

# Case Study

## Granada University

**Customer** Granada University

**Location** Granada, Spain

**Requirements** First class, future proof network infrastructure

**Equipment**

Category 6A UTP LSOH cable, Category 6A low profile keystone jacks, Environ ER racks and MTP fibre cables, cassettes and accessories.

We wanted to provide a first class facility, which would offer each of our residents their own 'technology city' type of environment. In order to do this we needed a reliable and trusted network infrastructure system.

**Customer's View**

The Excel system that we have in place allows each of the 30 companies located within the facility to integrate with our MultiGigabit RedUGRNova. They can also make the best use of the latest technologies, reliably and consistently without any interruptions to service or quality levels experienced.

*Antonio Ruiz Moya, CTO, Granada University (CSIRC-UGR)*



The University of Granada (UGR) is a public university located in the city of Granada, Spain, and founded in 1531 by Emperor Charles V. With approximately 85,000 end users, it is the fourth largest university in Spain. Apart from the city of Granada, UGR also has campuses in Northern Africa.

Every year over 2,000 European students enrol in UGR through the Erasmus Programme, making it one of the most popular European destinations. The university's Centre for Modern Languages receives over 10,000 international students each year. In 2014, UGR was voted the best Spanish university by international students.

The University also provides the University Community with a wide range of cultural activities such as musical concerts, poetry, various conferences, cinema, courses, seminars, exhibitions etc. The aim of all these activities is to provide a link between university life and the other elements of the city, society and culture. The University is also the first organisation in the world to use an Ethernet network designed for 160Gbps connectivity.



### The Requirement

The University had invested in a new building the purpose of which was to house IT Companies developed by the very best quality individuals who are engaging in R & D, teaching and management services.

These types of business demand high speed, reliable networks, whilst also providing mobility for network users, something that the new mobile generation expects and demands.

### Sourcing a Partner

The university worked with a number of local distribution and installation partners to source a suitable solution which would provide the infrastructure required by these bandwidth hungry clients.

The university was already aware of the Excel product range having heard about its proven track record, its technical capability which is backed up by independent third party verification from Delta and the fact that it is backed by a 25 year warranty, from the installers it had developed a working relationship with.

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Choosing the right solution is critical, as it no longer provides just the connectivity for an IT system, it is the foundation of a modern building management system (BMS). Making the right choice at this stage creates a future proof, high performance, flexible platform which supports efficiency and cost benefits. Not only did the University want to run its main network from this system but also the Wi-Fi, CCTV, video conferencing and access control.

## The Right Product

Excel structured cabling products constitute an end-to-end solution where performance and ease of installation are pre-requisites. With an emphasis on compatibility and standards compliance 'from Cable to cabinet', reliability and product availability, Excel is the complete trusted solution.

When a system is installed by an Excel Cabling Partner a 25 year warranty can be awarded. Partners are key to the quality of service and support delivered. Excel continually assesses its partners throughout EMEA by providing classroom and online training courses and assessment programmes. Training and accreditation is renewed bi-annually, on demand or at the launch of new Excel solutions or industry standards.

The Excel warranty provides a 25 year product and applications assurance of compliance with industry performance standards appropriate to the class of cabling being installed. It covers copper, fibre, voice and even the Environ range of racks.



## Design and Installation

The system design for the new University building has been based on current international and European standards for structured cabling. It is also based on Andalusia's Standards and the University of Granada's own standards.

4 data centre comms rooms, each containing 8 racks were situated throughout the building. Each rack distributed a high density copper network, emanating from the main DC comms room to the termination outlets. A fibre optic backbone was run from each DC comms room to connect the network together.

A wide range of Excel products were used across the campus site including Category 6A cable. These cables and associated connectors, take the performance capabilities of copper infrastructure to new levels. The cable has been designed to exceed the ISO/IEC, TIA and CENELEC for Category 6A/Augmented Category 6 component requirements. This delivers Class EA/Augmented Category 6 link performance over distances of up to 90 metres which supports the applications including 10GBASE-T, 10 Gigabit Ethernet.

Each cable consists of two sets of two pairs which are wrapped together in an "S" configuration with high quality, strong, aluminium/polyester foil tape providing screening for each pair. The "S" Foil configuration ensures separation of the pairs that ensures the performance. By using two sets of two pairs has resulted in a reduced diameter and weight cable. The smaller cable diameter has reduced the cable cross-sectional area by 14.5%.

Excel Category 6A cables and associated connectors, take the performance capabilities of copper infrastructure to new levels. These products are intended to deliver reliable, high network performance over distances of up to 90 metres and channels up to 100m, including applications such as 10GBASE-T, 10 Gigabit Ethernet. Each cable consists of 4 unscreened twisted pairs which are formed around a specifically designed X filler. The use of the X filler makes the spacing and positioning of each pair consistent which helps to address issues such as crosstalk.

Nowadays installations need to provide not only data, but power as well in the form of PoE. Utilising the Excel Category 6A cabling allows for the end user to utilise PoE, whilst still delivering 10 Gigabit Ethernet. This makes the network perfect for taking on IoT deployments, where it can be used for Wireless Access points, IP Access Control, Alarms, IP CCTV, helping the new building to become more of an intelligent workspace.

The Excel Category 6A Low Profile Screened Keystone Jack, is a reduced size toolless termination RJ45 socket. The reduced size allows for multiple cable entry directions to be accommodated when this jack is mounted in a standard depth back box. This permits many mounting options including flush shutters at the outlet as well as more common angled shutter used with keystone jacks.

With the system being used by IT start up companies there was an absolute requirement and prerequisite that the system must be state of the art offering the highest possible connectivity speeds if and when required. With the deployment of the Category 6A system, a 10GbE copper to desk connection can be achieved, making it the perfect solution.

Excelerator MTP Elite trunk cables offer pre-terminated optical fibre that is factory tested in a range of core counts. The university campus deployed OS2 grade fibre cable which offers network connection over vast distances, allowing for the 4 data centres to be connected, but not just connected, connected at 1GbE, 10GbE, 40GbE or even 100GbE. This gives the system longevity and future proofs the universities investment in the system. The Excel solution offers flexibility within its core design. The MTP trunks can be deployed as standard parallel optics today, and move to multi transmit and receive optics for the higher speed connectivity by simply changing the cassettes at one end of the link to deliver the correct polarity when needed.

Excel Excelerator 1U High Density Angled MTP Cassettes Patch Panels were fitted into each of the Environ racks. The front drop down panel offers protection to the installed patch cords and also a large labelling field. Further, panel identification labelling, may be fixed to the drop down panel in the closed position.

Finally Environ ER800 racks were installed in the comms rooms throughout the university campus. The Environ ER800 is a versatile range of 800mm wide racks fitted with a wave design mesh front door and wardrobe style double mesh rear doors, for optimal air flow and heat displacement. Designed to accommodate a load of up to 600 kg, they offer features that make this rack suitable for a wide range of applications within data centre deployments.



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Universidad  
de Granada

## The Result

This new unique facility provided by the University of Granada has been in operation since early 2016. The variety of companies housed within this facility have been given a head start into the world of commerce with access to a first class network.

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