand the basic laws and regulations in the field of work safety, understand the concept of risk, various types of hazards, disturbances to health, analysis of environmental impacts, etc.

No	Course Title	Course Description
25	Teknik tomografi metalurgi (Metallurgical tomography technique)	Tomography techniques and the development, the basic principles of tomography on how to get an image of a material, tomographic systems, image reconstruction techniques from projection data to measurement data, data processing and matrix sensitivity, image reconstruction algorithms, electrical capacitance tomography, Electrical Capacitance Volume Tomography (ECVT), application and development of Capacitance Tomography in industry, applied Tomography Engineering in the metallurgical industry, Magnetic Impedance Tomography (MIT), Sensor Coil for MIT, MIT application and development, field practice: MIT application in metallurgical processes.
26	Material maju (Advanced material)	fundamental of chemical materials, ultra light materials, biomaterials (types and processes of coating materials and their applications), composite materials (cellular metal characterization and properties), refractory and coating materials for high temperature applications, thin film shape memory alloys for microelectromechanical systems (MEMS) applications, electronic materials, energy mate
27	Desain Standar dan Kendali Mutu (Standard Design and Quality Control)	standards to be applied in the industry and the quality assurance system in an industry., material testing standards (ASTM, BS, JIS, DIN, AISI, API, ASME, SAE, ISO, SNI or SII, quality assurance for final product inspection, quality control measurement, ISO 9000 standards and ISO 14000.
28	Teknologi nano (Nanotechnology)	Development of nanotechnology, top down methods, bottom up methods, physical, chemical and mechanical properties of nanomaterials, testing and characterization of nanomaterials, and application of nanomaterials.
29	Teknologi komposit (Composite technology)	Topik-topik yang dibahas meliputi: concept, definition, and classification of composites, composite fabrication, metal matrix composite (MMC), polymer matrix composite (PMC), ceramic matrix composite (CMC), reinforced fiber and whiskers, rule of mixture, matrix





		types for composites, interfaces in composite materials, interfacial area, interfacial wettability, interfacial bonding, measurement of interfacial strength, geometric aspec composites, laminae and laminates, elastic properties of camposite, fiber & effect (stress and strain distribution), lamination theory, strength of unidirection laminae, strength of laminates, strength of short fibers composite fracture energy of composite.
30	Teknologi polimer (Polymer technology)	polymerization process, polymer molecular weight, physical and mechanical properties of polymers, morphology and rheology of polymers, industrial polymers, polymer fabrication, advance polymers and polymer degradation.
31	Teknologi keramik dan gelas (Ceramic and glass technology)	Definition and utilization of ceramic and glass materials, chemical bonds in ceramics and glass, crystal structure of ceramics and glasses, mechanical properties of ceramic and glass materials, thermal properties of ceramic and glass materials, electrical and magnetic properties in ceramic and glass materials, bioceramics and bio-glass, ceramics, traditional / classical glass and degradation of ceramic materials.
32	Pengolahan limbah metalurgi (Metallurgical waste treatment)	Metallurgical waste treatment processes in physics, chemistry, biology, hydrometallurgy, pyrometallurgy, biotechnology and recycling of various kinds of metal waste. understanding the terms BOD, COD, coagulation, flocculation, sedimentation, adsorption and absorption. Management of liquid waste, solid waste from the metallurgical process, the sedimentation process and the filtration process. Metallurgical process exhaust gas management.
33	Desain dan Seleksi Material (Design and Material Selection)	The Material Design and Selection course aims to make students understand the principles of engineering design and be able to apply them according to the metallurgical engineering discipline. Students are also expected to be able to compare types of materials based on considerations of technical and economic aspects, so that students can choose materials that are suitable for the application of metallurgical engineering.

## Department of Civil Engineering

No	Course Title	Course Description
36	Hidrologi (Hydrology)	The hydrological / water cycle on earth (rain, surface runoff, evaporation, condensation / clouds, groundwater, etc.), flooding, water discharge, etc
37	Drainase dan Sanitasi Lingkungan	Environmental drainage system, industrial / residential area drainage, sports field drainage, airport drainage, etc





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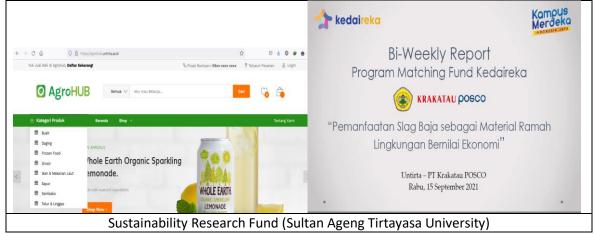
#### [6] Education and Research (ED)

#### [6.4] Total Research Funds Dedicated to Sustainability Research (in US Dollars)









#### **Description:**

Total research fund dedicated to sustainability research in 2018 = 514785 US Dollars

Total research fund dedicated to sustainability research in 2019 = 223580 US Dollars

Total research fund dedicated to sustainability research in 2020 = 445215 US Dollars

The average annum last 3 years of research fund dedicated to sustainability research = 394,527 US Dollars

The ratio of research funds for research on the theme of Sustainability is 41%.

#### Additional evidence link:





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

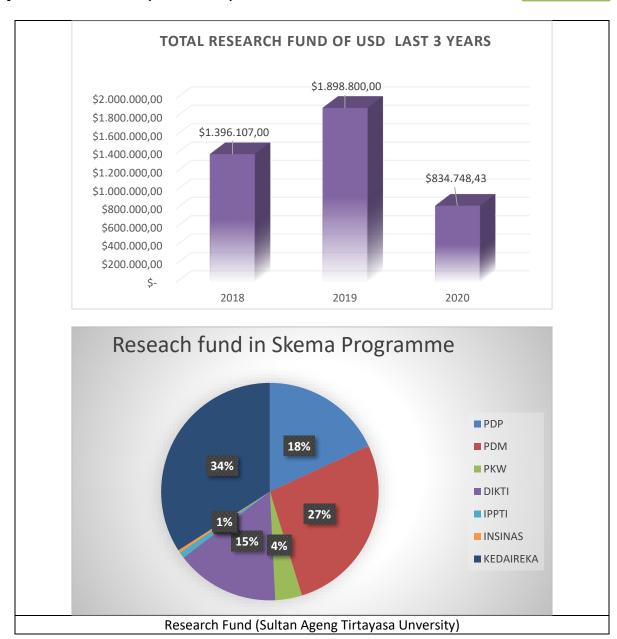
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#### [6] Education and Research (ED)

#### [6.5] Total Research Funds (in US Dollars)

**SAMPLE** 







#### **Description:**

This year there was a 34% increase in research funds sourced from the Kedai Raka Matvhing fund scheme. Although on the other hand, there was a total decline in research funds due to the end of the research program funded by the IsDB.

Total research fund in 2018 = 1.396.107 US Dollars Total research fund in 2019 = 1.898.800 US Dollars Total research fund in 2020 = 834748 US Dollars The averaged annum last 3 years of research fund = 1.376.552 US Dollars

#### Additional evidence link:





University : Universitas Sultan Ageng Tirtayasa

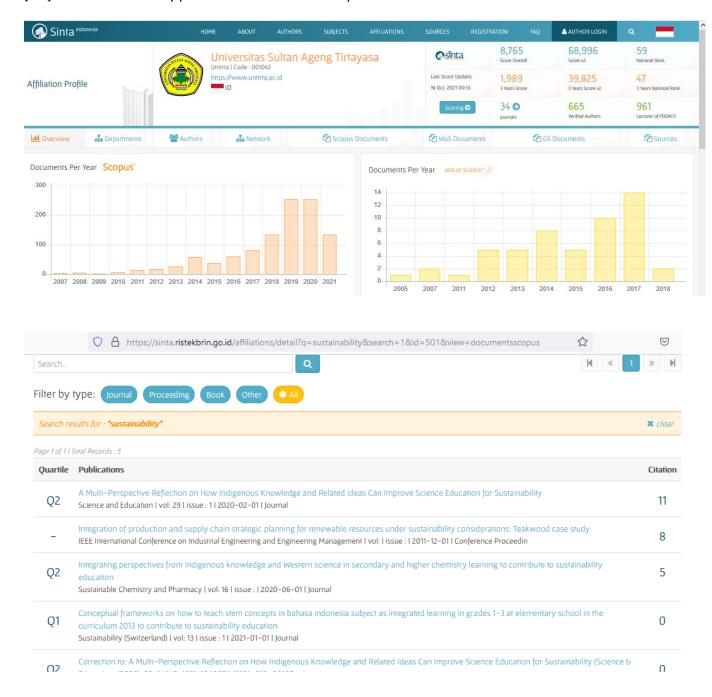
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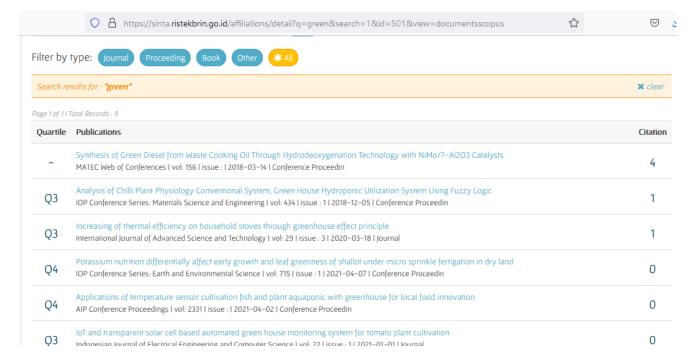
#### [6] Education and Research (ED)

[6.7] Number of scholarly publications on sustainability.

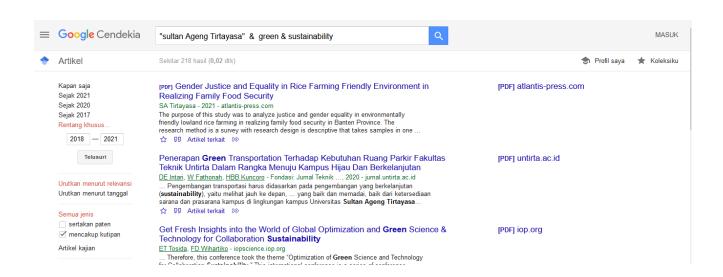








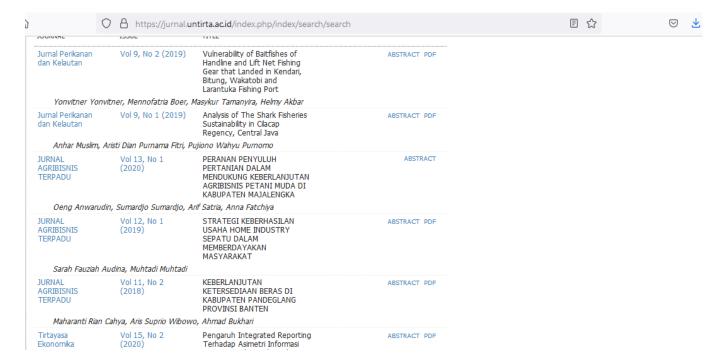
Sinta publications on sustainability (Universitas Sultan Ageng Tirtayaasa Indonesia)



Scholarly publications on Sustainability (Universitas Sultan Ageng Tirtayaasa Indonesia)







Untirta's Journal Publications on Sustainability (Universitas Sultan Ageng Tirtayaasa Indonesia)

#### Additional evidence link:





University : University of Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

[6] Education and Research (ED)

[6.8] Number of events related to sustainability. (average annualy for the past 3 years)

These events are annual program held by each Student Organization

Student Association of Agronomic-Himpunan Mahasiswa Agronomi (HIMAGRON)



Serasi (Selasa Berprofesi), practices how to incorporate to improve soil quality manage crops and improve the environment starting with plantation until harvesting





2 Community empowerment in Desa Cisalam, Baros, Kabupaten Serang as a Partner Village carried out once a moth





3 Field Trip to Hidroponic garden









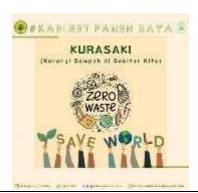
4 Commemorate Earth days conducted by held several Scientifics studies program









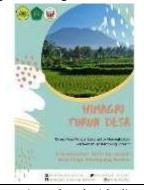




Student Association of Agribisnis-Himpunan Mahasiswa Agribisnis (HIMAGRI)



5 Himagri goes to village for community empowerment







6 Public Discussion related with climate exchange and energy availability for Fisherman welfare











7 Seminar and Culinary Contest on local food, Promotion and preservation of **traditional** Nice **cuisine** 





Student Association of Fisheries Studies-Himpunan Mahasiswa Perikanan (HIMAPI)



8 Commemorate on Fisherman Days



Faculty Student Activity Unit of the Plant Lovers Unit Kegiatan Mahasiswa Fakultas Pecinta Tanaman (UKMF-PCT)







9 Training Activities for student- Local microorganism-MOL production, biopesticides, Kokedama, Hydroponics, Aquaponics, other crop cultivation,

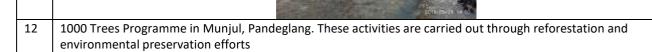


10 Ngebon (Cultivation training)



11 Mangrove Plantation: planting mangrove seedlings in the area of Tunda Island, Banten, to conserve mangrove areas and prevent abrasion

areas and prevent abrasion









Bonsai Training: Give student skills on creating Bonsai as art and hobby



Student Association of Biology Education –HMJ Pendidikan Biologi



Specialization in Biology-Biologi Peminatan (BIOTAN): exploration of natural resources (SDA) in Tunda Island, Serang-Banten on 2019, Taman Hutan Raya Carita on 2018 and Gunung Pulosari 2017



Bioeducare in Villages: community empowerment and concern with the environmental problem. 2019 in Sukatani village, 2018 in Curug Agung Village and 2017 in Sukageunah Village





16 Biology Expo: to improves students skill on environmental conservation knowledge and skills







Student Association of Natural Science Education -HMJ Pendidikan IPA

17 Month of Forest in commemoration of Department of Natural Science Educations Dies Natalis -Bulan Rimba







Student Association of Chemical Education –HMJ Pendidikan Kimia



18 Community empowerment in Jarakah Vilage Kasemen Banten



Student Association of Primary School Education –HIMAGUSEDA



19 Community Empowerment in Village



Student Excecutive Board Faculty of Economic and Business - Badan Eksekutif Mahasiswa (BEM FEB)



20 Cheerful with Orphans in the month of Ramadan - CERBAY (Ceria Bersama Anak Yatim dibulan Ramadhan)







Student Excecutive Board Faculty of Law - Badan Eksekutif Mahasiswa (BEM FH)



21 Village Development Grant Program for Disaster Mitigation System



Mapala Krakatau Fakultas Teknik Untirta



22 Tree Plantation: programme for increasing green areas in the city



Student Association of Chemical Engineering-Himpunan Mahasiswa Teknik Kimia (HIMATEMIA)



23 Waste Treatment competition

24 Training onprocess safety management



Sultan Ageng Tirtayasa University Student Nature Explorer- MAPALAUT







25 Kasepuhan Local Wisdom Exploration, Guidance Period of member

26 Mabim Gunung Hutan, The Journey of Mapalaut

#### Annual Events related to sustainability held by University

No Events

Department of Biology education, Faculty of Teacher training and Education

National Seminar on Biology and Biology Education:

The Role of Biology Learning Based on Local Potentials for Industrial Revolution Era 4.0



28 | Field Trip Vertebrate animal diversity in HALIMUN SALAK National Parks



Workshop "Combating Fusarium Wilt of Banana: Diagnosis, Preventive, and Genetic Improvement on Resistance plants" collaboration programme with R&D Great Giant Food.









30 Studi Kebantenan: BANTEN DALAM GENGGAMAN
Introduce Banten everything from history, culture, natural potential, and traditional culinary to foster a love for Banten land among teenagers by Biology education students





31 Training of Trainers on Identification of Mycotoxin Producing Fungi in collaboration with Seameo BIOTROP



32 Biology education students goes to Baluran for field trip and experiment in Ecology and Conservation biology course



Community service in Pontang Village: How to use agriculture waste as Mushroom Cultivation media







34 Education Programme for Primary School students on Aves in SD PERADABAN CILEGON



35 Community service to Primary School Student How to implemented 3R





Ornithologi in action: Bird Watching in Taman Burung TMII (Taman Mini Indonesia Indah) for Student of Biology Education who take Ornithologi course



37 | Field trip forBiology Conservation and General Ecology in National Park of Ujung Kulon









38 | Field trip for Biology Conservation in Rawa Danau Nature Reserve





39 Biology Education and Conservation-BIDIK: explore biodiversity in National Park of Ujung Kulon





Faculty of Agriculture

The 1<sup>st</sup> International Conference on Agriculture and Rural Development (ICARD) incollaboration ICEFORY, Balitbantan Kementrian Pertanian dan Perhimpunan Agronomi Indonesia to share knowledge, unite ideas, and find out suitable strategies for sustainable agriculture with empowering potency of rural area under global and local issues.



Community service and empowerment carried out by faculty, lecturer and student of Department of Agroecotechnology in 2017-2018





	Urban Farming Wolkaponik System as a Solution to Scarcity of Chili Pepper in the Ciceri Permai Complex in 2017
42	Local Community Assistance for the Development of Organic Agriculture and Agribusiness Potentials to Create an Organic Village in Pandeglang Regency in 2017
43	Coastal Community Empowerment through the Introduction of Silvofishery Technology in Order to Utilize Idee Ponds in the North Coast area of Banten in 2017
44	Student / Alumni Assistance Program in Special Efforts (USAHA KHUSUS-UPSUS) to Increase Food Production for Rice and Corn Commodities, Kalanganyar & Warunggunung Districts, Lebak Regency, Banten Provincein 2017
45	Development Assistance for Horticultural Areas (Chili Pepper Commodities) in Cikuya Village, Sindangsari Village, Serang Regency, Banten in 2017
46	Community Empowerment by Improving the Quality of Fruit Seedlings Using the Mini Grafting Method in 2017
47	Empowerment of Farmer Groups through Utilization of Fruit and Papaya Seed Waste (Carica Papaya) in Efforts to Improve Farmers' Economy in Lebak Regency, Banten Province in 2017
48	Pemberdayaan Masyarakat dalam Pembentukan Klaster Tabulampot-Vertikultur Untuk Optimalisasi Pekarangan Rumah dan Industri Sebagai Ruang Kawasan Lindung dan Kawasan Budidaya TBSO di Sekitar Industri Modern Cikande Serang Menuju Perwujudan Agro-Eco-Industrial Park Bersih Hijau dan Sehat (BHS) in 2017
49	Local Community Assistance for the Development of Organic Agriculture and Agribusiness Potentials to Create an Organic Village in Pandeglang Regency in 2018
50	Pokdarwis Development Program (Tourism Awareness Group) through the use of agricultural waste into souvenir products to improve community welfare in Pandeglang district 2018
51	Empowerment of Rice and secondary crops Farmers in the Formation of Soybean Seed Breeding Groups to Ensure Independent Soybean Seed Availability in Serang Regency, Banten Province 2018
52	Community-based science and technology Increasing Rice Paddy Production Using Biotamax Organic Fertilizer and Humic Acid 2018
53	Assistance to the Program for Increasing Rice and Corn Production in Bojongmanik & Cimarga Subdistricts, Lebak Regency in 2018
	Community service and empowerment carried out by faculty, lecturer and student of Department of Agribusiness in 2017-2018
54	Product Development Technology Intoduction and Packaging Introduction to Palm Sugar UMKM to Increase Product Added Value in Communities Around the Halimun Mountain Conservation Area in 2017
55	Community empowerment through the development of ornamental plants and vegetables with the Vertical Garden System by utilizing waste for the development of the Old Banten Religious E-Tourism in 2018
56	Increasing Rice Paddy Production Using Biotamax Organic Fertilizer And Humic Acid in 2018
57	Socialization of Zero Waste Compost Making Technology in Serang City, Banten Province in 2018
Con	nmunity service and empowerment carried out by faculty, lecturer and student of Department of Chemical Engineeringin 2017-2018
58	2017/2018 Introduction Of Rubber Seed Waste Processing Technology Into Processed Snack Products To Achieve Local Food Security In Lebak Banten
59	2017/2018 Experts In Qualification, Evaluation And Verification Of Coal Tar As Raw Materials  For Chemical Industry





60	2017/2018 Community Education To enhance information on utilization And Side Effects Of Chemical Compounds As Additional Materials in village			
61	2017/2018 Water Purification Program With Combination Methods Of Conventional Water			
	Purification And Ultrafiltration For Linduk Settlement Communities, Pontang Regency			
62	2017/2018 Expert Research Team On Biomass Potential Technology Applied Study Activities In			
	Banten Province			
63	2017/2018 Kkm Mandiri In Kadugenep Village			
Con	Community service and empowerment carried out by faculty, lecturer and student of Department of			
	Public Administration, Gaduate Programme 2017-2018			
64	2017 Extension of the Biopore Method as an Effort to Prevent Floods in Tegal Ratu Village,			
	Ciwandan District, Cilegon City			
65	2018 Pokdarwis (Tourism Awareness Group) Development Program Through the Use of			
	Agricultural Waste as Souvenir Products to Improve Public Welfare in Pandeglang Regency			
66	2018 Optimizing the Role of Community Groups in Realizing Community Empowerment and			
	Environmental Care in Their Territories			
67	2018 Training of Mantri Farmers Regeneration in an Effort to Strengthen Family Food Security			
	in Sawarna Village, Lebak Regency, Banten			

#### Additional evidence link:





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#### [6] Education and Research (ED)

#### [6.9] Number of student organizations related to sustainability

No	Name of student organizations	The program related with environment and sustainability
1	Student Association of Agronomic- Himpunan Mahasiswa Agronomi (HIMAGRON)	Serasi (Selasa Berprofesi), Community empowerment in Desa Cisalam, Baros, Kabupaten Serang , Field Trip to Hidroponic garden, Commemorate Earth days
2	Student Association of Agribisnis-Himpunan Mahasiswa Agribisnis (HIMAGRI)	Himagri goes to village, Public Discussion related with climate exchange and energy availability for Fisherman welfare in 2019, Seminar and Culinary Contest on local food in 2019
3	Student Association of Fisheries Studies-Himpunan Mahasiswa Perikanan (HIMAPI)	Commemorate on Fisherman Days in 2019
4	Faculty Student Activity Unit of the Plant Lovers Unit Kegiatan Mahasiswa Fakultas Pecinta Tanaman (UKMF-PCT)	Training Activities for student- Local microorganism-MOL production, biopesticides, Kokedama, Hydroponics, Aquaponics, other crop cultivation, Ngebon (Cultivation training), Mangrove Plantation, 1000 Trees Programme
5	Student Association of Biology Education –HMJ Pendidikan Biologi	Specialization in Biology-Biologi Peminatan (BIOTAN), Bioeducare in Villages, Biology Expo,





6	Student Association of Natural Science Education – HMJ Pendidikan IPA	Month of Forest in commemoration of Department of Natural Science Educations Dies Natalis -Bulan Rimba
7	Student Association of Chemical Education —HMJ Pendidikan Kimia	Community empowerment in Jarakah Vilage Kasemen Banten
8	Student Association of Primary School Education — HIMAGUSEDA	Community Empowerment in Sindangkarya VIllage
9	Student Excecutive Board Faculty of Economic and Business - Badan Eksekutif Mahasiswa (BEM FEB)	Cheerful with Orphans in the month of Ramadan - CERBAY (Ceria Bersama Anak Yatim dibulan Ramadhan)
10	Student Excecutive Board Faculty of Law - Badan Eksekutif Mahasiswa (BEM FH)	Village Development Grant Program for Disaster Mitigation System
11	Mapala Krakatau Fakultas Teknik Untirta	Tree Plantation
12	Student Association of Chemical Engineering- Himpunan Mahasiswa Teknik Kimia (HIMATEMIA )	Waste Treatment competition, Training onprocess safety management





13	Sultan Ageng Tirtayasa University Student Nature Explorer- MAPALAUT	Kasepuhan Local Wisdom Exploration, Guidance Period of member- Mabim Gunung Hutan, The Journey of Mapalaut

#### Additional evidence link:





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https://green.untirta.ac.id

[6] Education and Research (ED)

#### [6.12] Sustainability Report



Wesbite Green Campus of Universitas Sultan Ageng Tirtayasa https://green.untirta.ac.id



Sustainability report (Universitas Sultan Ageng Tirtayasa, 2020)





Every information and activity regarding Smart and Green Campus can be viewed on a specific website that is developed and managed by UPT. Smart, Green and SDGs and Relationship Affair of Untirta. The website covers all activities in UIGM assessment categories namely Setting and Infrastructure Energy and Climate Change Waste, Water, Transportation, Education and Research. In addition, some activities related to 17 Goals of SDGs including "Kampus Sehat" – Healthy Campus program. Everything is always up to date.

Sustainability report produced in 2020. In 2021, it is still under progress and is going to be issued at the end of December.

#### Additional evidence link:





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

#### [6] Education and Research (ED)

## [6.13] Number of cultural activities on campus (e.g.Cultural Festival) including virtual activities (if any)







High-achiever students took part in a competition organized by the Association of Indonesian 'Sendratasik' (Dance and Music Art) Education Study Programs (AP2SENI). Janah, won the 1st place in the Monologue Contest with the title Galuh by Fauzian Ansyari. The other students won 1st place in the Dance Competition, supervised by lecturers of Performing Arts Education of Faculty of Teacher Training and Education UNTIRTA.

#### Additional evidence link:





University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

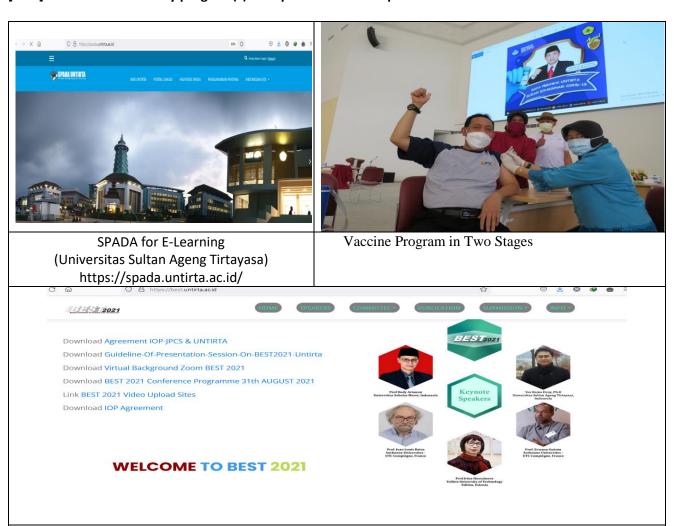
Web Address : <u>www.untirta.ac.id</u>

https://green.untirta.ac.id

www.green.untirta.ac.id

#### [6] Education and Research (ED)

#### [6.14] Number of university program(s) to cope with Covid-19 pandemic



International Seminar: Broad Exposure to Science and Technology 2021 (BEST-2021) hosted by Universitas Sultan Ageng Tirtayasa, Banten, Indonesia https://best.untirta.ac.id/







Untirta facilitates Vaccine Booth organized by Bank of Indonesia Representative of Banten Province and Financial Services Authority (OJK) To prevent Covid-19 spread, Untirta distributed freely hand sanitizer to all university members and public.



Some activities organized by university members to stay in a good shape and prevent Covid-19.

#### **Description:**

SPADA Untirta, an online learning system Universitas Sultan Ageng Tirtayasa, develops to answer several challenges in higher education particularly conventional learning that is replaced by cross-boundaries learning. This life-long learning concept is very useful during this pandemic situation.

BEST-2021 will provide a wonderful forum for you to refresh your knowledge base and explore the innovations in Material science, Metallurgy and Material, Chemical, Mechanical, Electrical, Industrial, and Civil Engineering.





It will give you the opportunity to meet and interact with the leading scientists, engineers, and researchers, friends and colleagues as well as sponsors and exhibitors.

To respond the status of pandemic Covid-19 particularly in Banten Province, which was categorized into extraordinary situation, Untirta through a program named Untirta Peduli, produces and distributes hand sanitizer for free to university members and public.

For a vaccine program, all university members of Untirta have full vaccine Covid-19 shots. The first batch was on March 3<sup>rd</sup> and the second one was on March 22<sup>nd</sup> and 23<sup>rd</sup>. The total vaccinated people were 753. Furthermore, several national vaccination programs was conducted in Untirta. In collaboration with Bank of Indonesia Representative of Banten Province and Financial Services Authority (OJK), with Banten Police Department and Military Based in Banten, Government of Banten Province and Serang City, vaccination program for the first and second shot was held in Auditorium Campus E Sindang Sari. Not only in Campus E Sindang Sari, but also in Campus B Faculty of Engineering vaccination booth was also built, as the result of collaboration between Student Executive Board and District Military Command of SILIWANGI 0623.

For a preventive action, faculty of medicine Untirta organized a regular Friday aerobics program by virtual. In addition, medical check-up was initiated by Untirta clinic to check health condition for lecturers and university members in Untirta.

#### Additional evidence link:

Additional evidence link: <a href="https://green.untirta.ac.id/pendidikan-dan-penelitian/">https://green.untirta.ac.id/pendidikan-dan-penelitian/</a>

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University : Universitas Sultan Ageng Tirtayasa

Country : Indonesia

Web Address : <u>www.untirta.ac.id</u>

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#### [6] Education & Research

#### [6.15] Number of sustainability community services project organized and/or involving students









#### Additional evidence link:





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#### [6] Education & Research

#### [6.15] Number of sustainability community services project organized and/or involving students









#### Additional evidence link:





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#### [6] Education & Research

#### [6.16] Number of sustainability-related startups

The following table is the list of UNTIRTA's students' Startups which is in food security sector

NO	STUDENT NAMES	BRAND	SECTOR OF BUSINESS	PRODUCT
1	AZMI AULIA RYAN	Cwan Dimsum	Goods	Food
2	M. IHSAN PRATAMA PUTRA	Kini Cheese Tea	Goods	Food
3	FIRDA FEBRYANTI	Efftu Food	Goods	Food
4	TIA FITRIANI UTAMI	alleatdrink.id	Goods	Food
5	AULIA RAHMAN IMAN F	Cetak Prasasti	Service	Publisher
6	RAHMAT AJI MUKTAR	Roti bakar pelanggi	Goods	Food
7	NOVIANA	Nov_shopee /binder	Goods	stationery
8	IKA KURNIA RAHMA	Bidikmisi chicken	Goods	Food
9	GITA TASYA RAHMADANI	Nasi Bakar	Goods	Food
10	RESKA TRI RESMAWATI	Makaroni bentet renyah	Goods	Food
11	AZMI AULIA RYAN	Kokesnack	Service	Food
12	LILI INDRIYANI	Bola Pisang Crispy	Goods	Food
13	PUTRI FEBRI YANDITA	Banoffee by Putdit	Goods	Food
14	IRFANDI RAHMAN	Miracle Of Kedai (MiKedai)	Goods	Beverage
15	NURUNISSA PUTRI SETIAWAN	Corndog bandeng	Goods	Food
16	UMNIYATUL AMIROH	AMICHO	Goods	Cloth
17	SEPTHIO IQBAL MAULANA	Nata De Aleovera	Goods	Beverage

The documentation of the some of the products and activities is as the following.





























#### Additional evidence link:

 $Additional\ evidence\ link:\ \ \underline{https://green.untirta.ac.id/pendidikan-dan-penelitian/}$