PALESTINE TECHNICAL UNIVERSITY KADOORIE

ANNUAL SUSTAINABILITY REPORT

2024-2025

Enabling culture development across Palestine through PTUK's outreaching programmes creating a global legacy

Prepared by: Sustainable steering committee

31/8/2025

About The Report

This report presents an overview of our sustainability achievements during the academic year 2022-2023, encompassing data related to our internal initiatives. It is tailored for stakeholders with a vested interest in our sustainability endeavors, including faculty, students, local communities, and businesses. The emphasis is on key sustainability concerns that matter both to us and our stakeholders, aligning with the University's comprehensive and award-winning sustainability strategy. Approval for this report has been obtained from University Administration. This report offers a comprehensive overview of our initiatives throughout this academic year. It provides a robust methodology for assessing performance in environmental, social, and economic sustainability.

Vision

Engagement to achieve sustainable development goals (economic, social and environmental) through innovative programs and initiatives.

PTUK sustainability approach

Sustainability is integrated into our updated 2018–202 3strategy. Operationally, the university employs a cross-institutional approach to facilitate the oversight and implementation of financial, social, and environmental sustainability initiatives throughout our operations, research, and teaching and learning activities. This is the focal point where we can make significant impacts: conducting groundbreaking research that provides solutions to global challenges, offering innovative teaching and learning experiences that equip graduates with the necessary attributes and competencies for applying sustainability principles in their civic and professional lives, and ensuring the sustainable operation of our campus.

The main objectives of our sustainability approach is to:

- Develop **sustainable governance** (regulations, strategy, policies, action plans, programs, projects and initiatives) to enhance the university contribution leading to **transformative change**.

- Spread **sustainability culture (**economic, social and environmental) throughout all university persons.
- Integrate sustainable **best practices** into all university activities engaging all stakeholders resulting in **continual improvement**.

Contents

[1] Setting and Infrastructure (SI)

[1.1] Number of Campus Sites

 	Example of Campus Site**, University Park** (PTUK – Main Campus)
	Example of Campus Site**, University Park** (PTUK – Ramallah Campus)

Example of Campus Site**, University Park** (PTUK – Aroub Campus)

There are three campuses for Palestine Technical university Kadoorie. The main campus Located in the north of the country in the city of Tulkam. It is the largest campus. The total area for the three campuses are approximately 490 thousand meters squared. Palestine Technical University started as a high agricultural school in 1930 awarding a three-year diploma course in agriculture. It served the local as well as the regional communities. Students as far as Jordan, Morocco and other African states came and stayed in Kadoorie.

In 1961 under the Jordanian rule the school became a college and began to teach other disciplines. In 1994 the Palestinian Authority took over responsibility for the college. In 1999 the college began to offer B.Sc. courses in different disciplines until finally in 2007 a presidential decree raised the status of the college to a university. Since then it carried the name Palestine Technical University Kadoorie. In 2017 two colleges joined the university adding a campus in the middle of the country (Ramallah) and in the north of the country (Hebron).

The university is regarded as the largest and most attractive universities in the country. It is surrounded by large green areas used by university to grow crops and raise animals. The university sells its produce and dairy products to the staff and local market. It is also surrounded by large areas planted with different trees. It has on campus deep water well and also carries out sewage water refining and cleaning where the water is re used for irrigation. The university is proud of its agricultural heritage and gives great emphasis on increasing the area of green land and plantation. Recently the university began to offer a BSC course in food production as well as well as three other BSC courses in agriculture. The Hebron campus also offers a BSC course in Veterinary medicine.

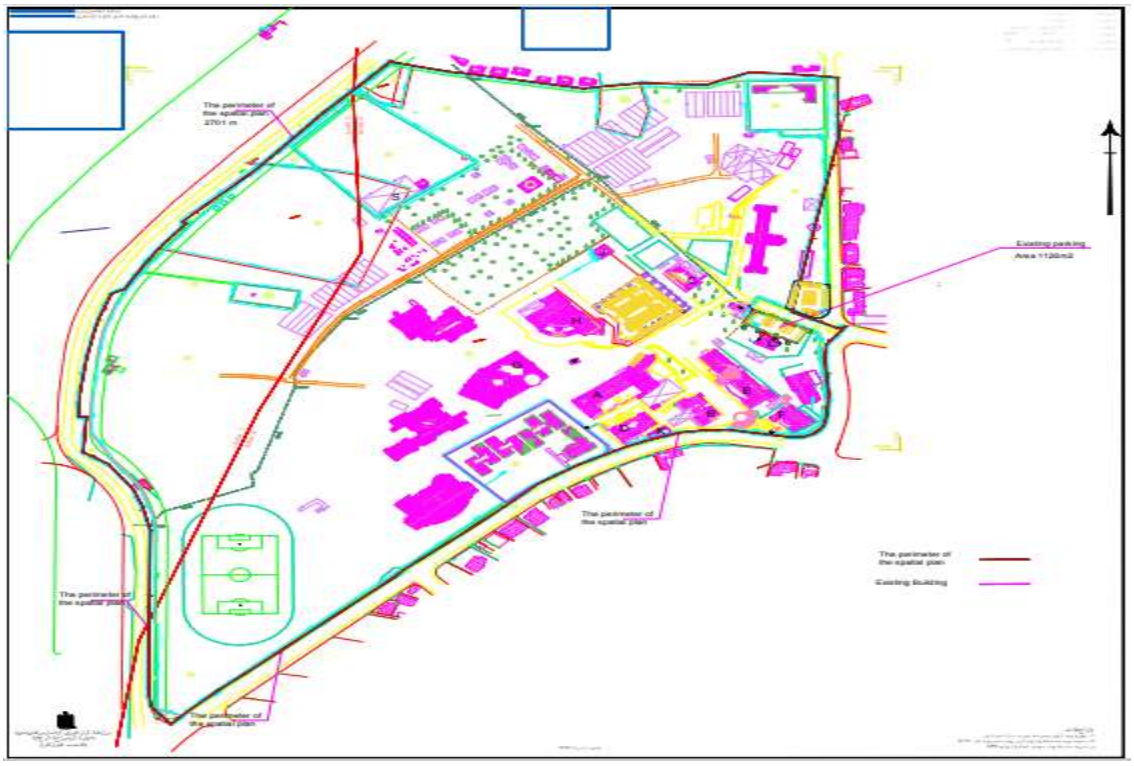
[1.2] Campus Setting

Example of Campus Setting - Rural (PTUK)

Description:

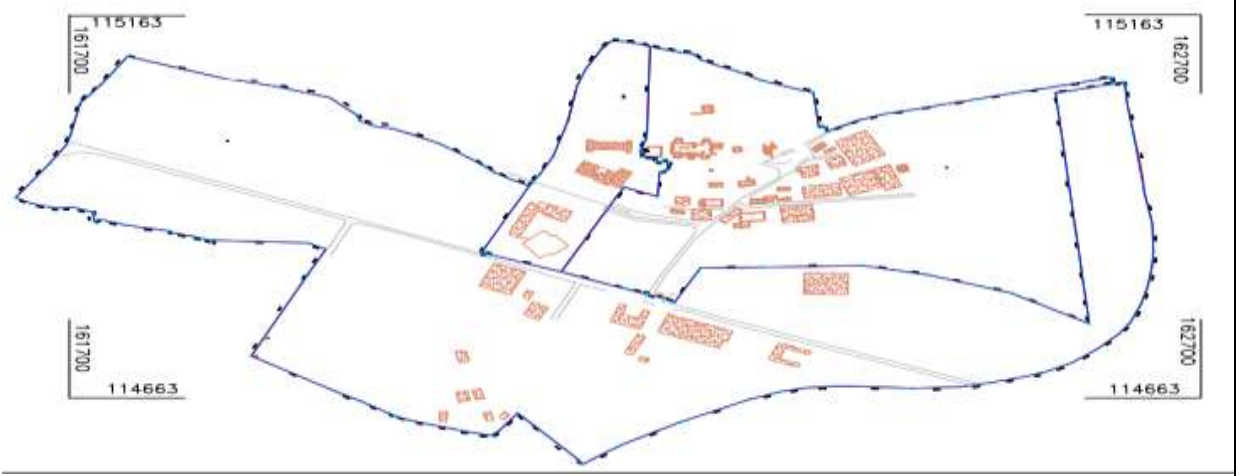
Tulkarm is a Palestinian city located in the north west. The area is approximately 32610 thousand meter squared. The main campus is located at the western edge of the city of Tulkarm. It is a mainly rural area with a large area of agricultural land. The city has a total population of 90000 inhabitants. The city is traditionally an agricultural city and remains so to this date. It has small forest areas.
The second campus outside Hebron is also in a rural area with mainly agricultural areas surrounding it. The third campus is in an urban area of Ramallah but has relatively large green areas.
The university recently planted avocado trees on campus as a trial for large production, the city of Tulkarm is not known for this type of plantation. This experience when successful will be shared with the local farmers.

[1.3] Total Campus Area (meter^2)



Main Campus

Ramallah Campus



Aroub Campus

Example of Total Campus Area (PTUK, Palestine)

Description:

Total area of the three Campuses: 0.490 km² (0.189 mi²) = 490,000 m^2
Circumference (Main Campus) = 2701m

[1.4] Total campus buildings area

MAIN CAMBUS at TULKARM			
Building	**Building Name**	**Floor Area (m^2)**	**Total floors area (m^2)**
A	Main Building (Administration)	1774	6200
B	Faculty of Arts	698	2791
E	Faculty of science	1982	6500
G	Library	2516	6250
J	Gymnasium	193	1000
C	Faculty of Physcical Education	537	800
D	Supplies and Procurement Building	785	1800
K	Services	170	500
F	Continuining education	628	1650
L	Graduate studies	240	2000
S	Workshops	1300	1300
H	Faculty of Engineering	1828	8200
J	Diploma Faculty	1212	9500
M	Students center	1077	7649
N	Faculty of Business and Administration	1143	8950
All Roofs Area		**16083**	**65090**

RAMALLAH CAMBUS			
Building	**Building Name**	**Floor Area (m^2)**	**Total floors area (m^2)**
A	Administration Building	450	2250
B	Faculty of Business	1300	2650
C	Faculty of Arts	900	1150
D	Diploma	450	1800
Total Area (m^2)		**3100**	**7850**

[1.5] The ratio of open space area to total area

Description:

Areas	Area (m^2)	Percentage
Buildings	22343	4.6%
Streets and Pedestrians Paths	49050	10%
Parking	1590	0.3%
Vegetarian	101000	20.6%
Forests	274306	56%
Water Absorption Areas	41711	8.5%
Total	**490000**	**100.0%**

Ratio of open space towards total area: 95.4%

Total campus area (m^2): 490000 m^2

Total campus ground floor area of buildings (m^2): 22343 m^2
Total area on campus covered in forest vegetation: 274306 m^2
Total area on campus covered in planted vegetation: 101000 m^2
Area on campus for water absorption: 41711 m^2

It is also worth mentioning that there is a large part of the university approximately **200000m^2 under Israeli occupation**. The university has no access to it but **it is mainly green areas and open space**. **<u>This area was not included in these numbers</u>**.

AROUB CAMBUS			
Building	**Building Name**	**Floor Area (m^2)**	**Total floors area (m^2)**
A	Administration and Faculty of Arts	400	800
B	Business and administration	800	2400
C	Diploma	1000	4000
D	Theature	960	960
Total Area		**3160**	**8160**

Overall ground Floor Area is 22343 m^2
Overall area of total roofs is 81100 m^2

[1.6] Total Area on Campus Covered in Forest Vegetation (meter^2)


REDMI NOTE 8

Aroub Campus

Ramallah Campus

PALESTINE TECHNICAL UNIVERSITY KADOORIE (PTUK)

Description:

The university started as an agricultural school in the 1930s. To this date it is proud to, have an agricultural college with distinguished professors who carry out research in agriculture. The college offers 3 undergraduate courses and 2 master courses in Agriculture. The university hosts every year an international conference on agriculture (Olive trees). The university has large areas planted with both vegetables and fruit and plans to expand this area. The produce is sold to the staff and local community.

Recently the agriculture college began to offer two additional BSC courses in food production and veterinary medicine. These two programs will open new areas for cooperation with the local market and food producers

Total area on campus covered in forest vegetation: **274306**

Total area on campus covered in planted vegetation: **101000**

The quantity of products produced last three years:

Crop Type	Quantity Produced / 3 Years	Cultivated Area (Dunum)
Guava	27 tons	18 dunums
Citrus	3.5 tons	4 dunums
Custard Apple (Cherimoya)	1.5 tons	2 dunums
Avocado	500 kg	8 dunums
Protected Cultivation / Tomato	13–15 tons	1 dunum
Protected Cultivation / Cucumber	1 ton	500 m²
Molokhia (Jute Mallow)	13 tons	4.5 dunums

[1.7] Total area on campus covered in planted vegetation (meter^2)

	
Green House 1	Green House 2
Example of Total Planted Vegetation Area (PTUK))	

Description:

Total planted vegetation area: **101000 m²**
Total Area: **490000**
Percentage area: **20.6%**

In addition to the areas above the university has plans to increase the vegetation areas and thus increase the diversity in its products. It plans to engage the local farming community through voluntary work and joint ventures. Students are also encouraged to do volunteer work in the university farms and green houses. In addition to the areas above the university has plans to increase the vegetation areas and thus increase the diversity in its products. It plans to engage the local farming community through voluntary work and joint ventures. Students are also encouraged to do volunteer work in the university farms and green houses. Full time employees are working in the fields and green houses. **Unfortunately, this year the number of greenhouses was not increased because of the continuing war waged on the Palestinians. Many projects were not completed because of the aggression. However, the university is determined to keep moving forward despite all the challenges and the war.**

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[1.8] Total area on campus for water absorption besides the forest and planted vegetation (meter^2)

Tulkarm

Tulkarm

Tulkarm

Tulkarm

Tulkarm

Tulkarm

Tulkarm

Tulkarm

Tulkarm

Tulkarm

Ramallah

Ramallah

Example of **Total area on campus for water absorption besides the forest and planted vegetation** (Palestine Technical University Kadoorie)

Description:

Total **water absorption** area: 41711m^2
Total Area: 490000 m^2
Percentage area: 8.5%

The university is seeking grants to improve the rain water collection from the buildings and absorption areas in order to collect it in small ponds or wells. This water will be used for irrigation of planted areas thus reducing the dependency on the local municipality

[1.9] University budget for sustainability effort (in US Dollars)

	2022	2023	2024	Average
Budget Total	27,000,000$	30,687455$	33,032237$	30239897
Sustainability Budget	4,740,000$	6,977,000$	8,050,437$	6589146
			Percentage	21.8%

Description:

The percentage of sustainability budget to university budget (2024) is <u>21.8%</u>

The university takes sustainability extremely seriously. It recognizes the importance of its social, environmental and economic impact. The university has a master plan taken into consideration the need for buildings but more importantly the protection of the green areas. The campus plan is designed so that student and staff can move around without the need for any form of transportation thus eliminating any harmful emissions or crowding on the roads inside campus. The university regularly invites volunteers from our students, staff and from the local community to participate in initiatives such as tree planting, maintenance work, awareness seminars and exhibitions.

The university offers a wide range of courses in sustainability, some of these classes focus on finding real world solutions to environmental, economic and social challenges. These include the importance of decreasing the waste through recycling paper, plastics and glass. The importance of using biodegradable materials, the importance of proper disposal of waste. All these initiatives aim to give students and participants knowledge and skills to shape better future for future generations and to

highlight how small changes to their daily life can positively impact the local community and the world.

Staff are encouraged to develop new courses in sustainability and to carry out research. They are also encouraged to match graduates with partner organization to carry out their projects and research to advance sustainability

Recent success stories include huge project to install renewable energy resources to reduce the energy bill, replacing outdated equipment such as laboratory equipment, air-condition units, refrigeration with more efficient newly designed equipment saving a lot of emissions and power.

The university is also working on improving water collection which will be used for irrigation. Different ways of irrigation are tried in order to save water, the results are shared with the local community.

[1.10] Campus facilities for disable, special needs and or maternity care:

First Lab with special equipment for disable people (Sign language)

First Lab with special equipment for disable people (Sign language)

Second lab for autism

Description:

The university gives great attention to the needs of the disabled or special needs persons. It offers scholar ships for the disabled as well as a quota for their employment. Its aim is to have 5% of its employees from people with special needs specially that the number of disabled people is rapidly increasing due to the political turmoil in Palestine. It also provides help for people with disabilities as inability to write or hear. Those who need others to read or write for them during exams are provided with the help they need through the deanship of student's affairs. Lifts and ramps are available in all buildings given disabled people freedom to move around the campus horizontally and vertically.

The university gives pregnant women 3 months leave when they give birth and 3 days for the father. After they comeback they are entitled to a one-hour break of their choosing every day for breast feeding for the first year.

1. **Disable parking spaces available in all buildings**
2. **Accessible toilets for disabled people in most buildings**
3. **Ramps available at all entrances for the buildings allowing easy access for disabled people**

[1.11] Security and safety facilities

camera

Camera

	
	

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Description:

In its pursue to spread the safety culture and practice among its students, the university gives lectures and brings experts in safety from the local community. Seminars as well as exhibitions are regularly held on campus. The university also recently began an under graduate course in fire protection and safety. PTUK is the only university in Palestine offering this course.
The design of the buildings also takes into account the different safety issues. Issues such as fire escape routes, fire alarms, fire drills, Emergency exits with clear labels.

1. **CCTV on all university ground**
2. **Fire Sensors and Fire Hydrant on campus**

3. **Fire extinguishers in Labs**
4. **Regular visitation from the fire departments to check for safety and escape routes as well as fire exits.**
5. **Each building has a fire exit.**

[1.12] Health infrastructure facilities for students, academics and administrative staffs' wellbeing

Hospitals our students can use under our insurance

Description:

1. Present of two doctors and two nurses on campus during teaching ours
2. All staff and students are insured by the university

The university has on campus two clinics in two different buildings. The second clinic was recently opened next to the library. They are fully staffed during teaching hours.

Year	2022	2023	2024
Students using university clinic	2965	589*	1820

*: Due to the war, teaching was mainly online

[1.13] Conservation: plant, animal, and wildlife, genetic resources for food and agriculture secured in either medium or long-term conservation facilities

Green House (PTUK)

The Library (PTUK)

 	
Water refining (PTUK)	Water refining (PTUK)

Water Research

Electromagnetic wave Radiation measurement

Example of **Conservation: plant, animal, and wildlife, genetic resources for food and agriculture secured in either medium or long-term conservation facilities**

Description

PTUK research and activities related to plant genetic resources (characterization, genetic-variation studies, greenhouse experiments, workshops and conferences on "genetic resources / seed landraces") show active work on conserving.

PTUK runs agricultural research facilities (greenhouses, research farms / KARC) and publishes applied-research papers that use those facilities. PTUK faculty have been participants/organizers in national workshops and conferences on seed landraces and genetic resources, indicating institutional engagement in PGR (plant genetic resources) conservation dialogues and initiatives.

PTUK Academic programs and research

PTUK's role in hosting/organizing a conference on genetic resources, in partnership with agricultural stakeholders (Christian Aid, Agricultural Relief Center, Palestinian National Center for Agricultural Research, An-Najah). This documents institutional engagement with seed/germplasm conservation discussions.

Genetic Variability of some Palestinian Fig (Ficus carica) Genotypes and Genetic diversity of Palestine landraces of faba bean (Vicia faba) these papers (hosted in PTUK repository / journal) demonstrate that PTUK researchers characterize and document local crop genetic diversity, a core activity for conservation and use of genetic resources.

Papers and research reports show greenhouse trials (e.g., strawberry greenhouse trials, barley germination studies) conducted at PTUK facilities indicating in-house capacity for evaluation, and short/medium-term maintenance of plant material.

Course listings (Agricultural Biotechnology, Greenhouse Technology, Horticulture/Agricultural Extension) show training and laboratory/greenhouse components that support conservation tasks

(characterization, propagation, and maintenance). These strengthen the case that the university builds human capacity and technical platforms relevant to PGR conservation.

PTUK research center / Agricultural Research Center activities

Publications and research outputs cite the Kadoorie Agriculture Research Center (KARC) / university laboratories in conducting field and laboratory research (pathogen tests, insect rearing, applied trials), which implies functioning research infrastructure for biological materials.

The university plants vegetables such as cucumber, tomatoes cauliflower, eggplant, green beans an avocado as well as fruits such as guava, oranges. All products are watered from a deep well available on campus. Refined water is used for forests only. Also cattle are available to produce dairy product such as yogurt, cheese these are also sold for the benefit of the university

The university also aims to increase the are used for such plantation.

1. Green house for planting vegetables for the staff and local community
2. Cattle farming and dairy products sold for the local market
3. University water refining used for irrigation

With the opening of the veterinary medicine, the university is increasing the diversity of animals on campus. These include cattle, sheep, horses, chicken.

[1.14] Planning, implementation, monitoring and/or evaluation of all programs related to Setting and Infrastructure through the utilization of Information and Communication Technology (ICT)

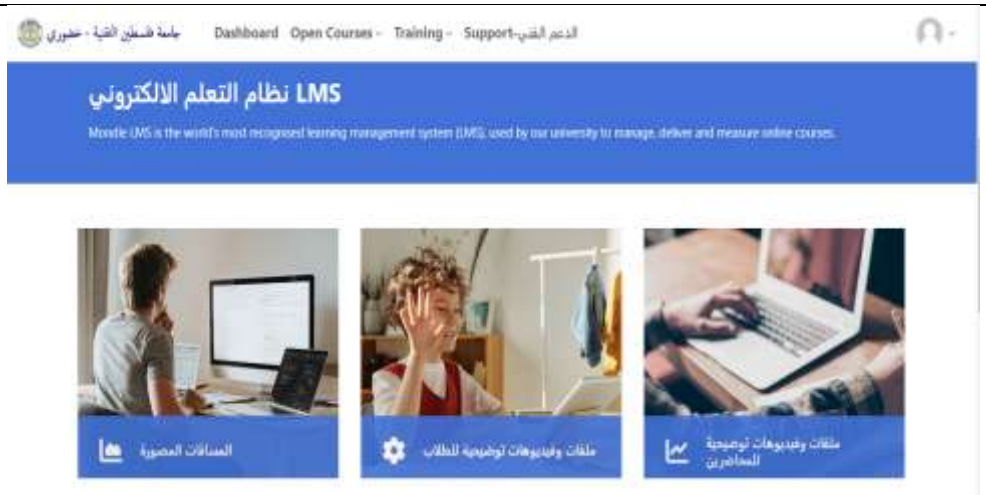
Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	Development of a digital online registration system, human resources system and monitoring	The development of different software is done internally. This software includes online registration from the university and from student homes. Another system is the (HRM) Human resources management anew online learning systems (LMS) learning management system. Finally the portal	https://edugate.ptuk.edu.ps/faces/index.xhtml https://hrm.ptuk.edu.ps/index.php?lang=en&page=home https://lms.ptuk.edu.ps/# https://exam.ptuk.edu.ps/	Jan 2024 – on going	Computer center + planning department+ registration department
Implementation	Installation of smart classroom technology these include smart boards, Digital cameras	Deployment of Necessary hardware Video conference room, Smart Boards Digital projectors Installation of the software needed	See Pictures below	Jan 2024 – on going	Computer centre and Purchasing department
Monitoring	Regular audits of the system is carried out, Regular feedback from staff and students regular updating of infrastructure and classroom technology usage	Online monitoring tools, usage analytics software	See Pictures below	Jan 2024 - Ongoing	Computer center + planning department
Evaluation	Assessment of ICT impact on teaching and learning outcomes	Surveys, feedback forms, and data analysis tools	See Pictures below	Jan 2024- on going	Different departments Planning department

Meeting Room with smart board

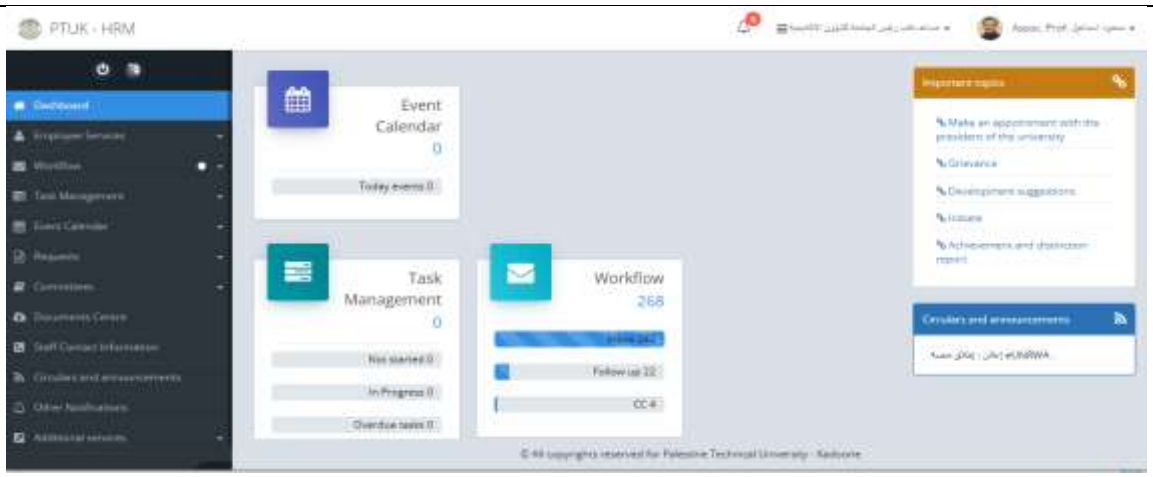
Conference Room with smart board and digital camera

Monitoring Room

monitoring Room

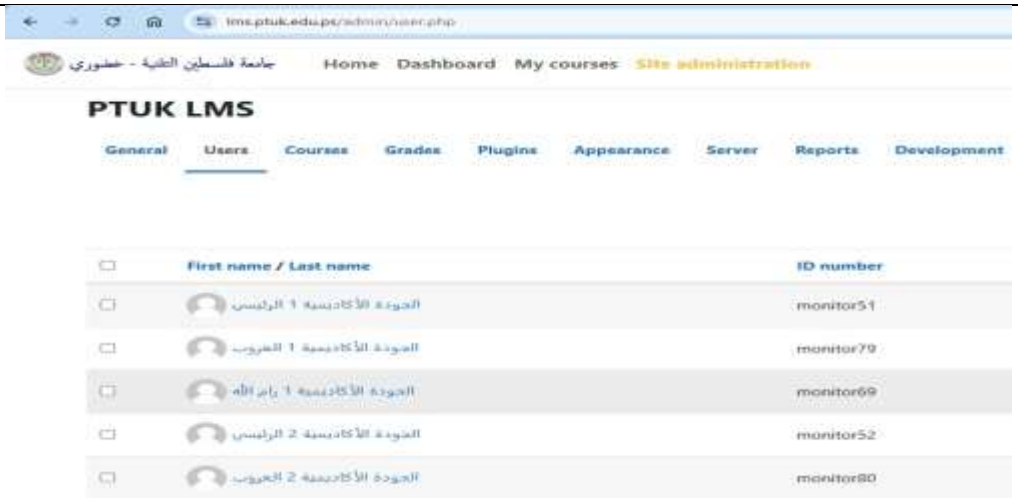


Illustrating videos for uning LMS

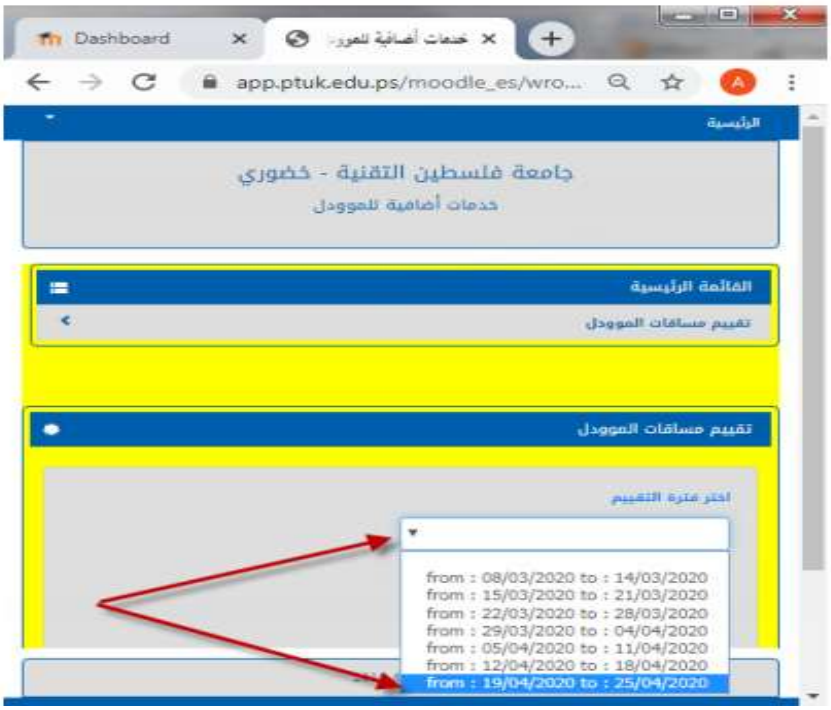


PTUK HRM – Showing correspondence between staff members

PTUK HRM – Showing correspondence between staff members



Monitoring the LMS



Academic Quality Monitoring for the LMS

Description:

The university has been planning these activities for several years. The idea is to develop ICT tools to help staff, students and different departments. These systems include

Planning: Development of a digital campus master plan

LMS: (Learning Management System)

A learning management system for the lectures and staff. After corona the university began building a learning management system to enable staff to teach on line. The system was totally built by the computer department in the university. The system is used to give lectures, carry out activities such as exams, Quizzes, and homework's. it also enabled students to stay in touch with their lectures. The system sends a message to the students mobile when there is an activity to be done. Videos can be uploaded as well as voice messages and messages.

HRM: (Human resources management)

The human resources system was also built by the ICT center. The system is designed to enable all staff from the university to contact each other. All news and instructions are sent on line to the recipient. All correspondence is done without the use of paper. This includes request for all staff needs such maintenance, requirements. The correspondence follows strict hierarchy.

On line registration System:

The system was partly developed by external company as an open source system and the university developed the system over the months. This system not only allows students to register but to stay in touch with the registration department. there are more than 70 on line forms and requests students can use when necessary.

The teams who worked on the planning stage were. Different university departments, the planning department, Quality department, ICT center Registration department. Other specialists were involved as consultants.

The Portal:
The portal is a system for staff and students where all the results of the exams, Quizzes, Homework's are put. The university Regards the portal as the official place for students to monitor their marks, check the number of hours passed and what subjects are left to be taken**.**

Implementation: Installation of smart classroom technology

- The university took several steps in order to implement these systems. As well as having a contract with the company who initially built the registration system it hired several experts to locally develop the system. The university has a very experienced team whose job is to develop and maintain these three systems. The systems were successfully installed and tested and are currently up and running. At the same time as installing the software the university installed video conference systems and zoom.

  New Hardware was also purchased. Digital cameras, Smart boards. New servers, Projectors, Computers etc.

The teams responsible for implementation were the ICT department, computer centre maintenance office and the company who originally developed the registration system.

Monitoring: Regular audits of network infrastructure and classroom technology usage:

Continuous monitoring of the campus network infrastructure and classroom technology usage is carried out by the ICT and computer centres. Also Anew E learning department was established to monitor the staff performance and student attendance. They issue regular reports to ensure optimal performance and identify areas for improvement.

Surveys and feedback forms distributed via digital platforms LMS (Learning management system), to evaluate and collect data.

Audit reports that summarize the findings of regular checks, network performance metrics showing uptime and downtime, and usage statistics from classroom technologies are submitted by the E-learning department, ICT, Planning departments

- **Responsible Team/Department:** ICT Department, Academic Affairs, E-learning departments, Planning department.

Evaluation: Assessment of ICT impact on teaching and learning outcomes

Survey results showing the perception of the new technology by students and faculty, summaries of feedback collected, and academic performance data comparing results before and after the implementation.

ICT-related programs for “Setting and Infrastructure” are not static but are regularly reviewed, updated, and improved based on evaluation outcomes, stakeholder feedback, and technological advancements.

Palestine Technical University (PTUK) has successfully implemented and evaluated a comprehensive program focused on enhancing university settings and infrastructure through the effective utilization of Information and Communication Technology (ICT). **Building upon the evaluation outcomes, the University has institutionalized a continuous improvement cycle by establishing an ICT Infrastructure Review Committee responsible for periodically revising and updating ICT-related plans and systems**. This University ICT Infrastructure Review Committee is under the University President assistant for IT affairs.

These revisions are guided by data-driven monitoring tools, user satisfaction surveys, and benchmarking against national and international ICT standards. Recent developments include **upgrading smart classrooms, expanding digital connectivity, and modernizing the University's data and learning management systems.** Through these ongoing review and enhancement processes, PTUK ensures that **its ICT-based infrastructure programs remain responsive, efficient, and aligned with evolving technological advancements and institutional strategic goals.**

Part of the actions are:

- Create a "University ICT Infrastructure Review Committee" University President assistant for IT affairs.
- Mandate annual reviews of ICT-related infrastructure programs (e.g., campus network, e-learning platforms, smart classrooms, energy monitoring, security systems).
- Document the process: evaluation → action plan → implementation → re-evaluation.
- Prepare quarterly ICT performance reports analyzed by the IT Directorate and shared with leadership.
- Conduct annual satisfaction surveys for faculty, students, and administrative staff regarding ICT facilities (internet, labs, LMS, smart classrooms).
- Expanding smart classrooms and updating multimedia teaching equipment.
- Upgrading network backbone and wireless coverage.
- Introducing IoT-based energy monitoring in labs or buildings
- Improving data centers or adopting cloud-based LMS backup.

- Developing e-campus or mobile app services for students.

[1.15] Impact of Setting and Infrastructure programs in supporting the Sustainable Development Goals (SDGs)

Example

Description:

- Palestine Technical University – Kadoorie (PTUK) — through its campus setting, built infrastructure, academic programs (especially in civil/industrial/energy/water fields, agriculture and engineering), Sustainability Office and community projects — supports each of the 17 Sustainable Development Goals (SDGs).
- PTUK's infrastructure and technical programs build local human Skills and capabilities (vocational & engineering skills) and enable community projects and employment opportunities that help reduce poverty in surrounding communities (through training, campus construction projects and industry linkages). The university is also involved in direct training to local farmers in modern farming techniques and water cultivation. The

research and Kadoories historic strength in agriculture support sustainable agriculture practices. Training, and technical extension that can improve productivity and food security in the region. (SDG 1,2)

- Campus infrastructure investments (health & sport halls, new swimming pool, football pitch surrounded by a running track) and training in sanitation/engineering through different activities such as lectures, posters and seminars contribute to better campus health, also through the university community outreach programs public health knowledge and services can be improved. (SDG3)
- PTUK's core mission is education and skills development. Setting & infrastructure (classrooms, labs, computer labs, co-op programs such as the Bachelor of Civil Engineering, Architecture Automotive Engineering & Sustainable Structures) directly advance inclusive, high-quality technical education and experiential learning. PTUK's Sustainability Office also integrates SDGs into curricula and campus practice. Our students are subjected to working environments through the co-op programs early in their university life. The university is actively encouraging females and handicapped students and different minorities to join these co-op programs. The university has strict laws and legislation against gender or any other form of discrimination. The university also adopt education for all policy through the adoption of very low fees for its education or through the continuous education center. 70 % of its students receive help with their tuition fees ensuring education for all. The university through its different branches spread from the south to the north of the country helps in reducing regional and social inequalities (SDG 4,5,10)
- PTUK research centers and engineering programs work on water and sanitation and energy topics (energy & water management center, renewable energy research and training, curriculum, technical projects). Campus infrastructure projects and sustainability initiatives address water-use efficiency and sanitation best practices Campus energy projects and curricula (engineering & technical programs) support adoption of clean energy technologies and local capacity building. The university is considered as the leading university in clean energy production (Solar energy). (SDG 6,7)
- Setting & infrastructure project (campus construction, labs, co-op programs) prepare students for technical jobs, entrepreneurship and local industry partnerships — boosting employability and local economic activity. PTUK's role as a technical university links graduates directly to

the labor market. Students spend one full year of their academic life in industry. (SDG 8)

- PTUK invests in resilient campus infrastructure, builds applied research centers (e.g. Energy & water initiatives), trains engineers and technicians, and fosters university-industry linkages. PTUK's infrastructure expansions and co-op engineering programs explicitly target sustainable infrastructure and innovatioCampus planning and green buildings and all sustainability activities are monitored by the Sustainability office. Regular reports are issued. These help in waste management and sustainable culture among students and staff. Settings and infra structure help reduce campus environmental waste and encourage recycling. (SDG 9,11,12)
- Through energy & water research, curriculum on sustainable engineering, campus energy projects (Solar panels, wind generators, rain water collection wells etc) and sustainability planning, PTUK contributes to mitigation and adaptation capacity locally. Water resource research and responsible water management practices indirectly support healthy aquatic systems where relevant. Given PTUK's agricultural heritage and research in land/agriculture, campus programs can support sustainable land use, biodiversity on campus and surrounding rural development. (SDG 13,14,15)
- PTUK is constantly strengthening institutional capacity, governance (campus administration improvements) and community engagement, PTUK supports rule-of-law and accountable institutions at the local/regional level. (SDG16)
- PTUK actively participates in international research partnerships (European projects, SDG data collaborations) and works with donors, NGOs and other universities — enabling resource mobilization, knowledge transfer and technical cooperation that advance many SDGs. (SDG17)
-

Program	Program Name	Description	SDGs	Green Metric Item Mapping
P1	Integrated Agro System	It aims to establish an integrated agricultural model that combines **hydroponic and organic farming** with **smart technologies** to produce sustainable crops within the university campus. The project focuses on **enhancing the efficiency of natural resource and energy use**, while **supporting**	SDG 2 SDG 6 SDG 7 SDG 12 SDG 13	[1.10] Total area on campus covered in planted vegetation [4.2] Water recycling program implementation [6.5] Research Funds for Sustainability [6.20] Sustainability-related

		applied education and scientific research in the fields of **sustainable agriculture and environmental innovation**.		Startups (ED.11) [6.26] SDG Impact
P2	EcoSmart Campus	It aims to transform the university campus into a smart and sustainable environment by utilizing modern technologies in the management of energy, water, and waste. The project focuses on enhancing operational efficiency and reducing environmental impact, in line with PTUK's vision to be a leading institution in green innovation and sustainable digital transformation.	SDG 7 SDG 9 SDG 11 SDG 12 SDG 13	[2.3] Smart Building implementation [1.7] Total campus buildings area [1.23] ICT in campus planning (SI.11)
P3	Campus Access Bridges	It aims to facilitate access for all students to university facilities and services through inclusive infrastructure and universal design that meet the needs of everyone. The project focuses on promoting inclusion and equality within the university environment, in line with PTUK vision of an open campus that provides equal opportunities for learning and participation for all..	SDG 3 SDG 4 SDG 5 SDG 10 SDG 11	[1.19] Facilities for disabled/special needs (SI.7) [1.20] Safety facilities (SI.8) [1.21] Health infrastructure (SI.9) [1.24] Impact of SI programs in supporting SDGs [2.3] Smart Building Implementation (EC.2) [2.9] Green Building Implementation (EC.6) [6.19] Community service projects involving students (ED.10) [6.26] Impact on SDGs
P4	The Green Campus Garden	It aims to **develop an educational and recreational green space** within the university campus that contributes to **enhancing the quality of campus life** and **promoting environmental awareness**. The project focuses on the **use of native plants and smart irrigation systems** to create a **sustainable and attractive environment**, reflecting **PTUK vision** as a **vibrant green university**..	SDG 11 SDG 13 SDG 15	[1.8] Ratio of open space area to total area (SI.1) [1.9] Forest Vegetation [1.10] Planted Vegetation [1.11] Water absorption areas [1.24] SDGs impact [4.1] Water Conservation Program (WR.1) [4.2] Water Recycling Program (WR.2) [2.10] Greenhouse Gas Emission Reduction (EC.7) [2.14] Impactful Program on Climate Change (EC.10) [6.19] Sustainability-related Community Projects (ED.10) [6.26] Impact on SDGs

P5	Green Leadership Vision	It aims to **promote sustainable leadership practices** within the university by developing **policies and regulations** that support **environmental governance and institutional responsibility**. The project focuses on **empowering academic and administrative leaders** to adopt **environmentally conscious decision-making**, guiding the university toward **excellence in green management** and **leadership in institutional sustainability**..	SDG 16 SDG 17 SDG 12	[1.17] University budget for sustainability efforts [1.23] ICT in planning, monitoring, and evaluation (SI.11) [1.24] SDG impact [6.24]Availability of unit(s) or office(s) that coordinate sustainability (ED.13) [6.25]ICT-based planning, implementation, monitoring, and evaluation (ED.14) [6.26]Impact on SDGs [2.15]ICT-based planning and monitoring for EC programs (EC.11) [2.14] Impactful university program on climate change (EC.10) [3.18] ICT-based monitoring of waste programs (WS.7) [4.6] ICT-based monitoring of water programs (WR.6)

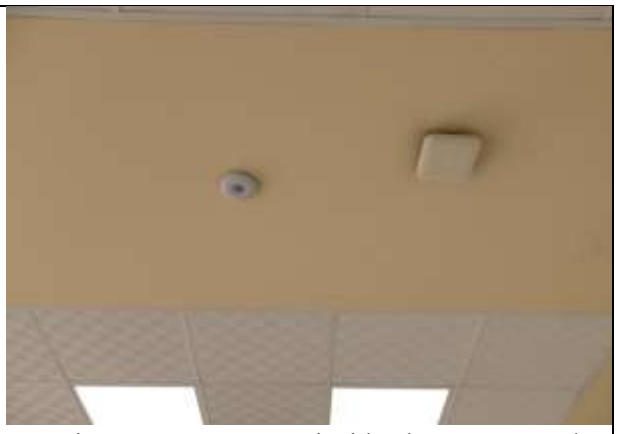
[2] Energy and Climate Change (EC)
[2.1] Energy Efficient Appliances Usage

Example of Energy Efficient Appliances Usage: Use of LED lighting and lamps with light detection (PTUK)

Solar PV system

LED LIGHTS

Night lighting sensor



Motion Detector Sensor inside class rooms and corridors

Low Consumption Devices

Example of Energy Efficient Appliances Usage: Solar power system (PTUK)

Appliance	Total Number	Total number energy Efficient appliances	Percentage
LED Lamp	150,455	138200	92%
Fan	262	254	97%
Air Conditioning	318	266	83%
Etc.	…	**…**	**…**
		Average Percentage	**92%**

Energy saving starts from the design stage of the buildings. Insulation is used making the buildings cool in the summer and warm in the winter. Proper design allowing natural lighting decreasing the dependency on electric lighting. Further more the use of sensors and technology to reduce power consumption as shown below.

1. **Light sensors in the corridors and rooms (when there is movement the light goes on otherwise it stays off)**
2. **Wide usage of power saving lighting such as LED**
3. **Wide use of Power solar panels approximately 90% of the buildings have solar panels.**
4. **Use of power saving Air conditions (inverter system) in some places**

[2.2] Smart Building Implementation

***Min. at least five requirements for each building**

No.	Name	Place	automation		safety				energy		water		Indoor environment				lighting				Building Area (m²)
			B1	B2	S1	S2	S3	S4	E1	E2	A1	A2	I1	I2	I3	I4	L1	L2	L3	L4	
	Main Building (Administration)	City, Country			x	x		x		x		x				x	x	x		x	6200
	Faculty of Arts	City, Country			x	x		x		x		x				x	x	x		x	2791
	Faculty of science	City, Country			x	x		x		x		x				x	x	x		x	6500
	Library	City, Country			x	x		x		x		x				x	x	x		x	6250
	Gymnasium	City, Country			x	x		x		x		x				x	x	x		x	1000
	Faculty of Physcical Education	City, Country			x	x		x		x		x				x	x	x		x	800

	Supplies and Procurement Building	City, Country			x	x		x		x		x				x	x			x	1800
	Services	City, Country				x		x				x				x	x				500
	Continuining education	City, Country			x	x		x		x		x				x	x	x		x	1650
	Graduate studies	City, Country			x	x		x		x		x				x	x	x		x	2000
	Workshops	City, Country				x		x								x	x				~~1300~~
	Faculty of Engineering	City, Country			x	x		x		x		x				x	x	x		x	8200
	Diploma Faculty	City, Country			x	x		x		x		x				x	x	x		x	9500
	Students center	City, Country			x	x		x				x				x	x				7649
	Faculty of Business and Administration	City, Country			x	x		x		x		x				x	x	x		x	8950
	Total																				**63790**

No.	Name	Place	automation		safety				energy		water		Indoor environment				lighting				Building Area (m^2)
			B1	B2	S1	S2	S3	S4	E1	E2	A1	A2	I1	I2	I3	I4	L1	L2	L3	L4	
	Administration Building	City, Country			x	x		x		x		x				x	x	x		x	2250
	Faculty of Business	City, Country			x	x		x		x		x				x	x	x		x	2650
	Faculty of Arts	City, Country			x	x		x		x		x				x	x	x		x	1150
	Diploma	City, Country			x	x		x		x		x				x	x	x		x	1800
	Total																				**7850**

No.	Name	Place	automation		safety				energy		water		Indoor environment				lighting				Building Area (m^2)
			B1	B2	S1	S2	S3	S4	E1	E2	A1	A2	I1	I2	I3	I4	L1	L2	L3	L4	
	Administration and Faculty of Arts	City, Country			x	x		x		x		x				x	x	x		x	800
	Business and administration	City, Country			x	x		x		x		x				x	x	x		x	2400
	Diploma	City, Country			x	x		x		x		x				x	x	x		x	4000
	Theature	City, Country			x	x		x				x				x	x				960
	Total																				**8160**

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

Smart building implementation

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

Example:
***Total Smart Buildings Area: 79300 m^2**
***Total Building Area: 81,100 m^2**

$$\frac{\mathbf{79800\ m^2}}{\mathbf{81,100\ m^2}} \times \mathbf{100\%} = \mathbf{98.4\%}$$

Note: One building could be classified as a smart building if it has a minimum of 5 features. Please add the total smart building area from buildings which are classified as smart buildings.

[2.3] Renewable Energy Sources in Campus

Example of Mounted Solar Panels (PTUK- Main Campus, Tulkarm, Palestine)

Example of wind turbine (PTUK, Main Campus, Research, Tulkarm, Palestine)

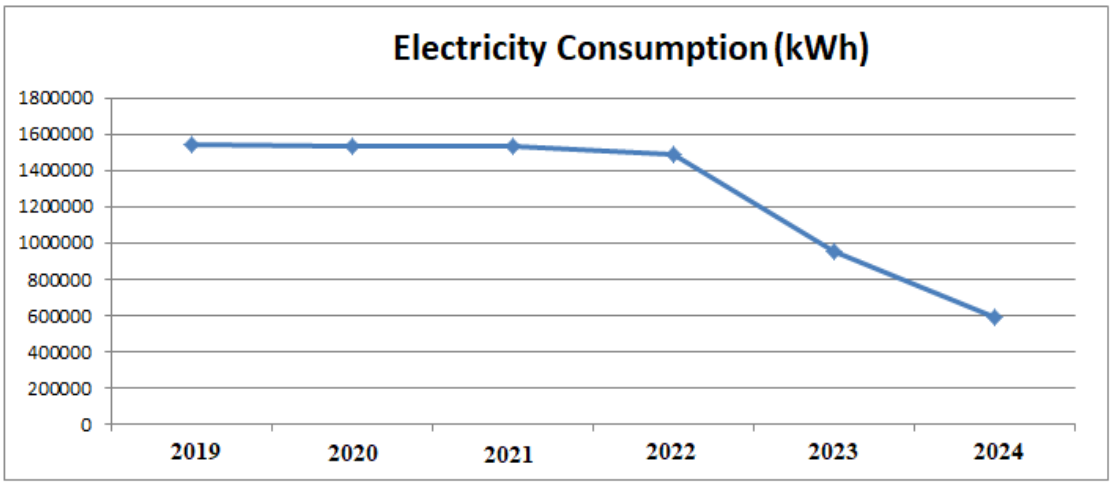
Example of Biogas digester generating biogas to supply a methane engine generator(PTUK – Main campus, Tulkarm, Palestine)

Description:

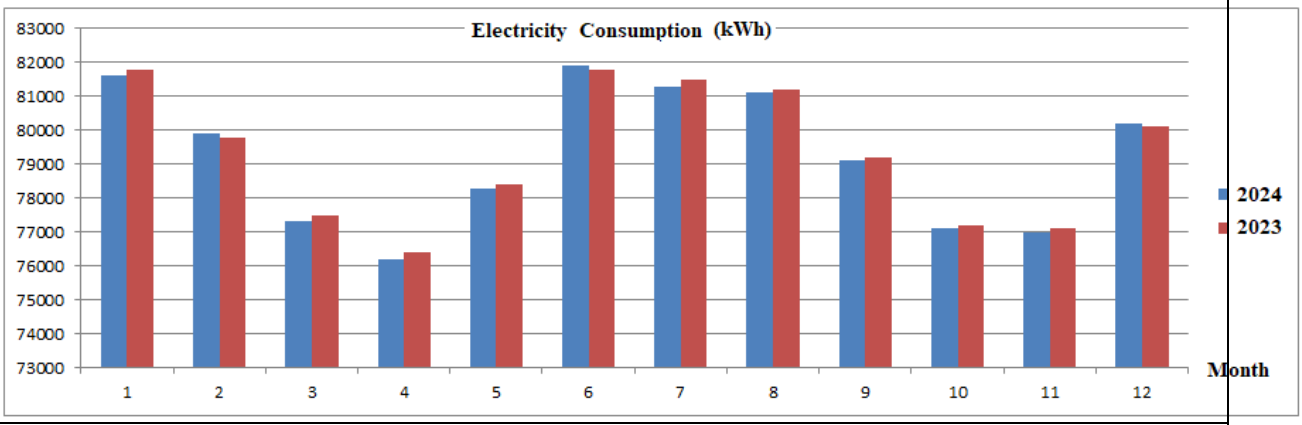
The university is proud to be able to generate a very large of its power from renewable sources. All the main buildings have solar panels mounted on their roofs utilizing otherwise not used space generating 752500 kWh. We also have a wind turbine on one of the roofs (Faculty of Engineering roof) generating 12800 kWh electrical energy and digester to generate bio gas generating 9450 kWh electricity yearly that is installed beside one of the green houses inside the main campus. The electricity generated by the biogas generator to supply the electrical pumps and the smart irrigation system built for this green house. The raw material for this aerobic digester is the agricultural waste as well as any organic waste from the university cafeterias. is The university aims to have all its energy needs from renewable sources. In its master plan all new buildings will have solar panels.

The university is currently considering covering the car park with solar panels thus generating more electricity and using the shadow created by the panels to cover the cars. The roofs of the new buildings will also be considered.

[2.4] Electricity Usage per Year (in Kilowatt hour)



Example of Total Electricity consumption (Main Campus – PTUK – Tulkarm) 2019-2024
The consumption of the last year decreases due to implementation of energy conservation strategies at most of the PTUK buildings



Example of Electricity Total consumption (kWh) Main Campus (PTUK, Tulkarm, Palestine)
From Renewable sources and main grid
The consumption decreases as part of the PV system has been partially added at the start of 2024 and as the Learning is switched to distant learning.

Description:

The total electricity usage of main campus is 951000 kWh at 2024. The sources of this consumption are: the main grid (177295) and the renewable energy sources (773705kWh)

Electricity consumption varies from month to month. however, there is a significant increase in power usage in the summer months and winter because of the usage of air conditioning and heating for our class rooms. All the old air conditioning units were replaced with energy saving new units. All buildings are insulated to save energy.

The electricity consumption for the 2024-2025 period was continuously dramatically reduced. This is because of the Israeli war against the Palestinian and the secuirity situation especially in Tulkarm forcing us to carry out our teaching online. Fearing for our students lives they were told by the university administration not to come to campus except to carry out the practical sessions. All theoretical lectures were taught on line.

[2.5] Ratio of renewable energy production divided by total energy usage per year

Example of Mounted Solar Panels (PTUK- Main Campus, Tulkarm, Palestine)

Example of wind turbine (PTUK, Main Campus, Research, Tulkarm, Palestine)

Example of Biogas digester generating biogas to supply a methane engine generator(PTUK – Main campus, Tulkarm, Palestine)

Description:

No	Renewable Energy	Production (in kWh)
2	**Biomass**	9200
3	**Solar panel**	745500
4	**Wind turbine**	11600
	Total	**766300**

766300 kWh (Renewable Contribution) / 952000 kWh (Total Electricity usage) = 80.5 %

Some of the renewable energy projects were funded through joint projects with partners from Europe (Czechia) Since the weather in Tulkarm is extremely suitable for solar power with a very high number of hours of day light available in summer. Winter is also very mild with many hours of sunshine.

The increase in the renewable contribution is due to installation of additional PV panels (about 10 kWp).

The electricity consumption for the 2023-2024 period was dramatically reduced. This is because of the Israeli war against the Palestinian forcing us to carry out our teaching online. Fearing for our students lives they were told by the university administration not to come to campus except to carry out the practical sessions. All theoretical lectures were taught on line.

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

Utilizing Natural Lighting – Engineering Building

Description:
The buildings are designed to let sufficient light thus using the sun and orientation of the building for natural heating, cooling and lighting. The buildings are insulated and ventilated very well. Modern green building methods and practices are also taken into account, for example artificial stones were used in the last building thus reducing the need to excavate natural rock for stone buildings. The buildings also use energy-efficient and saving appliances as well as water saving appliances.

[2.7] Greenhouse gas emission reduction program

1. Electrical Vehicles' Batteries Charge point(Palestine Technical University)

2. PV Solar System (Palestine Technical University)

Wind Turbine

Description:

The university Has solar panels for power reducing the amount of purchased electricity. It encourages the use of small electric cars and bikes. The university campus is designed to be walk friendly eliminating the need for the use of any form of transportation thus reducing any harmful emissions. The university is currently building a testing center for electric vehicles thus encouraging the use of electric cars.

The university has a very strict policy for the use of its vehicles. The vehicles are used when large number of professors need to travel. Individual professors are encouraged to use public transportation. The university has its own communication systems where all its correspondence and memos are sent, this system includes all three campuses thus reducing the need for travel between campuses.

[2.8] The Total Carbon Footprint (CO_2 emission in the last 12 months, in metric tons)

Option 2: Recommended by UI GreenMetric

CO_2 (electricity)

$$= \frac{electricity\ usage\ per\ year\ (kWh)}{1000} \times 0{,}84$$

$$= \frac{185700\ kWh}{1000} \times 0{,}84$$

= 155.988 metric tons

CO_2 (bus)

$$= \frac{number\ of\ shuttle\ bus\ in\ your\ university \times total\ trips\ for\ shuttle\ bus\ service\ each\ day \times approximate\ travel\ distance\ of\ vehicle\ each\ day\ inside\ campus\ only\ (KM) \times 240}{100} \times 0{,}01$$

$$= \frac{0 \times 150 \times 5 \times 240}{100} \times 0{,}01$$

= 0 metric tons

CO_2 (cars)

$$= \frac{\text{number of cars entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0{,}02$$

$$= \frac{86 \times 2 \times 0.25 \times 84}{100} \times 0{,}02$$

= 0.7224 metric tons

CO_2 (motorcycle)

$$= \frac{\text{number of motorcycle entering your university} \times 2 \times \text{approximate travel distance of vehicle each day inside campus only (KM)} \times 240}{100} \times 0{,}01$$

$$= \frac{0 \times 2 \times 0.20 \times 84}{100} \times 0{,}01$$

= 0 metric tons

CO_2 (total)

= 155.988+0.7224

= 156.7 metric tons

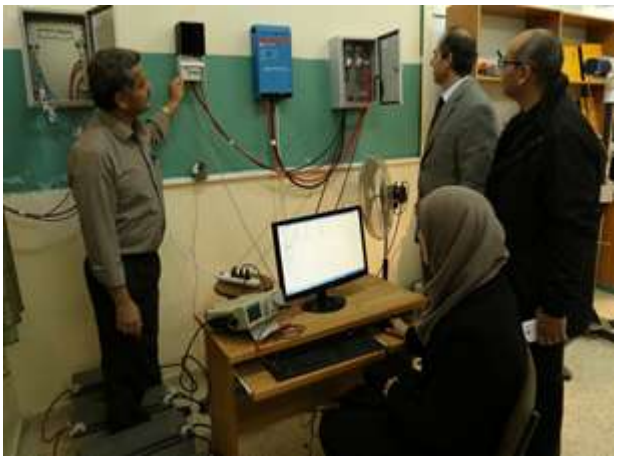
Carbon footprint in 2023 = 156.7 metric tons

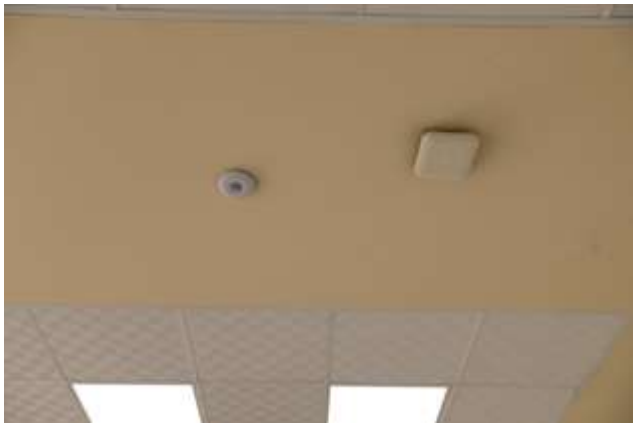
Example of Total Carbon Footprint (UI Green Metric)

The electricity usage per year (kWh) used in the calculations of total carbon footprint is 185700 kWh (the part of the energy imported from the grid) as part of the total electricity usage (952000 kWh) is contributed by renewable energy sources. This renewable energy is 766300kWh.

The electricity consumption for the 2023-2024 period was dramatically reduced. This is because of the Israeli war against the Palestinian forcing us to carry out our teaching online. Fearing for our students lives they were told by the university administration not to come to campus except to carry out the practical sessions. All theoretical lectures were taught online. Consequently, reducing the part of the energy imported from the grid.

[2.9] Number of innovative program(s) in energy and climate change





Class rooms with motion detectors to control lighting inside rooms with presence of students

Water research (WaSec ERASMUS program)

Examples of innovative program (Palestine Technical University, Palestine)

Description:

The university has several Innovative program both at the M.Sc. and B.Sc. level. Some of these programs were the outcome of international projects these include

1. Climate change and meteorology program (The only one of its type in Palestine)
2. Engineering in renewable energy program (sustainable Energy Engineering)- Bachelor degree program

   There is a continuing strong cooperation with international agencies to equip the labs of this program mainly the GIZ (the German international agency)
3. Almaqdisi Project
4. innovation in water technology program. This program is an outcome of one of the ERASMUS international programs (WaSec).
5. Innovative program inside university campuses for smart automation of buildings.

The university also has some ongoing projects these include an Erasmus project in Innovations in Water Education programs, enhancing water security and Scio-economic development in the eastern Mediterranean under climate change (WaSec). Another project is almaqdisi project which deals with solar panel research and capacity building

[2.10] Impactful university program(s) on climate change

No	Programs	Scope (international / regional / national / local / etc)	Total Participants	Photo	Short Description
	Program to install 510 kWp on the roofs of main campus buildings	local	To serve about 8400 of staff and students		This PV project participates in production of about 765 MWh clean energy yearly
	Climate change and meteorology program	Local	220		It is a bachelor program. This program comes as an outcome of international cooperation between PTUK and number of Spanish universities

	sustainable Energy Engineering				It is a bachelor program. This program comes to be in line with the national and international interest in renewable energy sources and their importance regarding climate change. This program was prepared with local community.
	innovation in water technology program	International	Students and staff of many universities who participated in this project		Erasmus project in Innovations in Water Education programs, enhancing water security and Scio-economic development in the eastern Mediterranean under climate change (WaSec).
	Almaqdisi Project	International	24 (who directly participated in this project from Palestine and France) but its outcomes benefit all of the students of the related program		This project was implemented between staff from Palestine and France. It is developing power electronic circuits used in renewable energy systems.
	Workshop about electrical vehicles	national	350	Online workshops	Our university has launched an academic program in Vehicle Engineering. There are number of yearly workshops regarding the trend to switch to electrical vehicles
	Workshop about waste recycling	national	310		The university has many academic programs regarding the environment. Many of workshops are yearly held to increase the awareness of the

					university and national / local community about the environment. Many national agencies participate in holding these workshops.
	Workshop about an international cleanliness day	local	270		Number of workshops are yearly held to increase the awareness of the university and local community about the cleanliness especially for the surrounding environment and its Importance for health.
	A workshop about earth day	national	280		This is a yearly basis day
	Program to install 5 kW wind turbine on the roof of engineering buildings	local	To participate in energizing the engineering building (1500 staff and students)		This wind turbine is installed for research. Meanwhile, it participates in clean energy production to serve this building

Description:

The university has several Innovative program both at the M.Sc. and B.Sc. level. Some of these programs were the outcome of international projects these include

2. Climate change and meteorology program (The only one of its type in Palestine)
3. Engineering in renewable energy program (sustainable Energy Engineering)- Bachelor degree program

   There is a continuing strong cooperation with international agencies to equip the labs of this program mainly the GIZ (the German international agency)
4. Almaqdisi Project
6. innovation in water technology program. This program is an outcome of one of the ERASMUS international programs (WaSec).
7. Innovative program inside university campuses for smart automation of buildings.

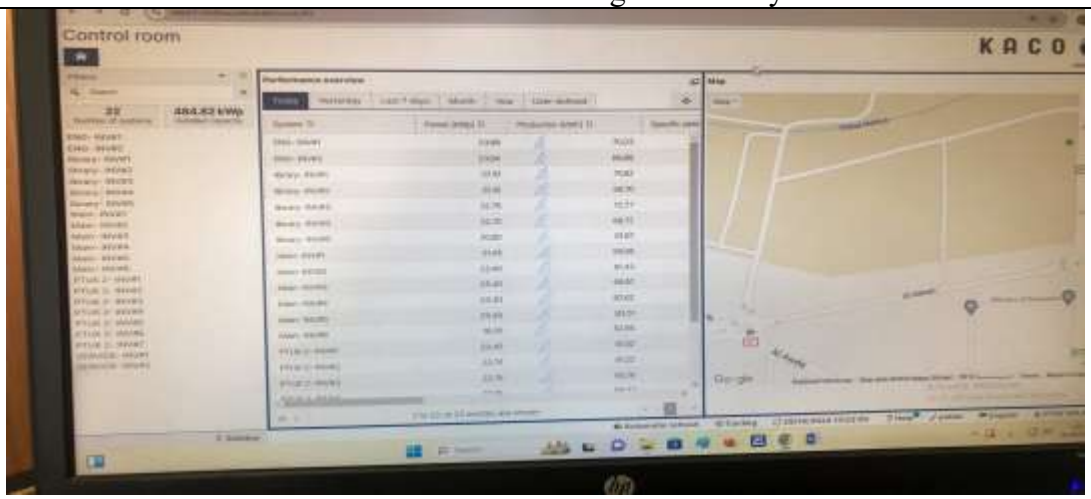
All workshops were carried out online due to the war.

The university also has some ongoing projects these include an Erasmus project in Innovations in Water Education programs, enhancing water security and Scio-economic development in the eastern Mediterranean under climate change (WaSec). Another project is almaqdisi project which deals with solar panel research and capacity building

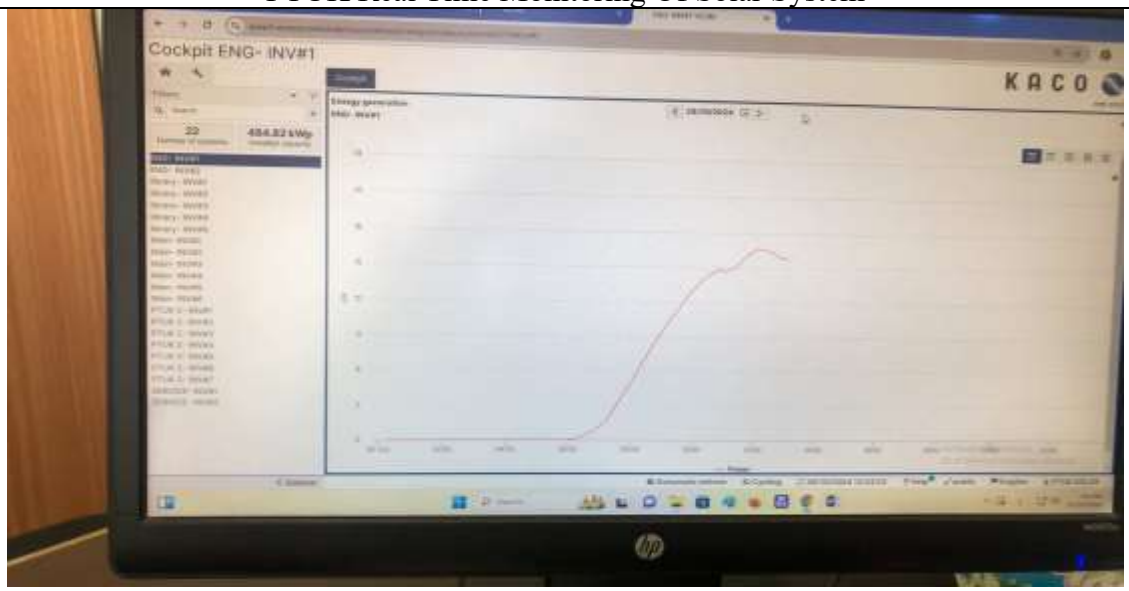
[2.11] Planning, implementation, monitoring and/or evaluation of all programs related to Energy and Climate Change through the utilization of Information and Communication Technology (ICT)

Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	Assess potential for more renewable energy installations	GIS mapping, renewable energy simulation software	Feasibility studies, site assessment reports See Pictures Below	Jan 2021 – on going	Energy Management, ICT Department, financial office, planning department
Implementation	Install solar panels, wind turbines, etc. gas digesters	Project management tools, installation scheduling software	Installation logs, energy generation data See Pictures Below	Jan 2021 – on going	Energy Management, ICT Department, financial office, planning department
Monitoring	Track renewable energy production	Renewable energy monitoring systems	Energy production reports, performance analytics See Pictures Below	Ongoing	Energy Management, ICT Department, financial office, planning department

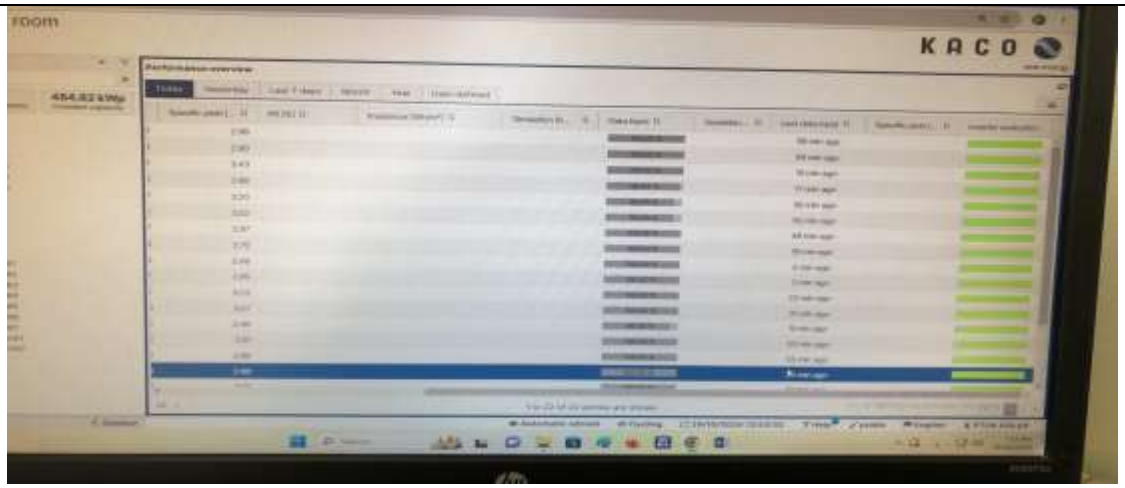
PTUK Real Time Monitoring Of Solar System



PTUK Real Time Monitoring Of Solar System



PTUK Real Time Monitoring Of Solar System



PTUK Real Time Monitoring Of Solar System

Renewable energy simulation software and installation of renewable energy

Description:

There are a Number of renewable energy sources on campus. These include solar power system, a wind turbine and a gas generator.

- **Planning:**

  Conduct feasibility studies using GIS mapping and renewable energy simulation software to assess potential new sites for renewable energy installations. The university already has Solar cells on all its roofs It has one wind turbine on the engineering building.

- **Implementation:**

  Oversee the installation of more renewable energy sources like solar panels and wind turbines, tracking progress with project management tools.

- **Monitoring:**

  Use renewable energy monitoring systems to track energy production, generating performance reports and analytics.

Palestine Technical University (PTUK) has implemented and evaluated comprehensive programs addressing energy efficiency and climate change through the use of Information and Communication Technology (ICT). Building on these achievements, the **University has institutionalized a continuous improvement framework that includes regular performance monitoring, stakeholder feedback, and policy revision**.
An ICT-based Energy Management System now tracks real-time consumption and solar generation data across facilities, informing evidence-based revisions to the University's energy and sustainability strategies. Recent updates include the **expansion of smart energy systems, integration of IoT sensors, and revision of the institutional Climate Action Plan to align with national sustainability goals**. Through these iterative review and enhancement processes, PTUK ensures that its energy and climate change initiatives remain effective, data-driven, and continuously evolving toward a more sustainable and smart campus.

Part of the actions are:

- Form a "Sustainability and Smart Energy Review Committee" chaired by the Sustainability Unit .
- Mandate annual or semiannual review reports on energy and climate initiatives (solar PV performance, energy consumption, CO_2 reduction metrics, etc.).
- Ensure that revisions are based on measurable performance data collected through ICT systems (smart meters, monitoring dashboards).

- Benchmark PTUK's progress against national energy strategies and SDG 7 and SDG 13 indicators.
- Participate in Green Campus / Climate-Neutral University initiatives.
- Publish an annual "Sustainability and Climate Impact Report."
- Use ICT-monitored data (solar generation, building energy performance) in student projects, theses, and research.
- Encourage academic programs (e.g., Smart Grid Engineering, Sustainable Energy) to evaluate and propose improvements to existing systems.
- Document how research findings are adopted to refine campus energy management.
- Expansion of solar PV systems and connection to smart monitoring platforms.
- Deployment of IoT-based smart energy management in laboratories and offices.
- Installation of smart climate sensors to study microclimate and energy use.
- Upgrading green buildings and smart classrooms for energy efficiency.
- Collect input from technical departments, sustainability clubs, and research centers.
- Incorporate their feedback into revised operational and educational plans.

[2.12] Impact of Energy and Climate Change programs in supporting the Sustainable Development Goals (SDGs)

Description:

PTUK's energy & climate programs (academic degrees and diplomas in sustainable energy and smart grids, targeted courses on climate modeling and water-energy interactions, applied research, campus clean-energy installations and sustainability planning) generate direct and indirect contributions across almost all SDGs by building technical capacity, producing applied research, piloting clean energy

solutions on campus, and forming partnerships that mobilize knowledge and resources.

PTUK's prides itself on its students Skills, training and job-ready graduates in energy sectors specially with the introduction of the co-op programs. This increases employability and local income opportunities. This also provides energy solutions for irrigation and applied research and support agricultural productivity. The universities agricultural department through its extensive links with the local community and through international projects and research help in solving all kinds of problems. Cleaner energy technologies and reduced air pollution from decarburization improve public health; campus energy efficiency improves campus living conditions**.(SDG 1,2,3)**

The university offers Degree and diploma programs (Bachelor of Sustainable Energy Engineering, Diploma in Renewable Energy, Master in Smart Grids) deliver targeted curricula, labs and fieldwork that raise technical capacity and climate literacy Open access technical training and outreach programs can increase women's participation in energy professions. University spread campuses and tuition policies and legislation reduce skill/participation gaps across the region thus reducing inequalities. Through PTUK's extensive scholarships and low tuition cost families are encouraged to give equal opportunities to their children regardless of gender. (SDG 4,5,10).

The university carries intensive research on water and sanitation as well as the climate. It also has several programs dealing with these issues. Through its outreach programs and co-op programs as well as joint projects with the local community better information and water management practices are spread. Training renewable-energy technicians/engineers, research into solar/wind, campus PV projects and smart-grid teaching—directly advances access to and deployment of clean, affordable energy technologies. Graduates, entrepreneurship education and applied projects feed the local green-jobs market (installation, maintenance, small industry) and foster local economic resilience. applied research, university-industry collaborations, and campus testbeds for renewables and smart grids build resilient infrastructure and local innovation capacity. (6,7,8,9)

Training in energy-efficient building systems lead to better planning and resilient community infrastructure and lifecycle thinking for energy technologies and responsible procurement reduce resource use and embed sustainable production/consumption patterns, Smart grids campus sustainability projects also act as local demonstration sites. Climate modeling and adaptation modules in postgraduate courses, renewable energy research, and campus decarbonisation

(through use of renewable energy and reduction of car emissions) activities directly build mitigation & adaptation capacity. PTUK explicitly lists climate-related coursework and projects. (11,12,13)

Sustainable energy for agriculture, research on land-use impacts of climate change and campus greening projects support biodiversity and sustainable land management. Strengthening institutional capacity for climate & energy policy research, applied data and partnerships as well as PTUK engagement in international research partnerships, EU projects and donor collaborations mobilizing technical cooperation, funding and knowledge transfer for energy & climate actions supports better governance and evidence-based decision making.(15,16,17)

Program	Program Name	Description	SDGs	Green Metric Item Mapping
P1	Campus Solar Transition	It aims to **transform the university campus into a leading model in the use of solar energy** for electricity generation and the efficient operation of campus facilities. The project focuses on **reducing carbon emissions** and **minimizing the consumption of conventional energy**, in line with **PTUK vision** of being a **sustainable institution that relies on clean energy** in managing its daily operations.	SDG 7 SDG 13	[2.5] Renewable Energy Sources in Campus [2.8] Ratio of renewable energy to total usage (EC.5) [2.10]Greenhouse Gas Emission Reduction Program (EC.7) [2.11] Total Carbon Footprint (CO_2 emission) [2.13] Number of innovative programs in energy and climate change (EC.9) [2.14] Impactful university programs on climate change (EC.10) [1.17] University budget for sustainability effort [1.23] ICT-based monitoring and evaluation (SI.11) [1.24] Impact of SI programs in supporting SDGs [4.6] ICT-based planning, implementation, and monitoring (WR.6) [6.11] Number of sustainability-related events (ED.4) [6.19] Community service projects involving students (ED.10) [6.26] Impact on SDGs
P2	Zero Emission University	It aims to **achieve complete carbon neutrality** in all university activities through **emission reduction** and the	SDG 13 SDG 12 SDG 7	[2.10] Greenhouse Gas Reduction Program (EC.7) [2.11] Total Carbon Footprint [2.13] Innovative Programs

		use of renewable energy in operations and facilities. The project focuses on **adopting environmentally friendly practices** and **implementing emission monitoring systems**, reinforcing **PTUK position** as a **national model for transitioning toward a carbon-free campus..**		(EC.9) [2.14] Impactful Climate Programs (EC.10) [2.15] ICT-based planning, monitoring, and evaluation (EC.11) [1.17] University budget for sustainability efforts [1.23] ICT-based monitoring and evaluation (SI.11) [1.24] Impact of SI programs in supporting SDGs [5.9] Zero Emission Vehicles (TR.3) [5.15] Initiatives to Decrease Private Vehicles on Campus (TR.7) [5.19] Impact of Transportation programs on SDGs [3.1] 3R Program for University Waste [3.8] Organic Waste Treatment (WS.3) [3.18] ICT in Waste Management (WS.7) [6.11] Number of sustainability-related events (ED.4) [6.19] Community service projects involving students (ED.10) [6.26] Impact on SDGs
P3	Green Earth Vision	It aims to **promote environmental awareness** within the university community through **educational initiatives and practical applications** that encourage the protection of natural resources. The project focuses on **encouraging sustainable behaviours** and **reducing environmental impact**, in line with **PTUK vision** as an **incubator of green awareness and**	SDG 13 SDG 14 SDG 15	[2.14] Impactful Program on Climate Change (EC.10) [6.11] Number of events related to sustainability (ED.4) [6.12] Student activities related to sustainability (ED.5) [6.19] Community service projects involving students (ED.10) [6.26] Impact of Education and Research programs in supporting SDGs

		responsibility toward the planet.		[2.14] Impactful university program on climate change (EC.10) [2.13] Innovative programs in energy and climate change (EC.9) [1.24] Impact of SI programs in supporting SDGs [3.1] 3R Awareness Program (Reduce, Reuse, Recycle) [4.1] Water Conservation Awareness (WR.1)
P4	Green Mobility Initiative	It aims to **develop eco-friendly university transportation systems** that rely on **sustainable modes** such as **electric vehicles and smart bicycles**. The initiative focuses on **reducing emissions** and **improving the quality of life** on campus by **promoting a culture of sustainable mobility**, in line with **PTUK vision** of a **smart and emission-free campus**.	SDG 9 SDG 11 SDG 13	[1.24] Impact of SI programs in supporting SDGs [2.10] GHG Reduction (EC.7) [2.13] Number of innovative programs in energy and climate change (EC.9) [2.14] SDG Impact [5.9] Zero Emission Vehicles (ZEV) availability on campus (TR.3) [5.15] Number of transportation initiatives to decrease private vehicles on campus (TR.7) [5.19] Impact of transportation programs in supporting SDGs [6.3] Total number of study programs related to sustainability offered [6.1] Number of courses/subjects related to sustainability offered [6.5] Total research funds dedicated to sustainability research [6.10] Ratio of scholarly publications on sustainability to total researchers (ED.3) [6.18] Number of university sustainability programs with international collaborations (ED.9) [6.26] Impact on SDGs
P5	Road Partners Initiative	The project aims to strengthen the culture of road safety and promote cooperative mobility within the campus through awareness campaigns and training programs for students	SDG 3 SDG 11 SDG 13	[1.24] Impact of SI programs in supporting SDGs [2.10] Greenhouse Gas Emission Reduction Program (EC.7)

		and staff. It focuses on encouraging responsible behaviour and compliance with traffic regulations, ensuring a safe and sustainable campus environment that reflects PTUK commitment to conscious leadership and safety for all.		[2.14] Impactful university program on climate change (EC.10) [5.5] Shuttle Services (TR.2) [5.9] Zero Emission Vehicles (TR.3) [5.15] Initiatives to Decrease Private Vehicles (TR.7) [5.16] Pedestrian Path Policy (TR.8) [5.18] ICT-based planning, implementation, monitoring (TR.9) [5.19] Impact of transportation programs in supporting SDGs [6.11] Number of events related to sustainability (ED.4) [6.19] Community service projects involving students (ED.10) [6.26] Impact on SDGs

[3] Waste (WS)

[3.1] 3R (Reduce, Reuse and Recycle) Program for University Waste

Compost

Description:

The university spreads the culture of recycling by providing separate bins for paper, plastics and glass. It is hoped that students who engage in these activities understand that small changes in their behavior will have great impact in our future. The university promotes the recycling of Electronic Waste and ink-cartridges from printers. E-waste items are not disposed of in the normal trash due to their high concentrations of toxic chemicals and heavy metals. They are stored in the university for proper disposal. Also minimum use of paper is encouraged through developing

software programs for internal correspondence. All correspondence is carried out on line internally.

The actions adopted by PTUK in order to reduce plastic and paper are:

Digitalization of Administrative Services

- PTUK implemented an electronic Human Resources Management System and more than 60 online student-forms, which has significantly reduced the need for printed paper for internal correspondence.
- All internal correspondence is carried out online, and exams are increasingly delivered online to cut paper usage.
- PTUK has adopted a campus-wide 3R scheme: separate bins for paper, plastics and glass are deployed. Paper shredding for reuse and partnering with recycling companies to collect waste paper (including old exams) are part of the effort.

- **Dual-Sided Printing & Paper Recycling**

- The university mandates printing on both sides of paper including exams, and works with a local paper recycling company to collect waste paper for recycling.
- Separate bins on campus for paper, plastics and glass to facilitate waste-segregation and recycling.

- **Awareness and Behaviour-Change Campaigns**

- PTUK runs awareness seminars, exhibitions and campaigns for students and staff to promote the culture of recycling, reduced plastic/paper consumption, and general sustainability practices.
- Awareness campaigns, seminars and exhibitions are run to promote recycling, reduce plastic consumption and encourage reduced paper usage.
- Specifically, the “Program to Reduce the Use of Paper and Plastic on Campus” is identified in the 2023 Waste section of the Sustainability Report.

[3.2] Total volume of paper and plastic produced this year

Type of waste	amount (ton)		
	Produced		reduced
	Last year	This Year	
Plastic	51*	50*	1
- A (Soft)		32	
- B (Hard)		18	
Paper	45*	41*	4
- A			

- B			
- etc	6	2	4

**** The annual consumption of paper and plastic at Palestine Technical University (PTUK) has significantly decreased during the years 2023 and 2024. This reduction is primarily attributed to the university's extensive shift toward electronic and online learning systems implemented in 2023 and continued throughout 2024. The ongoing security situation and the impact of the war in Tulkarm Governorate have further contributed to a decline in on-campus attendance, resulting in fewer in-person academic and administrative activities. Consequently, the use of printed materials, disposable plastic products, and related supplies has dropped markedly during this period. Despite these challenges, PTUK remains committed to sustaining digital transformation initiatives and environmentally responsible practices that minimize resource consumption and support long-term sustainability goals.***

Description:

The actions adopted by PTUK in order to reduce plastic and paper are:

- **Digitalization of Administrative Services**

- PTUK implemented an electronic Human Resources Management System and more than 60 online student-forms, which has significantly reduced the need for printed paper for internal correspondence.
- All internal correspondence is carried out online, and exams are increasingly delivered online to cut paper usage.
- PTUK has adopted a campus-wide 3R scheme: separate bins for paper, plastics and glass are deployed. Paper shredding for reuse and partnering with recycling companies to collect waste paper (including old exams) are part of the effort.

- **Dual-Sided Printing & Paper Recycling**

- The university mandates printing on both sides of paper including exams, and works with a local paper recycling company to collect waste paper for recycling.
- Separate bins on campus for paper, plastics and glass to facilitate waste-segregation and recycling.

- **Awareness and Behaviour-Change Campaigns**

- PTUK runs awareness seminars, exhibitions and campaigns for students and staff to promote the culture of recycling, reduced plastic/paper consumption, and general sustainability practices.
- Awareness campaigns, seminars and exhibitions are run to promote recycling, reduce plastic consumption and encourage reduced paper usage.
- Specifically the "Program to Reduce the Use of Paper and Plastic on Campus" is identified in the 2023 Waste section of the Sustainability Report.

[3.3] Total volume of paper and plastic produced last year

Type of waste	amount (ton)		
	Produced		reduced
	Last year	This Year	
Plastic	51*	50*	1
- A (Soft)		32	
- B (Hard)		18	
Paper	45*	41*	4
- A			
- B			
- etc	6	2	4

**** The annual consumption of paper and plastic at Palestine Technical University (PTUK) has significantly decreased during the years 2023 and 2024. This reduction is primarily attributed to the university's extensive shift toward electronic and online learning systems implemented in 2023 and continued throughout 2024. The ongoing security situation and the impact of the war in Tulkarm Governorate have further contributed to a decline in on-campus attendance, resulting in fewer in-person academic and administrative activities. Consequently, the use of printed materials, disposable plastic products, and related supplies has dropped markedly during this period. Despite these challenges, PTUK remains committed to sustaining digital transformation initiatives and environmentally responsible practices that minimize resource consumption and support long-term sustainability goals.***

Description:

The actions adopted by PTUK in order to reduce plastic and paper are:

- **Digitalization of Administrative Services**

- PTUK implemented an electronic Human Resources Management System and more than 60 online student-forms, which has significantly reduced the need for printed paper for internal correspondence.
- All internal correspondence is carried out online, and exams are increasingly delivered online to cut paper usage.
- PTUK has adopted a campus-wide 3R scheme: separate bins for paper, plastics and glass are deployed. Paper shredding for reuse and partnering with recycling companies to collect waste paper (including old exams) are part of the effort.

- **Dual-Sided Printing & Paper Recycling**

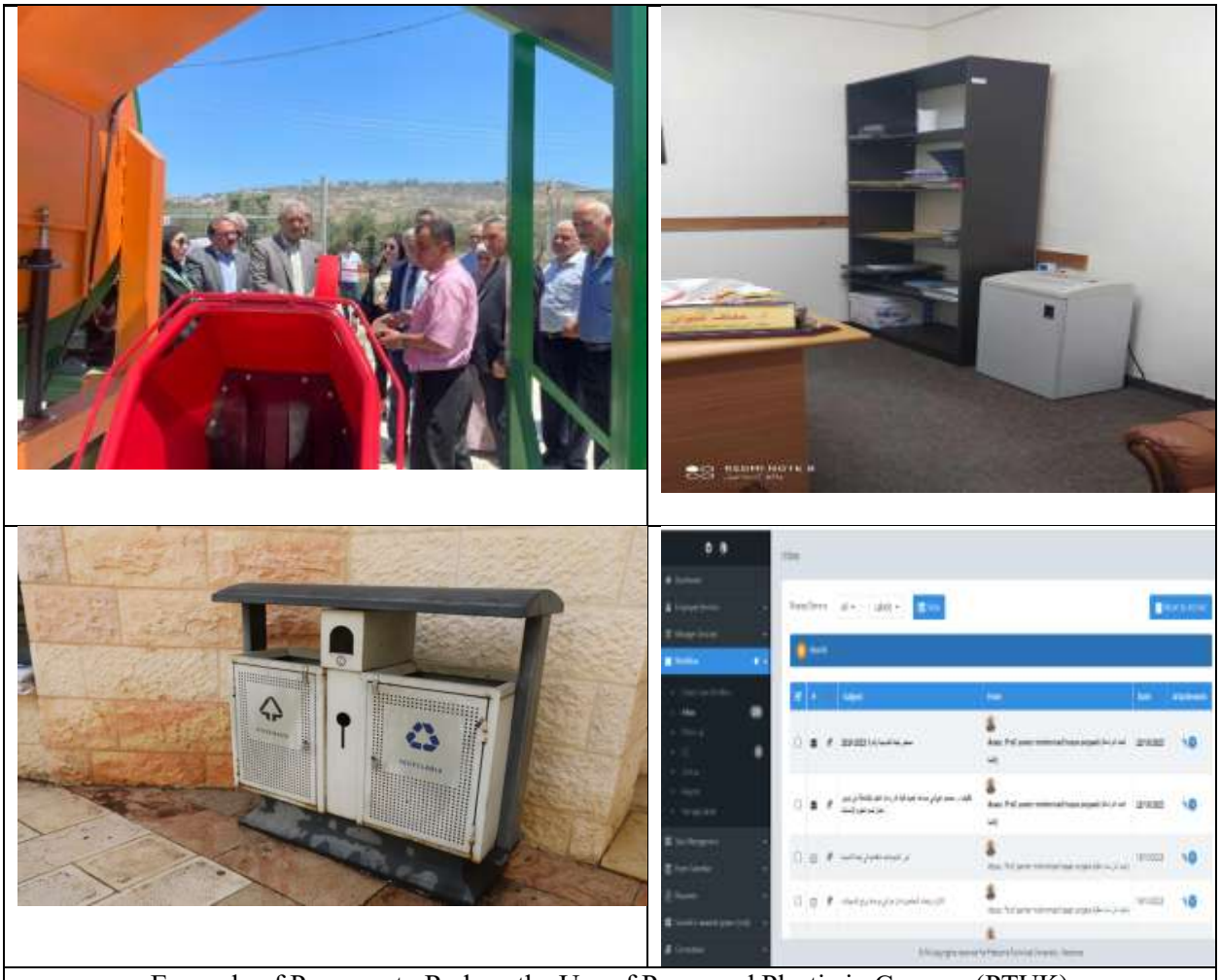
- The university mandates printing on both sides of paper including exams, and works with a local paper recycling company to collect waste paper for recycling.

- Separate bins on campus for paper, plastics and glass to facilitate waste-segregation and recycling.

- **Awareness and Behaviour-Change Campaigns**

- PTUK runs awareness seminars, exhibitions and campaigns for students and staff to promote the culture of recycling, reduced plastic/paper consumption, and general sustainability practices.
- Awareness campaigns, seminars and exhibitions are run to promote recycling, reduce plastic consumption and encourage reduced paper usage.
- Specifically the "Program to Reduce the Use of Paper and Plastic on Campus" is identified in the 2023 Waste section of the Sustainability Report.

[3.4] Program to Reduce the Use of Paper and Plastic on Campus



Example of Program to Reduce the Use of Paper and Plastic in Campus (PTUK)

Description:

The university works with a local paper recycling company. The waste paper including exams (After a certain period) are collected by the company for recycling. The university has a Human Resources management electronic corresponding system virtually cutting the use of paper by 70%. This system was built internally by university programmers. All correspondence is sent by this system. Students Also have more than 60 forms on line they can fill covering all their needs and requests. Staff are required to print on both sides of the paper including exams.

In order to further reduce paper, the university carries some of its largest exams on line. It also hosts awareness campaigns, seminars and exhibitions in order to emphasize the importance of recycling and thus introduce best practice among the students.

The university provides separate bins for plastics, paper and glass encouraging students to use this separation. The plastics are collected by a recycling company.

Organic waste from the cafeteria is reused as food supplement for the animals in the university. The cafeteria serves the food in small containers thus helping students to take left overs with them for later consumption.

As a summery, the actions adopted by PTUK in order to reduce plastic and paper are:

- **Digitalization of Administrative Services**

- PTUK implemented an electronic Human Resources Management System and more than 60 online student-forms, which has significantly reduced the need for printed paper for internal correspondence.
- All internal correspondence is carried out online, and exams are increasingly delivered online to cut paper usage.
- PTUK has adopted a campus-wide 3R scheme: separate bins for paper, plastics and glass are deployed. Paper shredding for reuse and partnering with recycling companies to collect waste paper (including old exams) are part of the effort.

- **Dual-Sided Printing & Paper Recycling**

- The university mandates printing on both sides of paper including exams, and works with a local paper recycling company to collect waste paper for recycling.
- Separate bins on campus for paper, plastics and glass to facilitate waste-segregation and recycling.

- **Awareness and Behavior-Change Campaigns**

- PTUK runs awareness seminars, exhibitions and campaigns for students and staff to promote the culture of recycling, reduced plastic/paper consumption, and general sustainability practices.

- Awareness campaigns, seminars and exhibitions are run to promote recycling, reduce plastic consumption and encourage reduced paper usage.
- Specifically, the "Program to Reduce the Use of Paper and Plastic on Campus" is identified in the 2023 Waste section of the Sustainability Report.

[3.5] Total volume organic waste produced

Type of waste	amuount (ton)				
	total	reduced	reused	down-cycled	up-cycled
organic	115*	14	87		
- food waste	35	7	28		
- leaf, etc.	59	6	52		
- etc	21	1	7		

: The amount of organic waste generated at Palestine Technical University (PTUK) has also noticeably declined during 2023 and 2024. This reduction is mainly due to the limited on-campus activities and the decreased number of students, staff, and visitors resulting from the ongoing security situation and the war conditions in the Tulkarm area. With fewer people utilizing university facilities such as cafeterias, dining areas, and student gathering spaces, the production of food and organic waste has dropped substantially. Furthermore, the university's continued reliance on remote learning and virtual operations has further minimized daily campus-generated organic waste. PTUK is committed to maintaining sustainable waste management practices and aims to integrate innovative waste reduction and composting initiatives once full campus operations resume.

Description:

The cafeteria is encouraged to reduce overbuying by keeping an accurate stock of the pantry and by planning what meals are available on what days beforehand. Creating meal plans gives the cafeteria a long term plans on the amounts needed for each plan. The university provides the cafeteria with an appropriate number of freezers and refrigerators to be used for storage.

The university looks to expand these initiatives in all three campuses and to further engage the local community.
Some of the organic foods are re used for our farm animals. Students are encouraged to take left overs with them for later consumption. Paper cups and utensils are used instead of plastic thus reducing non-biodegradable waste.

The Existing Programs & Initiatives to reduce the organic waste:

1. **Pilot composting and organic-waste valorisation project (DECOST)**
    - PTUK participated in the DECOST project helping the municipality of Anabta establish home/community composting systems to manage organic waste.
    - The program includes awareness-raising, house visits, and building local capacity for composting of household organic waste.
    - This indicates PTUK is engaged in *organic waste diversion* from regular waste streams.
2. **Use of organic waste for renewable-energy generation**
    - In PTUK's sustainability report, a biogas digester is installed at the campus greenhouse that uses organic waste (from cafeterias and agricultural residue) as feedstock.
    - This implies a reduction in organic waste entering general waste streams, and re-use of organic waste as energy feedstock.
3. **Sustainability Office and program integration**
    - PTUK has established a Sustainability Office (2022) to integrate sustainable practices university-wide.
    - Organic-waste reduction is a logical component of these practices, though not always quantified explicitly.

[3.6] Total volume organic waste produced last year

Type of waste	amount (ton)					
	Produced		reduced	Treated		
	Last year	This Year		reused	down-cycled	up-cycled
organic	128*	115*	14	87		
- food waste	42	35	7	28		
- leaf, etc.	64	59	6	52		
- etc	22	21	1	7		

: The amount of organic waste generated at Palestine Technical University (PTUK) has also noticeably declined during 2023 and 2024. This reduction is mainly due to the limited on-campus activities and the decreased number of students, staff, and visitors resulting from the ongoing security situation and the war conditions in the Tulkarm area. With fewer people utilizing university facilities such as cafeterias, dining areas, and student gathering spaces, the production of food and organic waste has dropped substantially. Furthermore, the university's continued reliance on remote learning and virtual operations has further minimized daily campus-generated organic waste. PTUK is committed to maintaining sustainable waste

management practices and aims to integrate innovative waste reduction and composting initiatives once full campus operations resume.

Description:

The Existing Programs & Initiatives to reduce the organic waste:

1. **Pilot composting and organic-waste valorisation project (DECOST)**
    - PTUK participated in the DECOST project helping the municipality of Anabta establish home/community composting systems to manage organic waste.
    - The program includes awareness-raising, house visits, and building local capacity for composting of household organic waste.
    - This indicates PTUK is engaged in *organic waste diversion* from regular waste streams.
2. **Use of organic waste for renewable-energy generation**
    - In PTUK's sustainability report, a biogas digester is installed at the campus greenhouse that uses organic waste (from cafeterias and agricultural residue) as feedstock.
    - This implies a reduction in organic waste entering general waste streams, and re-use of organic waste as energy feedstock.
3. **Sustainability Office and program integration**
    - PTUK has established a Sustainability Office (2022) to integrate sustainable practices university-wide.
    - Organic-waste reduction is a logical component of these practices, though not always quantified explicitly.

[3.7] Total volume organic waste treated

Type of waste	amount (ton)					
	Produced			Treated		
	Last year	This Year	reduced	reused	down-cycled	up-cycled
organic	128*	115*	14	87		
- food waste	42	35	7	28		
- leaf, etc.	64	59	6	52		
- etc	22	21	1	7		

****: The amount of organic waste generated at Palestine Technical University (PTUK) has also noticeably declined during 2023 and 2024. This reduction is mainly due to the limited on-campus activities and the decreased number of students, staff, and visitors resulting from the ongoing security situation and the war conditions in the Tulkarm area. With fewer people utilizing university facilities such as cafeterias, dining areas, and student gathering spaces, the production of food and organic waste has dropped substantially. Furthermore, the university's continued reliance on remote learning and virtual operations has further minimized daily campus-generated organic waste. PTUK is committed to maintaining sustainable waste***

management practices and aims to integrate innovative waste reduction and composting initiatives once full campus operations resume.

Description:

The reduction in organic waste comes largely by changing the culture and involving students. There were several initiatives carried out by the students these include all extra food from the staff and student's cafeteria is repackaged and sent to the local orphanage, wasted food is collected and sent to the university farm for animal feed. Students are encouraged to keep their leftovers for later consumption instead of throwing it away.

The university looks to expand these initiatives in all three campuses and to further engage the local community.

Furthermore, the treatment of organic waste is done by encouraging the farm to reuse the waste as compost or to be used to produce biogas in the university.

The university also encourages the cafeteria to use paper packaging and utensils instead of plastics.

The Existing Programs & Initiatives to reduce the organic waste:

1. **Pilot composting and organic-waste valorisation project (DECOST)**
    - PTUK participated in the DECOST project helping the municipality of Anabta establish home/community composting systems to manage organic waste.
    - The program includes awareness-raising, house visits, and building local capacity for composting of household organic waste.
    - This indicates PTUK is engaged in *organic waste diversion* from regular waste streams.
2. **Use of organic waste for renewable-energy generation**
    - In PTUK's sustainability report, a biogas digester is installed at the campus greenhouse that uses organic waste (from cafeterias and agricultural residue) as feedstock.
    - This implies a reduction in organic waste entering general waste streams, and re-use of organic waste as energy feedstock.
3. **Sustainability Office and program integration**
    - PTUK has established a Sustainability Office (2022) to integrate sustainable practices university-wide.
    - Organic-waste reduction is a logical component of these practices, though not always quantified explicitly.

[3.8] Organic Waste Treatment


DECOST
نشرة ارشادية
حول وحدات انتاج الكمبوست المنزلي
Compost الكمبوست
(الدبال)
بقايا
طعامك
«حياة»
لنربتك
مكب النفايات
VS
الكمبوست

Compost

Description:
Wasted food from the canteens is collected and sent to the university farm for animal feed. Students are encouraged to keep their leftovers for later consumption instead of throwing it away. Furthermore, the treatment of organic waste is done by encouraging the farm to reuse the waste as compost or to be used to produce biogas in the university.
Campaigns are also carried out by the university and students to increase the awareness of the importance of proper disposal of organic waste.

The university looks to expand these initiatives in all three campuses and by engaging the local community.

The Existing Programs & Initiatives to reduce the organic waste:

1. **Pilot composting and organic-waste valorisation project (DECOST)**
    - PTUK participated in the DECOST project helping the municipality of Anabta establish home/community composting systems to manage organic waste.
    - The program includes awareness-raising, house visits, and building local capacity for composting of household organic waste.
    - This indicates PTUK is engaged in *organic waste diversion* from regular waste streams.
2. **Use of organic waste for renewable-energy generation**
    - In PTUK's sustainability report, a biogas digester is installed at the campus greenhouse that uses organic waste (from cafeterias and agricultural residue) as feedstock.
    - This implies a reduction in organic waste entering general waste streams, and re-use of organic waste as energy feedstock.
3. **Sustainability Office and program integration**
    - PTUK has established a Sustainability Office (2022) to integrate sustainable practices university-wide.

- Organic-waste reduction is a logical component of these practices, though not always quantified explicitly.

[3.9] Total volume inorganic waste produced

Type of waste	amount (ton)					
	Produced		reduced	Treated		
	Last year	This Year		reused	down-cycled	up-cycled
inorganic non-toxic	102*	93*	9	66		
- paper	45	41	4	38		
- soft plastic	32	32	0	28		
- hard plastic	19	18	1	-		
- etc	6	2	4	-		

**** The annual consumption of paper and plastic at Palestine Technical University (PTUK) has significantly decreased during the years 2023 and 2024. This reduction is primarily attributed to the university's extensive shift toward electronic and online learning systems implemented in 2023 and continued throughout 2024. The ongoing security situation and the impact of the war in Tulkarm Governorate have further contributed to a decline in on-campus attendance, resulting in fewer in-person academic and administrative activities. Consequently, the use of printed materials, disposable plastic products, and related supplies has dropped markedly during this period. Despite these challenges, PTUK remains committed to sustaining digital transformation initiatives and environmentally responsible practices that minimize resource consumption and support long-term sustainability goals.***

Description:

Achieving this Percentage of reduction of inorganic waste comes through the university's tireless efforts to spread the culture of reducing dependence on non-organic materials in daily practices through:

- Raise awareness about the importance to decrease the dependency on inorganic waste.
- Using reusable alternatives (water bottles, containers, shopping bags,…)
- Using products that minimize using packaging waste
- Depending on electronic exams instead of paper based exams.
- Depending on durable products that can easily be repaired.
- Depending on products that lasts for long time.
- Trying to depend on products that can be recycled especially for electrical appliances.
- Limiting the dependency on single use plastic products.
- Using cleaning products that packaged in recyclable containers.
- Depending on products that manufactured from companies that have commitment to reduce waste.

The inorganic treatment procedures adopted by the university focus mainly on the reuse culture of the waste especially for bottles, containers, and bags. In addition, the following adopted procedure contribute to reuse (treat) of inorganic waste:

- Using separate containers for inorganic waste products (Paper, Plastic, metals, glass,..) in order to recycle these materials by turning them into new products. They are sold to scrap dealers and facilities that recycle these materials.
- Using inorganic waste materials for other purposes like art projects.
- Reusing some inorganic waste materials mainly concrete in other construction projects (basement material).
- Some of lab equipment that are replaced by other more recent equipment that should suit and be in-line with the recent technologies are denoted to schools centers that benefit from these equipment instead of landfilling them.
- Denoting some of constructional building materials (doors and windows) that are replaced by other to the local community that can benefit from them.

The actions adopted by PTUK in order to reduce plastic and paper are:

- **Digitalization of Administrative Services**

- PTUK implemented an electronic Human Resources Management System and more than 60 online student-forms, which has significantly reduced the need for printed paper for internal correspondence.
- All internal correspondence is carried out online, and exams are increasingly delivered online to cut paper usage.
- PTUK has adopted a campus-wide 3R scheme: separate bins for paper, plastics and glass are deployed. Paper shredding for reuse and partnering with recycling companies to collect waste paper (including old exams) are part of the effort.

- **Dual-Sided Printing & Paper Recycling**

- The university mandates printing on both sides of paper including exams, and works with a local paper recycling company to collect waste paper for recycling.
- Separate bins on campus for paper, plastics and glass to facilitate waste-segregation and recycling.

- **Awareness and Behaviour-Change Campaigns**

- PTUK runs awareness seminars, exhibitions and campaigns for students and staff to promote the culture of recycling, reduced plastic/paper consumption, and general sustainability practices.
- Awareness campaigns, seminars and exhibitions are run to promote recycling, reduce plastic consumption and encourage reduced paper usage.

Specifically the "Program to Reduce the Use of Paper and Plastic on Campus" is identified in the 2023 Waste section of the Sustainability

[3.10] Total volume inorganic waste produced last year

Type of waste	amount (ton)					
	Produced		reduced	Treated		
	Last year	This Year		reused	down-cycled	up-cycled
inorganic non-toxic	102*	93*	9	66		
- paper	45	41	4	38		
- soft plastic	32	32	0	28		

- hard plastic	19	18	1	-		
- etc	6	2	4	-		

**** The annual consumption of paper and plastic at Palestine Technical University (PTUK) has significantly decreased during the years 2023 and 2024. This reduction is primarily attributed to the university's extensive shift toward electronic and online learning systems implemented in 2023 and continued throughout 2024. The ongoing security situation and the impact of the war in Tulkarm Governorate have further contributed to a decline in on-campus attendance, resulting in fewer in-person academic and administrative activities. Consequently, the use of printed materials, disposable plastic products, and related supplies has dropped markedly during this period. Despite these challenges, PTUK remains committed to sustaining digital transformation initiatives and environmentally responsible practices that minimize resource consumption and support long-term sustainability goals.***

Description:

Achieving this Percentage of reduction of inorganic waste comes through the university's tireless efforts to spread the culture of reducing dependence on non-organic materials in daily practices through:

- Raise awareness about the importance to decrease the dependency on inorganic waste.
- Using reusable alternatives (water bottles, containers, shopping bags,…)
- Using products that minimize using packaging waste
- Depending on electronic exams instead of paper based exams.
- Depending on durable products that can easily be repaired.
- Depending on products that lasts for long time.
- Trying to depend on products that can be recycled especially for electrical appliances.
- Limiting the dependency on single use plastic products.
- Using cleaning products that packaged in recyclable containers.
- Depending on products that manufactured from companies that have commitment to reduce waste.

The inorganic treatment procedures adopted by the university focus mainly on the reuse culture of the waste especially for bottles, containers, and bags. In addition, the following adopted procedure contribute to reuse (treat) of inorganic waste:

- Using separate containers for inorganic waste products (Paper, Plastic, metals, glass,) in order to recycle these materials by turning them into new products. They are sold to scrap dealers and facilities that recycle these materials.
- Using inorganic waste materials for other purposes like art projects.
- Reusing some inorganic waste materials mainly concrete in other construction projects (basement material).
- Some of lab equipment that are replaced by other more recent equipment that should suit and be in-line with the recent technologies are denoted to school's centers that benefit from this equipment instead of landfilling them.
- Denoting some of constructional building materials (doors and windows) that are replaced by other to the local community that can benefit from them.

The actions adopted by PTUK in order to reduce plastic and paper are:

- **Digitalization of Administrative Services**

- PTUK implemented an electronic Human Resources Management System and more than 60 online student-forms, which has significantly reduced the need for printed paper for internal correspondence.
- All internal correspondence is carried out online, and exams are increasingly delivered online to cut paper usage.
- PTUK has adopted a campus-wide 3R scheme: separate bins for paper, plastics and glass are deployed. Paper shredding for reuse and partnering with recycling companies to collect waste paper (including old exams) are part of the effort.

- **Dual-Sided Printing & Paper Recycling**

- The university mandates printing on both sides of paper including exams, and works with a local paper recycling company to collect waste paper for recycling.
- Separate bins on campus for paper, plastics and glass to facilitate waste-segregation and recycling.

- **Awareness and Behavior-Change Campaigns**

- PTUK runs awareness seminars, exhibitions and campaigns for students and staff to promote the culture of recycling, reduced plastic/paper consumption, and general sustainability practices.

- Awareness campaigns, seminars and exhibitions are run to promote recycling, reduce plastic consumption and encourage reduced paper usage.

Specifically, the “Program to Reduce the Use of Paper and Plastic on Campus” is identified in the 2023 Waste section of the Sustainability

[3.11] Inorganic Waste Treatment

Plastic recycling

Description:

Achieving this Percentage of reduction of inorganic waste comes through the university's tireless efforts to spread the culture of reducing dependence on non-organic materials in daily practices through:

- Raise awareness about the importance to decrease the dependency on inorganic waste.
- Using reusable alternatives (water bottles, containers, shopping bags,…)
- Using products that minimize using packaging waste
- Depending on electronic exams instead of paper based exams.
- Depending on durable products that can easily be repaired.
- Depending on products that lasts for long time.
- Trying to depend on products that can be recycled especially for electrical appliances.
- Limiting the dependency on single use plastic products.
- Using cleaning products that packaged in recyclable containers.
- Depending on products that manufactured from companies that have commitment to reduce waste.

The inorganic treatment procedures adopted by the university focus mainly on the reuse culture of the waste especially for bottles, containers, and bags. In addition, the following adopted procedure contribute to reuse (treat) of inorganic waste:

- Collecting the inorganic waste by a local company for recycling, the waste is separated in the university as daily waste. This includes paper, plastic, glass etc. and electronic toxic waste such as ink cartridges, laboratory equipment's, printers etc. The electronic waste is stored in the university and at certain times of the year is collected by a company while the daily waste is collected by a recycling company or the municipality.
- Using separate containers for inorganic waste products (Paper, Plastic, metals, glass,..) in order to recycle these materials by turning them into new products. They are sold to scrap dealers and facilities that recycle these materials.
- Using inorganic waste materials for other purposes like art projects.
- Reusing some inorganic waste materials mainly concrete in other construction projects (basement material).
- Some of lab equipment that are replaced by other more recent equipment that should suit and be in-line with the recent technologies are denoted to schools centers that benefit from these equipment instead of landfilling them.
- Denoting some of constructional building materials (doors and windows) that are replaced by other to the local community that can benefit from them.

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Specifically the “Program to Reduce the Use of Paper and Plastic on Campus” is identified in the 2023 Waste section of the Sustainability

[3.12] Total volume toxic waste produced

Treatment of chemical materials

Treatment of chemical materials

Treatment of chemical materials

Treatment of chemical materials

Type of waste	amount (ton)					
	Produced		reduced	Treated		
	Last year	This Year		reused	down-cycled	up-cycled
toxic	0.34*	0.31*	0.03** (treated)			
- electronics	0.16	0.14	0.02			
- lab. Chemicals	0.18	0.17	0.01			
- etc						

*: *The total amount of toxic waste, including electronic waste and laboratory chemical residues, has remained low at Palestine Technical University (PTUK) during 2023 and 2024. This reduction* ***is mainly due to the limited on-campus***

activities and the decreased number of students, staff, and visitors *resulting from the ongoing security situation and the war conditions in the Tulkarm area.* ***Another main reason for these small quantities is that PTUK does not currently offer any accredited medical programs that would typically generate significant quantities of hazardous biological or chemical waste.*** *The existing health-related programs at the university* ***are limited to newly established allied medical disciplines, which have not yet reached the stage of utilizing advanced medical laboratories that require specialized hazardous waste management****.*

: *PTUK has* ***a formal agreement with a certified waste management company to ensure the safe collection, transportation, and treatment of all toxic and chemical waste produced on campus. *This partnership supports the university's commitment to environmental safety and compliance with national waste disposal regulations.*

Description:

The toxic waste is divided into two parts. Electronic waste collected by a specialist company every few months. The second is waste from chemical and medical labs. The chemical and the medical labs have strict procedure on waste disposal and is monitored by the local health administration. These procedures are taught to students and lab supervisors from day one. There are forms to be filled thus allowing tracking of the procedure to be easily monitored.

Existing Programs & Initiatives

- According to PTUK's 2022 Sustainability Report, the university states that **toxic chemical waste from labs** is treated and disposed of according to international standards (e.g., dilution of low-concentration acids/bases, addition of sulfur to mercury before disposal).
- The same report says that **electronic waste (e-waste)** (old computers, broken devices) is stored in a safe designated facility and then removed through a contracted local company.
- These statements show that PTUK has a formal system for handling hazardous electronics and lab-chemical waste—an important starting point.

[3.13] Total volume toxic waste produced last year

Type of waste	amount (ton)					
	Produced		reduced	Treated		
	Last year	This Year		reused	down-cycled	up-cycled
toxic	0.34*	0.31*	0.03** (treated)			
- electronics	0.16	0.14	0.02			
- lab. Chemicals	0.18	0.17	0.01			
- etc						

*: *The total amount of toxic waste, including electronic waste and laboratory chemical residues, has remained low at Palestine Technical University (PTUK) during 2023 and 2024. This reduction* ***is mainly due to the limited on-campus activities and the decreased number of students, staff, and visitors*** *resulting from the ongoing security situation and the war conditions in the Tulkarm area.* ***Another main reason for these small quantities is that PTUK does not currently offer any accredited medical programs that would typically generate significant quantities of hazardous biological or chemical waste.*** *The existing health-related programs at the university* ***are limited to newly established allied medical disciplines, which have not yet reached the stage of utilizing advanced medical laboratories that require specialized hazardous waste management****.*

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Description:

The toxic waste is divided into two parts. Electronic waste collected by a specialist company every few months. The second is waste from chemical and medical labs. The chemical and the medical labs have strict procedure on waste disposal and is monitored by the local health administration. These procedures are taught to students and lab supervisors from day one. There are forms to be filled thus allowing tracking of the procedure to be easily monitored.

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- The same report says that **electronic waste (e-waste)** (old computers, broken devices) is stored in a safe designated facility and then removed through a contracted local company.
- These statements show that PTUK has a formal system for handling hazardous electronics and lab-chemical waste—an important starting point.

[3.14] Total volume toxic waste treated

Type of waste	amount (ton)					
	Produced			Treated		
	Last year	This Year	reduced	reused	down-cycled	up-cycled
toxic	0.34*	0.31*	0.03** (treated)	0.03**		
- electronics	0.16	0.14	0.02			
- lab. Chemicals	0.18	0.17	0.01			
- etc						

*: *The total amount of toxic waste, including electronic waste and laboratory chemical residues, has remained low at Palestine Technical University (PTUK) during 2023 and 2024. This reduction* ***is mainly due to the limited on-campus activities and the decreased number of students, staff, and visitors*** *resulting from the ongoing security situation and the war conditions in the Tulkarm area.* ***Another main reason for these small quantities is that PTUK does not currently offer any accredited medical programs that would typically generate significant quantities of hazardous biological or chemical waste.*** *The existing health-related programs at the university* ***are limited to newly established allied medical disciplines, which have not yet reached the stage of utilizing advanced medical laboratories that require specialized hazardous waste management****.*

: *PTUK has* ***a formal agreement with a certified waste management company to ensure the safe collection, transportation, and treatment of all toxic and chemical waste produced on campus.* *This partnership supports the university's commitment to environmental safety and compliance with national waste disposal regulations.*

Description:
The toxic waste from chemical labs is treated and got rid off according to international standards. For example, low concentration acid bases are further diluted in water until its concentration is no longer harmful the wasted
Highly toxic unsafe material such as mercury we add sulfur (international protocol) before getting rid of it

Brome remains are mixed with sodium before getting rid of it
Brocken glasses, empty chemical bottles are stored in special university stores and then the university administration gets rid of it through a local company

Electronic waste is stored in a safe storage facility and then got rid off by the administration through a local company. Being a government university these companies are contracted with the government.

Medical waste is also treated according to our local standards under the strict supervision of the health department.

Existing Programs & Initiatives

- According to PTUK's 2022 Sustainability Report, the university states that **toxic chemical waste from labs** is treated and disposed of according to international standards (e.g., dilution of low-concentration acids/bases, addition of sulfur to mercury before disposal).
- The same report says that **electronic waste (e-waste)** (old computers, broken devices) is stored in a safe designated facility and then removed through a contracted local company.
- These statements show that PTUK has a formal system for handling hazardous electronics and lab-chemical waste—an important starting point.

[3.15] Toxic Waste Treatment

Treatement of chemical toxic materials

Treatement of chemical toxic materials

Description:

The toxic waste from chemical labs is treated and got rid off according to international standards. For example, low concentration acid bases are further diluted in water until its concentration is no longer harmful the wasted
Highly toxic unsafe material such as mercury we add sulfur (international protocol) before getting rid of it

Brome remains are mixed with sodium before getting rid of it
Brocken glasses, empty chemical bottles are stored in special university stores and then the university administration gets rid of it through a local company

Electronic waste is stored in a safe storage facility and then got rid off by the administration through a local company. Being a government university these companies are contracted with the government.

Medical waste is also treated according to our local standards under the strict supervision of the health department.

PTUK has a formal agreement with a certified waste management company to ensure the safe collection, transportation, and treatment of all toxic and chemical waste produced on campus. This partnership supports the university's commitment to environmental safety and compliance with national waste disposal regulations.

Existing Programs & Initiatives

- According to PTUK's 2022 Sustainability Report, the university states that **toxic chemical waste from labs** is treated and disposed of according to international standards (e.g., dilution of low-concentration acids/bases, addition of sulfur to mercury before disposal).
- The same report says that **electronic waste (e-waste)** (old computers, broken devices) is stored in a safe designated facility and then removed through a contracted local company.
- These statements show that PTUK has a formal system for handling hazardous electronics and lab-chemical waste—an important starting point.

[3.16] Sewage Disposal

Irrigation using treated sewage water

Irrigation using treated sewage water

Irrigation using treated sewage water

Example of Sewage Disposal (PTUK)

Description:

Palestine Technical University has adopted **advanced wastewater management practices through the implementation of tertiary treatment systems**, representing a significant step toward environmental sustainability and efficient resource utilization. This process involves the **removal of residual organic materials after secondary treatment, followed by disinfection using chlorine, ultraviolet (UV) radiation, or ozone to ensure complete elimination of biological contaminants**. The treated water is then safely **reused for irrigation**, and cleaning applications within the campus, significantly reducing freshwater consumption and wastewater discharge. This approach supports the university's commitment to the circular economy in water management, aligns with SDG 6 (Clean Water and Sanitation).

The university regularly carries out sewage maintenance. The water is sent to a treatment plant on campus. The treated water is used for forest irrigation. There is a water well on campus, it is used to water the vegetables planted on campus.
The university has several ambitious projects in this area. These include creation of a solar power station for the water treatment plant and for the irrigation system from the well. Another project is to increase the amount of rain water collected in ponds to be used for irrigation.

The university is applying for funds to update the water treatment and increase the amount of water treated.

In addition:

- PTUK carries out **regular sewage maintenance** on campus. Their wastewater is treated at an on-campus treatment plant, and the **treated water is reused for forest irrigation** on campus.
- The Sustainability Report indicates PTUK is planning or has underway **ambitious projects** related to sewage disposal and reuse: e.g., **solar power station to power the water treatment plant and the irrigation system**, and expanding rainwater-collection ponds to increase the water available for irrigation.
- Under the university's commitment to SDG 6 (Clean Water & Sanitation), PTUK has included wastewater treatment and reuse among its strategies for conserving and rationalizing water usage

[3.17] Planning, implementation, monitoring and/or evaluation of all programs related to Waste Management through the utilization of Information and Communication Technology (ICT)

Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	Develop strategies, for waste reduction 3R (reduce, reuse and recycle)	Waste audit software, development of Human, resources system and Management learning systems as well as on line registration systems.	Strategic plan documents, waste audit reports	Jan 2024 – on going	Sustainability Office, ICT Department, planning department
Implementation	Install recycling bins, initiate waste segregation, Contracts with green disposable companies	RFID (Radio frequency identification) tags for bins, waste management software	Installation logs, waste segregation reports	Jan 2024 – on going	Sustainability Office, ICT Department, planning department, maintenance department
Monitoring	Track waste collection and recycling rates	Smart waste bins, RFID monitoring	Recycling rate reports, efficiency analytics	Ongoing	Sustainability Office, ICT Department, planning department, maintenance department
Evaluation	Assess effectiveness of 3R (reduce, reuse and recycle) program	Data analysis tools, feedback systems	Program evaluation reports, stakeholder feedback	Annually	Sustainability Office, ICT Dept

Smart waste bins with real-time tracking software to monitor waste collection

Description:

- **Planning:**

  Develop a comprehensive 3R (reduce, reuse and recycle) strategy and set measurable targets for waste reduction. Use waste audit software and data analytics tools to analyse current waste generation and identify areas for improvement. The waste includes organic waste. The university developed different systems to reduce paper waste and other waste.

- **Implementation:**

  Install recycling bins across the campus and initiate waste segregation programs. Employ RFID tags for bins to monitor usage and waste

management software to track waste segregation. Install a system to reduce and reuse organic waste.

- **Monitoring:**

  Track the collection and recycling rates of waste. Possible Use of smart waste bins with real-time tracking software to monitor waste collection in the future.

- **Evaluation:**

  Assess the effectiveness of the 3R program. Utilize data analysis tools and feedback systems to evaluate the program.

Palestine Technical University (PTUK) has established a systematic review and update process for its ICT-based waste management program. This involves forming a dedicated sustainability and ICT taskforce to analyze annual waste generation data—including solid, organic, and electronic waste—collected through digital monitoring systems. The university has to use this data to identify gaps, inefficiencies, and new technological opportunities such as smart waste-tracking tools, digital dashboards for waste segregation, and real-time reporting applications. Based on these findings, PTUK should revise and update its waste management policy, procedures, and awareness programs to ensure continuous improvement. Incorporating feedback from students, staff, and maintenance units will help align the revised program with current sustainability goals and national environmental standards, ensuring the effective and adaptive use of ICT in reducing waste generation and improving overall campus sustainability.

[3.18] Impact of Waste Management programs in supporting the Sustainable Development Goals (SDGs)

Example

Description:

PTUK's **waste-management activities** (campus waste-segregation & recycling, composting project, student training workshops, municipal partnerships, applied research and curriculum in environmental/agricultural programs, and cooperation with private recyclers) support each SDG.

PTUK's pilot Waste projects create livelihood and opportunities (collection, sorting, compost sales, recycling services) and reduce household waste-management costs when extended to the local municipalities through PTUK partnerships. PTUK's composting and organic-manure initiatives convert organic waste into soil amendments used in agriculture and university farms — improving soil fertility, reducing fertilizer costs and supporting sustainable food production. Through small initiatives bio-gas is produced to be used for heating and even cooking. Proper waste segregation, disposal and recycling reduce pollutant exposure and open-dumping risks (lowering disease transmission and localized pollution). Awareness workshops and community outreach further improve public-health practices.All these projects and awareness campaigns help in lowering contamination risks for surface and ground water and supports safer sanitation and irrigation practices.(SDG 1,2,3,6)

PTUK is one of the leading universities on agriculture and environment research. Waste management is embedded in PTUK curricula (environmental & agricultural programs), student workshops (plastic/paper/clothe recycling), for both females and males, and applied research—training graduates with practical waste-management skills and community outreach experience. Female training empowers their ability to participate and often lead small projects locally. Outreach and municipality projects target underserved towns (Anabta, Tulkarm area), extending waste-service

access and training to communities that previously lacked proper waste services—reducing regional service inequalities. Also through its different locations the universities campuses help reduce inequalities (SDG 4,5,10)

Waste-to-energy potential (biogas, and energy recovery from organic fractions) is a subject of applied research in the region; PTUK's compost/organic-waste projects and research point to valorization pathways for energy from waste PTUK's training, cooperative partnerships (e.g., with Thnaba Cooperative) and recycling initiatives create green-job pathways (collection, sorting, recycling enterprises, compost production) and support small businesses in the sector. This helps develop locally appropriate waste-management infrastructure and innovation (e.g., decentralized compost units). pilot composting infrastructure and partnerships with private recyclers are also new schemes and initiatives. PTUK's role in local waste management projects (joint services council, cooperative work) and demonstration of composting & recycling contribute to cleaner, more resilient local communities (SDG 7,8,9,11).

Waste-segregation on campus, paper-recycling contracts, student recycling training, and organic waste valorization (compost) are all concrete practices that reduce waste generation, increase reuse/recycling rates and promote circular approaches to resources. PTUK's sustainability report explicitly recommends campus segregation and recycling measures. Diverting organics from landfills and promoting composting/biomass valorization lowers methane emissions; improved waste systems reduce greenhouse-gas intensity of municipal services. PTUK's applied projects and research into waste-to-energy and life-cycle analyses support various mitigation actions aimed at reducing environmental impact. PTUK's inland waste projects reduce land-contamination and support healthier terrestrial ecosystems and agricultural land but have only marginal, indirect effects on marine ecosystems; however improved solid-waste and plastics management reduces the risk of plastics and pollutants reaching waterways and, eventually, the sea. (12,13,14,15).

By partnering with municipalities, NGOs and joint services councils and by providing technical expertise, PTUK strengthens local governance capacity for solid-waste management and institutional coordination—key for transparent, reliable municipal services. PTUK's work and collaborations with national environmental authorities and international partners through international projects illustrate strong multi-stakeholder partnerships that mobilize resources, technology transfer and knowledge sharing. (SDG 16,17)

Program	Program Name	Description	SDGs	Green Metric Item Mapping
P1	Zero Waste Campus	The project aims to achieve integrated waste management on campus by promoting practices such as sorting, recycling, and consumption reduction. It focuses on transforming waste into sustainable resources, reflecting PTUK vision of an eco-friendly campus striving toward zero waste.	SDG 11 SDG 12 SDG 13	[1.23] ICT-based monitoring and evaluation (SI.11) [1.24] Impact of SI programs on SDGs [3.1] 3R Program [3.4] Reduce Paper/Plastic (WS.2) [3.8] Organic Waste Treatment (WS.3) [3.12] Inorganic Waste Treatment (WS.4) [3.18] ICT in Waste Management (WS.7) [3.19] Impact of Waste Management on SDGs [2.10] Greenhouse Gas Emission Reduction (EC.7) [2.14] Impactful university programs on climate change (EC.10) [6.11] Number of sustainability-related events (ED.4) [6.12] Student activities related to sustainability (ED.5) [6.19] Community service projects involving students (ED.10) [6.26] Impact on SDGs
P2	Alternative Energy Initiative	The project aims to generate clean energy from unconventional sources, such as organic waste and solar power, to reduce reliance on fossil fuels. It focuses on enhancing energy efficiency and transforming waste into energy resources, in line with PTUK vision for energy independence and comprehensive environmental sustainability.	SDG 7 SDG 12 SDG 13	[1.23] ICT-based planning and monitoring (SI.11) [1.24] Impact on SDGs [2.5] Renewable Energy Sources in Campus [2.10] Greenhouse Gas Emission Reduction (EC.7) [2.13] Innovative Programs in Energy and Climate Change (EC.9) [2.14] Impactful University Programs on Climate Change (EC.10) [3.5] Total volume of organic waste produced this year [3.7] Total volume of organic waste treated this year

				[3.12] Inorganic Waste Treatment (WS.4) [3.8] Organic Waste Treatment (WS.3) [3.12] Inorganic Waste Treatment (WS.4) [3.18] ICT in monitoring (WS.7) [3.19] Impact of Waste Management Programs on SDGs [6.5] Research Funds Dedicated to Sustainability Research [6.19] Community Service Projects involving Students (ED.10) [6.26] Impact on SDGs
P3	Green University Lab	The project aims to develop a sustainable and safe laboratory environment that utilizes modern technologies to reduce energy and chemical consumption. It focuses on promoting environmentally friendly practices in research and scientific experiments, in line with PTUK vision for innovative laboratories that support sustainable education and responsible research.	SDG 9 SDG 12 SDG 13	[1.21] Health Infrastructure Facilities for Wellbeing (SI.9) [1.23] ICT-based planning, monitoring and/or evaluation (SI.11) [1.24] Impact on SDGs [2.1] Energy Efficient Appliances Usage (EC.1) [2.3] Smart Building Implementation (EC.2) [2.9] Green Building Elements (EC.6) [3.13] Total volume of toxic waste produced this year [3.15] Total volume of toxic waste treated this year [3.16] Toxic Waste Treatment (WS.5) [3.17] Sewage Disposal (WS.6) [3.18] ICT-based monitoring and evaluation (WS.7) [3.19] Impact of Waste Management on SDGs [4.1] Water Conservation Program (WR.1) [4.5] Water Pollution Control (WR.5) [6.1] Number of sustainability-related courses (ED.1) [6.5] Research Funds Dedicated to Sustainability Research

				[6.11] Number of sustainability-related events (ED.4) [6.26] Impact on SDGs
P4	Smart Learning Initiative	The initiative aims to leverage modern digital technologies in the educational process through interactive learning environments that support self-directed learning and academic creativity. It focuses on integrating smart systems in teaching and assessment to enhance learning quality and the student experience, in line with PTUK vision as a leader in smart and sustainable education.	SDG 4 SDG 9 SDG 11	[3.1] 3R Program (Reduce, Reuse, Recycle) [3.4] Reduce Paper/Plastic Usage (WS.2) [3.18] ICT-based monitoring and evaluation (WS.7) [3.19] Impact of Waste Management Programs on SDGs [2.14] Impactful university programs on climate change (EC.10) [1.23] ICT-based planning, implementation, monitoring (SI.11) [1.24] Impact of SI programs in supporting SDGs [6.11] Number of sustainability-related events (ED.4) [6.25] ICT-based governance (ED.14) [6.26] Impact on SDGs
P5	University Resource Recovery Project	The project aims to transform university waste into valuable economic and environmental resources through the application of recycling and sustainable treatment technologies. It focuses on promoting the concept of a circular economy on campus, in line with PTUK vision as an innovative institution that turns waste into energy, knowledge, and added value.	SDG 8 SDG 12 SDG 13	[3.1] 3R Program Program to Reduce Paper [3.4] and Plastic Use (WS.2) [3.18] SDG Impact Impact of Waste [3.19] Management on SDGs Number of sustainability- [6.11] related events (ED.4) Student activities related to [6.12] sustainability (ED.5) Community service [6.19] projects involving students (ED.10) Impact of Education and [6.26] Research on SDGs Impact of SI programs in [1.24] supporting SDGs Impactful University [2.14] Program on Climate Change (EC.10)

[4] Water (WR)

[4.1] Water Conservation Program Implementation

Automatic Irrigation and Fertilization

Constructing an about 500 m3 water tank for the university

Water research

University water well rehabitation

Constructing an about 500 m3 water tank for the university

Water collection lake from rain and sewage treated water

University and Location	Average Rainfall (mm/year)	Number of Reservoirs	Capacity of Reservoirs (liters)	Number of bonds	Capacity of bonds (liters)	Number of Recharging Pits	Capacity of Recharging Pits (liters)
PTUK-Main Campus - Tulkarm	615	2	200000	1	120000	2	110000
PTUK-Ramallah Campus	745	1	80000	0	0	1	90000
PTUK-Aroub Campus	520	1	80000	0	0	1	90000

Description:

The university aims to have all its buildings with separated sewerage system, for waste water and for clean water (rainwater). Rain water is collectedHarvested from the roofs of the buildings and is then discharged into the local ponds and wells around the campus. The university currently has on pond and a deep well used for plant irrigation and is looking for funding to increase the number of bonds and wells.

The university also hopes in the future when some of these bonds can supply the buildings for toilet flushing and general cleaning.

Through an international project the university began to experiment water plantation and smart irrigation using water droplets. The source of the water is from the wells and the bonds also . the university has currently several international projects on water conservation and farming these include

1- Innovation in water education. Enhancing water security and socio-economic development in the eastern Mediterranean under climate changes 2021

2- Introduction feasible and sustainable hydro-agriculture systems to benefit poor people in urban Palestinian areas

To summarize, Palestine Technical University – Kadoorie (PTUK) **adopts an integrated approach to water management that seeks to maximize the efficient use of all available water sources on campus**. The university utilizes **municipal water primarily for drinking and laboratory use**, while **treated wastewater from the on-campus treatment plant is reused for irrigating green areas, forest zones, and for general cleaning purposes**, thereby reducing dependence on fresh water. Additionally, **rainwater collected from building rooftops is directed to local ponds and deep wells for subsequent use in irrigation and non-potable applications**. PTUK is also exploring **the use of greywater systems to further support landscape irrigation in the future**.

As the university farms are close to the university buildings, a significant amount of rain water is redirected to irrigate the trees maximizing the rain water utilization.

This diversification of water sources not only promotes water conservation but also strengthens the university's commitment to sustainability and resource efficiency, aligning with national priorities and the Sustainable Development Goal (SDG 6) on clean water and sanitation.

The Existing Programs & Initiatives dedicated for water conservation and best use:

- **Regarding rainwater collection systems**

PTUK collects rainwater from building roofs and discharges it into campus reservoirs and ponds and wells, with the aim of later using it for irrigation, toilet flushing, or cleaning.

- The university currently has 4 reservoirs, one bond, 4 recharging pits, and a deep well used for plant irrigation.
- It is also seeking funding to increase the number of ponds and wells for rainwater collection.
- The university aims to have all its buildings with separated sewerage system, for wastewater and for clean water (rainwater). Rain water is collected from the roofs of the buildings and is then discharged into the local ponds, recharging bits, and wells around the campus.

- **Regarding smart irrigation systems using collected water**

- PTUK has started experimenting with "water plantation and smart irrigation and fertilization using water droplets" (i.e., drip irrigation) with sources from wells and rainwater collection.
- They have installed water efficient appliances (e.g., low-flush toilets, sensor taps) as part of water conservation strategy.

 Wastewater reuse for landscaping and cleaning

- PTUK's wastewater treatment plant treats sewage; the treated water is used for forest irrigation, general cleaning, and fountains.
- While not strictly rainwater, it shows the institutional emphasis on re-use of non-potable water and integrated water-management approach.
- Expand using Greywater systems to further support landscape irrigation. It is used nowadays with small extent.

 Academic and project initiatives on water security

- PTUK participates in sustain international projects on water conservation, for example "Innovation in water education: Enhancing water security and socio-economic development in the eastern Mediterranean under climate change 2021". It started 2021 and continuous until now/

- These programs provide opportunity for linking rainwater harvesting, campus water systems, and climate-resilience research.

[4.2] Water Recycling Program Implementation

Description:

The university has a treatment plant for sewage recycling The treated water is used for forest irrigation There is a rain water well on campus, it is used to water the vegetables planted on campus. The university is also working on creating new bonds for rain water collection to be used for cleaning, flushing and irrigation

Through an international project the university began to experiment water plantation and smart irrigation using water droplets. The source of the water is from the wells and the bonds also . the university has currently several international projects on water conservation and farming.

Palestine Technical University – Kadoorie (PTUK) **adopts an integrated approach to water management that seeks to maximize the efficient use of all available water sources on campus**. The university utilizes **municipal water primarily for drinking and laboratory use**, while **treated wastewater from the on-campus treatment plant is reused for irrigating green areas, forest zones, and for general cleaning purposes**, thereby reducing dependence on fresh water. Additionally, **rainwater collected from building rooftops is directed to local ponds and deep wells for subsequent use in irrigation and non-potable applications**. PTUK is also exploring **the use of greywater systems to further support landscape irrigation in the future**.

As the university farms are close to the university buildings, a significant amount of rain water is redirected to irrigate the trees maximizing the rain water utilization.

The Existing Programs & Initiatives dedicated for water conservation and best use:

- **Regarding rainwater collection systems**

PTUK collects rainwater from building roofs and discharges it into campus reservoirs and ponds and wells, with the aim of later using it for irrigation, toilet flushing, or cleaning.

- The university currently has 4 reservoirs, one bond, 4 recharging pits, and a deep well used for plant irrigation.
- It is also seeking funding to increase the number of ponds and wells for rainwater collection.
- The university aims to have all its buildings with separated sewerage system, for wastewater and for clean water (rainwater). Rain water is collected from the roofs of the buildings and is then discharged into the local ponds, recharging bits, and wells around the campus.

- **Regarding smart irrigation systems using collected water**

- PTUK has started experimenting with "water plantation and smart irrigation and fertilization using water droplets" (i.e., drip irrigation) with sources from wells and rainwater collection.
- They have installed water efficient appliances (e.g., low-flush toilets, sensor taps) as part of water conservation strategy. About 86% of water appliances are efficient.

 Wastewater reuse for landscaping and cleaning

- PTUK's wastewater treatment plant treats sewage; the treated water is used for forest irrigation, general cleaning, and fountains.
- While not strictly rainwater, it shows the institutional emphasis on re-use of non-potable water and integrated water-management approach.
- Expand using Greywater systems to further support landscape irrigation. It is used nowadays with small extent.

Academic and project initiatives on water security

- PTUK participates in sustain international projects on water conservation, for example "Innovation in water education: Enhancing water security and socio-economic development in the eastern Mediterranean under climate change 2021". It started 2021 and continuous until now/
- These programs provide opportunity for linking rainwater harvesting, campus water systems, and climate-resilience research.

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

Example of Water Efficient Appliances Usage

Description:

- Palestine Technical University – Kadoorie (PTUK) has adopted several water-efficient technologies across its campus facilities to reduce overall water consumption and promote sustainable resource management. The university has installed automatic handwashing taps with motion sensors to control water flow and prevent waste, along with dual-flush toilets that allow users to select reduced water volumes when appropriate. In laboratories and student facilities, low-flow faucets and aerators are used to limit unnecessary water use while maintaining hygiene standards. Additionally, maintenance teams regularly inspect and repair leaks, ensuring that all plumbing systems operate efficiently. These efforts collectively contribute to a measurable reduction in fresh water demand and align with PTUK's sustainability goals and

international environmental benchmarks such as SDG 6 (Clean Water and Sanitation).

Appliance	Total Number	Total number water Efficient appliances	Percentage
Toilet	278	235	85%
Wastafel	166	148	89%
Etc.	…	**…**	**…**
		Average Percentage	**86%**

[4.4] Consumption of treated water

Smart agriculture

Description:

Palestine Technical University – Kadoorie (PTUK) actively promotes the use of treated wastewater as part of its sustainable water management strategy. The university operates an on-campus wastewater treatment plant that applies secondary and tertiary treatment processes, including biological filtration and chlorination, to ensure the treated water meets safe reuse standards. This water is then utilized primarily for irrigation of green areas, agricultural training fields, and forest zones, as well as for general cleaning and landscape maintenance. Through this system, PTUK successfully reduces its reliance on municipal freshwater resources. It is estimated that about 55% of the treated water is consumed for different purposes. The university continues to monitor water quality and quantity through periodic testing and automated flow meters to ensure safe and efficient reuse. This initiative not only decreases operational costs but also supports PTUK's environmental sustainability goals and its alignment with SDG 6 (Clean Water and Sanitation).

Palestine Technical University Kadoorie, in partnership with the University of Barcelona and the Federation of Palestinian Farmers' Associations, opened the

hydroponic farm funded by the Spanish project, which was established on the university's lands. (https://wafa.ps/Pages/Details/79187)
Also, The water treated is used for:

1. Forest irrigation
2. General Cleaning
3. Fountains

The university uses water droplets for irrigation thus reducing the amount of water needed. Irrigation Is carried out in the early morning or in the evening thus reducing water loss through evaporation.

[4.5] Water pollution control in campus area

Water quality sampling and monitoring at PTUK

Description:

The university is committed to provide staff and students and the university community with clean water. It is also committed to use its treatment plant to provide treated water for other purposes. The university looks forward and is seeking funds to further improve the treatment plant providing more and better quality treated water through joint projects. The current treatment plant was started up by a joint project with the university of Barcelona

In addition, Palestine Technical University – Kadoorie (PTUK) has established a comprehensive framework to prevent and control water pollution across its campus, ensuring the protection of groundwater and surface water resources. The university operates an on-campus wastewater treatment system that applies biological, chemical, and tertiary filtration processes to ensure that all discharged or reused water meets national and environmental quality standards. Laboratory wastewater is carefully collected and pre-treated before disposal to prevent chemical contamination, while oil separators are installed in maintenance and workshop areas to prevent hydrocarbons from entering the drainage system. Regular water quality monitoring and testing are conducted by the Environmental Health and Safety (EHS) unit to track key indicators such as pH, turbidity, and chemical residues. In addition, awareness campaigns and staff training are organized to promote responsible water use and waste disposal practices among students and employees. These measures collectively ensure that PTUK maintains a pollution-free and environmentally safe campus, in alignment with SDG 6 (Clean Water and Sanitation) and SDG 14 (Life Below Water), as well as the university's broader sustainability vision.

PTUK places strong institutional emphasis on water pollution control due to its direct impact on public health and community well-being. As the university cultivates a variety of vegetables and fruits within its agricultural research and training farms, maintaining clean and uncontaminated water sources is essential to ensure the safety and quality of agricultural produce supplied to the local community. This commitment reflects PTUK's recognition of its social responsibility toward the residents of Tulkarm and surrounding areas. Therefore, strict environmental management practices are applied to prevent any potential contamination of irrigation water, soil, or crops. Through this approach, the university not only safeguards the health of its campus community but also contributes to the food safety and environmental sustainability of the wider region.

Part of regular procedures to insure clean water

1- Main supply is regularly tested despite the fact that the supplier regularly checks its reservoirs
2- Water wells – the university is completely responsible for the monitoring and checking of water quality coming from the well since it is the sole owner of the well
3- Water harvested and stored in ponds are also regularly checked
4- Treated water is used only for forest irrigation

Furthermore:

PTUK actively encourages scientific research and academic projects focused on water quality, wastewater management, and pollution control. Graduate students are motivated to conduct Master's theses addressing innovative solutions in sustainable water management, while undergraduate students are guided to undertake senior projects that explore practical and applied aspects of water conservation and treatment. These initiatives aim to build local expertise, enhance environmental awareness, and promote the development of evidence-based strategies to protect water resources within the campus and beyond. Part of ongoing student projects are in these fields.

[4.6] Planning, implementation, monitoring and/or evaluation of all programs related to Water Management through the utilization of Information and Communication Technology (ICT)

Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	The university has plans for water conservation. There is an ongoing strategy to reduce water consumption to a minimum	Plans for Installation of different digital meters in different locations to monitor water consumption	Strategic plan documents, water usage reports	Jan 2024 – on going	Sustainability Office, ICT Dept, Planning department
Implementation	Install water-saving devices, promote awareness	Smart meters, water-saving tabs, water saving toilets	See Pictures Below	Mar 2024 on going	Planning department, ICT Dept, maintenance department
Monitoring	Track water usage and savings	Real-time monitoring through data comparison before and after new system installation	See Pictures Below	Ongoing	Sustainability Office, ICT Dept, finance office
Evaluation	Assess effectiveness of conservation programs through comparison of data	Data analysis tools, feedback systems	Program evaluation reports, stakeholder feedback	Annually	Sustainability Office, ICT Dept, finance office

Example of Water Efficient Appliances Usage

Seminar about using treated waste water

Smart Electric Taps

Smart water meter and water-saving app

Automatic Irrigation and Fertilization

Description:

- **Planning:**

  The university is continuously monitors water consumption. It regularly checks its policies and revise its plans to develop a comprehensive water conservation strategy. Data from new digital meters are monitored regularly.

- **Implementation:**

  The university is currently installing more low-flow taps as well as smart taps across the campus. new smart digital meters have been installed

- **Monitoring:**

  monitoring is done through comparison of water consumption before and after the installation of the new devices the university plans to Use real-time monitoring software to continuously track water usage and identify trends.

- **Evaluation:**

  Assess the effectiveness of the water conservation programs. Utilize data analysis tools and feedback systems to evaluate the program.

To be more involved in digitizing its initiatives in water management, Palestine Technical University (PTUK) has initiated a structured review and update cycle for its ICT-based water management programs. This process includes the **establishment of a multidisciplinary committee** to analyze performance data gathered from the university's existing smart water-metering systems, digital irrigation controls, and wastewater-reuse monitoring platforms. **One of the responsibilities of the committee is to identify areas for improvement, such as**

optimizing irrigation schedules, enhancing leak-detection algorithms, and integrating real-time water-consumption dashboards accessible to facility managers and decision-makers. Based on these analyses, PTUK should update its water-management policy, revise operational procedures, and incorporate new ICT innovations that enhance water efficiency and conservation. Additionally, the revised program includes staff training, student engagement initiatives, and annual performance reviews to ensure continual improvement, transparency, and alignment with national sustainability goals and SDG 6 (Clean Water and Sanitation).

PTUK actively encourages scientific research and academic projects focused on integrating ICT with water quality, wastewater management, and pollution control. Graduate students are motivated to conduct Master's theses addressing innovative and IoT solutions in sustainable water management, while undergraduate students are guided to undertake senior projects that explore practical and applied aspects of water conservation and treatment and integrating their projects with remote sensing systems. These initiatives aim to build local expertise, enhance environmental awareness, and promote the development of evidence-based strategies to protect water resources within the campus and beyond. Part of ongoing student projects are in these fields.

[4.7] Impact of Water Management programs in supporting the Sustainable Development Goals (SDGs)

Example

Description:

Water-management training and applied projects improve agricultural productivity and water-service reliability for rural communities, supporting livelihoods and reducing vulnerability. PTUK's water capacity-building helps create technical jobs (field technicians, water managers) that support local incomes. Irrigation efficiency, treated water experiments, compost & water reuse directly supports improved irrigation practices thus reducing contamination and lower public-health risks from polluted water and improve sanitation practices through outreach and training. Researchers lead projects tracing groundwater flows and designing local water-solutions. PTUK sustainability reporting documents water-use metrics and water-reuse strategies. (SDG 1,2,3,6)

PTUK offers specialized water education including scholarships (e.g., Master of Water Science Innovations, Erasmus/EMaster collaborations such as WaSec), short courses and hands-on applied training raising technical capacity and water literacy among graduates and professionals. Through outreach and community training for women, they increase women's participation in water management professions and decision-making. PTUK's sustainability and outreach work provides the platform for inclusive programming. Also because of its spread campus location form the north to the south and mid of the country PTUK is able to reduce inequalities through its outreach programs and training. (SDG 4,5,6)

Water management intersects the water-energy nexus (energy for pumping, solar-driven irrigation, energy recovery from wastewater). PTUK's integrated water & energy research supports cost-effective, low-carbon water services. Graduates from PTUK's water programs and technicians trained in water technologies enter the local water and agricultural sectors, supporting green jobs. applied research, pilot water-

treatment units, and collaboration with industry build local water-infrastructure solutions, innovation in water technologies, and strengthen technical standards for water services. Research and demonstration projects on water reuse, stormwater management and sustainable irrigation support resilient local communities and reduce urban/rural water stress; campus practice offers a local demonstration of good water stewardship. (SDG 7,8,9,11)

PTUK teaches and pilots water-efficient irrigation, re-use of treated water, and agricultural water-productivity improvements that reduce freshwater withdrawals and encourage circular resource use in agriculture and campus operations. Research on adaptation measures (drought management, efficient irrigation) strengthen local adaptation capacity and mitigation planning for water systems under climate change. Reducing pollutant loads through treatments, waste control, recycling help prevent pollutants reaching coastal waters — an indirect benefit to marine ecosystems. Improved water management (reduced salinization, better irrigation scheduling, groundwater protection) protects soils, reduces land degradation and supports sustainable agricultural land use — important in PTUK's agricultural research and extension. (SDG 12,13,14,15)

PTUK contributes technical evidence (groundwater studies, monitoring data) that informs water governance, cross-institutional planning and municipal water policy. This strengthening institutional decision making and transparency in the water sector. PTUK participates in international programs (Erasmus WaSec, PERA partnerships), donor projects, and multi-stakeholder research collaborations that mobilize funding, technology transfer and knowledge exchange for water management in Palestine.(SDG 16,17)

Program	Program Name	Description	SDGs	Green Metric Item Mapping
P1	Smart Water Campus Project	The project aims to manage water resources on campus efficiently through the implementation of smart systems for monitoring consumption, collecting rainwater, and reusing it. It focuses on achieving water sustainability and reducing losses, in line with PTUK vision as a	SDG 6 SDG 11 SDG 13	[4.1] Water Conservation (WR.1) [4.2] Water Recycling Program Implementation (WR.2) [4.4] Consumption of Treated/Reused Water (WR.4) [4.5] Water Pollution Control in Campus Area (WR.5) [4.6] ICT-based monitoring and evaluation (WR.6) [4.7] Impact of Water Management Programs on SDGs

		leading institution in water management through modern technologies.		[1.11] Total area on campus for water absorption besides vegetation (SI.4) [1.23] ICT-based planning, implementation, and evaluation (SI.11) [1.24] Impact of SI programs on SDGs [2.14] Impactful University Program on Climate Change (EC.10) [6.11] Number of sustainability-related events (ED.4) [6.19] Community service projects involving students (ED.10) [6.26] Impact on SDGs
P2	Water Security Program	The program aims to ensure the sustainability of the university's water resources through effective management of its sources and the use of smart systems for monitoring, storage, and recycling. It focuses on raising awareness of the value of water and promoting its rational use, in line with PTUK vision as a sustainable university that achieves a balance between environmental development and water security.	SDG 3 SDG 6 SDG 13	[4.1] Water Conservation (WR.1) [4.2] Water Recycling Program Implementation (WR.2) [4.3] Water Efficient Appliances (WR.3) [4.6] ICT-based planning, implementation, and evaluation (WR.6) [4.7] Impact of Water Management Programs on SDGs [4.7] SDG Impact (SDG 6) [6.11] Number of sustainability-related events (ED.4) [6.12] Student activities related to sustainability (ED.5) [6.19] Community service projects involving students (ED.10) [6.26] Impact on SDGs [1.23] ICT-based monitoring and evaluation (SI.11) [1.24] Impact of SI programs on SDGs [2.14] Impactful university program on climate change (EC.10)

P3	University Water Quality Station	The project aims to monitor and analyze water quality on campus to ensure compliance with approved environmental and health standards. It focuses on using smart sensing and analysis systems to track purity levels and chemical components, in line with PTUK vision as a leading institution in sustainable water management.	SDG 6 SDG 14 SDG 15	[4.5] Water Pollution Control (WR.5) [4.6] ICT in Water Monitoring (WR.6) [4.7] Impact of Water Management Programs on SDGs [1.23] ICT-based Planning, Implementation, Monitoring (SI.11) [1.24] Impact of SI programs on SDGs [6.5] Research Funds Dedicated to Sustainability Research [6.26] Impact on SDGs
P4	Sustainable Desalination Project	The project aims to produce pure water using solar-powered desalination technologies to reduce traditional energy consumption and enhance water management efficiency. It focuses on integrating environmental innovation with renewable energy, in line with PTUK vision as a sustainable university that achieves a balance between water security and clean energy.	SDG 6 SDG 7 SDG 13	[1.23] ICT-based Planning, Implementation, and Evaluation (SI.11) [1.24] Impact of SI Programs on SDGs [2.5] Renewable Energy Sources in Campus (EC.4) [2.13] Innovative Programs in Energy and Climate Change (EC.9) [2.14] Impactful University Programs on Climate Change (EC.10) [4.2] Water Recycling (WR.2) [4.4] Treated Water Use (WR.4) [4.5] Water Pollution Control in Campus Area (WR.5) [4.6] ICT-based Planning, Implementation, and Evaluation (WR.6) [4.7] Impact of Water Management Programs on SDGs [6.5] Research Funds Dedicated to Sustainability Research [6.9] Number of Scholarly Publications on Sustainability [6.19] Community Service Projects involving Students (ED.10)

				[6.26] Impact of Education and Research Programs on SDGs

[5] Transportation (TR)

[5.1] The total number of vehicles (cars and motorcycles) divided by total campus' Population

No.	Vehicle	Total Number
1	Car managed by the university	5
2	Cars entering the university	81
3	Motorcycles entering the university	0
	Total	86

Ratio: (Vehicles/population)
86 / (2181+624) = 0.031

Description:

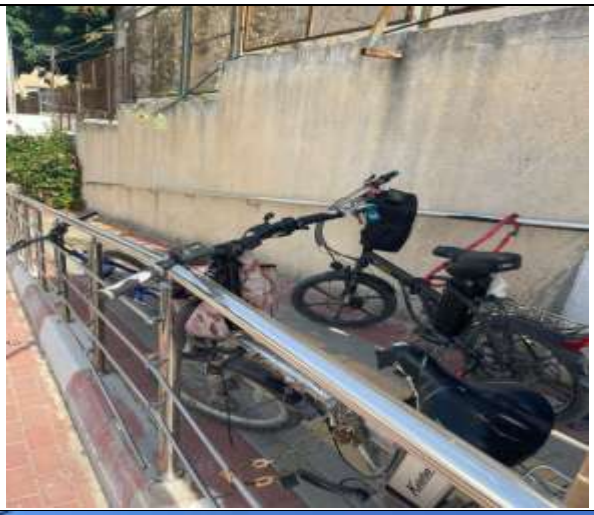
The university encourages staff and students to share cars when coming to work. The campus does not need transportation from the city center as it is less than 1 kilometer from the center. Buildings are close to each other eliminating the use of any form of transportation**.**

The university encourages staff to buy cars with zero emissions by signing agreements with electric cars manufacturers through the worker's union with lower interest rates. It also has a charging station free for all staff.

[5.2] Shuttle Services

No Shuttle Service inside the university campuses since there is no need. the campus buildings are close and the terrain is friendly.
Furthermore, the university is currently in the process of purchasing electric carts to be used for work, maintenance and goods movement.

[5.3] Zero Emission Vehicles (ZEV) Policy on Campus



Electrical Vehicles' Batteries Charge point(Palestine Technical University)

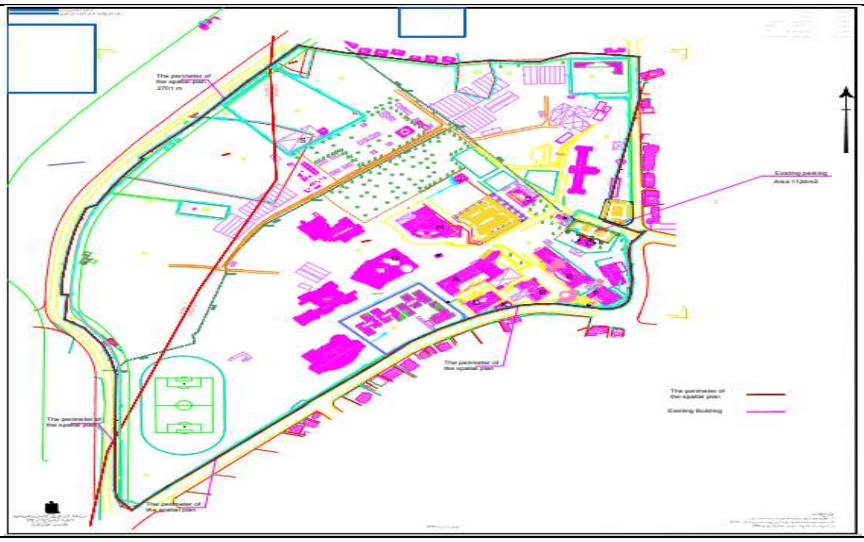
Description:

Procedures of PTUK toward zero emission vehicles

- All PTUK campuses are pedestrian friendly with paths for all students and staff. The design of the campus means there is no need to use any form of transportation inside the university.
- The university is in the process of buying electric carts for moving furniture, goods, appliances around the university. It also has a free charging station for the staff with electric cars thus encouraging the staff to use zero emission cars.

- Students are not allowed to bring cars into the university however bicycles are welcomed and encouraged. Safe areas are available to keep the bicycles in the university.
- Palestine Technical University – Kadoorie (PTUK) has implemented a Zero Emission Vehicle (ZEV) policy to promote sustainable transportation on its campus. The university encourages its staff to purchase electric vehicles. The workers' union is in the process to sign agreements with electric car agents through offering lower prices to make EVs more accessible.
- Additionally, PTUK is working on expanding its charging infrastructure to support the growing number of electric vehicles on campus. This includes installing more charging stations and integrating renewable energy sources, such as solar power, to ensure a sustainable and efficient charging network.
- The university's commitment to sustainability is also reflected in its broader environmental initiatives, including waste management, water conservation, and energy efficiency projects. These efforts align with PTUK's goal to reduce its carbon footprint and promote environmental stewardship within the university community.

[5.4] Ratio of Parking Area to Total Campus Area



Example of Ratio of Parking Area to Total Campus Area (Bangor University, UK)

Description:

- Total main campus area: 490,000 m^2
- Parking area of main campus is 1041 m^2
- Parking area of Ramallah Campus is 320 m^2
- Parking area of Aroub Campus is 229 m^2
-
- Total parking area = 1590m^2 (181 spaces*8.78m^2 per space).
- Ratio = 0.0032
-
- It can be seen that the ratio is very small. This is encouraged by the fact that the university is close to the city center which means it is a walking distance from public transportation. The terrain is walk friendly and the weather is acceptable and mild most of the year.
- The university also spreads awareness among staff and students of the importance of ride share (carpooling). The university has agreements with the local public buses so that they can drop students right at the entrance of the university at a discount rate. This discount encourages students to use public transport rather than their own cars.
- Also Taxis are allowed to enter the university to drop or pick up staff in groups.
- Also Taxis are allowed to park just outside the entrance of the university making it easy to drop or pick up staff in groups.

[5.5] Program to limit or decrease the parking area on campus for the last 3 years (from 2021 to 2024)

Description:
There are limited parking areas for students located at the entrance of the university (Outside the campus). This means very few students can use their own cars. Students are not allowed to bring their cars inside the campus while bicycles are allowed. The university encourages staff to share their cars while travelling to the university.

The following policies, initiatives, and procedures are adopted by the university to encourage the less use of cars

1- Buses give students special rates
2- Buses have space right at the interest of the university to pick up and drop students.
3- Taxis are allowed to enter campus to the main entrance
4- Availability of a car park just outside campus
5- The university is currently seeking funding to build a multi-storey car park outside the campus.
6- Use ICT tools (social media, mobile apps, dashboards) to share data on CO_2 savings achieved by reduced car use.
7- Partner with local municipalities and private companies to develop solar-powered charging hubs—linking this to PTUK's renewable-energy research expertise.
8- Collaborate with the Tulkarm municipality and local transport unions to provide discounted student passes or smartcard systems for public buses.
9- Integrate bus schedules into a university mobile app to make public transport easier to use and more reliable.
10- Conduct an annual Campus Mobility Survey to track progress in reducing car use and CO_2 emissions.
11- PTUK encourages the adoption of electric vehicles among its staff by facilitating agreements with electric car sellers and agents through the workers' union. This initiative aims to reduce the number of traditional fuel-powered vehicles on campus, thereby decreasing the demand for parking spaces.
12- The university promotes the use of alternative transportation methods, such as bicycles and walking, to reduce the reliance on personal vehicles. This approach not only decreases the need for parking spaces but also contributes to a healthier campus environment.
13- PTUK has worked on improving access to public transportation for its students and staff. By providing better connectivity to bus routes and

transportation hubs, the university aims to reduce the number of private vehicles on campus, leading to a decreased need for parking facilities.

14- The university has introduced carpooling initiatives to encourage shared rides among students and staff. This program helps in reducing the number of vehicles on campus, thereby minimizing the demand for parking spaces.

15- PTUK incorporates sustainable urban planning practices in its campus development. This includes designing the campus layout to prioritize pedestrian pathways and green spaces over extensive parking areas, aligning with the university's commitment to sustainability.

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

Description:

The university does not allow students to enter with their cars, there is a car park designated for students just outside the main campus. The public transport buses can bring students to just outside the main gaits eliminating the need for cars. The campus design is such that there is no need for transportation to travel from one faculty to another.

The following policies, initiatives, and procedures are adopted by the university to encourage the less use of cars especially decreasing private vehicles on campus:

1- Buses give students special rates
2- Buses have space right at the interest of the university to pick up and drop students.
3- Taxis are allowed to enter campus to the main entrance
4- Availability of a car park just outside campus
5- The university is currently seeking funding to build a multi-storey car park outside the campus.
6- Use ICT tools (social media, mobile apps, dashboards) to share data on CO_2 savings achieved by reduced car use.
7- Partner with local municipalities and private companies to develop solar-powered charging hubs—linking this to PTUK's renewable-energy research expertise.
8- Collaborate with the Tulkarm municipality and local transport unions to provide discounted student passes or smartcard systems for public buses.
9- Integrate bus schedules into a university mobile app to make public transport easier to use and more reliable.
10- Conduct an annual Campus Mobility Survey to track progress in reducing car use and CO_2 emissions.
11- PTUK encourages the adoption of electric vehicles among its staff by facilitating agreements with electric car sellers and agents through the workers' union. This initiative aims to reduce the number of traditional fuel-powered vehicles on campus, thereby decreasing the demand for parking spaces.
12- The university promotes the use of alternative transportation methods, such as bicycles and walking, to reduce the reliance on personal vehicles. This approach not only decreases the need for parking spaces but also contributes to a healthier campus environment.
13- PTUK has worked on improving access to public transportation for its students and staff. By providing better connectivity to bus routes and transportation hubs, the university aims to reduce the number of private vehicles on campus, leading to a decreased need for parking facilities.
14- The university has introduced carpooling initiatives to encourage shared rides among students and staff. This program helps in reducing the number of vehicles on campus, thereby minimizing the demand for parking spaces.
15- PTUK incorporates sustainable urban planning practices in its campus development. This includes designing the campus layout to prioritize pedestrian pathways and green spaces over extensive parking areas, aligning with the university's commitment to sustainability.

[5.7] Pedestrian Path Policy on Campus

Example of pedestrian path (PTUK)

Description:

In order to encourage pedestrians, the university makes walking on campus both enjoyable and safe by:

1. Separators between roads for vehicles and pedestrian paths.
2. Ramps and guiding blocks suitable for pedestrian having physical disabilities.
3. Street lamps for pedestrian paths some solar powered

In its pursue to encourage more the use of electric cars in order to reduce the emissions the university signed an agreement with the transportation ministry to open a car inspection center for electric cars since you are required by law to have your car checked by a center before buying it or in order to license it every year. Such a center does not exist in Palestine. The university has an undergraduate course in automotive engineering.

The adopted actions in the last three years are:

 Mapping & prioritization: Campus-wide pedestrian audit and mapping of high-traffic walking desire-lines; prioritized corridors for upgrade.

 Core-path upgrades : Repaving and widening of main pedestrian corridors, addition of curb ramps and tactile strips at major crossings.

 Parking consolidation & conversion: Removal or consolidation of on-campus parking close to academic core; converted freed-up areas

[5.8] Planning, implementation, monitoring and/or evaluation of all programs related to Transportation through the utilization of Information and Communication Technology (ICT)

Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	The university continuously assesses the need for transportation	Transport planning software and location finders	Forms filled by the travel department. See below	Jan 2024 – on going	Transportation Office, ICT Dept, planning department
Implementation	There is no need for shuttle services, However mobile applications for university cars is used	GPS tracking,	https://ptuk.edu.ps/procedures-manual/version-2/procedures.php?id=19	Jan 2024 on going	Transportation Office, ICT Dept
Monitoring	Track car usage, optimize routes	Real-time tracking software	See below	Ongoing	Transportation Office, ICT Dept
Evaluation	Evaluate shuttle car service efficiency	Data analysis tools, user feedback surveys	See below	Annually	Transportation Office, ICT Dept

Description:

- **Planning:**

  The university continuously Assess the transportation needs of the campus community and plan efficient routes to meet these needs. Since the university is in the middle of the town there is no need for a shuttle. Public transportation is sufficient

  Implementation:

  Deploy minimum services for transportation for staff according to the planned routes and launch a mobile app for real-time information. Use GPS tracking for university veihcles scheduling applications (HRM) to provide real-time updates to users.

- **Monitoring:**

  Track vehicles usage and optimize routes based on usage data. Employ real-time tracking software to monitor vehicle locations and passenger numbers.

- **Evaluation:**

Evaluate the efficiency and effectiveness of the shuttle services. Use data analysis tools to assess performance metrics and gather user feedback through surveys. Compare number of trips before and after

To be more involved in digitizing its initiatives in tranportaion management, Palestine Technical University (PTUK) has established a systematic review and improvement process for its ICT-based transportation management program. This process is based on data collected from previously implemented systems such as digital vehicle-tracking, ride-sharing coordination platforms, and energy-consumption monitoring tools for university transport. A dedicated ICT and sustainability committee should analyze these data to identify trends, inefficiencies, and areas requiring modernization—such as optimizing routes, reducing fuel consumption, and enhancing digital scheduling systems for university buses and staff vehicles. Based on these insights, PTUK should revise its transportation policy and operational guidelines to integrate emerging technologies, including GPS-enabled monitoring, mobile applications for real-time bus tracking, and incentives for sustainable commuting. Furthermore, the revised program should emphasize stakeholder feedback, continuous data monitoring, and alignment with national strategies for sustainable mobility and carbon-emission reduction, ensuring that PTUK's transportation management remains adaptive, efficient, and environmentally responsible.

[5.9] Impact of Transportation programs in supporting the Sustainable Development Goals (SDGs)

Example

Description:

Improved mobility reduces transport costs for low-income households and expands access to jobs and markets. PTUK's logistics program provides the human capital element. PTUK's location near the city Centre where public transportation is available reduces the need for the use of private cars for staff and students. This intern reduces reliance on private polluting vehicles lower air pollution and road-injury risks PTUK's on site farming, crop production and dairy products is supported by reducing post-harvest losses and improving food availability from farm to market. PTUK's logistics curriculum covers supply-chain and green logistics topics. PTUK's location and transportation programs contribute indirectly (e.g., logistics

for water-supply materials, transporting treatment chemicals, and emergency water deliveries). This is a secondary effect of strong logistics capacity. (SDG 1,2,3,6)

PTUK directly delivers education and skills in logistics, supply-chain optimization, green logistics and transport management (Bachelor of Logistics Management and related courses), producing graduates with practical, sector-relevant competencies. PTUK's transport/logistics programs and outreach actively recruit and support women (scholarships, inclusive training), mobility professions become more accessible to women and transport planning can incorporate gendered mobility needs. Improved public transport planning and logistics services through PTUK's graduates and research reduce spatial inequalities in access to jobs, education, and services particularly for underserved towns in the region. PTUK's community orientation helps extend skills and solutions beyond the campus.(SDG 4,5,10)

Transport electrification and low-carbon freight depend on technical/management skills (planning charging infrastructure, fleet transition). PTUK sustainability work and engineering energy programs and automotive programs can complement logistics curricula for low-emission transport transitions opening green-job pathways and improve business efficiency boosting local economic growth. AS PTUKis a government university it's research capacity and partnerships (including discussions with the Ministry of Transportation) support innovation in transport planning, infrastructure design and network optimization leading to safer, cleaner and more accessible communities. Research can shape local mobility policies and campus/community mobility measures documented in sustainability materials. (SDG 7,8,9,11)

Sustainable logistics (reducing empty miles, optimizing routes, reverse logistics and circular supply chains) taught and researched at PTUK reduce resource use and improve efficiency across production and consumption systems. PTUK's logistics

curriculum explicitly covers green logistics. potential electrification reduce transport greenhouse-gas emissions. PTUK's sustainability planning and transport research provide evidence and trained professionals to implement mitigation and adaptation measures. Better waste logistics, reduced plastic leakage via efficient collection and transport. Transport planning reduces land-degrading sprawl and road-related habitat fragmentation; efficient freight planning reduces pressure for new infrastructure footprints. PTUK's planning and logistics work and close co-operation with the government supports more compact, less-destructive transport solutions.(SDG 12,13,14,15)

Capacity building (training Ministry staff, joint projects) strengthens governance of transport systems, safety regulation, and institutional planning — improving transparency and institutional capability in transport sectors. PTUK–Ministry cooperation shows this institutional role. PTUK actively builds multi-stakeholder partnerships (government, municipal bodies, international projects) to transfer knowledge, create joint training and implement transport projects enabling resource mobilization and technical cooperation. (SDG 16,17)

Program	Program Name	Description	SDGs	Green Metric Item Mapping
P1	Sustainable Campus Transport Program	The program aims to develop an eco-friendly university transportation system that relies on electric vehicles and shared buses to reduce emissions and improve mobility efficiency. It focuses on promoting a culture of sustainable transportation and alleviating congestion within the campus, in line with PTUK vision as a green university	SDG 3 SDG 11 SDG 13	[1.24] Impact of SI programs on SDGs [5.5] Shuttle Services (TR.2) [5.9] Zero Emission Vehicles (TR.3) [5.15] Private Vehicle Reduction (TR.7) [5.18] ICT-based planning, implementation, monitoring (TR.9) [5.19] Impact of transportation programs in supporting SDGs

		that provides smart solutions for safe and sustainable mobility.		[2.10] Greenhouse Gas Emission Reduction Program (EC.7) [2.14] Impactful University Programs on Climate Change (EC.10) [6.11] Number of sustainability-related events (ED.4) [6.19] Community service projects involving students (ED.10) [6.26] Impact on SDGs
P2	Clean Energy Fleet Project	The project aims to replace conventional university vehicles with an electric or hybrid fleet to reduce emissions and improve fuel efficiency. It focuses on promoting sustainable transportation and the use of clean energy, in line with PTUK vision as a leading institution in transitioning toward a zero-emission campus.	SDG 7 SDG 11 SDG 13	[2.5]Renewable Energy Sources in Campus [2.8] Ratio of renewable energy production divided by total energy usage (EC.5) [2.10] Greenhouse Gas Emission Reduction Program (EC.7) [2.14] Impactful University Program on Climate Change (EC.10) [1.23] ICT-based planning, implementation, monitoring (SI.11) [1.24] Impact of SI programs on SDGs [5.9] Zero Emission Vehicles (TR.3) Transportation [5.15] initiatives to decrease private vehicles on campus (TR.7) [5.19]Impact of transportation programs on SDGs [6.11]Number of sustainability-related events (ED.4) [6.19] Community service projects involving students (ED.10) [6.26] Impact on SDGs
P3	Campus Cycling Initiative	The initiative aims to promote a culture of active and sustainable transportation on campus by encouraging students and staff to use bicycles as an eco-friendly means of	SDG 3 SDG 11 SDG 13	[5.15] Number of transportation initiatives to decrease private vehicles (TR.7) [5.16] Pedestrian Path Policy (TR.8)

		mobility. It focuses on providing safe pathways and dedicated cycling facilities, in line with PTUK vision as a green university that supports health and sustainability in daily commuting.		[5.19] Impact of transportation programs in supporting SDGs [2.10] Greenhouse Gas Emission Reduction Program (EC.7) [2.14] Impactful University Program on Climate Change (EC.10) [1.24] Impact of SI programs on SDGs [6.11] Number of sustainability-related events (ED.4) [6.19] Community service projects involving students (ED.10) [6.26] Impact on SDGs
P4	Sustainable Pathway Project	The project aims to design green corridors within the campus that encourage walking and cycling while connecting university buildings in an environmentally friendly and aesthetically integrated manner. It focuses on enhancing open spaces and reducing dependence on vehicles, in line with PTUK vision as a green university that balances nature with sustainable infrastructure.	SDG 11 SDG 13 SDG 15	[5.15] Number of transportation initiatives to decrease private vehicles (TR.7) [5.16] Pedestrian Path Policy (TR.8) [5.19] SDG Impact [1.8] Ratio of open space area to total area (SI.1) [1.10] Total area on campus covered in planted vegetation (SI.3) [1.11] Total area on campus for water absorption (SI.4) [1.24] Impact of SI programs on SDGs [2.10] Greenhouse Gas Emission Reduction Program (EC.7) [2.14] Impactful university program on climate change (EC.10) [6.11] Number of sustainability-related events (ED.4) [6.19] Community service projects involving students (ED.10) [6.26] Impact on SDGs
P5	Safe & Sustainable Path	The project aims to promote a culture of	SDG 3 SDG 11	[5.15] Awareness & Sustainable Mobility (TR.7)

		safe and sustainable mobility on campus by improving infrastructure and encouraging calm and responsible movement. It focuses on providing safe pathways for pedestrians and cyclists while reducing dependence on vehicles, in line with PTUK vision as a green university that offers a smart and safe mobility environment for all.	SDG 13	[5.16] Pedestrian Path Policy on Campus (TR.8) [5.19] Impact of transportation programs in supporting SDGs [2.10] Greenhouse Gas Emission Reduction Program (EC.7) [2.14] Impactful University Programs on Climate Change (EC.10) [6.11] Number of sustainability-related events (ED.4) [6.12] Student activities related to sustainability (ED.5) [6.19] Community service projects involving students (ED.10) [6.26] Impact of Education and Research on SDGs [1.24] Impact of SI programs on SDGs

[6] Education and Research (ED)

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

Course Number	**Course Name**	Description
12310580	Water and Wastewater Treatment Technologies	This course is an overview of engineering approaches to protecting water quality with an emphasis on fundamental principals. Theory and conceptual design of systems for treating municipal wastewater and drinking water are discussed, as well as reactor theory, process kinetics, and models. Physical, chemical, and biological processes are presented, including sedimentation, filtration, biological treatment, disinfection, and sludge processing. Finally, there is discussion of engineered and natural processes for wastewater treatment, standards and specifications, techniques.

12410220	Introduction to Sustainable Systems	Introducing the importance and role of technological, social, and sustainable systems in the modern world. Provides a framework for the theory and practice of sustainable engineering.
12410323	Sustainable Energy Systems	how they are evaluated quantitatively, their economics and their impacts on the environment. In addition, the ever changing context in which these technologies (and emerging technologies) are being implemented will be outlined. Systems approaches including life cycle assessment will be refined and applied to evaluate energy systems. A particular focus will be placed on analysis of energy alternatives within a carbon constrained economy.
12410442	Sustainable Ground Water Engineering	Characteristics of groundwater aquifers, groundwater flow in aquifers, groundwater flow to wells, pumping tests, hydrochemistry, introduction to groundwater modeling, groundwater pollution, sustainable groundwater resources management, investigations of groundwater, artificial recharge of groundwater, well design, intrinsic vulnerability.
12410444	Sustainable Solid Waste Treatment & Management	This course will address the following topics: Strategy for Waste & Resource Management and Drivers for Change. Biological Treatment of Wastes. Landfill for Waste Management and Landfill leachate. Energy from Waste & Value Recovery from Waste. Producer Responsibility and Sustainable Products. Secondary Raw Materials and the Circular Economy. Current Waste Management Practice and the Change in Business Model for Waste Management in the Future. Advances in waste recycling and recovery technologies to deliver added-value products.Interface of waste and resource management and civil engineering in the context of sustainable waste management in global cities and developing countries.
12410469	Green Buildings	Students are introduced to the key principles of green building, including current standards and considerations for regional factors. They are also introduced to the five components of green building that include energy, water, sustainable sites, materials and resources, and indoor environmental quality. The hands-on audit provides students with an opportunity to gather basic information about their school building and grounds to prepare them to do more in-depth audits related to energy, water, and more
12410533	Infrastructure for Sustainable & Smart Cities	Developing infrastructure for sustainable cities entails understanding the connection between urban morphology and physiology. This course uses a systems approach to analyzing anthropogenic material flow and other components of urban metabolism, linking them to the design of urban infrastructure. Elements of sustainable transportation, green buildings, urban climatology, urban vegetation, water systems and local energy supply are integrated in the design of sustainable urban neighborhoods.

12280403	Green Architecture	Introduction to the various forces that shape the human environment with a particular focus on ecological determinants; Integration and internalization of environmental considerations aimed toward sustainable environments; Various issues are studied, including, successful use of open spaces, indoor environmental qualities, as well as economic derivatives and human health matters; Natural Elements (air, sun and water) are examined as they interact with human needs within buildings or building complexes.
12110598	Renewable Energy Technology	This module concentrates on the renewable energy technologies such as solar energy, energy from waste, wind, hydro and biomass. Topics for discussion include: the scale and variability of resources, technologies for exploitation, technical and economic feasibilities, integrated (hybrid) systems and energy storage.
12150310	Sustainable Energy Technology (1)	Introduction to energy systems : conventional and renewable energy resources ; Solar Spectrum, Solar Time and angles, day length, angle of incidence on tilted surface; Sun path diagram; Shadow angle protractor;Solar Radiation ; Extraterrestrial Radiation; Effect of earth atmosphere; Estimation of solar radiation on horizontal and tilted surfaces; Measurement of solar radiation; Solar radiation calculations.Photovoltaic fundamentals; Solar Cell Physics; The Photovoltaic Effect, Dark and illumination characteristics; Figure of merits of solar cell; Efficiency limits; Variation of efficiency with band-gap and temperature; Efficiency measurements; High efficiency cells.Equivalent Circuit of the Solar Cell, Analysis of PV Cells: Types of Solar cells. Solar Cell Fabrication Technology. Solar Photovoltaic System Design; Maximum tracking; Centralized and decentralized SPV systems; Stand alone, hybrid and, grid connected system.The Recent developments in Solar cells, Role of nano-technology in Solar cells.Wind speed analysis; Wind turbine energy, power, torque and speed characteristics.Solar heater systems: Design, amount of heat.
12150430	Energy and Environmental Technology	Energy production and consumption, with some national statistics; Energy resources, including fossil fuels and Renewable Energy resources; Extraction, conversion, and transmission technologies (e.g., engines, turbines, generators); Environmental impacts of fuel consumption; Some current national and international policies, climate change.Pollution due to thermal power station and their control. Pollution due to nuclear power generation, radioactive waste and its disposal. Effect of hydroelectric power stations on ecology and environment. Effect of Hydro-electric power stations on ecology and environment. Primary and secondary pollution, air, thermal and water pollution, depletion of ozone layer, global warming, acid rain biological damage due to environmental degradation. Technology Assessment / Environmental Audit; Ecological Impact Assessment; Social

		Impact Assessment; Strategic Impact Assessment; Modeling in EIA and conclude with a Case Study.
12150531	Smart-Grid Power Systems	The course will provide students with a working knowledge of fundamentals, design, analysis and development of Smart Grid. The course offers an introduction to the basic concepts of power systems along with the inherent elements of computational intelligence, communication technology and decision support system. The automation and computational techniques needed to ensure that the Smart Grid guarantees adaptability and capability of handling new systems and components are discussed. The interoperability of different renewable energy sources are included to ensure that there will be minimum changes in the existing legacy system. Standards and requirements needed for designing new devices, systems and products for the Smart Grid are discussed. Power flow analysis and optimization schemes needed for the generation, transmission, distribution, demand response, and reconfiguration is explained in detail and simulation tools such as Matlab and Paladin are used.
12150533	Sustainable Buildings and Systems	The fundamentals of conventional energy sources used in buildings; renewable technology; policies and drivers that are leading to the more widespread uptake of low carbon building technologies; low carbon building codes, global policies and planning from the past, present and future. Integrated design: urban microclimate design, passive architectural interventions, active interventions. Low carbon buildings design and operation.
12150540	Energy Policy	Government, corporate, and public perspectives on the analysis, formulation, implementation, and impacts of energy-related policies, regulations, and initiatives. Energy policy development, implementation, and assessment at multiple governmental and corporate scales are also of the topics that covered in this course. The course includes case studies from real-world energy problems and the corresponding actions. This is to provide the student with context for the drivers, frameworks, and assumptions of energy policy. Climate change and its relation with energy policy is one of the topics covered in this course. International agreements, national Legislation including the National Energy Policy Act, and statewide energy legislation will be reviewed in this course.
12150541	Sustainability in Energy, Water and Food	Interconnections between food, energy, and water with respect to sustainable development. Sustainable energy systems and energy security. Food security and sustainability assessments of food production systems and food consumption patterns. Analysis and discussion concepts of strong and weak sustainability to primary energy supply, agriculture, and water supply.Society development and policies (energy security and emission reductions) are discussed in terms of food, energy and water needs. Natural resources and their impact on energy,

		food, and water. Qualitative and quantitative indicators for sustainability. Energy, food, and water resources availability and how they can be localized and developed to achieve society needs. Infrastructure requirements and risks related with energy, food, and water. Technological and cultural drivers on energy, food, and water system.Energy efficiency technologies for sustainable agriculture and food processing. Energy in crop production systems. Sustainable energy options in agriculture.
12230210	Introduction to fire and safety	Introduction to fire behavior, Concepts in fire protection engineering, fire safety systems, effect of fire on people, the effect of fire on property and environment, concepts on safety engineering
12230405	Safety engineering	The course focuses on tools, techniques and methodologies needed for prevention of occurrences of unsafe operations and accidents under different industrial settings. Additionally it covers; the fundamentals of chemical release, dispersion, toxicity, fire, and explosion. Process safety design to mitigate consequences of catastrophic fire and explosion.
14120316	Strategic management	The course deals with the concepts and basics of strategic management, formulation of the organization's mission and strategic objectives. The course deals with strategic management processes that include analysis of the external and internal environment of the organization using strategic analysis and discusses alternatives and strategic options, implementation, and control.
14160481	E- Supply Chain Management & Logistic Services	This course introduces the applications related to electronic customer relationship management that enable business organizations to attract customers, meet their needs, and retain them while ensuring reasonable profitability. Topics include customer relationship management theories, the interaction between business strategy, organizational structure, value chain, and customer relationships, measuring and managing customer satisfaction and loyalty, tracking their profitability, using analytical tools in electronic customer relationship management, and best practices for companies with extensive experience in this field.
14190402	Green and Reverse logistics	This course aims to enhance students' knowledge in the major green logistics principles, practices, and its environmental impact on logistical operations from lean production to reverse logistics. It introduces students to the basic concepts of green logistics practices including an analysis of a green applications and carbon footprint credits for companies. This course encompasses a discussion in the role of regulations concerning product take back policies, life cycle assessment, international environmental standard such as ISO 14000, and the impact of legislations and policies on logistics practices and reverse logistics network design. Closed-Loop Supply Chains (CLSC) may offer companies a unique opportunity to improve their profits on one hand and to serve societal responsibility on the

		other hand. The management of CLSC differs in a number of ways exploring supply chains management in general.
15030413	Environmental pollution and human health	It includes the studying of types of chemical, physical and biological pollution in environment. Its effect on human health, methods of detection and ways to reduce its effects
15030430	Environmental cleanup and waste Management	Methods in cleaning and Managements of waste products from environments by chemical and biological methods. It covers bioremediation today: an overview of bioremediation process, key terms and definitions, the chemical transformation, microbial ecology, metabolism and the required conditions for optimum bioremediation rate.
16010202	Agricultural Pollution	"This course is designed to have a comprehensive understanding of modern agricultural practicing and ecosystems. It deals with major problems of pollution of the environment due to agriculture and how we can reduce the negative effects The effect of farming practices such as irrigation, plowing, fertilization, and pesticide application on the environment. How to reduce the effects of agricultural pollution. Further, to understand the concept and the importance of organic farming.
16010203	Water and Air Pollution	This course is designed to enable students to have a comprehensive understanding of water and air pollution. It deals with an overview of the hydrological cycle, water resources and use, resources of water pollution, major problems of pollution of the atmosphere, water, the land surface, and the food chain. And the kinds of aquatic pollutants. The course focuses also on air pollution, taking into account the kinds of air pollutants and their natural and industrial resources. Physic-chemical factors that can affect the emission of these pollutants. It covers processes responsible for the occurrence and release of pollutants in the environment, the hazards associated with different types of pollutant, problems of accumulation of toxic substances, and procedures for the reduction of emissions and remediation of contaminated environments.
16010204	Introduction to Sustainable Agriculture	Introduction to contemporary sustainable farming systems through a study of the history of food production in the world and its link to the development of ecological agriculture. Students will learn about the ethical, economic, environmental and social dimensions of agricultural sustainability. It will identify sustainable food production systems such as organic agriculture, bio-agriculture, and sustainable agriculture.
16010301	Solid Waste Management	This course is designed to provide students with the knowledge and understanding of the concept of solid waste management. The course deals with municipal solid waste composition and characteristics, collection methods, storage, transformation, and treatment methods including landfilling waste to energy and recycling. Further, it introduces the students the solid waste management policy and the means to implement it (legislation,

		planning, etc.).The course provides tools of solid waste management activities associated with generation, storage, collection, transfer and transport, reuse and recycling, processing and disposal which should be environmentally compatible, adapting to the principles of economy, aesthetics, and energy conservation.
16010302	Environmental Impact Assessment	This course explores interactions between human activities and natural or man-made systems, linking them to the concept of environmental sustainability and to Environmental Impact Assessment (EIA) procedures. It focuses both on strategic EIA and project EIA and discusses examples of EIA systems used in different countries.
16010303	Wastewater Treatment	The course is designed to give an overview of typical wastewater characteristics, how this may affect relevant treatment processes, will be given, in addition to treatment and effluent requirements. The course will cover the theoretical foundation, and practical configurations, design, and operation of relevant wastewater treatment processes, including physical-, chemical- and biological processes. It also focuses on how to combine different treatment processes to meet present and future effluent requirements.
16010305	Sustainable Farm Management	This course gives the student the principles and practices of sustainable farm management using farm planning. Introduce students to develop and understand sustainable farm management on a farm scale and to start a new farm business plan using the entire principles of agricultural planning including goal setting, resource assessment, project analysis, crop production, livestock, soil health, pest control, and marketing.

12150310	Sustainable Energy Technology (1)
12150311	Sustainable Energy Technology (1) Lab.
12150410	Sustainable Energy Technology (2)
12150411	Sustainable Energy Technology (2) Lab.
12150420	Energy Audit, Management and Conservation
12150430	Energy and Environmental Technology
12150510	Computer Applications for Renewable Energy
12150520	Energy Storage Systems
12150530	Special Topics in Sustainable and Renewable Energy
12150531	Smart-Grid Power Systems
12150532	Alternative Fuel Sources
12150533	Sustainable Buildings and Systems
12150534	Geothermal and Hydropower Systems
12150535	Fuel Cell & Hydrogen Production Technology
12150536	Bio-Energy Technology
12150540	Energy Policy
12150541	Sustainability in Energy, Water and Food

15110101	Introduction to Education
15110102	Educational Psychology
15110231	Internet Applications
15110308	Educational Technology
15110315	Educational Sociology
15110326	Medical Technology
15110331	Modern programming language
15110333	Computer Maintenance
15110341	Energy and its sources
15110342	Solid Waste Treatment

12210441	Thermodynamics and Power Technology
12210549	Heating , Ventilation and Air Conditioning and Refrigeration (HVAC) Systems
12210588	Renewable energy
12210591	Automotive Electronics and Electricity
12220533	Sanitary
12220553	Energy conversion
12220561	Thermal load analysis
12220565	Hydronic heating systems
12220568	Roof ventilation
12220569	Renewable cooling
12220570	Environmental impacts of HVAC systems
12230210	Introduction to fire and safety
12230405	Safety engineering
12230556	Risk assessment
12230560	Pollution
12230563	Fire and explosive material detection
12230565	Special topics in safety engineering

12280303	Environmental Control Systems I (Electrical and Lighting Systems for Building)
12280308	Environmental Control System II (Sanitary and HVAC)
12280403	Green Architecture
12310359	Environmental Systems II- Thermal Systems
12310461	Passive Solar Systems Design
12310462	Water and Sanitation Systems
12310468	Green Buildings
12310576	Building Acoustics
12310579	Restoration of Buildings
12310580	Water and Wastewater Treatment Technologies
12310581	Environmental Impact and Risk Assessment
12410220	Introduction to Sustainable Systems
12410323	Sustainable Energy Systems
12410442	Sustainable Ground Water Engineering
12410444	Sustainable Solid Waste Treatment & Management
12410462	Water Supply And Sanitation Systems
12410469	Advanced Concepts & Integrated Approaches in Sustainability
12410533	Infrastructure for Sustainable & Smart Cities
12410571	Traffic Engineering and ITS
14110311	Local Business Legal Environment

14110312	Financial Markets
14110412	Commercial Law
14110415	Corporate Governance
14110419	Corporate Governance
14120310	Industrial regulation and occupational safety
14120313	Total Quality Management
14120314	Production operations management
14120316	Strategic management
14120417	Strategic management
14120419	Quality control
14120424	Design and manufacturing methods
12160404	Environmental Noise Measurements
12160405	Building Soundproofing
12160406	Medical Acoustics Devices
12160407	Audio Systems
12160409	Acoustic Waves Propagation
12160410	Echo acoustics
12160411	Recordings and Mixing Engineering
12160502	Wireless Techniques
12160511	Studio Techniques

16000105	Principles of Agricultural Economics
16010201	Introduction to Ecology
16010202	Agricultural Pollution
16010203	Water and Air Pollution
16010204	Introduction to Sustainable Agriculture
16010301	Solid Waste Management
16010302	Environmental Impact Assessment
16010303	Wastewater Treatment
16010304	Principles of Organic Agriculture
16010305	Sustainable Farm Management
16010407	Economic Entomology
16010409	Wastewater Reuse and Management
16010410	Land reclamation Techniques
16010414	Sustainable Development
16010416	Environmental Information Management
16010417	Natural Resources Economic
16010418	Marketing and Agricultural Extension
16010422	Advance Topic in Sustainable Agriculture
16010424	Energy and Environment
16020203	Agricultural Extension
16020205	Rural Development
16020307	Plant Genetics and Breeding
16020411	Agricultural Media

16020413	Agricultural Cooperation
16020414	Food Security
16020421	Agricultural Projects Management
16020426	Agricultural Finance
16020429	Agricultural Education
16050213	Biodiversity
16050310	Entrepreneurship Skills and Private Project Development
16050412	Green House Technology
16050413	Integrated Pest Management
16050414	Smart Agriculture Systems
16050423	Landraces Conservation and Genebanks
17011621	Advanced Plant Biotechnology
17011631	Biotechnology in Crop Protection
17011721	Advanced Microbiolog
17011771	Environmental Biotechnology
17013202	The principal of Natural Resources Ecology
17013203	Forest Ecology
17013206	Soil, Water, Plant Analysis
17013210	Conservation and Monitoring of Natural Resources
17013212	Forest Policy and Environmental Legislation
17013214	Wildlife Management
17013219	Renewable Resources Management
17013220	Natural Resources and Forest Policy and Administration
17013221	Integrated Environmental Management

17120103	Water Quality
17120104	Climate Change & Water Sustainability
17120201	Water & Wastewater Treatment
17120204	Entrepreneurship and Innovation in Water
17120205	Integrated Water Resource Management
17132215	Investment and Risk Management
17132216	Advanced Corporate Finance
17141100	Introduction to Smart Grids
17141101	Operation and Control of Power Systems
17141102	Discrete Mathematics and Optimization techniques
17141103	Renewable and Distributed Generation
17141104	Energy Management and Engineering Economics
17141105	Data Acquisition and Metering Systems
17141201	Advanced Power Electronics Applications
17141203	Big Data Systems and Analysis
17141204	Smart Buildings and Internet of Things
12150310	Sustainable Energy Technology (1)
12150311	Sustainable Energy Technology (1) Lab.
12150410	Sustainable Energy Technology (2)
12150411	Sustainable Energy Technology (2) Lab.
12150420	Energy Audit, Management and Conservation
12150430	Energy and Environmental Technology
12150510	Computer Applications for Renewable Energy
12150520	Energy Storage Systems
12150530	Special Topics in Sustainable and Renewable Energy
12150531	Smart-Grid Power Systems
12150532	Alternative Fuel Sources
12150533	Sustainable Buildings and Systems
12150534	Geothermal and Hydropower Systems
12150535	Fuel Cell & Hydrogen Production Technology
12150536	Bio-Energy Technology
12150540	Energy Policy
12150541	Sustainability in Energy, Water and Food

Example of Courses/Subjects Related to Sustainability (Palestine Technical University)

Description:

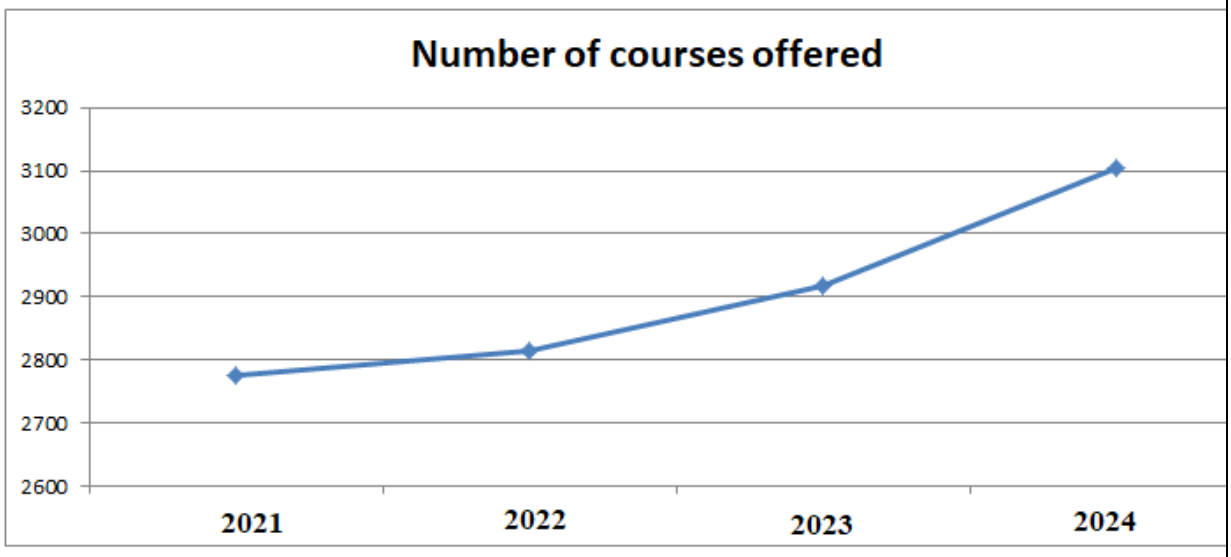
Above is a list of the courses that aim to embed sustainability into all course and module content offered by the University.
The list also includes courses with sustainability already embedded, and those that include the Sustainability in Practice Certificate.

The university has quality academic committees at the level of departments, And a main quality academic committee at the university level. This committee works to continually design and improve course content specially related to sustainability and water usage. The committee makes sure that the courses intended learning outcomes are directly related to sustainability where appropriate economically, socially and environmentally.

The university also carries out seminars and brings speakers to promote the idea of sustainability and its impact on our society.

Also the number of courses related to sustainability has increased due to the new programs and the modifications to the curriculum by the departments.

[6.2] Total Number of Courses/Subjects Offered



Example of Total Courses Offered in 2021-2024

Description:

YEAR	Total Courses Offered
2021	2776
2022	2816
2023	2918
2024	3103

Total number of courses offered in 2024 = 3003 courses

The university has many quality academic committees at the level of departments, And a main quality academic committee at the university level. This committee works to continually design and improve course content specially related to sustainability and water usage. The committee makes sure that the courses intended learning outcomes are directly related to sustainability where appropriate economically, socially and environmentally.

The committee also works with the different departments to continually improve the content on sustainability in the different programs in the university. It works with

the agricultural department which offers a variety of courses on sustainability regarding the environment and water. It is also in continual contact with the engineering department and the economy department.

The committee also acts as a link between the university departments and the local community specially those working on sustainability

[6.3] Total number of study program related to sustainability offered

Description:

Palestine Technical University – Kadoorie (PTUK) is committed to advancing sustainability education through an integrated approach that spans all its faculties and academic programs. The university recognizes sustainability as a core pillar of its mission to support national development, promote environmental stewardship, and prepare students to address global and local sustainability challenges.

Over the past few years, PTUK has expanded its academic portfolio to include a wide range of undergraduate and graduate programs that embed sustainability concepts within engineering, agricultural sciences, business, information technology, and education. These programs focus on areas such as renewable energy, environmental management, sustainable agriculture, water resource management, green construction, and smart technologies.

Each faculty contributes to sustainability through specialized courses, applied research projects, and community engagement initiatives that encourage innovation and responsible use of natural resources. PTUK's programs not only equip students with technical expertise but also emphasize ethical and social responsibility—ensuring that graduates become agents of sustainable change in Palestine and beyond.

This comprehensive educational approach reflects PTUK's vision of becoming a leading institution in sustainability-oriented higher education, aligning its academic and research strategies with the United Nations Sustainable Development Goals (SDGs).

Number of study program related to sustainability offered

Program	Faculty
PhD in Plant Pathology	Faculty of Graduate Studies
PhD in Applied Mathematics	Faculty of Graduate Studies

Master of Mechanical Engineering (Robotics & Control)	Faculty of Graduate Studies
Master of Water Sciences Innovations	Faculty of Graduate Studies
Master of Smart Grids Engineering	Faculty of Graduate Studies
Master of Natural Resources and Forest Management	Faculty of Graduate Studies
Master of Agricultural Biotechnology	Faculty of Graduate Studies
Master of Agribusiness (Greenhouse Management)	Faculty of Graduate Studies
Master of Agribusiness (Organic Agriculture)	Faculty of Graduate Studies
Master of Agribusiness (Food Processing)	Faculty of Graduate Studies
Master of Agribusiness (Management & Marketing)	Faculty of Graduate Studies
Master of Entrepreneurship in Agribusiness	Faculty of Graduate Studies
Master of Technical & Vocational Education and Training	Faculty of Graduate Studies
Master of Mathematical Modeling	Faculty of Graduate Studies
Master of Software Engineering	Faculty of Graduate Studies
Master og Smart Grid Engineering	Faculty of Graduate Studies
Master of Electronic Commerce	Faculty of Graduate Studies
Master of Applied Chemistry	Faculty of Graduate Studies
Bachelor of Artificial Intelligence	Faculty of IT & AI
Bachelor of Information Systems	Faculty of IT & AI
Bachelor of Computer Science - Data Science	Faculty of IT & AI
Bachelor of Information Systems - Information Security	Faculty of IT & AI
Bachelor of Automotive Engineering	Faculty of Engineering & Technology
Bachelor of Architectural Engineering - Cooperative	Faculty of Engineering & Technology
Bachelor of Safety Engineering	Faculty of Engineering & Technology
Bachelor of Acoustics Engineering	Faculty of Engineering & Technology
Bachelor of Civil Engineering & Sustainable Structures - Cooperative	Faculty of Engineering & Technology
Bachelor of Sustainable Energy Engineering	Faculty of Engineering & Technology
Bachelor of Computer Systems Engineering	Faculty of Engineering & Technology
Bachelor of Mechatronics Engineering	Faculty of Engineering & Technology
Bachelor of Communication Engineering Technology	Faculty of Engineering & Technology
Bachelor of Electrical Eng - Industrial Automation	Faculty of Engineering & Technology
Bachelor of Medical Imaging & Diagnostic Radiology	Faculty of Allied Health Sciences
Bachelor of Medical & Laboratory Sciences	Faculty of Allied Health Sciences
Healthy Nutrition & Dietetics	Faculty of Allied Health Sciences
Bachelor of Applied Molecular Biology	Faculty of Applied Sciences

Bachelor of Physics	Faculty of Applied Sciences
Bachelor of chemistry	Faculty of Applied Sciences
Bachelor of Applied Mathematics	Faculty of Applied Sciences
Bachelor of Decoration & Interior Design	Faculty of Arts & Educational Sciences
Bachelor of Media Technology	Faculty of Arts & Educational Sciences
Bachelor of Design & Applied Arts	Faculty of Arts & Educational Sciences
Bachelor of Educational Technology	Faculty of Arts & Educational Sciences
Bachelor of Public Relations & Digital Advertising	Faculty of Arts & Educational Sciences
Bachelor of Marketing & e-Commerce	Faculty of Business & Economics
Bachelor of Logistics Management	Faculty of Business & Economics
Bachelor of Computerized Banking & Financial Sciences	Faculty of Business & Economics
Bachelor of Agricultural Biotechnology	Faculty of Agricultural Science & Technology
Bachelor of Food Manufacturing Technology	Faculty of Agricultural Science & Technology
Bachelor of Horticultural & Agricultural Extension	Faculty of Agricultural Science & Technology
Bachelor of Environmental & Sustainable Agriculture	Faculty of Agricultural Science & Technology
Bachelor of Climate Change & Weather Monitoring	Faculty of Agricultural Science & Technology
Bachelor of Veterinary Medicine	Faculty of Agricultural Science & Technology

The total number of programs are 53 program related to sustainability

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

Water research (WaSec ERASMUS program)

Examples of innovative program (Palestine Technical University, Palestine)

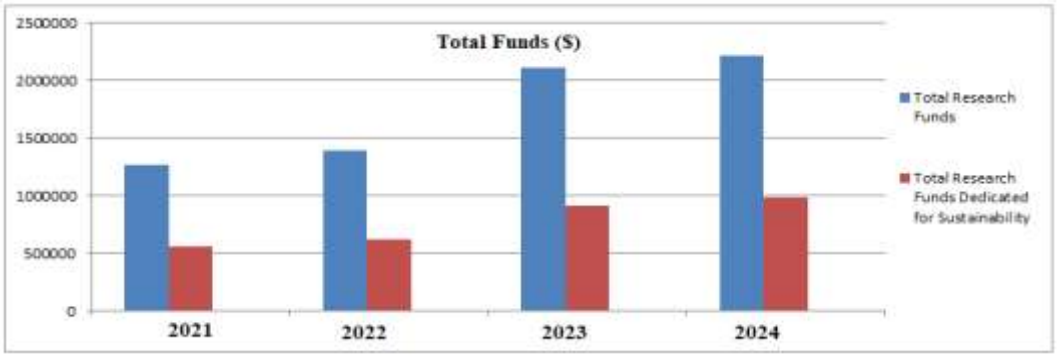
The following Link is for the current research project:

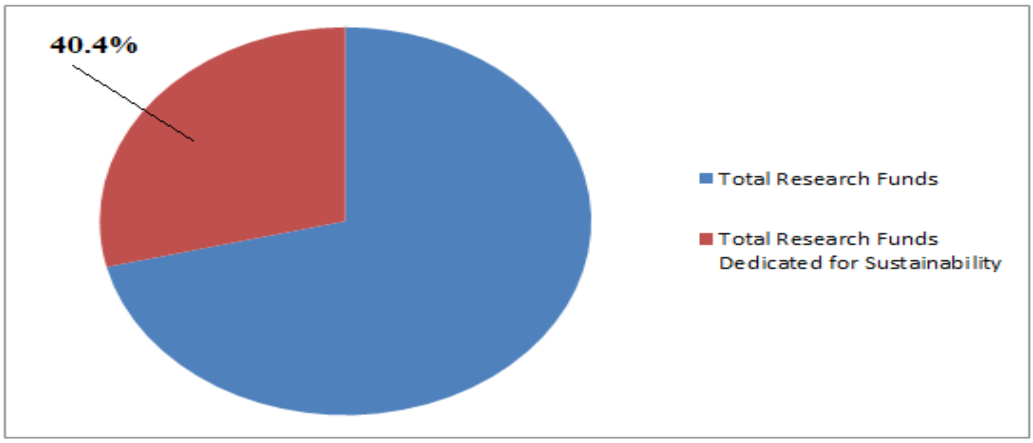
https://ptuk.edu.ps/en/offices-units-divisions/projects.php?name=international-relations-office

The university financially supports research generally but specially research concerned with water development, agriculture and sustainability. The university covers the cost of the research including publication and expenses for travelling to conferences. It also has many financial prizes for researches including, best research, highest citation and others.

The university is also involved in many project (research and capacity building) in this field. These projects include.

[6.5] Total Research Funds (in US Dollars)





Research Fund

Total research fund in 2021 = 1268591 US Dollars
Total research fund in 2022 = 1389541 US Dollars
Total research fund in 2023 = 2110656 US Dollars
Total research fund in 2024 = 2214800 US Dollars

The averaged annum last 3 years of research fund = 1904999 US Dollars

Useful links:
International Relations Office
https://ptuk.edu.ps/en/offices-units-divisions/about.php?name=international-relations-office

Deanship of Scientific Research
https://ptuk.edu.ps/en/deanships/deanship.php?name=scientific-research

#	Title	Partners
1	Narrowband Internet of Things for Remote Healthcare Monitoring	Maqdisi - French Government
2	Poultry house passive cooling technique based on using heat pipe loop.	
3	Training center for utilization of by products as silage and compost making	
4	Boosting Innovation in Education aNd REsearch oF Precision AgriculTure in Palestine	Palestine Al Quds Open University . Palestine An Najah National University . Palestine Hebron University . Palestine University College of Applied Sciences Palestine Al Istiqlal University Palestine Palestine Technical University / Kadoorie 6. Bulgaria University of Ruse . Nitra Slovak University of Agriculture . Czech Republic Institute of Technology and Business . Patras University of Patras .
5	Establshing Early Warning system for the Groundwater in Karst Aquifer	UFZ-Germany
6	Innovations in Water Education Programs: Enhancing Water Security and Socio-economic Development in the Eastern Mediterranean under Climate Change (WaSec)	AQU
7	Evaluation the Groundwater Resources in the North Eastern Basin	AQU
8	Strategies for the management of virus transmission in grapevine leafroll viruses by mealybugs.	NARC
9	Paletinian Agriculture and Academic Cooperation (PAAC)	PTUK, ANNU,HU, AQU
10	Algal-bacterial system for wastewater treatment: nutrient removal and recovery from	PTUK, IHE -Delft

	anaerobically pre-treated food industry wastewater	
11	Natural Induced Resistance in Barley and Wheat Using Palestinian Endogenous Plant Extracts Against plant disease	PAAC
12	Biological Control with Endogenous Natural Enemies against Red Palm Weevil	PAAC
13	Combination of biocontrol agents and chemical Nematicide for the control of Root-Knot Nematode on Tomato.	PAAC
14	Palestinian indigenous plant extract to control barley loose smut Ustilago nuda.	ANNU&PARC
15	Introducing Feasible and Sustainable Hydro-agriculture Systems to Benefit Poor People in Urban Palestinian Areas	ARIJ, PTK, Twente, TGS
16	Using sensors for classification of different fugi species according to their metabolic activities	
17	Using sensors for detecting pathogen	
18	Using optical sensor to evaluate the quality parameters of olive oil in Palestine	
19	Mobility project for the establishment of joint research partnerships for introducing precision farming to the Palestinian	University of Hohenheim Institute of Agricultural Engineering, Stuttgart Germany

Total research fund dedicated to sustainability research in 2021 = 558180 US Dollars
Total research fund dedicated to sustainability research in 2022 = 625294 US Dollars

Total research fund dedicated to sustainability research in 2023 = 702464 US Dollars
Total research fund dedicated to sustainability research in 2024 = 982957 US Dollars

The averaged annum last 3 years of research fund dedicated to sustainability research = 770238 US Dollars

[6.6] Number of lecturers and researchers on campus in one-year period

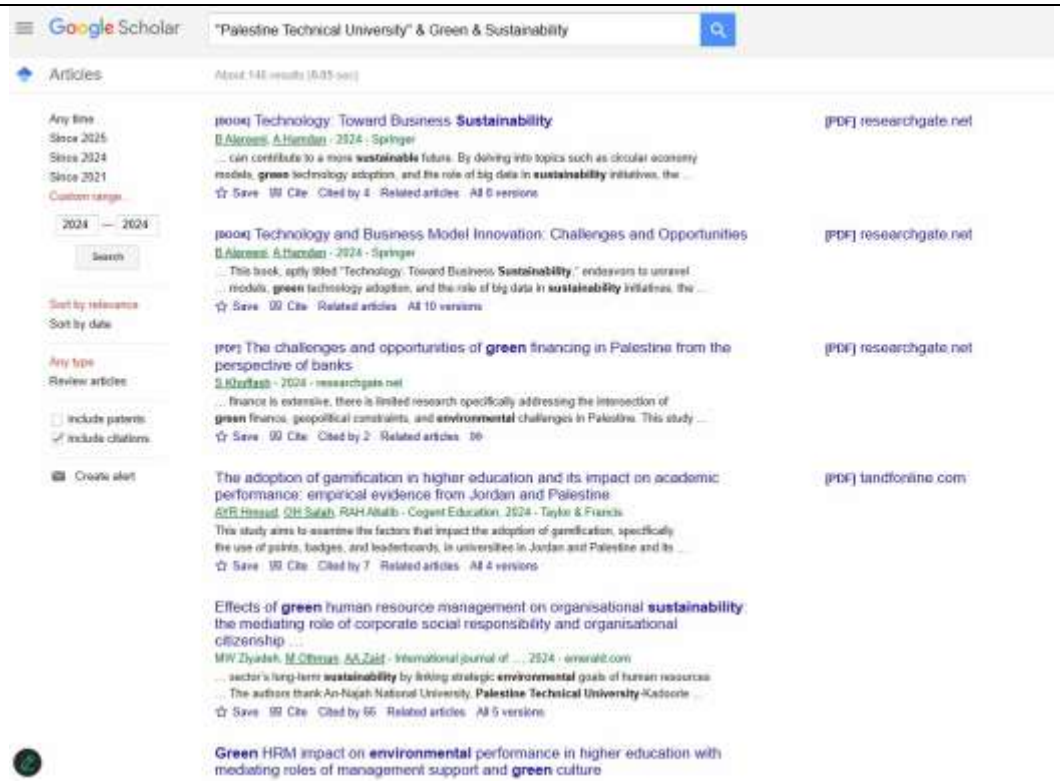
Description:
During the past academic year, Palestine Technical University – Kadoorie (PTUK) supported 68 lecturers and researchers working in sustainability field across its various faculties and research centers. These academic staff members represent a diverse range of disciplines, including engineering, agricultural sciences, renewable energy, computer science, education, and business. Their collective efforts contribute to advancing PTUK's mission of integrating teaching, research, and community service with sustainable development goals. The university continuously supports its researchers through capacity-building programs, research funding, and partnerships with local and international institutions—enhancing innovation and scientific production that address national priorities and sustainability challenges in Palestine.

No.	Faculty Name	Lecturers and Researchers
1	**Faculty of Engineering and Technology**	**12**
2	**Faculty of Agricultural Engineering**	**10**
3	**Faculty of Business and Economics**	**9**
4	**Faculty of Applied Sciences**	**11**
5	**Faculty of Arts and educational sciences**	**7**
6	**Faculty of IT and AI**	**11**
7	**Faculty of Technical and Vocational Education**	**8**
	TOTAL	**68***

Examples of number lecturers and researchers (Palestine Technical University (PALESTINE))

*: Not all of the academic staff Engaged in scientific research especially related to sustainability

[6.7] Number of scholarly publications on sustainability in one-year period



Examples of **scholarly publications on sustainability(Palestine Technical University (PALESTINE))**

Description:

During the past academic year, researchers and faculty members at **Palestine Technical University – Kadoorie (PTUK)** produced a total of **146 scholarly publications** addressing various aspects of sustainability. These publications span diverse fields such as renewable energy systems, sustainable agriculture, environmental management, water resource optimization, green technologies, and education for sustainable development. The university's growing research output reflects its strong institutional commitment to promoting sustainability-oriented research that supports both national development and the United Nations Sustainable Development Goals (SDGs). PTUK continues to encourage interdisciplinary collaboration, applied research, and innovation aimed at advancing sustainable solutions for Palestine's environmental and socio-economic challenges.

[6.8] Ratio of scholarly publications on sustainability to lecturers and researchers on campus in one year period (ED.3)

Total researchers in one year period	**68**
Total scholarly publication in one year period	**146 publications**

Description:

During the past academic year, **Palestine Technical University – Kadoorie (PTUK)** demonstrated a strong commitment to sustainability research, with **146 scholarly publications** produced by a total of **68 lecturers and researchers**. This reflects an impressive ratio of more than **two sustainability-related publications per academic staff member**. Such productivity highlights PTUK's active role in advancing scientific knowledge and innovation in areas aligned with the United Nations Sustainable Development Goals (SDGs). The university's research community continues to contribute significantly to national and regional sustainability efforts through interdisciplinary studies, applied research projects, and collaborations that address environmental, energy, agricultural, and socio-economic challenges in Palestine.

Ratio of scholarly publications on sustainability to lecturers and researchers on campus in one year period:
Total scholarly publication in one year period/ Total lecturers and researchers in one year period

=146/68
= 2.15

[6.9] Number of Events Related to Sustainability

Kadoorie and the Ministry of Health Organize an Awareness Event on the Occasion of Pink October

The Launch of the Second Graduate Student Research Conference

Workshop on Avocado Cultivation and Its Diseases at Kadoorie University

Workshop on Spirulina Algae Production in Palestine- Aroub

Kadoorie University Organizes a Project Management Workshop in Cooperation with INJAZ Palestine

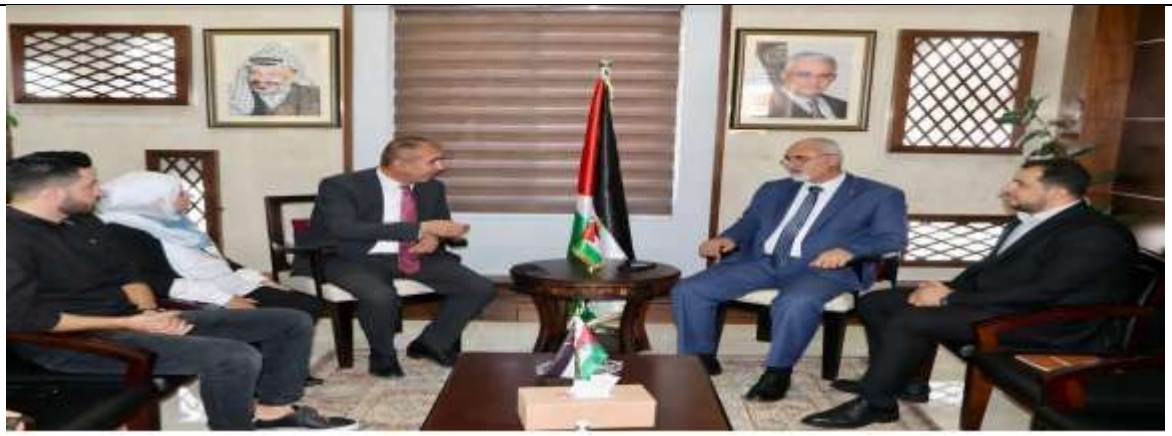
Kadoorie–Ramallah Organizes the “Al-Sadd wal-Sanad” Event to Support National Products

Kadoorie University Organizes a Workshop on Modern Technologies in Agiculture and Renewable Energy

Kadoorie University Hosts CreativeTech in a Student Meeting on Digital Entrepreneurship

Workshop about plantation of Avocado

A meeting between the university and the agricultural association to develop the faculty of agriculture programs to be in line with sustainability goals



A meeting between the university and the ministry of agriculture to develop the faculty of agriculture programs to be in line with sustainability goals

A workshop for preparing graduates to the local market

A Workshop on the finetech and sustainable finance

A Workshop on the economic sustainability and finance

A workshop on agricultural sustainability

A workshop on environment and sustainability

The opening of the water farm with partners from Barcelona

Lecture about water farming

Environmental day

Environmental day

Environmental Exhibition

Environmental Path

Description:

Example of events related to environment and sustainability hosted or organized by the University in the academic year 2022-2024.
Total number of sustainability/environment related events in:
2022: 26
2023:10 (most activities were carried out on line because of the war resulting in online education)

2024:30 (most activities were carried out on line because of the war resulting in online education)

A total average per annum over the last 3 years of **22 events** (e.g. conferences, workshops, awareness raising, practical training, etc.).

The university prides its self in the number of events related to sustainability which it hosts. These events include seminars, conferences, exhibitions and posters. They usually are carried out by staff, students and the local community thus engaging experts in the field from the university and industry. These include

1. Lands day
2. International cleaning day
3. Green jobs day (funded by the food and agriculture organization UN)
4. Compost day
5. PTUK products day
6. Olive trees conference.

#	Event
1	A Program to Prepare Students for the Labor Market
2	A Project Management Workshop in Cooperation with INJAZ Palestine
3	Workshop on Avocado Cultivation and Its Diseases at Kadoorie University
4	The Second Graduate Student Research Conference
5	Awareness Event on the Occasion of Pink October
6	"Al-Sadd wal-Sanad" Event to Support National Products
7	Awareness Workshop on Dangerous Drugs
8	the "AMAL" Project Workshop to Promote a Culture of Human Rights and Gender Equality
9	Workshop on Modern Technologies in Agriculture and Renewable Energy
10	Seminar on the Governance of Palestinian Agricultural Lands
11	Human Rights and Gender Workshops
12	The Media and the Palestinian Cause Conference in the Context of Digital Transformation
13	Workshop on Digital Entrepreneurship
14	A Scientific Workshop on Hybrid Cars in Cooperation with Gurgour Company

Number of events related to environment and sustainability:

1- Workshop about Solar Photovoltaic Systems
LINK: https://ptuk.edu.ps/ar/news/?id=89

2- Workshop on training of trainers in solar systems
LINK: https://ptuk.edu.ps/ar/news/?id=389

3- Workshop on using renewable energy sources in agriculture
LINK: https://ptuk.edu.ps/ar/news/?id=1111

4- Workshop about solar energy by a German expert
LINK: https://ptuk.edu.ps/ar/news/?id=1167

5- Information day about a vocational training program:
LINK: https://ptuk.edu.ps/ar/news/?id=1091

6- Training workshop organized in cooperation with Northern Electricity company:
LINK: https://ptuk.edu.ps/ar/news/?id=111

7- Olive conference
https://ptuk.edu.ps/ar/news/?id=162

8- The Palestinian Student Festival for Culture and Arts
https://ptuk.edu.ps/ar/news/?id=972

9- Higher Education Outcomes Conference on Work
https://ptuk.edu.ps/ar/news/?id=2114

10- The closing ceremony of the first Arab Voluntary Youth Conference
https://ptuk.edu.ps/ar/news/?id=1774

[6.10] Number of activities organized by student organizations related to sustainability per year

Environmental day organized in cooperation with student union

Environmental Path organized by student union

In cooperation with student union, Kadoorie–Ramallah Organizes the “Al-Sadd wal-Sanad” Event to Support National Products

Student event preparing graduates for work place

A workshop by students' council on environmental awareness

A workshop on water farming in participation with students council

A workshop on environmental awareness in participation with students council

A workshop on Avocado plantation in participation with students' council

A workshop on project management in participation with students' council


دعوة شرف
نتشرف بدعوتكم
لحضور الفعالية الوطنية بمناسبة
اليوم العالمي للمرأة
على شرف الثامن من أذار
الذي تستضيفه الجامعة بالشراكة مع وزارة المرأة ومحافظة طولكرم
واقليم حركة فتح في طولكرم
وذلك يوم الأربعاء الموافق ٩-٣-٢٠٢٢ في تمام الساعة ١١:٣٠ صباحا
في حرم الجامعة - مدرج الاحتفالات الخارجي
مشاركتكم دعما للمرأة الفلسطينية


دعوة للتغطية الإعلامية
محافظة طولكرم
تحت رعاية عطوفة محافظ محافظة طولكرم
اللواء عصام أبو بكر
تتشرف اللجنة التحضيرية لإحياء فعاليات يوم النظافة العالمي بدعوتكم
للحضور والتغطية الإعلامية لإحياء فعاليات هذا اليوم.
وذلك يوم غد الثلاثاء الموافق ٢٠٢٢/٩/٢٠ ، والتي ستبدأ في تمام الساعة العاشرة صباحا،
من أمام البوابة الجنوبية لجامعة فلسطين التقنية خضوري (مدخل مدرسة الصناعة)


جامعة فلسطين التقنية - خضوري ومجلس طلبتها
بالتعاون مع مديرية صحة محافظة طولكرم ينظمون
اللقاء التوعوي بأهمية الكشف المبكر عن سرطان الثدي
حياتك غالية علينا
أنت الحياة
افحصي وطمنينا

Description:

As can be seen students are extremely active when it comes to holding events related to sustainability and other issues. The university encourages students to participate in such events hoping it would slowly increase the awareness and encourage the change of culture towards sustainability. These events are financially supported by the university. These events include

1. **Open day for medical checkup and blood donation**
2. **How to protect yourself from electronic crimes**
3. **Breast cancer awareness day**
4. **Leadership and innovation day**
5. **Palestinian women effect on society**
6. **Land day**

This year most student events and university events were carried out on line because of the political turmoil and war

#	Event
1	A Program to Prepare Students for the Labor Market
2	A Project Management Workshop in Cooperation with INJAZ Palestine
3	Workshop on Avocado Cultivation and Its Diseases at Kadoorie University
4	The Second Graduate Student Research Conference
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Number of events related to environment and sustainability:

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LINK: https://ptuk.edu.ps/ar/news/?id=1111

4- Workshop about solar energy by a German expert
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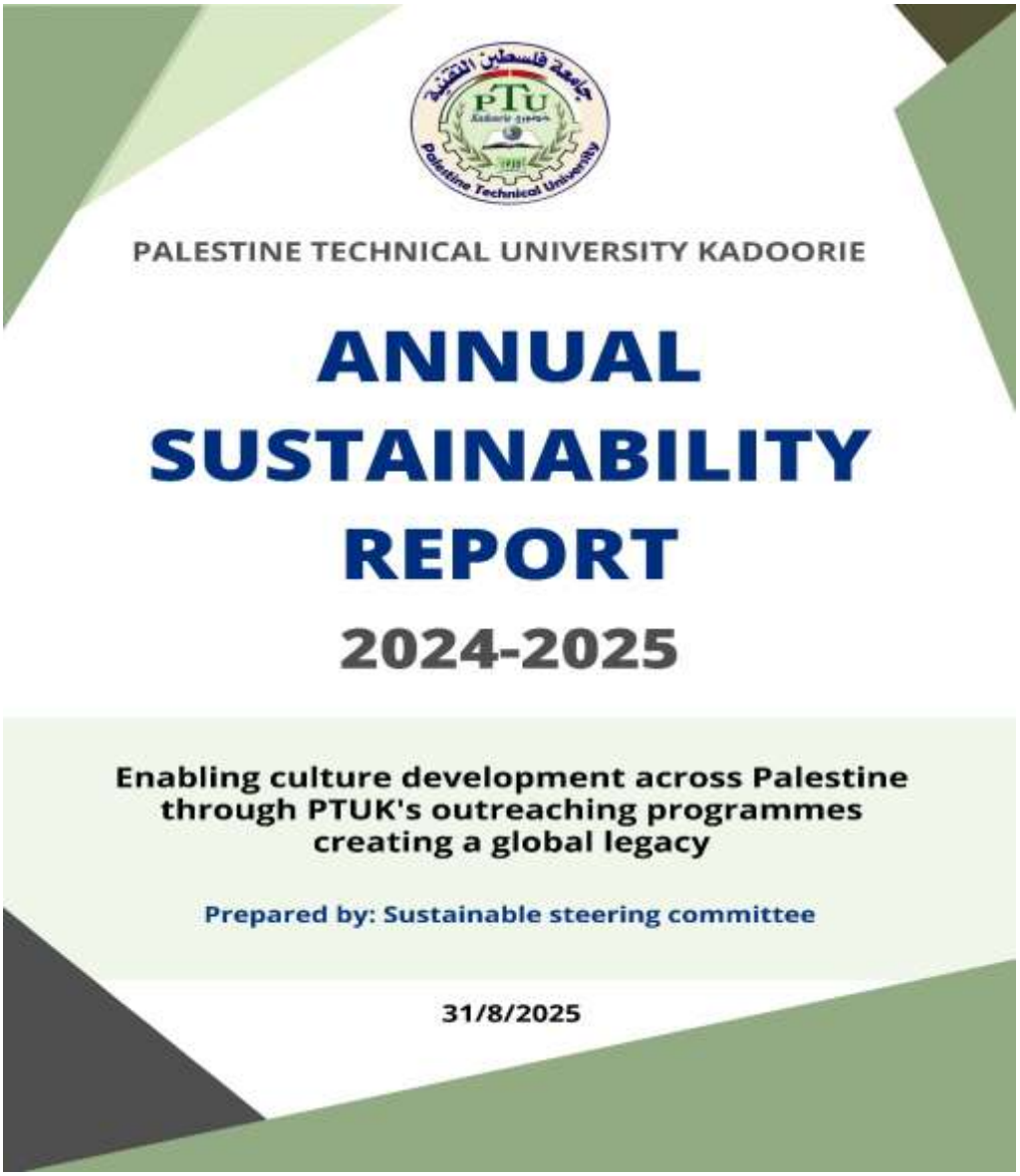
[6.11] Sustainability Report



Sustainability Report 2024- PTUK

Description:

Sustainability Report: https://ptuk.edu.ps/projects/so/en/earticlepage.php?artid=40

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

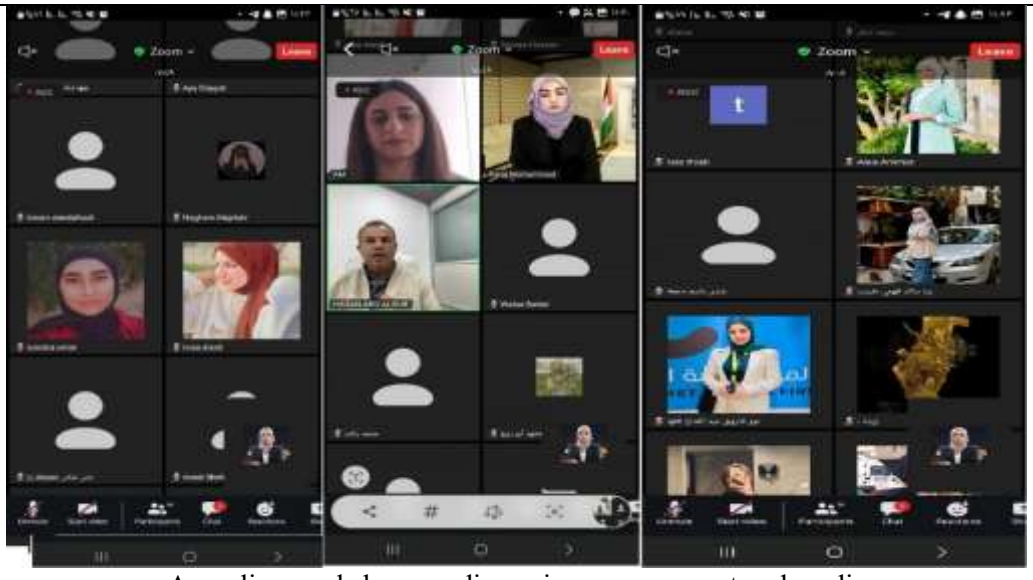
Launch of the "AMAL" Project Workshop to Promote a Culture of Human Rights and Gender Equality

Participation of PTUK students in free drawing competition

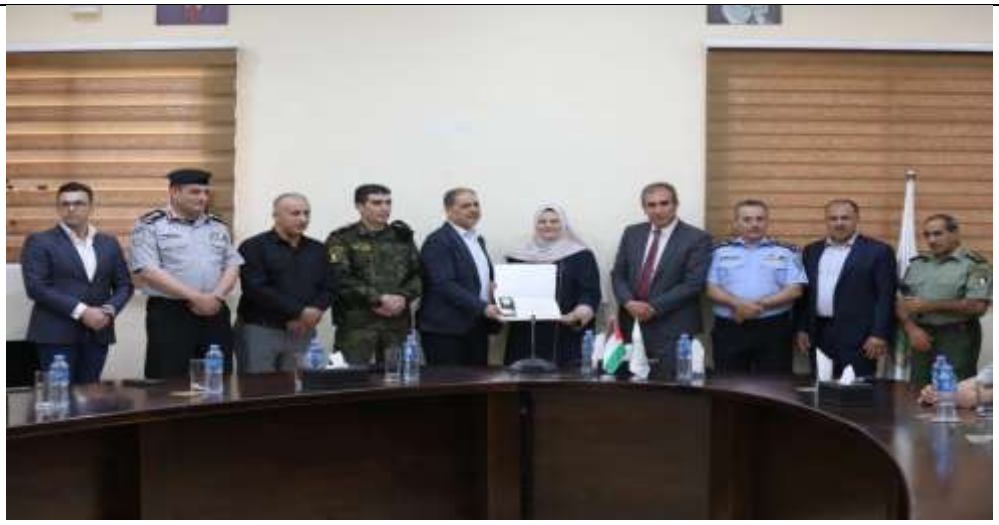
Aroub participates in a workshop on developing the accounting profession

Kadoorie and the Police Organize an Awareness Workshop on Dangerous Drugs

Kadoorie University Concludes Its Participation in Human Rights and Gender Workshops



An online workshop on discussion management and media



Closing ceremony for a workshop on official protocol

A workshop on basics of beauty activities

Preparing students for work place

Awareness workshop on finance

A workshop on traditional Palestinian costume

A Lecture about Palestinian Culture

Training workshop on work place

Description:

As can be seen students are extremely active when it comes to holding events related to cultural and other issues. The university encourages students to participate in such events hoping it would slowly increase the awareness and encourage the change of culture towards sustainability. These events are financially supported by the university. These events include

1. A workshop about the role of woman in the society
2. A workshop about Promoting and encouraging the spirit of leadership
3. A workshop about the role of media
4. A workshop about electrical vehicles
5. A workshop about the international woman day
6. How to protect yourself from electronic crimes
7. Thalassemia awareness day
8. Breast cancer awareness day

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[6.13] Number of university sustainability program(s) with international collaborations

Description:

FIRST: List of international programs regarding sustainability issues

#	Title	Start Date	End Date	Partners	Currency	Total Budget	University Share	Funding Program
1	Narrowband Internet of Things for Remote Healthcare Monitoring	2021-01-12	2023-01-12	Maqdisi - French Government	EUR	15000	15000	
2	Poultry house passive cooling technique based on using heat pipe loop.	2022	2023		USD	5000	5000	GIZ
3	Training center for utilization of by products as silage and compost making	2023	2024		EUR	50000	40000	GIZ
4	Boosting Innovation in Education aNd REsearch oF Precision AgriculTur	2020	2023	Palestine Al Quds Open University . Palestine An Najah National University . Palestine Hebron University .	EUR	790845	68480	Erasmus +

	e in Palestine			Palestine University College of Applied Sciences Palestine Al Istiqlal University Palestine Palestine Technical University / Kadoorie 6. Bulgaria University of Ruse . Nitra Slovak University of Agriculture . Czech Republic Institute of Technology and Business . Patras University of Patras .				

SECOND: In addition, there are number of capacity building international programs.

	Title	Start Date	End Date	Partners	Currency	Total Budget	Funding Program	
1	Open educational plat form to accelerate market adopting of sustainable energy research around the Mediterranean	2024	2027	• Palestine Technical University - Kadoorie (PTUK) • Palestine Polytechnic University • Sapienza Italy, Mine Paris France, Spain, American university Lebanon, Lebanon University Lebanon	EUR	799965		Erasmus+
2	Flipped Practical Courses VIA Triple learning Environments developed by Triple Experts teams who are empowered through Triple Enhance programs (3EEE)	2022	2026	• Palestine Technical University - Kadoorie (PTUK) • Al-Quds University • Palestine Polytechnic University • University College of Applied Sciences • Accreditation and Quality Assurance Commission • FAKULTETA ZA TEHNOLOGIJO POLIMEROV • MITROPOLITIKO College ANOYMI EKPAIDEYTIKI ETAIRIA • EDEX - Educational Excellence Corporation Limited • HOCHSCHULE Der WIRTSCHAFT Fur Management GGMBH • UNIVERSIDADE De LISBOA • Arab American University • Ministry of Higher Education	EUR	898916	100418	Erasmus+

3	Enhancing ICT Competencies of Early Childhood Educators at HEIs in MENA Countries (EICT)	2022	2025	• University of Jordan • Irbid National University • Mutah University Ltd • Al-Azhar University • Suez Canal University • Heliopolis University Association • Palestine Technical University - Kadoorie (PTUK) • Palestine Technical College -Deir Elbalah • Al-Isteqlal University • TURUN YLIOPISTO • UNIVERSITATEA DIN BUCURESTI • INSTITUTO POLITECNICO DO PORTO • UNIVERSITA DEGLI STUDI DI PADOVA	EUR	800000	63649.96	Erasmus+
4	Agrotechnology VET Centers to Network and Train Future Farmers in Jordan and Palestine (AgroTec)	2023	2026	• AGRIWATCH BV. • MUTAH University Ltd. • University of Jordan. • National University College of Technology. • Palestine Technical University - Kadoorie (PTUK). • Palestine Polytechnic University. • SLOVENSKA POLNOHOSPODARSKA UNIVERZITA V NITRE • INT@EUG.	EUR	399666	57053	Erasmus+
5	3D Garment Design Training (3D-GDT)	2022	2025	• Dimiourgiki Skepsi Anaptyxis • Diethnes Panepistimio Ellados • Ciape - Centro	EUR	399529	47697	Erasmus+

				Italiano Per Lapprendimento Permanente • Centro Tecnologico das Industrias Textil E Do Vestuario De Portugal • Jordan University of Science and Technology • Al-Balqa Applied University • Palestine Technical University - Kadoorie PTUK • Palestine Technical College -Deir Elbalah				
6	Youth Initiatives	2020	2023		NIS	98000	147000	GIZ
7	Her Success	2019	2021		USD	30700	4605	Canadian Government
8	Capacity Building of the Youth in PV and Smart Building Management Systems	2022	2023		EUR	70000	70000	GIZ - DO-TVET Programme
9	Disability as diversity: The inclusion of students with disabilities in higher education (Edu4ALL)	2020	2023	PARTNERS FOR SUSTAINABLE DEVELOPMENT, UNIVERSITY OF JORDAN - UJ, AL-UMMAH UNIVERSITY COLLEGE, PALESTINE TECHNICAL COLLEGE -DEIR ELBALAH - PTCDB, Int@E UG - Int@E, UNIVERSIDAD DEL PAIS VASCO/ EUSKAL HERRIKO	EUR	960379	159330	Erasmus+

				UNIBERTSITATEA - UPV/EHU, ETHNIKO KAI KAPODISTRIAKO PANEPISTIMIO ATHINON - NKUA, IRBID NATIONAL UNIVERSITY - INU				

THIRD: In addition, there are number of PTUK students benefitting from external exchange Program

Name	Major	Semester	Country
Nour Al-Huda Jaafar Hussein Al-Sheikh	Business Administration and E-Commerce	2024	Egypt
Islam Khalil Ali Haj Saleh	Artificial Intelligence	2024	Iraq
Bisan Ahmad Mahmoud Ammar	Physics	2024	Iraq
Ayham Ahmad Mahmoud Ammar	Media Technology	2024	Iraq
Bisan Mohammad Faiq Salameh	Medical and Laboratory Sciences	2024	Iraq
Louay Anan Ali Ataya	Communications Engineering	2024	Iraq
Maya Khaled Saeed Haj	Communications Engineering	2024	Egypt
Mais Khairy Abdullah Abu Issa	Computer Science	2024	Egypt
Basmala Mohammad Mostafa Ar	Computer Science	2024	Egypt
Dareen Mohammad Mostafa Ja’ar	Medical and Laboratory Sciences	2024	Egypt
Rawan Mahmoud Ahmad Abu Al-Reesh	Computer Engineering	2024	Egypt
Hadeel Ashraf Mohammad Balawneh	English Language	2024	Jordan
Malak Munir Abdul-Jabbar Ameer	English Language	2024	Jordan
Shahd Azmi Nassar As’asous	Interior Design	2024	Jordan
Ruba Saed Fahmi Tabeeb	Media Technology	2024	Jordan
Aseel Ibrahim Atiyah Shehab	Media Technology	2024	Jordan
Alaa Maher Fathi Asaad	Communications Engineering	2024	Jordan
Eman Eyad Abdul-Rahman Saleh	Computer Engineering	2024	Jordan
Ansam Khaled Mohammad Amsi	Horticulture and Agricultural Extension	2024	Jordan

Enas Rabhi Hassan Halaika	Interior Design	2024	Jordan
Hashem Omar Ahmad Al-Saffarini	Computer Engineering	2024	Kurdistan
Diaa Haitham Mustafa Rabaieh	Horticulture and Agricultural Extension	2024	Iraq
Heba Mustafa Fawaz Abdul-Jalil	Computer Engineering	2024	Egypt
Rua Nasser Naeem Mahmoud	Architectural Engineering	2024	Egypt
Hala Imad Mahmoud Malouh	Architectural Engineering	2024	Egypt
Dana Eyad Khaled Masameh	Electrical Engineering	2024	Egypt
Rahiq Raed Bassam Shreim	Computer Engineering	2024	Egypt
Maha Khaled Ahmad Azzouni	Computer Engineering	2024	Egypt
Jihad Tayseer Mohammad Nassar	Civil Engineering	2024	Kurdistan
Mohammad Mazen Abdul-Jabbar Zidan	Civil Engineering	2024	Kurdistan
Bara Khalil Mohammad Ayasi	Accounting and Auditing	2024	Kurdistan
Batool Rouhi Mohammad Draydi	Mechatronics Engineering	2024	Kurdistan
Asmaa 'Mohammad Essam' Mufleh Salah	Computer Engineering	2024	Oman
Ahmad Tamer Mahmoud Zgheib	Mathematics	2024	Oman
Fahmi Mohammad Fahmi Hajeh	Civil Engineering	2024	Iraq
Yaqoub Tawfiq Mohammad Sweilem	Mechatronics Engineering	2024	Iraq
Muthanna Ghassan Ahmad Suleiman	Electrical Engineering	2024	Iraq
Ahmad Nadeem Hamdallah Basalat	Electrical Engineering	2024	Iraq
Islam Alaa Al-Deen Mahyoub Bani Fadel	Mechatronics Engineering	2024	Iraq
Alaa Majdi Ali Saleh	Computer Engineering	2024	Turkey
Tarek Ziad Qasim Ibrahim	Computer Engineering	2024	Turkey
Masa Nash’at Ibrahim Zakarallah	Business Administration and E-Commerce	2024	Turkey
Narmin Jamal Badi’ Omar	Accounting and Auditing (Co-op)	2024	Turkey
Sadeel Issam Abdul-Latif Jaber	Accounting and Auditing (Co-op)	2024	Turkey
Amina Hossam Al-Deen Al-Munasrah	Design and Applied Arts	2024	Kurdistan
Salsabeel Mujahid Mohammad Harb	Design and Applied Arts	2024	Kurdistan

Mona Yaser Mahmoud Hamadneh	Applied Arts	2023	Jordan
Salah Al-Deen Ismail Abdul-Raouf Jaber	Mechanical Engineering	2023	Kurdistan
Hamed Abdul-Hakim Ahmad Abu Hijleh	Mechanical Engineering	2023	Kurdistan
Donia Khaled Mohammad Amsi	Computer Engineering	2023	Kurdistan
Eman Amjad Abdullah Mahfouz	Computer Engineering	2023	Kurdistan
Anaghem Aabr Al-Mohsen Suleiman Mansour	Computer Engineering	2023	Kurdistan

FOURTH: Sustainability Joint Research

1	Reliable Prediction Of Solar Photovoltaic Power And Module Efficiency Using Bayesian Surrogate Assisted Explainable Data-Driven Model, Amer, M., Sajjad, U., Hamid, K., Rubab, N., Results In Engineering, 2024
2	Assessing The Techno-Enviro-Economic Viability Of Wind Farms To Address Electricity Shortages And Foster Sustainability In Palestine, Elnaggar, M.H.A., El-Khozondar, H.J., Salah, W.A., Nassar, Y.F., Bashir, M.J., Results In Engineering, 2024
3	Development And Characterisation Of Myristic Acid-Paraffin Wax, Silica Fume And Zinc Oxide Cementitious Composites For Thermal Control In Buildings, Ismail, M.F., Alkhazaleh, A.H., Sirhan, A.Y., ...Ali, A.M., Masri, J., Case Studies In Thermal Engineering, 2024
4	Insights Into The Pressure-Dependent Physical Properties Of Cubic Ca3mf3 (M = As And Sb): First-Principles Calculations, Hossain, M.A., Sabi, A.A., Abdulhussein, H.A., ...Alshaikh Mohammad, N.F., Hosen, A., Heliyon, 2024
5	Electric Vehicles: Battery Technologies, Charging Standards, Ai Communications, Challenges, And Future Directions, 6Amer, M., Masri, J., Dababat, A., Sajjad, U., Hamid, K., Energy Conversion And M7anagement X, 2024
6	A Survey Of Modern Vehicle Noise, Vibration, And Harshness: A State-Of-The-Art, Masri, J., Amer, M., Salman, S.B., Ismail, M.F., Elsisi, M., Ain Shams Engineering Journal, 2024
7	Renewable Energy Potential In The State Of Palestine: Proposals For Sustainability, Nassar, Y.F., El- Khozondar, H.J., Elnaggar, M.H.A., ...El-Khozondar, R.J., Alsadi, S.Y.,Renewable Energy Focus, 2024
8	Factors And Determinants Affecting Banking Sector Stability: Empirical Evidence From Conventional And Islamic Banks Listed On The Palestine Stock Exchange, Badwan, N.L., Saleh, B.A., Hamdan, M., Journal Of Financial Regulation And Compliance, 2024
9	Quality Of Life And Nutritional Status In Peritoneal Dialysis Patients: A Cross-Sectional Study From Palestine, Ali, I.A.F., Haddad, D., Soliman, M.A., ...Shellah, D., Nawajah, I.M., Bmc Nephrology, 2024

10	Use Of Microsatellite Markers For Sex Determination In Date Palm (Phoenix Dactylifera L.) Cv. Medjool, Salameh, A.A.K.A., Hamdan, Y.A.S., Aslan, K., Genetic Resources And Crop Evolution, 2024
11	Genetic Diversity Assessment Of Palestinian Okra Landraces (Abelmoschus Esculentus L.) Through Rapd Marker, Hamdan, Y.A.S., Hawamda, A.I., Basheer-Salimia, R., Salman, M.N., Genetic Resources And Crop Evolution, 2024
12	Assessing Phenotypic Diversity Between Different Landraces Of Okra (Abelmoschus Esculentus L.), Hamdan, Y.A.S., Salameh, A.A.K.A., Reproduction And Breeding, 2024
13	Artificial Intelligence Tools Utilized In Nursing Education: Incidence And Associated Factors, Jallad, S.T., Alsaqer, K., Albadareen, B., Al-Maghaireh, D.F., Nurse Education Today, 2024
14	14. Governance Boards Of Trustees: Quality Of Higher Education And The Outputs Of Scientific Research, Awwad, B.S., Anasweh, M.S., Razia, B.S., Salameh, M., Journal Of Business And Socio Economic Development, 2024
15	Development And Characterisation Of Myristic Acid-Paraffin Wax, Silica Fume And Zinc Oxide Cementitious Composites For Thermal Control In Buildings, Ismail, M.F., Alkhazaleh, A.H., Sirhan, A.Y., ...Ali, A.M., Masri, J.Case Studies In Thermal Engineering, 2024
16	Insights Into The Pressure-Dependent Physical Properties Of Cubic Ca3mf3 (M = As And Sb): First-Principles Calculations, Hossain, M.A., Sabi, A.A., Abdulhussein, H.A., ...Alshaikh Mohammad, N.F., Hosen, A., Heliyon, 2024
17	Electric Vehicles: Battery Technologies, Charging Standards, Ai Communications, Challenges, And Future Directions, Amer, M., Masri, J., Dababat, A., Sajjad, U., Hamid, K., Energy Conversion And Management X, 2024
18	A Survey Of Modern Vehicle Noise, Vibration, And Harshness: A State-Of-The-Art, Masri, J., Amer, M., Salman, S.B., Ismail, M.F., Elsisi, M., Ain Shams Engineering Journal, 2024
19	Renewable Energy Potential In The State Of Palestine: Proposals For Sustainability, Nassar, Y.F., El- Khozondar, H.J., Elnaggar, M.H.A., ...El-Khozondar, R.J., Alsadi, S.Y.Renewable Energy Focus, 2024
20	Assessing The Techno-Enviro-Economic Viability Of Wind Farms To Address Electricity Shortages And Foster Sustainability In Palestine, Elnaggar, M.H.A., El-Khozondar, H.J., Salah, W.A., Nassar, Y.F., Bashir, M.J., Results In Engineering, 2024
21	Audit Committee Effectiveness In Times Of Crisis: Empirical Insights On Key Audit Matters Disclosure, Alshdaifat, S.M., Saleh, M.W., Mansour, M., ...Qamhan, M.A., Alrawad, M., Heritage And Sustainable Development, 2024

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

Project name	participants	Project duration	Project area
Flipped Practical Courses VIA Triple learning Environments developed by Triple Experts teams who are empowered through Triple Enhance programs (3EEE)	14 researchers + 320 students who benefited from this project	5 years	ED
Enhancing ICT Competencies of Early Childhood Educators at HEIs in MENA Countries (EICT)	8 researchers + 72 students who benefited from this project	4 years	ED
Agrotechnology VET Centers to Network and Train Future Farmers in Jordan and Palestine (AgroTec)	6 researchers + 86 students who benefited from this project	4 yeras	ED, WR
Narrowband Internet of Things for Remote Healthcare Monitoring	6 researchers + 110 students who benefited from this project	4 years	ED
Palestinian Agriculture and Academic Cooperation (PAAC)	8 researchers + 90 students who benefited from this project	4 years	ED; EC
Innovations in Water Education Programs: Enhancing Water Security and Socio-economic Development in the Eastern Mediterranean under Climate Change (WaSec)	45 researchers from different national and European universities	3 years	ED; WR
Evaluation the Groundwater Resources in the North Eastern Basin	7 researchers + 150 students and local community who benefited from this project	3 years	WR
Training center for utilization of by products as silage and compost making	5 researchers + 160 students and local community who benefited from this project	2 year	WS
Boosting Innovation in Education aNd REsearch oF Precision AgriculTure in Palestine	52 researchers from different national and European universities + about 630 students from the different universities.	3 years	ED;SI
Establishing Early Warning system for the Groundwater in Karst Aquifer	7 researchers + 96 students and local community who benefited from this project	2 year	WR

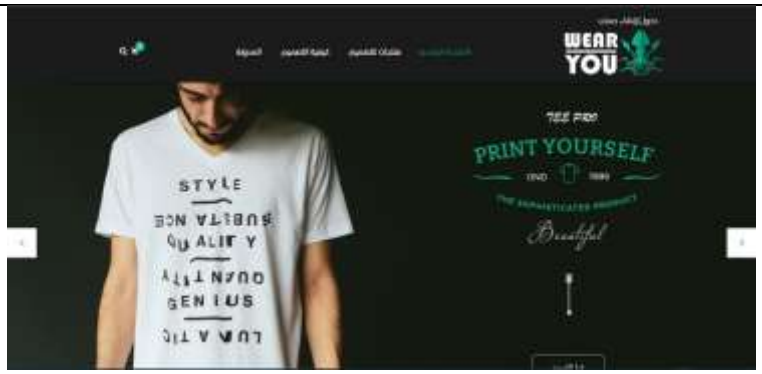
Innovations in Water Education Programs: Enhancing Water Security and Socio-economic Development in the Eastern Mediterranean under Climate Change (WaSec)	45 researchers from different national and European universities	3 years	ED; WR
Evaluation the Groundwater Resources in the North Eastern Basin	7 researchers + 150 students and local community who benefited from this project	3 years	WR
Strategies for the management of virus transmission in grapevine leafroll viruses by mealybugs.	4 researchers + 150 students who benefited from this project	2 years	EC
Algal-bacterial system for wastewater treatment: nutrient removal and recovery from anaerobically pre-treated food industry wastewater	5 researchers + 160 students who benefited from this project	2 years	WS
Introducing Feasible and Sustainable Hydro-agriculture Systems to Benefit Poor People in Urban Palestinian Areas	26 researchers + 650 students and local community who benefited from this project	2 years	SI; ED
Using optical sensor to evaluate the quality parameters of olive oil in Palestine	6 researchers + 50 students who benefited from this project	3 years	ED
Mobility project for the establishment of joint research partnerships for introducing precision farming to the Palestinian	12 researchers + 100 students who benefited from this project	2 years	ED
Almaqdisi Project- Developing power electronic circuits used in renewable energy systems.	13 researchers + 250 students who benefited from this project	3 years	ED

[6.15] Number of sustainability-related startups

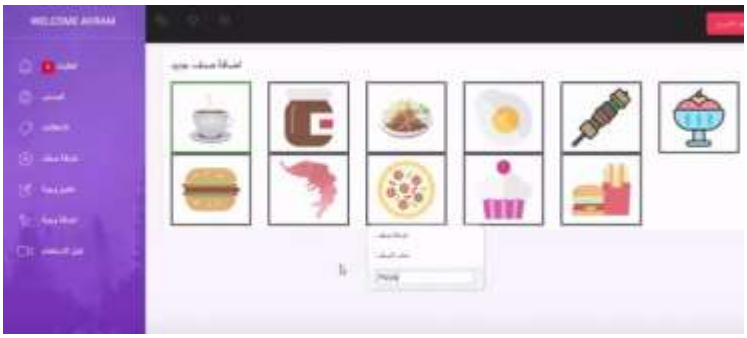
No.	Information
1	**Startup name: Green AMPs** **Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED):** EC; WS **URL:** https://menassah.net/; https://menassah.net/greenamps-project/ **Description: A startup company which uses bio digesters to produce gas and electricity**

	 **Photos:**
2	**Startup name:** Glass in Concrete **Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED):** SI **URL:** https://menassah.net/; https://menassah.net/twogreenprojects_wins/ **Description:** every year there are tons of wasted glass. This startup aims to use this glass to produce concrete with different shapes and colors of glass for decorative purposes.  **Photos**:
3	**Startup name:** Planting Cactus and Aloe Vera **Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED):** EC **URL:** https://menassah.net/; https://menassah.net/twogreenprojects_wins/ **Description: The purpose is to produce gel from the plants which is used foe facial care. The startup produces the gel and also does the packaging ready for the market**

	 **Photos:**
4	**Startup name: Diamond Advertising** **Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED):** SI **URL:** https://menassah.net/; https://menassah.net/%d8%a7%d8%b7%d9%84%d8%a7%d9%82-%d9%85%d8%b4%d8%b1%d9%88%d8%b9-%d8%af%d8%a7%d9%8a%d9%85%d9%88%d9%86%d8%af-%d9%84%d9%84%d8%af%d8%b9%d8%a7%d9%8a%d8%a9-%d9%88%d8%a7%d9%84%d8%a7%d8%b9%d9%84%d8%a7%d9%86/ **Description: Anew starting up company in the area of advertising. The have managed to sign contracts with local companies to carry out advertising for the companies. The startup is run by handicapped person.**  **Photos:**
5	**Startup name: Wear You** **Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED):** SI **URL:** https://menassah.net/; http://wearyou.net **Description: An electronic site allowing the youth to choose a design for their T-shirts. The customer can choose the pictures, colors and fabric he wants then the design he wants.**

	 **Photos:**
6	**Startup name: Fast-prepared Food** **Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED):** WS **URL:** https://menassah.net/; https://menassah.net/%d9%85%d8%b4%d8%b1%d9%88%d8%b9-%d8%a7%d9%84%d9%88%d8%ac%d8%a8%d8%a7%d8%aa-%d8%a7%d9%84%d8%b3%d8%b1%d9%8a%d8%b9%d8%a9/ **Description: A fast food company concerned with producing ready to eat frozen meals. They received 9600 dollars to start up their kitchen.**  **Photos:**
7	**Startup name: Pumkin** **Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED):** TR **URL:** https://menassah.net/; https://menassah.net/%d9%85%d8%b4%d8%b1%d9%88%d8%b9-pumkin/ **Description: A fast deliver company, delivers food, grocery or picks up anything or the customer.**

	 **Photos:**
8	**Startup name: VERSI** **Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED):** TR **URL:** https://menassah.net/; https://menassah.net/%d9%85%d8%b4%d8%b1%d9%88%d8%b9-%d9%81%d9%8a%d8%b1%d8%b3%d9%8a/ **Description: using virtual reality to ride bikes. Anyone can ride the bike without moving and enjoy a thrilling ride using virtual reality**   **Photos:**
9	**Startup name: VINTAGE** **Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED):** EC; WS **URL:** https://menassah.net/; https://menassah.net/vintage-project/ **Description: High quality products from grapes and fruits. THESE INCLUDE MILKY, Molasses, Raisins**

	  الطالبة الريادية جميلة حسين صبارنة **Photos:**
10	Startup name: FASTY Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED): TR; EC URL: https://menassah.net/; https://menassah.net/%d9%85%d8%b4%d8%b1%d9%88%d8%b9-fasty-%d8%b3%d9%8a%d8%b4%d8%a7%d8%b1%d9%83-%d9%81%d9%8a-%d8%a7%d9%84%d9%85%d9%84%d8%aa%d9%82%d9%89-%d8%a7%d9%84%d8%b7%d9%84%d8%a7%d8%a8%d9%8a-%d8%a7%d9%84%d8%a7%d8%a8/ Description: A simple program to help restaurants and fast food companies to easily receive electronic orders  Photos:
11	**Startup name: SAFETECH** **Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED):** SI **URL:** https://menassah.net/; https://menassah.net/student_company_2023/ **Description: A startup to develop and promote safety equipment. It manufactures new safety equipment such as hard hats.**

Photos:

The university has a Center for Innovation and Entrepreneurship specialized in spreading culture, incubating and adopting creative ideas These ideas are managed, encouraged and developed to become existing projects. The center is run by specialists in project management, attracting funding in order to insure the sustainability of these projects .Experts from different fields from the university are also involved when needed, for example technical support or economic feasibility study experts are available to help students free of charge. The university also encourages and helps its students to participate in specialized competitions for innovation and entrepreneurship.

Useful links: (Innovation and Entrepreneurship Center website)
https://menassah.net/

[6.16] Total number of graduates with green jobs (for the last 3 years)

Academic Year	Faculty/Department	Total Graduates	Graduates with Green Jobs	Description of Green Jobs	Data Source
2021/2022	Environmental Engineering (civil, architecture, building)	128	50	Waste Management Engineer, Renewable Energy Specialist	Alumni Database
2021/2022	Agriculture	82	55	Sustainable Agriculture Consultant, Organic Crop Expert	Alumni Survey
2021/2022	Business school	310	68	Green supply chain companies, renewable energy companies (management, accounting)	Alumni Survey
2021/2022	Engineering (electrical, sustainable, mechanical, computer)	445	72	Renewable Energy Engineer, Energy Efficiency Specialist	Tracer Study Report
2022/2023	Environmental Engineering (civil, architecture, building)	135	53	Waste Management Engineer, Renewable Energy Specialist	Waste Management Engineer, Renewable Energy Specialist
2022/2023	Agriculture	92	55	Sustainable Agriculture Consultant, Organic Crop Expert	Sustainable Agriculture Consultant, Organic Crop Expert
2022/2023	Business school	302	71	Green supply chain companies, renewable energy companies (management, accounting)	Green supply chain companies, renewable energy companies (management, accounting)
2022/2023	Engineering (electrical, sustainable, mechanical, computer)	456	79	Renewable Energy Engineer, Energy Efficiency Specialist	Renewable Energy Engineer, Energy Efficiency Specialist
2023/2024	Environmental Engineering (civil, architecture, building)	159	75	Waste Management Engineer, Renewable Energy Specialist	Alumni Database
2023/2024	Agriculture	108	63	Sustainable Agriculture Consultant, Organic Crop Expert	Alumni Survey
2023/2024	Business school + Accounting and electronic commerce	380	93	Green supply chain companies, renewable energy companies (management, accounting)	Alumni Survey
2023/2024	Engineering (electrical, sustainable, mechanical, computer, Automation, automotive, telecommunication)	495	101	Renewable Energy Engineer, Energy Efficiency Specialist	Tracer Study Report
2021-2024	Arts and Educational Sciences (Multimedia)	534	46	Community Development, Public Relations and Communication Officer for Green Projects, Curriculum Developer in Environmental and Sustainability Education	Alumni Survey

2021-2024	Information Technology (Applied Computing)	143	26	Sustainability Data Analyst, Green IT Specialist, IoT Developer for Environmental Monitoring	Alumni Survey
2021-2024	Technical and Vocational Education (Decor, external designer, air-conditioning)	2800	20	Technical Instructor in Renewable Energy Systems, Green Skills Trainer, Curriculum Developer for Green TVET Programs, Sustainability Officer in Technical Institutions	Green supply chain companies, renewable energy companies (management, accounting)
2021-2024	Applied Sciences	452	18	Laboratory or Field Technician in Environmental Monitoring, Sustainability Research Assistant,	Tracer Study Report
2021-2024	Physical education	234	0	-	-
Total		7223	945		

[6.17] Total number of graduates (for the last 3 years)

Academic Year	Faculty/Department	Total Graduates	Graduates with Green Jobs	Description of Green Jobs	Data Source
2021/2022	Environmental Engineering (civil, architecture, building)	128	50	Waste Management Engineer, Renewable Energy Specialist	Alumni Database
2021/2022	Agriculture	82	55	Sustainable Agriculture Consultant, Organic Crop Expert	Alumni Survey
2021/2022	Business school	310	68	Green supply chain companies, renewable energy companies (management, accounting)	Alumni Survey
2021/2022	Engineering (electrical, sustainable, mechanical, computer)	445	72	Renewable Energy Engineer, Energy Efficiency Specialist	Tracer Study Report
2022/2023	Environmental Engineering (civil, architecture, building)	135	53	Waste Management Engineer, Renewable Energy Specialist	Waste Management Engineer, Renewable Energy Specialist
2022/2023	Agriculture	92	55	Sustainable Agriculture Consultant, Organic Crop Expert	Sustainable Agriculture Consultant, Organic Crop Expert
2022/2023	Business school	302	71	Green supply chain companies, renewable energy companies (management, accounting)	Green supply chain companies, renewable energy companies (management, accounting)
2022/2023	Engineering (electrical, sustainable, mechanical, computer)	456	79	Renewable Energy Engineer, Energy Efficiency Specialist	Renewable Energy Engineer, Energy Efficiency Specialist
2023/2024	Environmental Engineering (civil, architecture, building)	159	75	Waste Management Engineer, Renewable Energy Specialist	Alumni Database
2023/2024	Agriculture	108	63	Sustainable Agriculture Consultant, Organic Crop Expert	Alumni Survey
2023/2024	Business school + Accounting and electronic commerce	380	93	Green supply chain companies, renewable energy companies (management, accounting)	Alumni Survey
2023/2024	Engineering (electrical, sustainable, mechanical, computer, Automation, automotive, telecommunication)	495	101	Renewable Energy Engineer, Energy Efficiency Specialist	Tracer Study Report
2021-2024	Arts and Educational Sciences (Multimedia)	534	46	Community Development, Public Relations and Communication Officer for Green Projects, Curriculum Developer in Environmental and Sustainability Education	Alumni Survey

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2021-2024	Technical and Vocational Education (Decor, external designer, air-conditioning)	2800	20	Technical Instructor in Renewable Energy Systems, Green Skills Trainer, Curriculum Developer for Green TVET Programs, Sustainability Officer in Technical Institutions	Green supply chain companies, renewable energy companies (management, accounting)
2021-2024	Applied Sciences	452	18	Laboratory or Field Technician in Environmental Monitoring, Sustainability Research Assistant,	Tracer Study Report
2021-2024	Physical education	234	0	-	-
Total		7223	945		

Description:

In the last for rows, the total number of graduates 2021-2024 is, whereas the green jobs are for the recent specializations in these faculties that graduate students for green jobs. The starting of graduating green jobs is only in the last year.

[6.18] Percentage of number of graduates with green jobs (for the last 3 years) (ED12)

Academic Year	Faculty/Department	Total Graduates	Graduates with Green Jobs	Description of Green Jobs	Data Source
2021/2022	Environmental Engineering (civil, architecture, building)	128	50	Waste Management Engineer, Renewable Energy Specialist	Alumni Database
2021/2022	Agriculture	82	55	Sustainable Agriculture Consultant, Organic Crop Expert	Alumni Survey
2021/2022	Business school	310	68	Green supply chain companies, renewable energy companies (management, accounting)	Alumni Survey
2021/2022	Engineering (electrical, sustainable, mechanical, computer)	445	72	Renewable Energy Engineer, Energy Efficiency Specialist	Tracer Study Report
2022/2023	Environmental Engineering (civil, architecture, building)	135	53	Waste Management Engineer, Renewable Energy Specialist	Waste Management Engineer, Renewable Energy Specialist
2022/2023	Agriculture	92	55	Sustainable Agriculture Consultant, Organic Crop Expert	Sustainable Agriculture Consultant, Organic Crop Expert
2022/2023	Business school	302	71	Green supply chain companies, renewable energy companies (management, accounting)	Green supply chain companies, renewable energy companies (management, accounting)
2022/2023	Engineering (electrical, sustainable, mechanical, computer)	456	79	Renewable Energy Engineer, Energy Efficiency Specialist	Renewable Energy Engineer, Energy Efficiency Specialist
2023/2024	Environmental Engineering (civil, architecture, building)	159	75	Waste Management Engineer, Renewable Energy Specialist	Alumni Database
2023/2024	Agriculture	108	63	Sustainable Agriculture Consultant, Organic Crop Expert	Alumni Survey

2023/2024	Business school + Accounting and electronic commerce	380	93	Green supply chain companies, renewable energy companies (management, accounting)	Alumni Survey
2023/2024	Engineering (electrical, sustainable, mechanical, computer, Automation, automotive, telecommunication)	495	101	Renewable Energy Engineer, Energy Efficiency Specialist	Tracer Study Report
2021-2024	Arts and Educational Sciences (Multimedia)	534	46	Community Development, Public Relations and Communication Officer for Green Projects, Curriculum Developer in Environmental and Sustainability Education	Alumni Survey
2021-2024	Information Technology (Applied Computing)	143	26	Sustainability Data Analyst, Green IT Specialist, IoT Developer for Environmental Monitoring	Alumni Survey
2021-2024	Technical and Vocational Education (Decor, external designer, air-conditioning)	2800	20	Technical Instructor in Renewable Energy Systems, Green Skills Trainer, Curriculum Developer for Green TVET Programs, Sustainability Officer in Technical Institutions	Green supply chain companies, renewable energy companies (management, accounting)
2021-2024	Applied Sciences	452	18	Laboratory or Field Technician in Environmental Monitoring, Sustainability Research Assistant,	Tracer Study Report
2021-2024	Physical education	234	0	-	-
Total		7223	945		

Description:

Total number of graduates in the last three years: 7223
Total number of graduates with green jobs in the last three years: 945

Percentage of number of graduates with green jobs:
(Total number of graduates with green jobs/ Total number of graduates) x 100%
= (945/7223) x 100%
= 13.1%

[6.19] Availability of unit(s) or office(s) that coordinate sustainability on campus

A Meeting with the Agricultural Engineering association discussing the sustainability issues

A Meeting with ministry of agriculture discussing the sustainability issues

Members of the sustianability office (SDGs) – PTUK - 2023-2024

Annual Sustainability Report 2023- PTUK

Description:

It is clearly evident that in today's world the need for a culture which understands the importance of sustainability. The university believes that it is essential for the education system to play a major role in explaining, planning and implementation of sustainability practices. It also has a major role to emphasize the importance of changing culture towards sustainability. It is necessary for effective implementation of policies and programs to understand and achieve SDGs. In order to do that the university created a Sustainability center on campus with permanent staff from

university employees. This center is headed by the university president assistant given it high credibility and authority. Center for Sustainable Development Goals Studies (SDGs Center) at PTUK plays a major role in spreading the sustainability culture. Through studies and research, it encourages researchers in different fields to do research aligned with SDG goals at global, national and local scale.

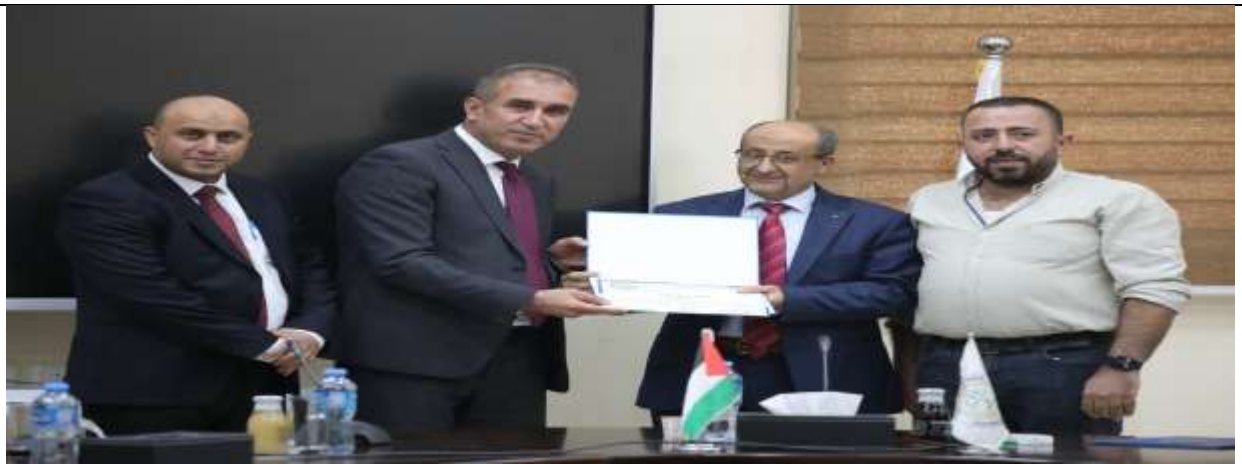
The center aims to make all research related to sustainability available for researchers globally. It is also working on holding capacity building activities in the university for national engagement in sustainability. Being a government university it is hoped that decision makers from the government will be part of the capacity building activities. The activities will include encouraging, publications, conferences, workshops, seminars, training, networking and provide felicitations for those who want to work in the field of sustainability

[6.20] Planning, implementation, monitoring and/or evaluation of university governance through the utilization of Information and Communication Technology (ICT)

Stage	Activities/Programs	ICT Utilization	Evidence	Timeline	Responsible Team/Department
Planning	Identify key areas of sustainability for research focus and encourage research in this field.	Monitor research output and identify areas for improvement using research software	Research focus documents, funding proposals	Jan 2024 – on going	Research Office, ICT Dept, SDG center
Implementation	Seek funds and support for joint research projects on sustainability with different partners	Digital grant management systems, putting on line current research to encourage partners	Funding records, project reports	Jan 2024 - Dec 2024	Research Office, Finance Dept, SDG center
Monitoring	Track research progress and publication output using new software	Research tracking tools through new software	Publication databases, progress reports https://scholar.ptuk.edu.ps/	Ongoing	Research Office, ICT Dept, planning department
Evaluation	Evaluate the impact and quality of publications	Citation analysis tools, peer review systems	Impact assessment reports, citation metrics	Annually	Research Office, ICT Dept

Open Access research repository system

Faculty of Graduate Students Research Conference directed for Sustainability issues



Prize winner for best research of sustainability

Description:

- **Planning:**

  Identify key areas of current sustainability research and find new areas for research to focus on . Secure funding for these research projects. Use research management software to organize and plan research activities, manage funding proposals and prizes to ensure alignment with sustainability goals.

- **Implementation:**

  The university Provides funding and support for sustainability research projects, ensuring researchers have the necessary resources. Utilize digital grant management systems to streamline the funding process and keep track of research projects. The university gives prizes for best research in sustainability.

- **Monitoring:**

  Track the progress of sustainability research and the number of scholarly publications produced. Employ research tracking tools to monitor publication output and research milestones. Compare the number of publications every year on sustainability

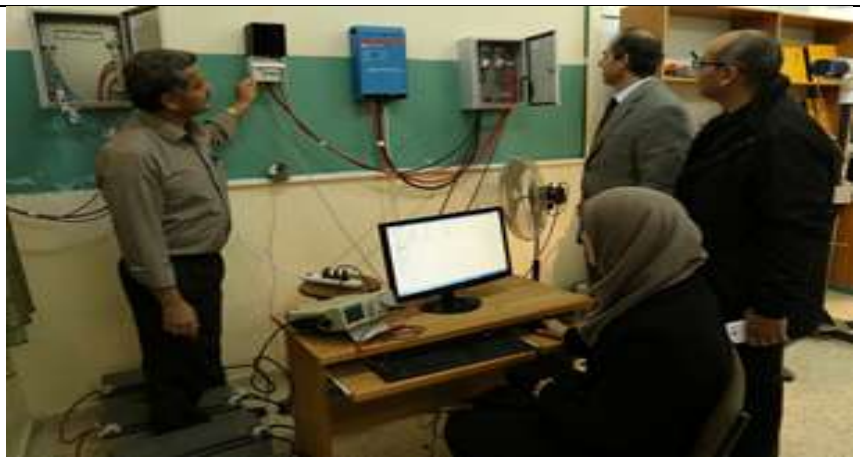
- **Evaluation:**

  Evaluate the impact and quality of the publications on sustainability. Use citation analysis tools and peer review systems to assess the reach and impact of the research.

During the past academic year, Palestine Technical University (PTUK) completed the full implementation and evaluation of its ICT-based university governance system, which aims to enhance transparency, accountability, and efficiency in institutional decision-making. The system integrates several digital platforms, including the electronic document management system, online academic and administrative services, digital attendance and performance tracking systems, and the automated strategic planning and

reporting portal. Following the evaluation phase, which involved performance analytics, user satisfaction surveys, and feedback sessions with academic and administrative staff, PTUK identified several areas for improvement, such as strengthening system integration between departments, improving data interoperability, and upgrading cybersecurity protocols. Accordingly, the university has initiated a structured revision phase, led by the ICT Governance Review Committee, to update related policies, enhance user interfaces, and adopt new modules for real-time data visualization and decision support. This ongoing revision process is aligned with PTUK's Digital Transformation Strategy (2025–2030) and Quality Assurance Framework, ensuring that ICT governance remains adaptive, user-centered, and supportive of evidence-based management. Through this cycle of implementation, evaluation, and revision, PTUK demonstrates a strong institutional culture of continuous improvement and innovation in digital governance.

[6.21] Impact of Education and Research programs in supporting the Sustainable Development Goals (SDGs)



Example

Description:

PTUK's vocational and degree programs (technical, agricultural, engineering, logistics) improve employability and create pathways to green jobs.Research supports small-enterprise development and community projects reduce household vulnerability. Kadoorie Agricultural Research Center (KARC) and applied research on irrigation, crop productivity and organic inputs raise farm productivity and food-system resilience. Research on water quality, waste management and environmental health, plus campus health awareness and training, reduce exposure to hazards and support healthier communities. Water-science education, groundwater and

wastewater research, and community projects produce evidence and trained practitioners for better water management.(SDG 1,2,3,6)

PTUK's core mission: diverse undergraduate/graduate programs (including new PhD and Master offerings), short courses, applied labs and experiential learning outcomes .PTUK's students are equipped with skills, lifelong learning andtechnical literacy. scholarships and outreach projects aim to increase women's participation in STEM (science,technology,engineering and maths) and vocational programs; research projects often include equity. PTUK's outreach, branch-campus model, scholarships and community programs extend education and technical services to underserved areas, narrowing regional and social gaps.(SDG 5,6,10)

Degree programs, applied research and campus clean-energy pilots (renewables, energy efficiency,water collection , irrigation methods) build technical capacity to deploy affordable low-carbon energy. PTUK provides market-ready graduates, entrepreneurship training, and industry linkages (co-op, placement, green-jobs initiatives) that support local economic growth and youth employment. Research centres (TARC Tulkarm Applied Research Center, KARC Kadoorie Agricultural Research Center), EU/ERASMUS collaborations and applied pilot projects drive innovation, tech transfer and locally-appropriate infrastructure solutions. Research and training on urban planning, sustainable campus operations, waste/water/energy pilots inform local policy and community resilience.(SDG 7,8,9,11).

Curriculum and campus programs address waste reduction, circular practices, sustainable procurement and resource efficiency—teaching and demonstrating responsible production/consumption. Climate-related modules, mitigation/adaptation research, and campus emission reporting enable local climate action and capacity building for adaptation planning. Environmental and waste research (plastics, runoff) helps reduce pollution flows that could reach waterways;

PTUK's inland focus makes marine impacts mostly indirect.Agricultural research, soil conservation, sustainable land-use studies and campus greening protect terrestrial ecosystems and promote biodiversity-friendly practices.(SDG 12,13,14,15)

Evidence-based research (policy briefs, monitoring studies) and capacity building for public agencies strengthen governance, institutional transparency,continual reports and service delivery. International research links also build institutional credibility. PTUK's international collaborations (EU projects, Erasmus, PERA), MOUs and multi-stakeholder applied projects mobilize finance.(SDG 16,17)

Program	Program Name	Description	SDGs	Green Metric Item Mapping
P1	Education for Sustainability Program	The project aims to integrate the principles of sustainable development into university curricula through courses and activities that enhance students' environmental awareness and social responsibility. It focuses on fostering an educational culture that supports critical thinking and innovation for a sustainable future, in line with PTUK vision as a beacon of green education and balanced development.	SDG 4 SDG 12 SDG 13	[6.1] Number of Courses Related to Sustainability [6.2] Total Number of Courses/Subjects Offered [6.3] Study Programs Related to Sustainability [6.9] Number of Scholarly Publications on Sustainability in One Year [6.10] Ratio of Sustainability Publications to Researchers (ED.3) [6.11] Number of Sustainability-Related Events (ED.4) [6.26] Impact of Education and Research Programs on SDGs [1.24] Impact of SI programs on SDGs [2.14] Impactful University Programs on Climate Change (EC.10) [3.19] Impact of Waste Management Programs on SDGs
P2	Student Sustainability Forum	The project aims to empower students to discuss green ideas and initiatives and to exchange experiences in the fields of environment, energy,	SDG 4 SDG 13 SDG 17	[6.11] Number of sustainability-related events (ED.4) [6.12] Student Activities Related to Sustainability (ED.5) [6.19] Community Services (ED.10)

		and sustainable innovation. It focuses on enhancing the role of youth in driving change toward a more sustainable university, in line with PTUK vision as an active student hub for promoting a culture of sustainability and environmental awareness.		[6.24] Availability of unit(s) that coordinate sustainability on campus (ED.13) [6.26] Impact of Education and Research Programs on SDGs
P3	MENA Universities for Sustainability Initiative	The initiative aims to strengthen regional collaboration among universities in the fields of education, research, and sustainable innovation through experience exchange and joint projects. It focuses on building a regional university network that leads the transition toward sustainability, in line with PTUK vision as a pioneering platform uniting universities in the region for a green and sustainable future.	SDG 4 SDG 13 SDG 17	[6.12] Student Activities Related to Sustainability (ED.5) [6.19] Community Services (ED.10)
P4	Green Leadership Center	The center aims to develop leadership and administrative capacities in sustainability and environmental governance through specialized training and consultancy programs. It focuses on empowering university and academic leaders to adopt effective green strategies, in line with PTUK vision as a	SDG 4 SDG 13 SDG 17	[6.24] Availability of Unit Coordinating Sustainability (ED.13)

		beacon of excellence in sustainable leadership and institutional innovation.		
P5	Sustainability Research Lab		SDG 4 SDG 9 SDG 17	[6.5] Research Funds [6.10] Scholarly Publications [6.25] ICT in Governance (ED.14)