



# CASE STUDY

**SUPERLAB**

ANGLIA RUSKIN UNIVERSITY



The background image shows a spacious, modern laboratory or computer lab. In the foreground and middle ground, there are long white tables with blue storage cabinets underneath. Several computer workstations are set up, each with a monitor displaying a blue screen with a crest. The ceiling is high and industrial, featuring large, silver, flexible ventilation ducts and various pipes. The overall atmosphere is clean, bright, and technologically advanced.

# How can

four separate lectures be delivered to eighty students, simultaneously, in one lab space without causing confusion or distraction?

#SwitchOnthe possibilities.



## Backdrop

In recent years, Universities are faced with two major challenges:

- **Funding cuts:** significant financial risk for institutions as levels of expenditure start to outstrip growth in income.
- **Students** (mostly digital natives) are now paying more than ever before for education, which has naturally raised their expectations from academic quality and classroom facilities.

Capital investments in learning space projects are imperative to meet student's 'value for money' expectations. At the same time, institutions must also find ways to control their operating costs and operational pressure on infrastructure.

## The Challenge

Faculty of Medical Sciences is one of the fastest growing faculties at ARU. As reputation grows and newer courses introduced, two concurrent challenges had to be addressed:

1. **The demand for available teaching spaces** had increased significantly.
2. **Internal student feedback surveys indicated “overcrowded laboratories”** as a factor affecting the overall student experience.

## Solution

Remodelling three labs into one large laboratory space delivering up to four separate lectures to eighty students, at the same time, even though students may not be seated at the same bench as their respective lecturers.



## How SuperLab works

Particular emphasis was placed on systems design for greater flexibility in use of the space.

Once a lecturer starts a session at their designated control panel, students can choose the same channel to begin receiving lecturer video and audio feeds.

Lecturers can exhibit live lab experiments using a *GoPro Hero 4* camera (their rugged build was judged ideal for a Science lab), alongside a desktop webcam (students also have a Picture-in-Picture option at their own stations). Lecturers can also play video and/or audio content from a desktop PC (HDMI/VGA output) at their station or a Laptop.

Lecturer positions are also equipped with wireless microphones, which transmit voice feeds to student positions. Each student receives audio feeds through a clip-on radio receiver, which support standard noise-cancelling headphones.

To allow greater capabilities for instructional learning, the infrastructure supports lecturer audio alongside Laptop/PC content shared with students (for example, lecturer's live commentary while students watch a YouTube clip played by the lecturer on their individual displays).

accommodated within the lab itself, in a noise proof and air-conditioned "server room in a box", with the objective of minimising clutter and compromise on student's desk space.

SuperLab, therefore, was not only a whole new way of teaching but also a project with limitless scope for innovation in design, systems integration and miniaturisation, particularly with respect to customisation in collaboration with specialist suppliers.

## The Physical Space

- ♦ Fully-functional science laboratory; teaching space for up to eighty students.
- ♦ Teaching space area: 286.24 m<sup>2</sup>
- ♦ Open ceiling access to utilities such as gas, water and electricity.
- ♦ 50 cupboards ranging 500-1000 mm.
- ♦ Seven student benches, equipped with washing stations.



**Systems**Thinking in action.

## Budget Control

- ◆ Keeping budget, technical specifications and cable distance in mind, **Twisted Pair Copper cable (CAT6A)** infrastructure was chosen over Fibre systems.
- ◆ Keeping technical constraints, functional requirements and budget in mind, controllers and processors were sourced from multiple suppliers- **Extron, AMX and SY Electronics**.

## Flexibility

- ◆ **Lecturer positions can also function as a student position**, if need be. The user selects from lecturer or student mode, which alters how control panels function in either of the two modes.
- ◆ Lecturers can choose what they wish to send to student positions. For example, lecturers can toggle PIP feeds on student screens if they choose so.
- ◆ **Secondary/redundant cable infrastructure** lies dormant in the SuperLab for future extensions/supplements to cable infrastructure.

## Customised

- ◆ The **GUI for keypad controllers have been customised** according to feedback/insights from workshops conducted with ARU teaching and IT staff.
- ◆ The **physical presentation of furniture and desktop elements**, such as panel housing, were custom designed keeping the realities of a science lab in mind, as well as University brand guidelines.

## Innovation

- ◆ Lack of IT hub space, a new hub was deployed within the lab itself using a bespoke product- "server room in a box".

## The Results

- ◆ More **frequent timetabling** of multiple lectures.
- ◆ **Reduced operating cost** compared to multiple teaching spaces, each with their own AV maintenance/operation costs.
- ◆ **Reduced stock costs** owing to standardisation.
- ◆ **Reduced operational pressure** on existing teaching spaces and the need to build new additional spaces.
- ◆ Brand new teaching space, which is **first of its kind** in UK.
- ◆ **Future-ready** for expansion.



“Our SuperLab is a perfect example of using advanced technology to create new opportunities for teaching and learning at all higher educational levels.

It is not only a great experience to teach using this facilities, but also enjoyable for our students as their stations are equipped with AV systems beside laboratory kit and instruments. Furthermore, the unique design and structure of the lab permit teaching up to four groups at the same time, which helps facilitate our timetabling”.

Dr. Mohammad Najlah

Senior Lecturer of Pharmaceutics, Anglia Ruskin University









# Snelling Business Systems

Our roots go back to 1954; Roy Snelling started his business out of a redundant Victorian laundry in rural Norfolk, selling Television and Radio sets in the earliest days of broadcasting.

He witnessed a major transformation as more and more TV and Radio sets found a place in living rooms- a whole new way for people to interact, engage and consume information. The same purpose for which many AV systems and environments are designed and built for today. More importantly, there was a new medium for engagement and interactions at a 'sensory level'.

Over the years, our experience led us to ask ourselves the pertinent question.

"How can we use the potential in AV systems and environments to unlock newer possibilities for businesses to interact with and engage their audiences, better"?

As we grew and evolved as a business, our internal culture and design/engineering philosophy begins with a simple question "How can..?". As an AV integration specialist, thinking 'How Can..?' has also evolved to build AV systems that can solve problems of strategic importance to your business/institution.

We deliver all aspects of audio visual integration from design, integration, supply, installation and on-going maintenance - all backed by a service ethic, which continues to carry the Snelling signature of quality.

Based in London and Norwich, we have maintained our portfolio of major clients and diverse projects across Higher Education, Corporate, Public Sector and niche projects.

WE'RE SOCIAL.



The background is a solid dark purple. It features several overlapping, semi-transparent rectangular shapes in various shades of purple and magenta. Some of these shapes are tilted at angles. Overlaid on these rectangles are several thin, white, curved lines that sweep across the composition, creating a sense of movement and depth. The overall aesthetic is modern and abstract.

**#SwitchOn**the possibilities.



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