

University : Northern Technical University
 Country : Iraq
 Web Address : <https://www.ntu.edu.iq>

SDG 7.3: Energy use density

Energy use density is typically measured as energy consumption per unit of gross domestic product (GDP) or per unit of floor area in buildings. The university comprises five main campuses, along with nine specialized colleges and seven technical institutes, located across three governorates in the northern region of Iraq: Nineveh, Kirkuk, and Salah al-Din. In total, there are over 100 buildings on these campuses. The total building areas for the campuses are summarized in the table below.

	Name	Place	automation	safety					energy	water	Indoor environment				lighting				Building Area (m ²)
			B	S1	S2	S3	S4	E	A	I1	I2	I3	I4	L1	L2	L3	L4		
	University Northern technical university (NTU) ; NTU MAIN CAMPUS, Mosul	Mosul ,Iraq	X	X	x	x	x	X	X	X	X	x	x	x	X	x	104620		
	University Northern technical university (NTU) ; ARRASHIDIA CAMPUS, Mosul	Mosul, Iraq	X	X	X	x		X	x	X	X	X	x	x	X		X	6115	
	University Northern technical university (NTU) ; KIRKUK CAMPUS	Kirkuk , Iraq	X	X	x	x	X	X		X	X			x		X	X	115618	
	University Northern technical university (NTU) ; HAWIJA CAMPUS	Hawija , Iraq	X	X	X	X				X			X	x		X	X	10760	
	University Northern technical university (NTU) ; DOUR CAMPUS	Dor , Iraq	X	X	X	X	X	X		X	X			x		X	X	33000	
	Total																	237113	

Smart building implementation

$$\frac{237113 \text{ m}^2}{270113 \text{ m}^2} \times 100\% = 84\%$$

The symbols used in the table above are represented in the table below:

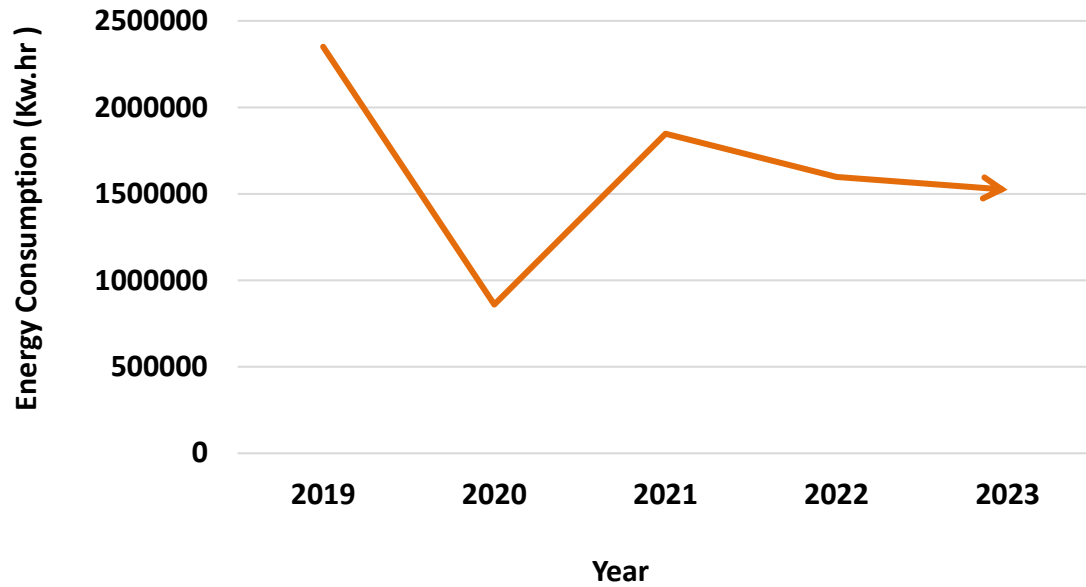
Felid	Requirements
Automation	B (Interactive support for users via APP or online service)
Safety	S1 (Intruder Alarm System)
	S2 (Fire-fighting)
	S3 (Video surveillance)
	S4(Anti-flooding)
Energy	E (Management, Monitoring)
Water	A (Management, Monitoring)
Indoor environment	I1 (Thermal comfort)
	I2 (Air quality)
	I3 (Real-time)
	I4 (Passive system)
Lighting	LEDs
	Sensors
	Shielding
	Natural light

For (B) option which represents Interactive support for users via APP or online service, we can explain it by the online services provided by the Northern Technical University website as there are about 39 service links for students and staff.

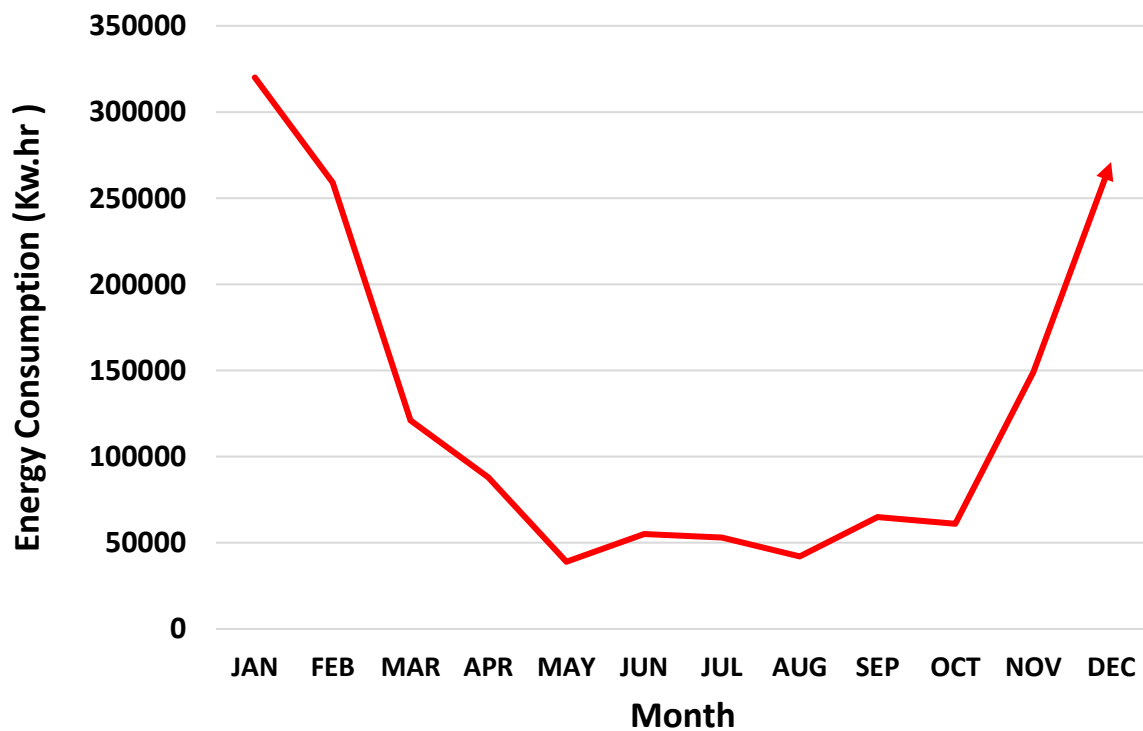
<https://apps4.ntu.edu.iq/home12/Home.html>

In addition to the [Continuing Education center](#), [Career Development Center](#) and [central library services](#).

Trend



Electricity Usage of NTU in Kwh in 2023



These are examples of Northern Technical University buildings.











<https://ntu.edu.iq/campus-master-plan/>









