

Palestine Technical University- Kadoorie

Annual Sustainability Report

2023

Enabling a culture of Sustainable Development across PTUK, enhancing the student and staff experience and creating a global legacy.

Sustainability Report 2023 - PTUK

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 2018–2023 strategy. Operationally, the university employs a crossinstitutional 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)	6
	[1.1] NUMBER OF CAMPUS SITES	6
	[1.2] CAMPUS SETTINGS	8
	[1.3] TOTAL CAMPUS AREA (METER ²)	11
	[1.4] TOTAL CAMPUS BUILDINGS AREA	13
	[1.5] THE RATIO OF OPEN SPACE AREA TO TOTAL AREA	14
	[1.6] TOTAL AREA ON CAMPUS COVERED IN FOREST VEGETATION (METER ²)	15
	[1.7] TOTAL AREA ON CAMPUS COVERED IN PLANTED VEGETATION (METER ²)	22
	[1.8] TOTAL AREA ON CAMPUS FOR WATER ABSORPTION BESIDES THE FOREST AND PLANTED VEGETATION (METER ²)	26
	[1.9] UNIVERSITY BUDGET FOR SUSTAINABILITY EFFORT (IN US DOLLARS)	30
	[1.10] PERCENTAGE OF OPERATION AND MAINTENANCE ACTIVITIES OF BUILDING IN YEAR PERIOD	ONE 31
	[1.11] CAMPUS FACILITIES FOR DISABLE, SPECIAL NEEDS AND OR MATERNITY CARE	. 36
	[1.12] SECURITY AND SAFETY FACILITIES	41
	[1.13] HEALTH INFRASTRUCTURE FACILITIES FOR STUDENTS, ACADEMICS AND ADMINISTRATIVE STAFFS' WELLBEING	46
	[1.14] CONSERVATION: PLANT, ANIMAL, AND WILDLIFE, GENETIC RESOURCES FOR FO AND AGRICULTURE SECURED IN EITHER MEDIUM OR LONG-TERM CONSERVAT FACILITIES	DOD ION 49
	[1.15] PLANNING, IMPLEMENTATION, MONITORING AND/OR EVALUATION OF ALL PRO RELATED TO SETTING AND INFRASTRUCTURE THROUGH THE UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)	OGRAMS
[2]	ENERGY AND CLIMATE CHANGE (EC)	61
	[2.1] ENERGY EFFICIENT APPLIANCES USAGE	61
	[2.2] SMART BUILDING IMPLEMENTATION	67
	[2.3] RENEWABLE ENERGY SOURCES IN CAMPUS	69

[2.4] ELECTRICITY USAGE PER YEAR (IN KILOWATT HOUR)	71
[2.5] ELEMENTS OF GREEN BUILDING IMPLEMENTATION AS REFLECTED IN ALL CONSTRUCTION AND RENOVATION POLICIES	75
[2.6] GREENHOUSE GAS EMISSION REDUCTION	78
[2.7] THE TOTAL CARBON FOOTPRINT (CO2 EMISSIONS IN THE LAST 12 MONTHS, IN	N METRIC
TONS)	79
[2.8] NUMBER OF INNOVATIVE PROGRAM(S) IN ENERGY AND CLIMATE CHANGE	84
[2.9] IMPACTFUL UNIVERSITY PROGRAM(S) ON CLIMATE CHANGE	
[2.10] PLANNING, IMPLEMENTATION, MONITORING AND/OR EVALUATION OF ALL RELATED TO ENERGY AND CLIMATE CHANGE THROUGH THE UTILIZATION INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)	PROGRAMS OF 87
[3] WASTE (WS)	92
[3.1] 3R (REDUCE, REUSE AND RECYCLE) PROGRAM FOR UNIVERSITY WASTE	
[3.2] PROGRAM TO REDUCE THE USE OF PAPER AND PLASTIC ON CAMPUS	96
[3.3] TOTAL VOLUME ORGANIC WASTE PRODUCED AND TREATED 2022	98
[3.4] TOTAL VOLUME INORGANIC WASTE PRODUCED AND TREATED – 2022	99
[3.5] INORGANIC WASTE TREATMENT	100
[3.6] TOTAL VOLUME TOXIC WASTE PRODUCED AND TREATED-2022	104
[3.7] TOXIC WASTE TREATMENT-2022	106
[3.8] SEWAGE DISPOSAL	108
[3.9] PLANNING, IMPLEMENTATION, MONITORING AND/OR EVALUATION OF ALL F RELATED TO WASTE MANAGEMENT THROUGH THE UTILIZATION OF INFORMATIC COMMUNICATION TECHNOLOGY (ICT)	'ROGRAMS DN AND 109
[4] WATER (WR)	114
[4.1] WATER CONSERVATION PROGRAM IMPLEMENTATION	114
[4.2] WATER RECYCLING PROGRAM IMPLEMENTATION	116
[4.3] WATER EFFICIENT APPLIANCES USAGE (E.G. HAND WASHING TAPS, TOILET	

FLUSH, ETC.)	118
[4.4] CONSUMPTION OF TREATED WATER	120
[4.5] WATER POLLUTION CONTROL IN CAMPUS AREA	120
[4.6] PLANNING, IMPLEMENTATION, MONITORING AND/OR EVALUATION OF ALL PR	ROGRAMS
RELATED TO WATER MANAGEMENT THROUGH THE UTILIZATION OF INFORMATION	N AND
COMMUNICATION TECHNOLOGY (ICT)	122

[5] TRANSPORTATION (TR)	128
[5.1] THE TOTAL NUMBER OF VEHICLES (CARS AND MOTORCYCLES) DIVIDED BY CAMPUS' POPULATION	TOTAL 128
[5.2] ZERO EMISSION VEHICLES (ZEV) POLICY ON CAMPUS	129
[5.3] RATIO OF PARKING AREA TO TOTAL CAMPUS AREA	131
[5.4] PROGRAM TO LIMIT OR DECREASE THE PARKING AREA ON CAMPUS	
[5.5] NUMBER OF TRANSPORTATION INITIATIVES TO DECREASE PRIVATE VEHICI CAMPUS	LES ON 133
[5.6] PEDESTRIAN PATH POLICY ON CAMPUS	135
[5.7] PLANNING, IMPLEMENTATION, MONITORING AND/OR EVALUATION OF ALL RELATED TO TRANSPORTATION THROUGH THE UTILIZATION OF INFORMATION COMMUNICATION TECHNOLOGY (ICT)	PROGRAMS AND 137
[6] EDUCATION AND RESEARCH (ED)	139
[6.1] NUMBER OF COURSES/SUBJECTS RELATED TO SUSTAINABILITY OFFERED	139
[6.2] TOTAL NUMBER OF COURSES/ SUBJECTS OFFERED	146
[6.3] TOTAL RESEARCH FUNDS DEDICATED TO SUSTAINABILITY RESEARCH (IN U	JS DOLLARS) 147
[6.4] TOTAL RESEARCH FUNDS (IN US DOLLARS)	147
[6.5] NUMBER OF SCHOLARLY PUBLICATIONS ON SUSTAINABILITY	148

[6.6] NUMBER OF EVENTS RELATED TO SUSTAINABILITY149
[6.7] NUMBER OF ACTIVITIES ORGANIZED BY STUDENT ORGANIZATIONS RELATED TO SUSTAINABILITY PER YEAR
[6.8] NUMBER OF CULTURAL ACTIVITIES ON CAMPUS (E.G.CULTURAL FESTIVAL) INCLUDING VIRTUAL ACTIVITIES (IF ANY)
[6.9] NUMBER OF UNIVERSITY SUSTAINABILITY PROGRAM(S) WITH INTERNATIONAL COLLABORATIONS
[6.10] NUMBER OF SUSTAINABILITY COMMUNITY SERVICES PROJECT ORGANIZED AND/OR INVOLVING STUDENTS
[6.11] NUMBER OF SUSTAINABILITY-RELATED STARTUPS
[6.12] TOTAL NUMBER OF GRADUATES WITH GREEN JOBS191
[6.13] AVAILABILITY OF UNIT(S) OR OFFICE(S) THAT COORDINATE SUSTAINABILITY ON CAMPUS
[6.14] PLANNING, IMPLEMENTATION, MONITORING AND/OR EVALUATION OF UNIVERSITY GOVERNANCE THROUGH THE UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

[1] SETTING AND INFRASTRUCTURE (SI)

[1.1] NUMBER OF CAMPUS SITES





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 Tulkarm. 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 SETTINGS







Example of Campus Setting - Rural (PTUK)

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 (METER²)



Total area of the three Campuses: $0.490 \text{ km}^2 (0.189 \text{ mi}^2) = 490.000 \text{ m}^2$

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)		
А	A Main Building (Administration)		6200		
В	Faculty of Arts	698	2791		
E	Faculty of science	1982	6500		
G	Library	Library 2516			
J	Gymnasium	193	1000		
С	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		
Н	Faculty of Engineering	1828	8200		
J	Diploma Faculty	1212	9500		
М	Students center	1077	7649		
Ν	Faculty of Business and				
	Administration	1143	8950		
All Roofs		16083	65090		
Area					

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

AROUB CAMBUS					
Building	Building Name	Floor Area (m ²)	Total floors area (m ²)		
А	A Administration and Faculty of		800		
Arts		400			
В	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

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



	name of area	
	forest	
R	Road	
G	grass	
GR	green	

Note:

F_ forest G_ grass GR_ green

Areas	Area (m ²)	Percentage
Buildings	22343	4.6%
Streets and Pedestrians Paths	48870	10%
Parking	1675	0.3%
Vegetarian	101000	21%
Forests	149390	30%
Water Absorption Areas	166722	34%
Total	490000	100.0%

Ratio of open space towards total area: 95.1%

[1.6] Total Area on Campus Covered in Forest Vegetation (meter²)















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.

Total area on campus covered in forest vegetation: 149390 m^2 Total area on campus covered in planted vegetation: 101000 m^2

[1.7] Total area on campus covered in planted vegetation (meter²)









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 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.

[1.8] Total area on campus for water absorption besides the forest and planted vegetation (meter²)





Tulkarm





Tulkarm





Ramallah

Total **water absorption** area: $41711m^2 *$ Total Area: 490000 m² 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

*NOTE: Last year's figures for water absorption area took into consideration the planted areas and the forests. This was due to a misunderstanding. This year figures excluded these areas.

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

	2021	2022	2023	Average
Budget Total	25,000,000\$	27,000,000\$	30,687455\$	\$ 27,562,485
Sustainability	4,393,000\$	4,740,000\$	6,977,000\$	\$ 5,370,000
Budget				
			Percentage	19.5 %

Description:

- The percentage university budget for our university (2023) is 19.5%

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] Percentage of operation and maintenance activities of building in one year period










Regular maintenance activities are carried out by different university staff as well as professionals from the local community. Some of this maintenance such as grass cutting, gardening and plumbing as well as simple electrical works are carried out by volunteers from the young youths through the continuing education and community service Centre thus ensuring the engagement of the local community specially the youth.

The university also has contracts with local firms for maintenance . These companies include renewable energy installation and maintenance, water well upgrading and maintenance. Paper collection and recycling and others

1	Total campus buildings area	81100 m ²
2	Total operated building	67350 m2
	Percentage building that operated and maintained	83%

[1.11] 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)



Disubled parking (1

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

[1.12] Security and safety facilites













CCTV on all university ground (PTUK)





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.

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











Hospitals our students can use under our insurance

- 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.

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





The Library (PTUK)







Water refining (PTUK)





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

Description

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 openning of the veterinery medicine, the university is increasing the diversity of animals on campus. These include cattle, sheep, horses, chicken.

[1.15] 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/Depart ment
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.p tuk.edu.ps/faces/i ndex.xhtml https://hrm.ptuk. edu.ps/index.php ?lang=en&page=h ome https://lms.ptuk.e du.ps/# https://exam.ptu k.edu.ps/	Jan 2024 – on going	Computer center + planning department+ registration department
Implemen tation	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
Monitorin g	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



🇐 PTUK - HRM		Assoc. Prof. • سامنا تلك رئين لولمانة القاون الاكلمية 😑 🖉 Assoc. Prof.	← محدود اسماعيل
PLAN- PIKM Dashboard Employee Services Montflow Inbox Create New Wonflow Inbox Follow up CC Follow up CC Follow up CC Follow up CC Request Beynet Calendar Committees Documents Centre Staff Contact Information Circulars and announcements Other Notifications Additional services 	الجام المراسم الجامع المراسم الحالي المراسم الممراسم ا	A Count applied data (adjudatada et al.) Thu, 24/10/2024-07:20 AM Id Al Rahman Daraghmi (Associate Professor: Computer Science Department) (AD) Tasneem M. M. Duridi (Lecturer: Computer Science Department) (AD) Tasneem M. M. Duridi (Lecturer: Computer Science Department) (AD) Interseem Computer Science Department) <td< th=""><th></th></td<>	
هوري کي P" ه	eneral Users Courses Grades Plugins Appeara	nce Server Reports Development	
	First name / Last name	ID number	
	الجودة الأكاديمية 1 الرئيسي 风	monitor51	
	الجودة الأكاديمية 1 العروب	monitor79	
	الجودة الأكاديمية 1 رام الله	monitor69	
	الجودة الأكاديمية 2 الرئيسي	monitor52	
	الجودة الأكاديمية 2 العروب 💭 Monitoring the LMS	monitor80	
	~		



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.

[2] ENERGY AND CLIMATE CHANGE (EC)

[2.1] Energy Efficient Appliances Usage







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

Appliance	Total Number	Total number energy Efficient appliances	Percentage
LED Lamp	150,000	135000	90%
Fan	250	200	80%
Air Conditioning	307	223	73%
Etc.			•••
		Average Percentage	90%

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

No	Name	Place	automatio	c			salety		1 BACCO	eileigy	,	water	2000 2000 	onvironm		בוור		:	lighting		Building Area (m²)
			В 1	В 2	S1	S2	S 3	S 4	E1	E2	A 1	A 2	11	12	13	14	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		х		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		х		x				x	x	x		x	1000
	Faculty of Physcical Education	City, Country			x	x		x		х		x				x	x	x		x	800
	Supplies and Procurement Building	City, Country			x	x		x		х		x				x	x			x	1800
	Services	City, Country				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		х		x				x	x	x		x	9500

[2.2] Smart Building Implementation

Students center	City, Country		x	x	x		x		x	х			7649
Faculty of Business and Administration	City, Country		x	x	x	x	x		x	x	x	x	8950
Total													63290

No	Name	Place	automatio	u	safety					епегду		water		ndoor		בוור		:	lignting		Building Area (m²)
			В 1	В 2	S1	S2	S 3	S 4	E1	E2	A 1	A 2	11	12	13	14	L1	L2	L3	L4	
	Administration Building	City, Country			x	x		x		x		x				x	x	х		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	automatio	automatio n		safety				eriergy	5 (Malel		Indoor		CIIC		lighting			Building Area (m²)
			В 1	B 2	S1	S2	S 3	S 4	E1	E2	A 1	A 2	11	12	13	14	L1	L2	L3	L4	
	Administration and Faculty of Arts	City <i>,</i> Country			x	x		x		x		x				x	x	x		x	800
	Business and administration	City <i>,</i> 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

Smart building implementation

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

Example: *Total Smart Buildings Area: 79300 m² *Total Building Area: 81,100 m²

 $\frac{79300 \ m^2}{81,100 \ m^2} \times 100\% = 98\%$

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



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 745500 kWh. We also have a wind turbine on one of the roofs (Faculty of Engineering roof) generating 11600 kWh electrical energy and digester to generate bio gas generating 9200 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.

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



Learning is switched to distant learning.

Description:

The total electricity usage of main campus is 952000 kWh at 2023. The sources of this consumption are: the main grid (185700) and the renewable energy sources (766300 kWh)

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 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.

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.

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








The buildings are designed to insure sufficient light is entering through the windows and glass domes which means there is no need to use lighting. Buildings are insulated to protect the internal from heat and to save on air-conditioning bills.

[2.6] Greenhouse gas emission reduction program



Electrical Vehicles' Batteries Charge point(Palestine Technical University)



PV Solar System (Palestine Technical University)





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.

[2.7] Please Provide The Total Carbon Footprint (CO₂ emission in the last 12 months, in metric tons)

Option 2: R	ecommended 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) = number of shuttle bus in your university × total trips for	shuttle bus service each day ×approximate travel distance of vehicle each day insid
$0,01$ $= \frac{0 \times 150 \times 5 \times 240}{100} \times 0,01$ $= 0 \text{ metric tons}$	100
$CO_{2} (cars)$ $= \frac{\text{number of cars entering your university} \times 2 \times \text{approximate travel}}{100}$ $= \frac{86 \times 2 \times 0.25 \times 84}{100} \times 0.02$ $= 0.7224 \text{ metric tons}$	distance of vehicle each day inside campus only (KM) \times 240 \times 0,02
$CO_{2} \text{ (motorcycle)} = \frac{\text{number of motorcycle entering your university } \times 2 \times \text{approximate}}{10}$ $= \frac{0 \times 2 \times 0.20 \times 84}{100} \times 0.01$ $= 0 \text{ metric tons}$	$\frac{1}{00}$ ± travel distance of vehicle each day inside campus only (KM) × 240 × 0,01
CO₂ (total) = 155.988+0.7224 = 156.7 metric tons	
Carbon footprint in 2023 = 156.7 metric tons	
Example of Tot	al Carbon Footprint (UI GreenMetric)

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.

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





Almaqdisi project





Almaqdisi project





Almaqdisi project





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.

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

No	Programs	Scope (international / regional / national /	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 pro about 765 MWh clean energy ye
	Climate change and meteorology program	Local	220		It is a bachelor program. This pro an outcome of international coo between PTUK and number of S universities
	sustainable Energy Engineering				It is a bachelor program. This pro be in line with the national and in interest in renewable energy sou importance regarding climate ch program was prepared with loca

			1	1
innovation in water technology program	International	Students and staff of many universities who participated in this project		Erasmus project in Innovations ir Education programs, enhancing v and Scio-economic development Mediterranean under climate cha
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 be from Palestine and France. It is d power electronic circuits used in energy systems.
Workshop about electrical vehicles	national	350		Our university has launched an a program in Vehicle Engineering. ⁻ number of yearly workshops rega to switch to electrical vehicles
Workshop about waste recycling	national	310		The university has many academ regarding the environment. Man are yearly held to increase the av university and national / local co the environment. Many national participate in holding these work
Workshop about an international cleanliness day	local	270	Online workshops	Number of workshops are yearly increase the awareness of the ur local community about the clean for the surrounding environment Importance for health.
				This is a yearly basis day
A workshop about				

earth day	national	280		
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)	High at bearing a headar	This wind turbine is installed for Meanwhile, it participates in clea production to serve this building

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

[2.10] 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/Departm ent
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
Implement ation	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







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.



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





Waste Sorting Program





Compost Project





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.

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



Waste Sorting Program

ن ه ک	Ir	nbox							
A Dashboard									
Employee Services									
Hanager Services	•								
🖂 Workflow 🔶	•	t t	Sear	rch					
			#	×	Subject	From	Date	Attachments	
o Inbox 218 o Follow up	2					٢			
• cc 6			$\mathbf{\mathbf{\nabla}}$	×	محضر لجنة اكاديمية رقم 1 2023 2024	Assoc. Prof. samer mohmmad hasan arqawi (عيد الدراسات)	22/10/2023	® 1	
			\geq	*	تكليف د , مصعب عوشي مساعدا لعديد كلية الدراسات الطيا بالإضافة الى تسيير , أعمال قسم الطوم الإنسانية	Assoc. Prof. samer mohmmad hasan arqawi (عبد الدراسات)	22/10/2023	® 1	
Task Management	•	_							
🛗 Event Calendar	•			×.	أمور الكانيمية تئم مناقشتها في لجنة الكانيمية	Assoc. Prof. samer mohmmad hasan arqawi (صبد الدراسات الطر)	18/10/2023	∞ 0	
Requests	•			*	الإلتزام بإعطاء المحاضرات تزامنيا في موعدها ورقع التسجيلات	less Deuf en	18/10/2023	S 0	
韋 Scientific research system (trial)	-					Assoc. Froi, samer morninad hasan arqawi (yai curu ya yas)			
Committees	•				© All copyrights reserved t	for Palestine Technical University - Kadoorie			

Human Resources Managent System – Software Applocation



Compost Project



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.

[3.3] Total volume organic waste produced and treated-2023

	amuount (ton)								
Type of waste	total	reduced	reused	down-cycled	up-cycled				
organic	128	25.5	95						
- food waste	42	7.5	35						
- leaf, etc.	64	19	50.5						
- etc	22	9	9.5						

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.

[3.4] Total volume inorganic waste produced and treated-2023

	amuount (ton)							
Type of waste	total	reduced	reused	down-cycled	up-cycled			
	102	12						
inorganic non-toxic			86					
- paper	45	3	41					
- soft plastic	32	3	28					
- hard plastic	19	1.5	17					
- etc	6	-	-					

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.

[3.5] Inorganic Waste Treatment





Waste Sorting Program





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.

[3.6] Total volume toxic waste produced and treated-2022



Treatment of chemical materials



Treatment of chemical materials



Treatment of chemical materials



	amuount (ton)								
Type of waste	total	total reduced reused down-cycled up-cycled							
	0.34	0.29 (treated)							
toxic									
- electronics	0.16	0.14							
- lab. Chemicals	0.18	0.0.15							
- etc									

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.

[3.7] Toxic Waste Treatment-2023





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.
[3.8] Sewage Disposal



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.

[3.9] 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/Departm ent
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
Implement ation	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







• 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.

[4] Water (WR)

[4.1] Water Conservation Program Implementation





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

[4.2] Water Recycling Program Implementation





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 these include

- 3- Innovation in water education. Enhancing water security and socio-economic development in the eastern Mediterranean under climate changes 2021.
- 4- Introduction feasible and sustainable hydro-agriculture systems to benefit poor people in urban Palestinian areas.

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





The university has taken steps to reduce the amount of water consumed by personals and other activities such as cleaning or irrigation. Smart automatic taps are installed in rest rooms as well as labs. Low flush WC's are installed in some toilets (These are gradually increased). Irrigation using water drops is also used. Power hose is used which mixes air and water for faster and more efficient use.

Continuous monitoring and sustained maintenance to assure the optimal use of water resources.

Appliance	Total Number	Total number water Efficient appliances	Percentage
Toilet	254	154	61%
Wastafel	156	105	67%
Etc.			•••
		Average Percentage	63%

[4.4] Consumption of treated water

Description:

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





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

Procedure 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

[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/Departm ent
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
Implement ation	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	Data analysis tools,	Program	Annually	Sustainability
	of conservation	feedback systems	evaluation reports,		Office, ICT
	programs through		stakeholder		Dept, finance
	comparison of data		feedback		office







Smart Electric Taps



• 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.

[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	86
3	Motorcycles entering the university	0
	Total	91

5.4 = 91 / (9680) (population) = 0.009

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.

NOTE:

It is worth to note that 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.

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



Electrical Bikes





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 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. Workers union has agreement with electric cars sellers to reduce the interest and extend the period of payment making it easier to buy new zero emission vehicles.

[5.3] Ratio of Parking Area to Total Campus Area



Description:

Total main campus area: 490,000 m² Parking area of main campus is 1041 m² Parking area of Ramallah Campus is 320 m² Parking area of Aroub Campus is 229 m²

Total parking area = $1590m^2$ (181 spaces*8.78m² 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.

[5.4] Program to limit or decrease the parking area on campus



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 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

[5. 5] Number of Transportation Initiatives to Decrease Private Vehicles on Campus





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.

[5.6] Pedestrian Path Policy on Campus





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

[5. 7] 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/Departm ent
Planning	The university continuously assesses the need for transportation	Transport planning software and location finders	Needs assessment reports, route plans Forms filled by the travel department.	Jan 2024 – on going	Transportation Office, ICT Dept, planning department
Implement ation	There is no need for shuttle services, However mobile applications for university cars is used	GPS tracking,	https://ptuk.edu.p s/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		Ongoing	Transportation Office, ICT Dept
Evaluation	Evaluate shuttle car service efficiency	Data analysis tools, user feedback surveys		Annually	Transportation Office, ICT Dept

• 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 vehicles 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

[6] Education and Research (ED)

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

Course	Course Name	Description
Number		
12110598	Renewable 6Energy	This module concentrates on the renewable energy
	Technology	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	Introduction to energy systems : conventional and renewable
	Technology (1)	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	Energy production and consumption, with some national
	Environmental	statistics; Energy resources, including fossil fuels and
	Technology	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	The course will provide students with a working knowledge
	Systems	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	The fundamentals of conventional energy sources used in
	Buildings and	buildings; renewable technology; policies and drivers that are
	Systems	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,
		trameworks, 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	Interconnections between food, energy, and water with

	Energy, Water and	respect to sustainable development. Sustainable energy
	Food	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 lood processing. Energy in crop
12220210	Introduction to fire	Introduction to fire behavior. Concerts in fire protection
12230210	and safety	angineering fire safety systems, effect of fire on people, the
	and safety	effect of fire on property and environment, concents on safety
		engineering
12230405	Safety engineering	The course focuses on tools, techniques and methodologies
12230403	Safety engineering	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.
12310580	Water and	This course is an overview of engineering approaches to
	Wastewater	protecting water quality with an emphasis on fundamental
	Treatment	principals. Theory and conceptual design of systems for
	Technologies	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	Introducing the importance and role of technological, social,
	Sustainable Systems	and sustainable systems in the modern world. Provides a
		framework for the theory and practice of sustainable
		engineering.
12410323	Sustainable Energy	how they are evaluated quantitatively, their economics and
	Systems	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	Characteristics of groundwater aquifers, groundwater flow in
12110112	Water Engineering	aquifers, groundwater flow to wells, pumping tests.
	Water Engineering	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	This course will address the following topics: Strategy for
12-10-1-1	Waste Treatment &	Waste & Resource Management and Drivers for Change
	Management	Biological Treatment of Wastes Landfill for Waste
	Wanagement	Management and L and fill leachate Energy from Waste &
		Value Recovery from Waste Broducer Responsibility and
		Sustainable Products, Secondary Pay 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
12/10/69	Green Buildings	Students are introduced to the key principles of green
12410469	Green Buildings	Students are introduced to the key principles of green building including current standards and considerations for
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
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
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
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
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
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-
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
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
12410469	Green Buildings Infrastructure for	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 Developing infrastructure for sustainable cities entails understanding the connection between urban morphology and
12410469	Green Buildings Infrastructure for Sustainable & Smart Cities	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 Developing infrastructure for sustainable cities entails understanding the connection between urban morphology and physiology. This course uses a systems approach to analyzing
12410469	Green Buildings Infrastructure for Sustainable & Smart Cities	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 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
12410469	Green Buildings Infrastructure for Sustainable & Smart Cities	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 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
12410469	Green Buildings Infrastructure for Sustainable & Smart Cities	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 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
12410469	Green Buildings Infrastructure for Sustainable & Smart Cities	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 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, when alignetology, when vagatation, water systems
12410469	Green Buildings Infrastructure for Sustainable & Smart Cities	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 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
12410469	Green Buildings Infrastructure for Sustainable & Smart Cities	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 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 naighborhoods
12410469	Green Buildings Infrastructure for Sustainable & Smart Cities	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 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.
12410469 12410533 12280403	Green Buildings Infrastructure for Sustainable & Smart Cities Green Architecture	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 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. Introduction to the various forces that shape the human environment with a particular force on conclusion
12410469 12410533 12280403	Green Buildings Infrastructure for Sustainable & Smart Cities Green Architecture	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 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. Introduction to the various forces that shape the human environment with a particular focus on ecological determinents.
12410469 12410533 12280403	Green Buildings Infrastructure for Sustainable & Smart Cities Green Architecture	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 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. Introduction to the various forces that shape the human environment with a particular focus on ecological determinants; Integration and internalization of environmental appriced to the transport of environmental
12410469 12410533 12280403	Green Buildings Infrastructure for Sustainable & Smart Cities Green Architecture	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 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. 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;

		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.
14120316	Strategic	The course deals with the concepts and basics of strategic
1120010	management	management, formulation of the organization's mission and
	management	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	This course introduces the applications related to electronic
11100101	Management &	customer relationship management that enable business
	Logistic Services	organizations to attract customers meet their needs and retain
	Logistic bervices	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
1/100/02	Green and Reverse	This course aims to enhance students' knowledge in the major
14170402	logistics	green logistics principles practices and its environmental
	logistics	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 I oon 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	It includes the studying of types of chemical physical and
15050715	pollution and human	biological pollution in environment. Its effect on human
	health	health, methods of detection and ways to reduce its effects
15030430	Environmental	Methods in cleaning and Managements of waste products
	cleanup and waste	from environments by chemical and biological methods. It
	Management	covers bioremediation today: an overview of bioremediation
		process key terms and definitions the chemical
		transformation microbial ecology metabolism and the
1		autoritation, incrootat cology, inclabolishi 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	This course explores interactions between human activities
	Impact Assessment	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	The course is designed to give an overview of typical
	Treatment	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	This course gives the student the principles and practices of
	Management	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.
Example of	f Courses/Subjects Rela	ted to Sustainability (Palestine Technical University)

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



Description:

2021	2776
2022	2816
2023	2918

Total number of courses offered in 2023 = 2918 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 Research Funds Dedicated to Sustainability Research (in US Dollars)

Description:

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

The averaged annum last 3 years of research fund dedicated to sustainability research = 628646 US Dollars

[6.4] Total Research Funds (in US Dollars)

Description:

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

The averaged annum last 3 years of research fund = 1589596 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

[6.5] Number of scholarly publications on sustainability

=	Google Scholar	"Palestine Technical University" & green & Sustainability	
	Articles	About 178 results (0.07 sec)	
	Any time	Sustainability integration in Palestinian universities: a focus on teaching and	[PDF] researchgate.net
	Since 2023	research at engineering faculties	
	Since 2022	S Monna, A Barlet, M Haj Hussein of Sustainability in, 2022 - emerald.com	
	Since 2019	Purpose This study aims to evaluate the current state of sustainability education and research	
	Custom range	capacity at engineering faculties. More specifically, this research is intended to provide	
	2020 — 2022	☆ Save 99 Cite Cited by 2 Related articles All 6 versions	
	Crimt	[PDF] Palestine Technical University Research Journal	[PDF] aaru.edu.jo
	Search	F Annaya - 2020 - digitalcommons.aaru.edu.jo	52 State (1997)
		This paper aims to examine possible alternatives and potential solutions to support	
	Sort by relevance	sustainable development of the agricultural system and provide tools to cope with the economic	
	Sort by date	☆ Save 59 Cite Related articles	
	Any type	[PDF] Palestine Technical University Research Journal	[PDF] aaru.edu.jo
	Review articles	O Salah, Q Alzaghal - 2021 - digitalcommons.aaru.edu.jo	
		They are extensively acknowledged as the economic growth drivers and major contributors	
	include patents	to sustainability in most countries, including the Middle Eastern and other developing	
	include citations	☆ Save 59 Cite Related articles	
	Create alert	The key role of sustainable renewable energy technologies in facing shortage of energy supplies in Palestine: Current practice and future potential	
		WA Salah, M Abuhelwa, MJK Bashir - Journal of Cleaner Production, 2021 - Elsevier	
		the renewable energy company and Palestine Technical University to give a course on the health and environmental problems, contributing to the preservation of our green environment	
		☆ Save 奶 Cite Cited by 39 Related articles All 3 versions	
		Relationship and Impact between Strategic Vigilance and Entrepreneurial Orientation: field study at University Collegeof Science and Technology and Palestine	[PDF] ptuk.edu.ps
		M Abu Aziz, A Asfa, Y Abu Moustafa - 2022 - scholar.ptuk.edu.ps	
		This study aimed to realize therelationship andimpact betweenstrategic vigilance andEntrepreneurial orientation in University College of Science and Technology and Palestine	
		☆ Save 切 Cite Related articles 🕸	

Description:

Example of events **scholarly publications on sustainability** in the academic year 2021-2023. A total average per annum over the last 3 years of **241 publications.**

All research are aligned with the SDG mapping (see SDG research mapping) where the research dean of the university three files which are:

Sustainability Research Mapping_2023_Keywords_ALL_100 Sustainability Research Mapping_2023_Keywords_ALL_1000 Sustainability Research Mapping_2023_Keywords_ALL_Golden

[6.6] Number of Events Related to Sustainability





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



يسر عمادة شؤون التنمية وخدمة المجتمع بالتعاون مع عمادة شؤون الطلبة ومجلس اتحاد الطلبة وحركة الشبيبة الطلابية في جامعة فلسطين التقنية - خضوري دعوتكم لحضور ورشة عمل بعنوان:

"تهيئة الخريجين لسوق العمل"

تقدمها المدربة: سناء محمد فريج

تشمل الورشة المحاور التالية:

- كيفية إعداد سيرة ذاتية احترافية.
- فهم شامل لاحتياجات سوق العمل وكيفية التميز فيه.
 - نصائح تقنية لبدء مسيرتك المهنية بنجاح.
 - اكتشاف أسرار الحصول على فرص عمل مميزة.

77 الموعد: يوم الإثنين 14/10/2024 ① الساعة: 11:00 - 12:30 ¶ المكان: قاعة 6011

للمزيد من المعلومات والتسجيل، يرجى الاتصال على الرقم: 970599211712+



A workshop for preparing graduates to the local market



A Workshop on the finetech and sustainable finance



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













Example of events related to environment and sustainability hosted or organized by the University in the academic year 2021-2023.

Total number of sustainability/environment related events in:

2021: 18

2022: 26

2023:10 (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 **18 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.

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



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









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

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



Participation of PTUK students in free drawing compition



An online workshop on discussion management and media





A workshop on basics of beauty activities





Awareness workshop on finance







Training workshop on work place

دعوة



تدعوكم كلية العلوم والتكنولوجيا الزراعية بالتعاون مع الإغاثة الزراعية إلى حضور ورشة عمل بعنوان

مشروع تعزيز وتشجيع روح الريادة

ضمن مشروع المجتمعات المرنة الممول من الوزارة الفيدرالية الألمانية للتعاون والتنمية والمنفذ من قبل جمعية التنمية الزراعية ومؤسسة أوكسفام، وتهدف الورشة إلى تعريف طلبة الجامعة على اختلاف تخصصاتهم بالمشروع وكيفية الاستفادة منه لتمويل مشاريعهم الفردية والريادية.



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

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

Description:

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- 02-15	2023- 02-15		USD	5000	5000	GIZ
3	Training center for utilization of by products as silage and compost	2023- 01-01	2024- 01-01		EUR	50000	40000	GIZ

	making							
4	Boosting Innovation in Education aNd REsearch oF Precision AgriculTure in Palestine	2020- 01-15	2023- 01-15	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 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 .	EUR	790845	68480	Erasmus+
5	Establshing Early Warning system for the Groundwater in Karst Aquifer	2017- 01-01	2018- 12-01	UFZ-Germany	EUR	28600	6400	
6	Innovations in Water	2019- 01-01	2021- 12-01	AQU	EUR	804000	115731	

	Education Programs: Enhancing Water Security and Socio- economic Development in the Eastern Mediterranean under Climate Change (WaSec)							
7	Evaluation the Groundwater Resources in the North Eastern Basin	2017- 01-01	2019- 12-01	AQU	EUR	172000	85000	
8	Strategies for the management of virus transmission in grapevine leafroll viruses by mealybugs.	2019- 01-01	2020- 01-01	NARC	USD	10000	5000	
9	Paletinian Agriculture and Academic Cooperation (PAAC)	2015- 03-01	2019- 06-01	PTUK, ANNU,HU, AQU	USD	2167000	450000	
10	Algal-bacterial system for wastewater treatment: nutrient removal and recovery from anaerobically pre-treated food industry wastewater	2018- 01-01	2019- 06-01	PTUK, IHE - Delft	USD	40000	25400	
11	Natural Induced	2017- 06-01	2018- 06-01	PAAC	USD	3000	3000	

	Resistance in Barley and Wheat Using Palestinian Endogenous Plant Extracts Against plant disease							
12	Biological Control with Endogenous Natural Enemies against Red Palm Weevil	2017- 06-01	2018- 06-01	PAAC	USD	3000	3000	
13	Combination of biocontrol agents and chemical Nematicide for the control of Root-Knot Nematode on Tomato.	2017- 06-01	2018- 06-01	PAAC	USD	3000	3000	
14	Palestinian indigenous plant extract to control barley loose smut Ustilago nuda.	2017- 05-01	2018- 05-01	ANNU&PARC	USD	5000	5000	
15	Introducing Feasible and Sustainable Hydro- agriculture Systems to Benefit Poor People in Urban Palestinian Areas	2018- 01-01	2019- 06-30	ARIJ, PTK, Twente, TGS	USD	39900	13400	
16	Using sensors for	2018- 12-01	2019- 12-01		USD	2900	2900	PTUK

	classification of different fugi species according to their metabolic activities							
17	Using sensors for detecting pathogen	2018- 08-01	2019- 08-01		USD	15000	0	PTUK + Mohe
18	Using optical sensor to evaluate the quality parameters of olive oil in Palestine	2018- 08-01	2019- 08-01		USD	10000	10000	PTUK + Mohe
19	Mobility project for the establishment of joint research partnerships for introducing precision farming to the Palestinian	2018- 12-01	2020- 06-20	University of Hohenheim Institute of Agricultural Engineering, Stuttgart Germany	EUR	8000	1600	PALGER

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

Title	Start Date	End Date	Partner s	Currency	Total Budg et	Universi ty Share	Funding Program	
1	Flipped Practical Courses VIA Triple learning Environmen ts	2022 -12- 01	2026- 12-01	 Palestine Technical University - Kadoorie (PTUK) • Al-Quds University • Palestine Polytechnic University University College of Applied Sciences • 	EUR	898916	100418	Erasm us+

	developed by Triple Experts teams who are empowered through Triple Enhance programs (3EEE)			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				
2	Enhancing ICT Competenci es of Early Childhood Educators at HEIs in MENA Countries (EICT)	2022 -12- 05	2025- 12-05	 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	Erasm us+
3	Agrotechnol	2023	2026-	• AGRIWATCH BV. •	EUR	399666	57053	Erasm

	ogy VET Centers to Network and Train Future Farmers in Jordan and Palestine (AgroTec)	-01- 01	01-01	MUTAH University Ltd. • University of Jordan. • National University College of Technology. • Palestine Technical University - Kadoorie (PTUK). • Palestine Polytechnic University. • SLOVENSKA POLNOHOSPODAR SKA UNIVERZITA V NITRE • INT@E UG.				us+
4	3D Garment Design Training (3D-GDT)	2022 -12- 01	2025- 01-12	 Dimiourgiki Skepsi Anaptyxis • Diethnes Panepistimio Ellados Ciape - Centro 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 	EUR	399529	47697	Erasm us+
5	Youth Initiatives	2020 -11- 26	2023- 01-03		NIS	98000	147000	GIZ
6	Her Scuccess	2019 -04- 22	2021- 06-11		USD	30700	4605	Canad ian Gover nment
7	Capacity Building of the Youth in PV and	2022 -08- 15	2023- 08-15		EUR	70000	70000	GIZ - DO- TVET Progr
	Smart Building Manageme nt Systems							amme
----	---	--------------------	----------------	--	-----	---------	--------	--------------
8	Disability as diversity: The inclusion of students with disabilities in higher education (Edu4ALL)	2020 -11- 15	2023- 11-14	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 UNIBERTSITATEA - UPV/EHU, ETHNIKO KAI KAPODISTRIAKO PANEPISTIMIO ATHINON - NKUA, IRBID NATIONAL UNIVERSITY - INU	EUR	960379	159330	Erasm us+
9	Pathway in Forensic Computing (FORC)	2016 -10- 01	2020- 10-01	iddlesex University London, Dublin City University, Al-Quds University, Palestine Technical University - Kadoorie, Jordan University, Princess Sumaya University for Technology, Al Andalus Software Development (ASD).	EUR	899213	144378	Erasm us+
10	Developme nt of TVET Pedagogical Competenc es and Qualification	2019 -11- 15	2021- 11-15	Polytechnic University – PPU University College of Applied Sciences – UCAS An- Najah National University – ANU Al-	EUR	5999011	111885	Erasm us+

	in Palestinian Universities local partners			Quds University – AQU Arab American University in Jenin – AAUJ Ministry of Education & Higher Education–MOHE Ministry of Labour – MOL University Lille 1 Berlin University of Technology University of Applied Management Studies European Association of Institutes for Vocational Training MedLink Association				
11	Teaching English as a Foreign Language in Palestinian HEIs: An e- Learning Initiative that Bridges Educational and Socio- Political Gaps (TEFL- ePAL)	2018 -11- 15	2021- 11-15	1-CHEMNITZ UNIVERSITY OF TECHNOLOGY - Germany 2- UNIVERSITY OF WOLVERHAMPTON- England 3-ANADOLU ÜNIVERSITESI- Turkey 4-Universal Learning System- Irland 5- Pitman - palstine 6- ALQUDS OPEN UNIVERSITY 7-PALESTINE AHLIYA UNIVERSITY 8- AL-ISTIQLAL UNIVERSITY 9- PALESTINE TECHNICAL UNIVERSITY- KADOORIE	EUR	929151	97985	Erasm us+
12	Research Output Manageme nt Through Open Access Institutional Repositorie s (ROMO)	2016 -01- 01	2016- 01-01	• The Islamic University (Gaza). • Birzeit University. • Al-Quds Open University. • University of Brighton (UK). • University of Glasgow (UK). • Vienna Technical	EUR	1100000	186113	Erasm us+

				University (Austria). • University of Parma (Italy).				
13	Fostering Entrepreneu rship in Science, Technology, Engineering and Math (FESTEM)	2018 -04- 11	2018- 04-11	Program Countries Partners :- Universität Siegen USIEGENDE- University of Copenhagen UCPH DK- Middlesex University MUHEC UK-Leaders International LI Partner Countries : - Birzeit University BZU Palestine- Palestine Polytechnic University PPU -Palestine Technical University Kadoorie PTUK- Islamic University of Gaza IUG- Higher Council for Innovation and Excellence HCIE- 3 associated partners start-ups	EUR	989000	139503	Erasm us+

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

Project name	participants	Project duration	Project area
Narrowband Internet of	6 researchers + 110		
Things for Remote Healthcare	students who benefited	4 years	ED
Monitoring	from this project		
Poultry house passive cooling	6 researchers + 90		
technique based on using	students who benefited 1 year		EC
heat pipe loop	from this project		
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	52 researchers from different national and	3 years	ED;SI

Precision AgriculTure in Palestine	European universities + about 630 students from the different universities.		
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 Basin7 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
Palestinian Agriculture and Academic Cooperation (PAAC)	8 researchers + 90 students who benefited from this project	4 years	ED; 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
Natural Induced Resistance in Barley and Wheat Using Palestinian Endogenous Plant Extracts Against plant disease	6 researchers + 70 students who benefited from this project	1 years	EC
Biological Control with Endogenous Natural Enemies against Red Palm Weevil	13 researchers + 90 students who benefited from this project	1 years	SI
Combination of biocontrol agents and chemical Nematicide for the control of Root-Knot Nematode on Tomato.	8 researchers + 200 students and local community who benefited from this project	1 years	SI; ED
Palestinian indigenous plant extract to control barley loose smut Ustilago nuda.	8 researchers + 48 students who benefited from this project	1 years	SI
Introducing Feasible and	26 researchers + 650	2 years	SI; ED

Sustainable Hydro-agriculture Systems to Benefit Poor People in Urban Palestinian	students and local community who benefited from this project		
Using sensors for classification of different fugi species according to their metabolic activities	10 researchers + 80 students who benefited from this project	1 years	ED
Using sensors for detecting pathogen	5 researchers + 40 students who benefited from this project	1 years	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

[6.11] Number of sustainability-related startups

No.	Information
1	Startup name: Glass in Concrete
	Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED): SI
	URL: 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:							
2	Startup name: Planting Cactus and Aloe Vera							
-	Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED): EC							
	URL: 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							
3	Photos:							
3	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-							
	<u>%d9%85%d8%b4%d8%b1%d9%88%d8%b9-</u>							
	<u>%d8%af%d8%a7%d9%8a%d9%85%d9%88%d9%86%d8%af-</u>							
	<u>%d9%84%d9%84%d8%af%d8%b9%d8%a7%d9%8a%d8%a9-</u>							
	<u>%d9%88%d8%a7%d9%84%d8%a7%d8%b9%d9%84%d8%a7%d9%86/</u>							
	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:							
8	Startup name: VERSI Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED): TR URL: <u>https://menassah.net/;</u>							
	https://menassah.net/%d9%85%d8%b4%d8%b1%d9%88%d8%b9-							
	<u>%d9%81%d9%8a%d8%b1%d8%b3%d9%8a/</u>							
	Description: using virtual reality to ride bikes. Anyone can ride the bike without moving and enjoy a thrilling ride using virtual reality							
	<image/>							
9	Photos: Startup name: VINTAGE							
	Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED): EC; WS							
	URL: https://menassah.net/vintage-project/							
	Description: High quality products from grapes and fruits. THESE INCLUDE MILKY, Molasses, Raisins							

	<image/> <image/>					
	Photos:					
10	Startup name: FASTY Startup area in UI Greenmetric questionnaire (SI, EC, WS, WR, TR, ED): TR; EC URL: 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%d8%b7%d9%84%d8%a7%d8%a8%d9%8a- %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					
11	Startun name: SAFFTECH					
* *	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.					



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/

[6.12] Total number of graduates with green jobs

Academic Year	Faculty/Department	Total Graduates	Graduates with Green Jobs	Description of Green Jobs	Data Source	
2020/2021	Environmental Engineering (civil, architecture, building)	120	48	Waste Management Engineer, Renewable Energy Specialist	Alumni Database	
2020/2021	Agriculture	75	45	Sustainable Agriculture Consultant, Organic Crop Expert	Alumni Survey	
2020/2021	Business school	250	62	Green supply chain companies, renewable energy companies (management, accounting)	Tracer Study Report	
2020/2021	Engineering (electrical, sustainable, mechanical, computer)	355	65	Renewable Energy Engineer, Energy Efficiency Specialist	Career Center Data	
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
	Total		723		

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





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

[6.14] 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/Departm ent
Planning	Identify key areas of	Monitor research	Research focus	Jan 2024 – on	Research
	sustainability for	output and identify	documents,	going	Office, ICT
	research focus and	areas for	funding proposals		Dept, SDG
	encourage research	improvement using			center
	in this field.	research software			
Implement	Seek funds and	Digital grant	Funding records,	Jan 2024 - Dec	Research
ation	support for joint	management	project reports	2024	Office, Finance
	research projects on	systems, putting on			Dept, SDG
	sustainability with	line current			center
	different partners	research to			
		encourage partners			

Monitoring	Track research progress and publication output using new software	Research tracking tools through new software	Publication databases, progress reports <u>https://scholar.ptu</u> <u>k.edu.ps/</u>	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

repositories are establis	thed to provide Open Access to the PTUK research output.		Technica Unit
DSpace at My Universi	ty	_	
Communities and Co Shown below is a list of	ollections communities and the collections and sub-communities within them. Click on	a name to view that c	ommunity or collection home page.
			Discover
+ Conferences		159	Alsadi, Samer
E milto of Com	Ander Starling	32	Awwad, Bahaa
+ Faculty of Gradua	duate Studies		Samara, Rana
+ Kadoorie proje	ect	3	Asad, J. H
0)nen Δccess research reno	sitary s	vstem



Faculty of Graduate Students Research Conference directed for Sustainability issues



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.