



# Creating Smart Campus to Optimize Learning and Administration

## Overview

Network connectivity is a fundamental need in modern academic and daily life. Faculty and students across NTNU require stable and high-speed internet for online learning, completing assignments, conducting research, and participating in virtual classes and discussions. Additionally, network connectivity supports administrative management and campus-wide communication. As the demand from students and staff grows, traditional network infrastructure can no longer meet the demand of modern smart classrooms and a digital campus. This has made it imperative for NTNU to implement a network solution offering high performance, stability, and flexible management to ensure smooth daily teaching and administrative operations.

Zyxel Networks' comprehensive solutions significantly enhance network performance and security across the NTNU campus, meeting the diverse needs of faculty and students in teaching, research, administration, and daily use.

## Challenges

Complex building structures on campus led to insufficient signal coverage, making it essential to carefully plan the placement of network equipment and coverage areas to ensure reliable connectivity throughout the campus. During class hours, high simultaneous usage by teachers and students caused network congestion and slower speeds, so bandwidth and traffic had to be managed effectively to meet demand. Additionally, network equipment needed a robust backup design to prevent interruptions to students' online learning.

### Customer

National Taiwan Normal University

### Industry

Education

### Location

Taipei, Taiwan

## Customer Background

National Taiwan Normal University (NTNU), one of Taiwan's top universities, has evolved over a century into a comprehensive institution with 10 colleges and 67 departments. Hosting 16,000 students and partnering with over 400 universities worldwide, NTNU was designated by the Ministry of Education in 2021 for bilingual education. Since 2016, NTNU has joined the National Taiwan University System, sharing resources to foster elite talent for a globalized, high-tech economy.



## Solutions

To address NTNU campus network challenges, Zyxel Networks recommended the following solution: a wireless controller with a backup architecture design, which ensured uninterrupted network operation even in case of equipment failure. The WAX610D WiFi 6 access points provided stable, high-speed transmission with efficient power usage and were paired with XGS2220 series switches, which were equipped with six 10G ports to handle high-bandwidth applications and support Multi-G connectivity. For outdoor areas, Zyxel Networks' WAX655E access points, featuring an IP67-rated industrial-grade weatherproof design and built-in intelligent mesh technology, automatically created dynamic wireless paths to ensure seamless connectivity and minimize dead zones.

## Product List



- WAX610D WiFi 6 Access Point
- WAX655E WiFi 6 Outdoor Access Point



- XGS2220-30HP L3 Access PoE+ Switch



- USG FLEX 700 Firewall

## Results

With Zyxel Networks' comprehensive network, NTNU has achieved seamless, high-speed, and secure connectivity across campus, ensuring stable online access for students and faculty engaged in digital learning, research, and discussions. This upgrade supports NTNU's smart classroom needs and digital campus growth, enhancing daily academic activities, administrative efficiency, and overall campus communication with reliable network performance.

- Improved network performance and security to meet various administrative and educational requirements
- Strengthened connectivity throughout the campus to handle high usage demands through efficient bandwidth and traffic management
- Dependable network with backup capabilities to eliminate downtime and maintain continuous service

