

Plans of carbon management and reducing carbon dioxide emissions, 2020



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Mutah University

Authored by: Maintenance and sustainable unit



Mutah University,

Mutah University is located in the town of Mutah in the Karak Governorate, 135 km south of the Jordanian capital Amman and 12 km from the ancient Karak Castle. The university was established by royal decree in 1981, and it is a two-pronged university, civil and military. The military wing began its work in 1984, and in 1986 the Council of Higher Education decided to establish a civilian wing in it.

The area of the university in its main site is 400 acres, 15 colleges, including 7 scientific colleges: science, engineering, medicine, pharmacy and nursing, and 7 humanities colleges: public arts, law, Sharia, educational sciences, sports sciences and a college for graduate studies, in addition to two deanships, namely: the Deanship of Scientific Research, and the Deanship of Student Affairs, and the university offers 105 academic programs, including 53 programs at the bachelor's level, 42 programs at the master's level, 9 programs at the doctoral level, and one program at the higher diploma level.

***Toward
“Green University-Surplus Energy University”***

Maintenance and sustainable unit

The maintenance and sustainable was established unit in 1993. This unit consists of the following departments:

- Maintenance department.
- Mechanical department.
- Electric department.
- Follow-up and field control department.
- Communications Department.
- Buildings department.

The maintenance and sustainable unit performs a large number of duties and tasks, which are the maintenance and sustainment of the university's facilities and buildings, the development of the infrastructure of the various facilities of the university, the operation of all electrical, mechanical, health and communications systems, providing all maintenance work, including public holidays, and providing maintenance services to the local community in Karak governorate.

The department of the maintenance and sustainable unit duties are:

- ***Maintenance Department:***

It performs daily and periodic maintenance of all university facilities, internal and external dormitories, paint, carpentry, aluminum, general maintenance, sanitary works and various construction works.

- ***Mechanical department:***

The Department of Mechanics maintains, maintains and operates central heating and wastewater treatment systems in the purification plant, reuses it for irrigation purposes, and maintains devices and equipment.

- ***Electric Department:***

The Department of Electricity maintains, operates and maintains the electrical system (generating stations and networks), audio systems, and maintenance of electronic devices in the civil and military wings of the university.

- ***Department of Follow-up and Field control department:***

The department follows up and monitors the various university facilities, inspects them, writes reports on any malfunction inside and outside the buildings, follows up on maintenance requests, and secures unit departments with supplies, numbers, necessary spare parts and mechanisms.

- ***Communications Department:***

The Communications Department provides telecommunications services, operates and maintains all university exchanges.

- ***Buildings department***

The Buildings Department monitors and operates buildings and ensures their safety by following up on all building systems such as heating, cooling, lighting, public safety, and others. The department has also taken upon itself to start the process of shifting to surplus energy-producing buildings by starting to develop insulation systems for buildings, replacing windows with energy-saving double-glazed windows, replacing traditional lighting units with energy-saving units such as the LED lighting systems, and using modern air circulation systems to ensure the greatest possible use of the energy used in cooling or heating the air inside buildings.

The Maintenance and sustainable Unit, through the Follow-up and field control department, continuously reviews all sources of waste emissions at the university campus to ensure that all university emission sources are within the international conditions as well as the Jordanian specifications and standards in cooperation with the Ministry of Environment. In addition to the continuous follow-up and taking readings, the university has adopted a plan to transform all emission sources from the university facilities to zero or low emission sources, examples of the action taken:

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- ✓ All entire need of electrical energy of Mutah University is secured through the university's photovoltaic system with a capacity of 5 megawatts installed inside the university campus.
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- ✓ The university adopted a plan to convert all facilities that need the energy to use natural gas, which is environmentally friendly and has low emissions instead of diesel fuel.
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- ✓ All university vehicles are powered by electrical power. It is forbidden to use conventional vehicles inside the university campus.
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- ✓ The university adopted a plan to recycle waste and benefit from it to reduce harmful emissions from it. The university also used the best international standards for waste separation and sorting.
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- ✓ The university has adopted a project of afforestation and increasing green spaces at the university since 2018. This plan aims to plant the entire unused lands of the university at a rate of up to 100% by 2024.
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- ✓ The university, through the maintenance and sustainable unit, closely monitors all university facilities and takes periodic readings in order to achieve the greatest reduction in harmful emissions.
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Presidency Buildings						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	46%
2788	7.58	107	1501	4	58	

Engineering faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	27%
55140	150	2117	34286	93	1316	

Science faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	38%
15362	42	590	8753			

Nursing faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	47%
13139	36	505	7013	19	269	

Arts faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	50%
9830	27	377	5023	14	193	

Business faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	61%
12860	35	494	5001	13.6	192	

Law faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	43%
8005	22	307	4532	12	174	

Social science faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	56%
9678	26	372	4253	11.5	163	

Sharia faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	56%
7116	19	273	3115	8.5	120	

Educational science faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	49%
8527	23	327	4329	12	166	

Sports science faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	50%
102436	278	3933	51265	139	1968	

Medicine faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	40%
33131	90	1272	20015	54	769	

Pharmacy faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	45%
13925	38	534	7621	21	193	

Information technology faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	38%
12053	33	462	7459	20	268	

Agriculture faculty						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	43%
35132	96	1349	20148	55	774	

Teaching halls complex						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	30.5%
100524	273	3860	69856	190	2682	

Service buildings						
2019			2020			Reduction Percent
Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	Diesel Amount in Liter	Co ₂ in Tonnes	Energy content (GJ)	33%
53203	145	2043	35687	97	1370	

Within the framework of the strategic plan of Mutah University, the university has taken upon itself to adopt the transformation in the university from an energy-consuming university to an energy-producing and environment-friendly university.

The transformation of University campus to energy-saving, high-efficiency campus has been started since 2018 until now.

